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

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

March 23, 2011

Thomas J. Regan, Esq.
Brown Rudnick LLP
CityPlace I, 185 Asylum Street
Hartford, CT 06103

RE: **EM-SPRINT-NEXTEL-115-110228** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 54 Waterbury Road, Prospect, Connecticut.

Dear Attorney Regan:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated February 28, 2011. 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. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Robert J. Chatfield, Mayor, Town of Prospect
William J. Donovan, Zoning Enforcement Officer, Town of Prospect
Charles Bradshaw

EM-SPRINT-NEXTEL-115-110228

BROWNRUDNICK

THOMAS J. REGAN
Direct Dial: (860) 509-6522
tregan@brownrudnick.com

CityPlace I
185 Asylum
Street
Hartford
Connecticut
06103
tel 860.509.6500
fax 860.509.6501

Via Hand Delivery

ORIGINAL

February 28, 2011

RECEIVED
FEB 28 2011
CONNECTICUT
SITING COUNCIL

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Sprint Nextel Corp. – Notice of Exempt Modification @ 54 Waterbury Road, Prospect

Dear Mr. Caruso:

On behalf of Sprint Nextel Corp. ("Sprint"), enclosed for filing are an original and five (5) copies of Sprint's Notice of Notice of Exempt Modification for a Facility located at 54 Waterbury Road in Prospect, Connecticut.

I also enclose herewith a check in the amount of $625.00 representing the filing fee.

I would appreciate it if you would date-stamp the enclosed copy of this transmittal letter and return it to the courier delivering this package.

If you have any questions, please feel free to contact me.

Very truly yours,

BROWN RUDNICK LLP

By: T J Regan
Thomas J. Regan

Enclosures

cc/encl: Robert J. Chatfield, Mayor

40281758 v1 - REGANTJ - 080563/3273

ORIGINAL

CONNECTICUT SITING COUNCIL

In re:		
Sprint Nextel Corporation Notice to Make an Exempt Modification to an Existing Facility at 54 Waterbury Road, Prospect, Connecticut.	:	**EXEMPT MODIFICATION NO. _____**
	:	
	:	February 28, 2011

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), Sprint Nextel Corporation ("Sprint") hereby gives notice to the Connecticut Siting Council ("Council") and the City of Prospect of Sprint's intent to make an exempt modification to an existing 160 foot guyed tower (the "Facility") located at 54 Waterbury Road in Prospect, Connecticut. The facility is currently owned by Charles and Averyll Bradshaw. Specifically, Sprint plans to upgrade this site by adding code division multiple access ("CDMA") service to the existing Facility. Presently, the Sprint installation on the Facility only provides integrated digital enhanced network ("IDEN") services. The addition of CDMA service from the Facility will enhance Sprint's overall network in Prospect.

In order to accomplish the upgrade at this site, Sprint will remove the existing nine panel (9) IDEN antennas and replace them with three (3) CDMA panel antennas and six (6) IDEN panel antennas. Additionally, Sprint will add a new CDMA radio cabinet in the existing equipment shelter at the Facility in place of an existing IDEN cabinet, and a new GPS antenna which will be attached to the existing equipment shelter.

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185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), Sprint's plans do not constitute a modification subject to the Council's review because Sprint will not change the height of the Facility, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

Presently, Sprint has nine (9) antennas spread over three sectors with an antenna centerline at 146 feet. Sprint's base station equipment is located in an existing equipment shelter in the compound at the base of the monopole. A site plan with the Facility specifications is attached.

Sprint plans to replace its nine (9) existing IDEN antennas with three (3) CDMA antennas and (6) IDEN antennas. The replacement antennas are similar to the existing antennas in size and design. To confirm that the Facility can support these changes, Sprint commissioned Bay State Design to perform a structural analysis of the Facility (attached). According to the structural analysis dated January 25, 2011, "Assuming the previously referenced modification have been made, the proposed Sprint loading has negligible impact on the base foundation and anchor blocks." (Page 3, Structural Analysis). The tower is rated at 96.5% of its capacity.

Sprint will install its CDMA equipment within the existing equipment shelter in the existing compound. Hence, no increase in the size of the boundaries of the site is necessary. Excluding brief, minor, construction-related noise during the addition of the antennas, the proposed changes to the Facility will not increase noise levels at the site.

)WN RUDNICK LLP
'PLACE I
ASYLUM STREET
ITFORD, CT 06103
) 509-6500

The replacement of the antennas will not adversely impact the health and safety of the surrounding community or the people working on the Facility. The total radio frequency exposure measured around the Facility will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). A cumulative power density analysis indicates that together, all of the antennas on the Facility will emit 53.75% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be well below the FCC mandated radio frequency exposure limits in all locations around the Facility, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, Sprint's proposed plan to replace its existing nine (9) IDEN antennas with three (3) CDMA antennas and six (6) IDEN antennas and associated CDMA base station equipment does not constitute a modification subject to the Council's jurisdiction because Sprint will not increase the height of the Facility, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

Sprint Nextel Corporation

By: _____

Thomas J. Regan
Brown Rudnick LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Email - tregan@brownrudnick.com
Phone - 860.509.6522
Fax - 860.509.6501

Certificate of Service

This is to certify that on this 28th day of February, 2011, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Robert J. Chatfield, Mayor
Town of Prospect
Town Hall
36 Center Street
Prospect, CT 06712

By: _____
Thomas J. Regan

40281756 v1 - REGANTJ - 080563/3273

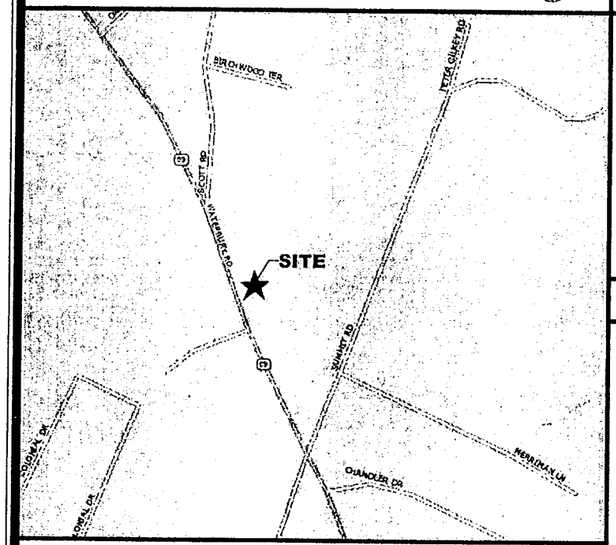
OWN RUDNICK LLP
'YPLACE I
ASYLUM STREET
RTFORD, CT 06103
) 509-6500

Sprint

Together with NEXTEL

PROSPECT – WATERBURY ROAD
CT81XC010 / CT0946
54 WATERBURY ROAD
PROSPECT, CT 06712

VICINITY MAP (NOT TO SCALE)



DRIVING DIRECTIONS

MERGE ONTO I–84 W. TAKE EXIT 26 FOR CT–70 TOWARD CHESHIRE/PROSPECT. TURN LEFT AT CT–70 E/WATERBURY RD. TAKE THE 1ST RIGHT ONTO SUMMIT RD. TURN RIGHT AT CT–69 N/PROSPECT RD/WATERBURY RD. DESTINATION WILL BE ON THE RIGHT.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF BTS EQUIPMENT AND PANEL ANTENNAS.
2. SIGNALS FROM THE ANTENNA SHALL NOT INTERFERE WITH ANY EXISTING COMMUNICATION SITES. ALL ITEMS SHOWN HEREIN ARE EXISTING UNLESS OTHERWISE NOTED.
3. THIS IS AN UNMANNED FACILITY – NO SOLID WASTE. THE SITE WILL CREATE NO TRASH, THUS REQUIRES NO DUMPSTER.
4. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
5. EMERGENCY POWER SUPPLY IS A CELL PACK BATTERY SOURCE AND NOT A FLAMMABLE LIQUID SOURCE.

PROJECT SUMMARY

APPLICANT / LESSEE

SPRINT NEXTEL CORP.
8 AIRLINE DRIVE
SUITE 105
ALBANY, NY 12205

PROPERTY INFORMATION

SITE ADDRESS:	54 WATERBURY ROAD PROSPECT, CT 06712
OWNER:	BRADSHAW, CHARLES & AVERYLL 54 WATERBURY ROAD PROSPECT, CT 06712
TOWER OWNER:	BRADSHAW, CHARLES & AVERYLL 54 WATERBURY ROAD PROSPECT, CT 06712
STRUCTURE TYPE:	GUY TOWER
COORDINATES:	LATITUDE: N 41° 30' 39" LONGITUDE: W 72° 58' 57"

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

1. CONNECTICUT STATE BUILDING CODE – 2005
   INTERNATIONAL BUILDING CODE – 2003
2. NEC 2008

PROJECT TEAM

APPLICANT:

SPRINT NEXTEL CORP.
8 AIRLINE DRIVE
SUITE 105
ALBANY, NY 12205

CONTACT: COLLEEN BISCEGLIA
518–365–8180

ENGINEER:

BAY STATE DESIGN, INC.
ARCHITECTS • ENGINEERS
241 BOSTON POST RD WEST
MARLBOROUGH, MA. 01752
PHONE: 508–229–4100
FAX: 508–485–5321

LOCAL POWER COMPANY: CONNECTICUT LIGHT & POWER
P.O. BOX 270
HARTFORD, CT 06141
(800) 286–2000

SHEET INDEX

SHEET	DESCRIPTION
T–1	TITLE SHEET
G–1	GENERAL NOTES
A–1	SITE & EQUIPMENT ROOM LAYOUT PLANS
A–2	SOUTH ELEVATION & PROPOSED SECTOR DETAILS
A–3	CONSTRUCTION DETAILS
E–1	POWER & GROUNDING RISER DIAGRAMS
E–2	GROUNDING DETAILS

GEN. CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

APPLICANT:
Sprint
Together with NEXTEL
8 AIRLINE DRIVE
SUITE 105
ALBANY, NY 12205

MAXTON
MAXTON TECHNOLOGY, INC.
BAY STATE DESIGN
BAY STATE DESIGN, INC.
Architects · Engineers
241 Boston Post Rd. West Phone: 508–229–4100
Marlborough, MA 01752 Fax: 508–485–5321

SITE NAME:
PROSPECT – WATERBURY ROAD

HOST #:

SITE #:
CT81XC010 / CT0946

CONSTRUCTION DRAWINGS

3	01/25/11	FINAL CONSTRUCTION
2	12/14/10	PER COMMENTS
1	12/02/10	CONSTRUCTION
0	11/01/10	ISSUED FOR REVIEW

PROFESSIONAL STAMP
STATE OF CONNECTICUT
GORDON E. GOVALETT
No. 16430
LICENSED PROFESSIONAL ENGINEER
1.25.11

DRAWN BY: KW
CHECKED BY: JP/GG

JOB #: 3012.001

SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T–1

GENERAL NOTES

GENERAL

1. EXAMINE THE SITE CONDITIONS VERY CAREFULLY AND THE SCOPE OF PROPOSED WORK TOGETHER WITH THE WORK OF ALL OTHER TRADES AND INCLUDE IN THE BID PRICE ALL COSTS FOR WORK SUCH AS EQUIPMENT AND WIRING MADE NECESSARY TO ACCOMMODATE THE SYSTEMS SHOWN AND SYSTEMS OF OTHER TRADES.
2. SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
3. PERFORM DETAILED VERIFICATION OF WORK PRIOR TO ORDERING THE EQUIPMENT AND COMMENCING CONSTRUCTION. ISSUE A WRITTEN NOTICE TO THE CONSULTANT OF ANY DISCREPANCIES.
4. OBTAIN ALL PERMITS. PAY ASSOCIATED FEES AND SCHEDULE INSPECTION.
5. PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, INSURANCE AND SERVICES TO COMPLETE THIS PROJECT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND PRESENT IT AS FULLY OPERATIONAL TO THE SATISFACTION OF THE OWNER.
6. CARRY OUT WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES AND O.S.H.A.
7. PRIOR TO BEGINNING WORK COORDINATE ALL POWER AND TELCO WORK WITH THE LOCAL UTILITY COMPANY AS IT MAY APPLY TO THIS SITE. ALL WORK TO COMPLY WITH THE RULES AND REGULATIONS OF THE UTILITIES INVOLVED.
8. FABRICATION AND INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM SHALL BE DONE IN A FIRST CLASS WORKMANSHIP PER NECA STANDARD 1-2000 BY QUALIFIED PERSONNEL EXPERIENCED IN SUCH WORK AND SHALL SCHEDULE THE WORK IN AN ORDERLY MANNER SO AS NOT TO IMPEDE PROGRESS OF THE PROJECT.
9. DURING PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF THE INSTALLATION OF THE SYSTEMS, LOCATING EACH CIRCUIT PRECISELY AND DIMENSIONING EQUIPMENT, CONDUIT AND CABLE LOCATIONS. UPON COMPLETION OF THE INSTALLATION, TRANSFER ALL RECORD DATA TO BLACK LINE PRINTS OF THE ORIGINAL DRAWINGS AND SUBMIT THESE DRAWINGS AS RECORD DRAWINGS TO THE CONSULTANT.
10. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
11. CONTRACTOR SHALL CONSULT MANUFACTURER'S PLANS, SHOP DRAWINGS AND SPECS FOR INDOOR/OUTDOOR EQUIPMENT LOCATION AND INSTALLATION. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ACCESSIBLE AREAS ONLY.
12. COORDINATE EXACT TELEPHONE REQUIREMENTS AND SERVICE ROUTING WITH LOCAL TELEPHONE SERVICE IMMEDIATELY UPON AWARD OF CONTRACT.

BASIC MATERIALS AND METHODS

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE EDITION OF THE NEC ACCEPTED BY THE LOCAL JURISDICTION AND TO THE APPLICABLE LOCAL CODES AND REGULATIONS.
2. ALL MATERIALS AND EQUIPMENT SHALL BE NEW. MATERIALS AND EQUIPMENT SHALL BE THE STANDARD PRODUCTS OF MANUFACTURER'S CURRENT DESIGN. ANY FIRST-CLASS PRODUCT MADE BY A REPUTABLE MANUFACTURER MAY BE USED PROVIDING IT CONFORMS TO THE CONTRACT REQUIREMENTS AND MEETS THE APPROVAL OF THE CONSULTANT AND THE OWNER.
3. ARRANGE CONDUIT, WIRING, EQUIPMENT AND OTHER WORK GENERALLY AS SHOWN, PROVIDING PROPER CLEARANCES AND ACCESS. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS AND FIT WHERE DEPARTURES ARE PROPOSED BECAUSE OF FIELD CONDITIONS OR OTHER CAUSES, PREPARE AND SUBMIT DETAILED DRAWINGS FOR ACCEPTANCE.
4. THE CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ALL OFFSETS, BENDS, FITTINGS AND ACCESSORIES ARE NOT NECESSARILY SHOWN. PROVIDE ALL SUCH ITEMS AS MAY BE REQUIRED TO FIT THE WORK TO THE CONDITIONS.
5. MAINTAIN ALL CLEARANCES AS REQUIRED BY NEC.
6. SEAL AROUND CONDUITS AND AROUND CONDUCTORS WITHIN CONDUITS ENTERING THE PREFABRICATED SHELTER/CABINETS WHERE PENETRATION OCCURS WITH A SILICONE SEALANT TO PREVENT MOISTURE PENETRATION INTO BUILDING/SHELTER.
7. SILICONE SEAL AROUND ALL BOLTS AND SCREWS USED TO SECURE EQUIPMENT TO EXTERIOR OF BUILDING.

RACEWAYS AND BOXES

1. ALL CONDUITS SHALL BE UL LABELED.
2. ALL EMPTY CONDUITS INSTALLED FOR FUTURE USE SHALL HAVE A PULL CORD.
3. SHEET METAL BOXES SHALL CONFORM TO NEMA OS1; CAST-METAL BOXES SHALL CONFORM TO NEMA 81 AND SHALL BE SIZED IN ACCORDANCE WITH NEC UNLESS NOTED OTHERWISE.

GROUNDING

1. ALL SAFETY GROUNDING OF THE ELECTRICAL EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT REVISION NEC.
2. ALL GROUND LUG AND COMPRESSION CONNECTIONS SHALL BE COATED WITH ANTI-OXIDANT AGENT, SUCH AS NO-OX, NOALOX, PENETROX OR KOPRSHIELD.
3. GROUND ALL EXPOSED METALLIC OBJECTS ON BUILDING EXTERIOR INCLUDING BUILDING TIE DOWN BRACKETS.
4. PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
5. DO NOT INSTALL GROUND RING OUTSIDE OF PROPERTY LINE.
6. REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTIONS, REPAINT TO MATCH AFTER CONNECTION IS MADE TO MAINTAIN CORROSION RESISTANCE.
7. ALL EXTERIOR GROUNDING CONDUCTORS INCLUDING EXTERIOR GROUND RING SHALL BE #2 AWG SOLID BARE TINNED COPPER UNLESS NOTED OTHERWISE. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. THE RADIUS OF ANY BEND SHALL NOT BE LESS THAN 8" AND THE ANGLE OF ANY BEND SHALL NOT EXCEED 90°. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.
8. BOND ALL EXTERIOR CONDUITS, PIPES AND CYLINDRICAL METALLIC OBJECTS WITH A PENN-UNION GT SERIES CLAMP, BLACKBURN GUV SERIES CLAMP OR A BURNDY GAR 3900BU SERIES CLAMP ONLY. NO SUBSTITUTES ACCEPTED.
9. ALL GROUND CONNECTIONS SHALL BE APPROVED FOR THE METALS BEING CONNECTED.
10. ALL EXTERNAL GROUND CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. ALL EXOTHERMIC WELDS TO EXTERIOR GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH ARE TEE EXOTHERMIC WELDS. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING. USE SPRAY GALVANIZER SUCH AS HOLUB LECTROSOL #15-501.
11. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE BURIED GROUND RING IS INSTALLED SO THE REPRESENTATIVE CAN INSPECT THE GROUND RING BEFORE IT IS BACKFILLED WITH SOIL.
12. FOR METAL FENCE POST GROUNDINGS, USE A HEAVY DUTY TYPE GROUNDING CLAMP OR EXOTHERMIC WELD CONNECTION TO POST. GROUND ALL FENCE POSTS WITHIN 6' OF EQUIPMENT.
13. WHERE MECHANICAL CONNECTORS (TWO-HOLE OR CLAMP) ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO OXIDE A" BY DEARBORN CHEMICAL COMPANY ON ALL CONNECTORS.

CONCRETE AND REINFORCING STEEL NOTES

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 336, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS .....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDATION.
7. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR THIS PROJECT.
8. THE GENERAL CONTRACTOR SHALL PROVIDE CERTIFICATION FOR THE CONCRETE SUPPLIED.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TEST THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR THE DESIGN FABRICATION & ERECTION OF STRUCTURAL STEEL FOR BUILDING" NINTH EDITION.
2. ALL STEEL EXPOSED TO THE WEATHER SHALL BE HOT-DIP GALVANIZED. INTERIOR STEEL SHALL BE PAINTED.
3. ALL PROPOSED WIDE FLANGE BEAMS SHALL CONFORM TO ASTM A572, GR. 50. OTHER STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36.
4. 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.
5. CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE NINTH EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION UNLESS OTHERWISE DETAIL.
6. CONNECTIONS SHALL BE MADE USING 3/4" DIAMETER ASTM A325 BOLTS (SNUG TIGHT OR SLIP CRITICAL) OR WELDS, UNLESS NOTED OTHERWISE. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.
7. 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.
8. USE MINIMUM SIZE WELDS PER AISC SPECIFICATIONS OR AS SHOWN ON DRAWINGS.
9. 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, ZIRP 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 FOR DRY TIME BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. 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 AISC AND DII 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. 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" X 12 GA. UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
12. GROUT SHALL BE NON METALLIC, NON SHRINK PREPACKAGED GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS. GROUT SHALL BE FIVE STAR GROUT AS MANUFACTURED BY FIVE STAR PRODUCTS, FAIRFIELD, CT OR APPROVED EQUAL.
13. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY.

COAXIAL ANTENNA CABLE NOTES

1. THE COAXIAL ANTENNA CABLE INSTALLER SHALL BE RESPONSIBLE FOR PERFORMING AND SUPPLYING CLEARWIRE WITH TYPE-WRITTEN SWEEP TESTS (ANTENNA RETURN LOSS TEST). THIS TEST SHALL BE PERFORMED TO THE SPECIFICATIONS AND PARAMETERS OUTLINED BY THE CLEARWIRE RADIO FREQUENCY (RF) ENGINEER. THIS TEST SHALL BE PERFORMED PRIOR TO FINAL ACCEPTANCE PF SITE.
2. VAPOR WRAP WILL BE USED TO SEAL ALL CONNECTIONS.
3. ALL COAXIAL CABLE WILL BE GROUNDED PRIOR TO ENTERING THE EQUIPMENT SPACE AND AS SPECIFIED IN THE ELECTRICAL DRAWINGS.
4. ALL MAIN TRANSMISSION CABLE WILL BE TERMINATED AT A NEW/EXISTING POLYPHASER SURGE PROTECTOR LOCATED WITH THE EQUIPMENT SPACE.
5. ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE AT DISTANCES NOT TO EXCEED 4'-0" WITH HARDWARE SPECIFIED IN THE COAXIAL CABLE ROUTING DETAILS.
6. ANTENNA CABLE LENGTHS HAVE BEEN PROVIDED BY OTHERS. CABLE LENGTHS LISTED ARE APPROXIMATE AND ARE NOT INTENDED TO BE USED FOR FABRICATION DUE TO FIELD CONDITIONS. ACTUAL ANTENNA CABLE LENGTHS REQUIRED MAY VARY FROM LENGTHS TABULATED. CONTRACTORS MUST FIELD VERIFY ANTENNA CABLE LENGTHS PRIOR TO ORDER.
7. ALL MAIN CABLES WILL BE COLOR CODED AT THREE (3) LOCATIONS:
   A. AT ANTENNA PRIOR TO JUMPER
   B. PRIOR TO ENTERING EQUIPMENT CABINET, AT CABLE ENTRY PORT
   C. INTERIOR SIDE OF EQUIPMENT CABINET, AT CABLE ENTRY PORT
8. ALL MAIN CABLES WILL BE GROUNDED AT:
   A. AT ANTENNA MOUNTING PIPE
   B. AT CABLE SUPPORT ASSEMBLY ON ROOF
   C. PRIOR TO ENTERING EQUIPMENT CABINET
9. ALL TOP JUMPERS WILL BE MADE UP OF 1/2" DIA. LDF. THE CONTRACTOR SHALL USE ALL REASONABLE EFFORTS TO MINIMIZE THE LENGTH OF THE JUMPERS

LEGEND

SYMBOL	DESCRIPTION
CB	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
M	KILOWATT HOUR METER
	DENOTES CABLE OR CONDUIT TURNING UP IN PLAN VIEW
	DENOTES CABLE OR CONDUIT TURNING DOWN IN PLAN VIEW
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
OHU	OVERHEAD UTILITIES
UGT	UNDERGROUND TELCO
UGP	UNDERGROUND POWER
	DENOTES REFERENCE NOTE
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION
	GROUND ROD
	GROUND ROD WITH INSPECTION SLEEVES
	GROUND BAR
	PIN AND SLEEVE RECEPTACLE
	GROUND CONDUCTOR

ABBREVIATIONS

AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
BFG	BELOW FINISHED GRADE
C	CONDUIT
CRGB	CELL REFERENCE GROUND BAR
CU	COPPER
C/W	COMPLETE WITH
D.T.T.	DRY TYPE TRANSFORMER
DIA.	DIAMETER
EC	EMPTY CONDUIT
G	GROUND
GE	GROUNDING ELECTRODE
GEC	GROUNDING ELECTRODE CONDUCTOR
GRC	GALVANIZED RIGID CONDUIT
MTS	MANUAL TRANSFER SWITCH
NEC	NATIONAL ELECTRICAL CODE
O/H	OVERHEAD
PDC	POWER DISTRIBUTION CABINET
PVC	POLYVINYL CHLORIDE
RNC	RIGID NON-METALLIC CONDUIT
SCHED	SCHEDULE
SD	SERVICE DISCONNECT SWITCH
SE	SERVICE ENTRANCE
SN	SOLID NEUTRAL
TGB	TELCO GROUND BAR
TEGB	TOWER EXIT GROUND BAR
TR	TRANSFORMER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
U/G	UNDERGROUND
WP	WEATHERPROOF - NEMA 3R
W	WITH

APPLICANT:
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MAXTON
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Phone: 508-229-4100
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SITE NAME:
PROSPECT - WATERBURY ROAD

HOST #:

SITE #:
CT81XC010 / CT0946

CONSTRUCTION DRAWINGS

3	01/25/11	FINAL CONSTRUCTION
2	12/14/10	PER COMMENTS
1	12/02/10	CONSTRUCTION
0	11/01/10	ISSUED FOR REVIEW

PROFESSIONAL STAMP
STATE OF CONNECTICUT
GORDON E. GOVALETT
No. 18439
LICENSED PROFESSIONAL ENGINEER
11.15.11

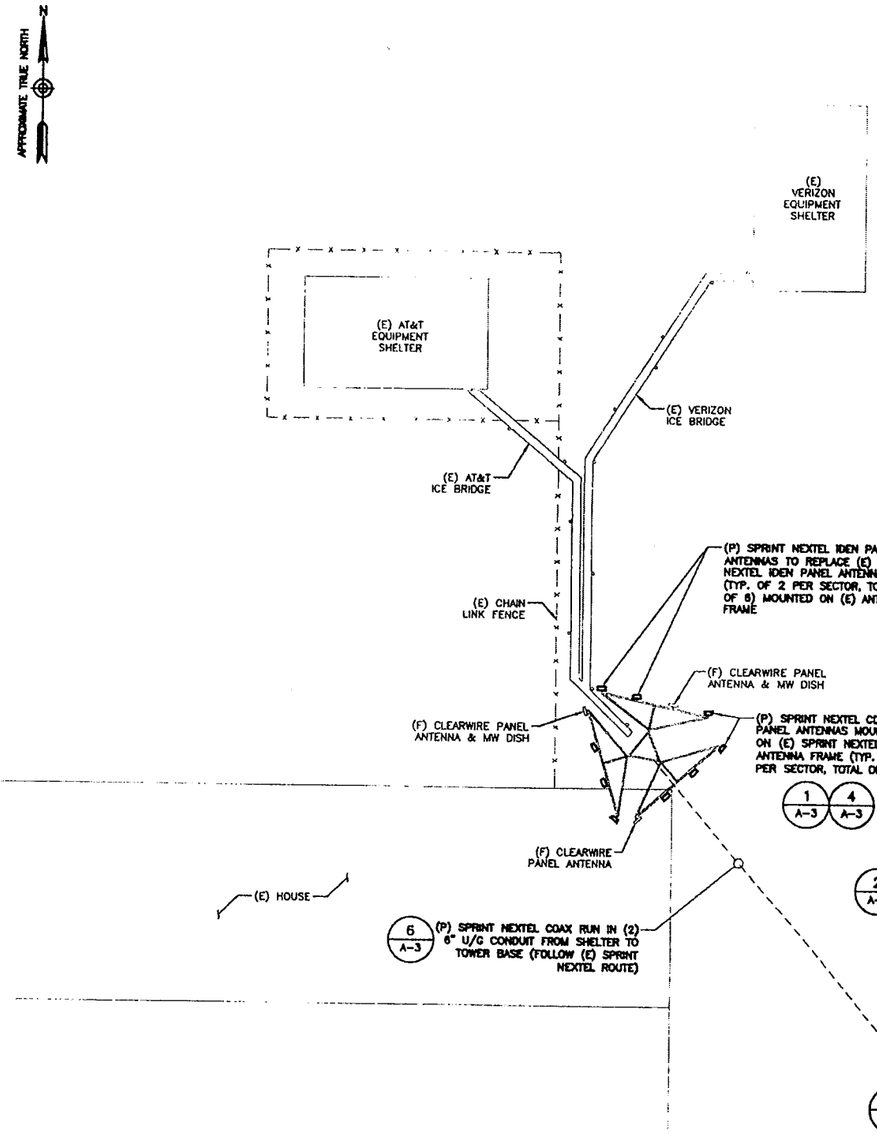
DRAWN BY: KW | CHECKED BY: JP/GG

JOB #: 3012.001

SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

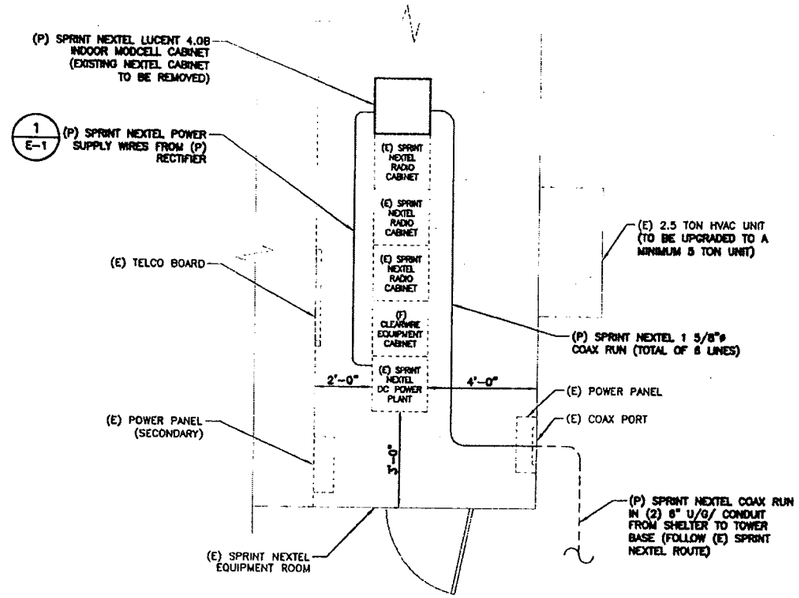
SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
G-1



SITE PLAN
SCALE: 1/8" = 1'-0"
1

(P) PROPOSED
(E) EXISTING



EQUIPMENT ROOM LAYOUT PLAN
SCALE: 3/8" = 1'-0"
2

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL REFER TO CT81XC010 ESTS FORM "DATED 8/6/10".
2. CONTRACTOR SHALL REMOVE EXISTING NEXTEL IDEN ANTENNAS IN PROPOSED SPRINT ANTENNA LOCATIONS. ALSO FUTURE CLEARWIRE ANTENNA LOCATIONS.
3. CONTRACTOR SHALL REUSE EXISTING COAX FOR REPLACEMENT OF IDEN ANTENNAS 9 LINES OF 1 1/4"ø). CONTRACTOR TO VERIFY EXISTING LINES, SWEEP PROPERLY AND REPLACE IF UNNACCEPTABLE. REMOVE ALL UNUSED SPRINT NEXTEL COAX ON TOWER & IN UNDERGROUND CONDUITS.
4. CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING NEXTEL RADIO CABINET FOR PROPOSED SPRINT LUCENT 4.0 INDOOR CABINET PLACEMENT IN (E) CABINET SPACE WITH NEXTEL.
5. CONTRACTOR SHALL CLEAN UP AND ADDRESS EXISTING GROUNDING HALO AND SHELTER GROUND SYSTEM FOR PROPER FUNCTION. PROPERLY GROUND EXTERIOR GROUND BAR TO INTERIOR GROUND BAR WITH JUMPERS AS NEEDED.
6. CONTRACTOR SHALL UPGRADE EXISITING DC POWER PLANT AS NEEDED FOR RECTIFIER PLACEMENT. CONTRACTOR SHALL COORDINATE UPGRADE WITH NEXTEL OPS.
7. EXISTING 2.5 TON HVAC UNITS SHALL BE UPGRADED TO A MINIMUM TO 5 TON UNITS.

APPLICANT:
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CT81XC010 / CT0946

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PROFESSIONAL STAMP
STATE OF CONNECTICUT
GORDON E. GOVATOS
No. 18420
LICENSED PROFESSIONAL ENGINEER
1-25-11

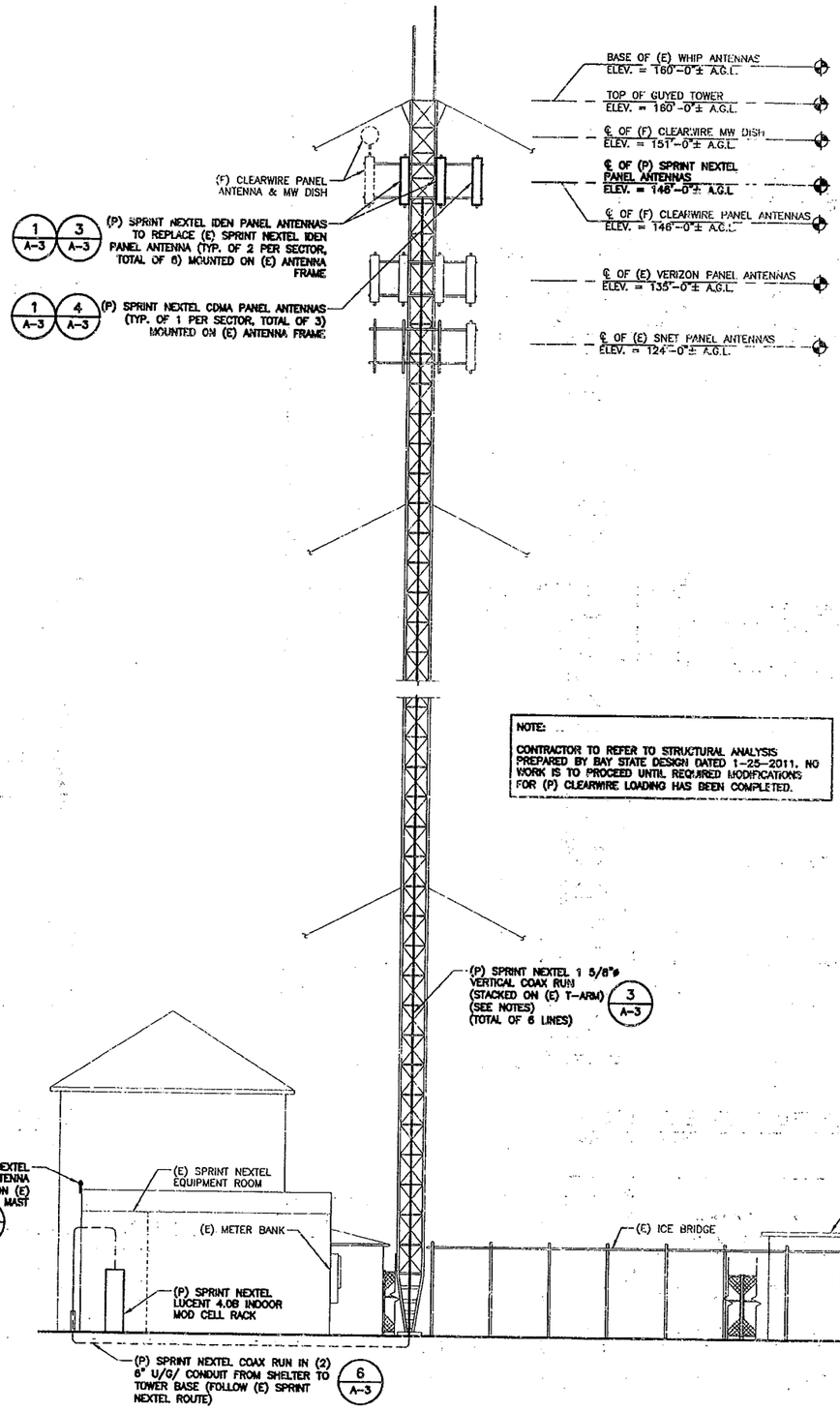
DRAWN BY: KW
CHECKED BY: JP/GG

JOB #: 3012.001

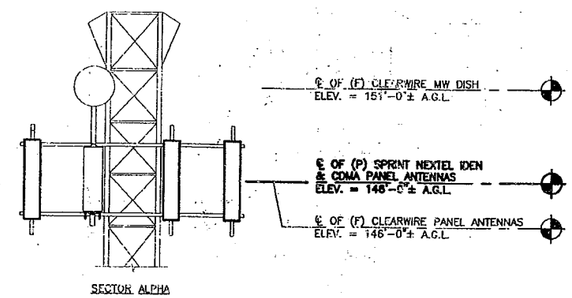
SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

SHEET TITLE:
SITE & EQUIPMENT ROOM LAYOUT PLANS

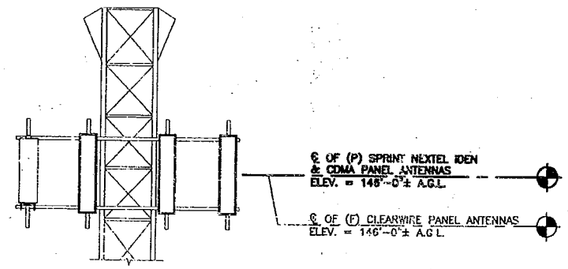
SHEET NUMBER:
A-1



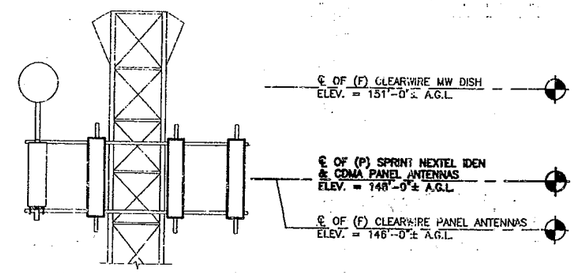
SOUTH ELEVATION
SCALE: 1/8" = 1'-0"
1



SECTOR ALPHA



SECTOR BETA



SECTOR GAMMA

SECTOR ELEVATION DETAILS
SCALE: 1/4" = 1'-0"
2

CONSTRUCTION NOTES:

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3. CONTRACTOR SHALL REUSE EXISTING COAX FOR REPLACEMENT OF IDEN ANTENNAS 9 LINES OF 1 1/4"ø). CONTRACTOR TO VERIFY EXISTING LINES, SWEEP PROPERLY AND REPLACE IF UNNACCEPTABLE. REMOVE ALL UNUSED SPRINT NEXTEL COAX ON TOWER & IN UNDERGROUND CONDUITS.
4. CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING NEXTEL RADIO CABINET FOR PROPOSED SPRINT LUCENT 4.0 INDOOR CABINET PLACEMENT IN (E) CABINET SPACE WITH NEXTEL.
5. CONTRACTOR SHALL CLEAN UP AND ADDRESS EXISTING GROUNDING HALO AND SHELTER GROUND SYSTEM FOR PROPER FUNCTION. PROPERLY GROUND EXTERIOR GROUND BAR TO INTERIOR GROUND BAR WITH JUMPERS AS NEEDED.
6. CONTRACTOR SHALL UPGRADE EXISTING DC POWER PLANT AS NEEDED FOR RECTIFIER PLACEMENT. CONTRACTOR SHALL COORDINATE UPGRADE WITH NEXTEL OPS.
7. EXISTING 2.5 TON HVAC UNITS SHALL BE UPGRADED TO A MINIMUM TO 5 TON UNITS.

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PROSPECT - WATERBURY ROAD

HOST #:

SITE #:
CT81XC010 / CT0946

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PROFESSIONAL ENGINEER STAMP
STATE OF CONNECTICUT
GORDON E. GOVATOS
No. 18430
LICENSED
PROFESSIONAL ENGINEER
1.25.11

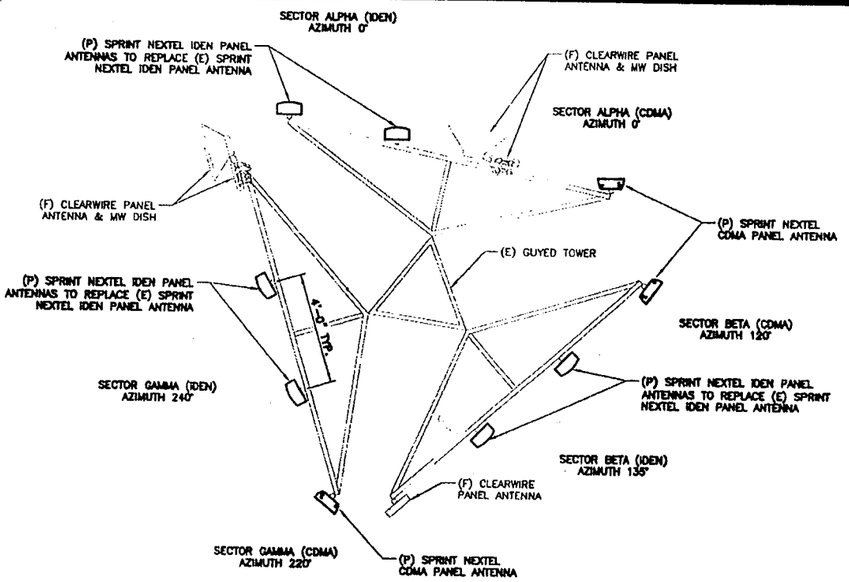
DRAWN BY: KW
CHECKED BY: JP/GG

JOB #: 3012.001

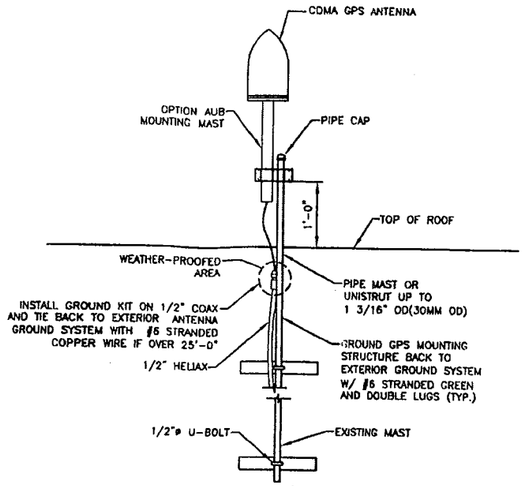
SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

SHEET TITLE:
SOUTH ELEVATION & SEECTOR ELEVATION DETAILS

SHEET NUMBER:
A-2

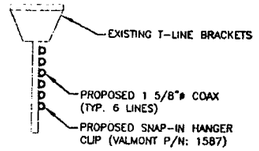


ANTENNA AZIMUTH PLAN (1)
SCALE: N.T.S.



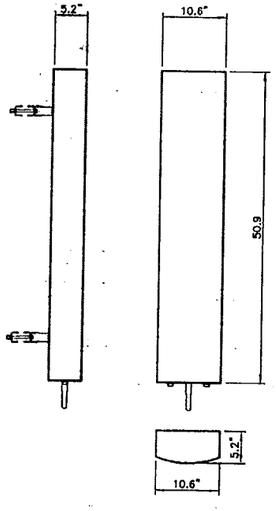
NOTE:
EXACT LOCATION TO BE FIELD COORDINATED WITH SPRINT CONSTRUCTION MANAGER.

GPS MOUNTING DETAIL (2)
SCALE: N.T.S.

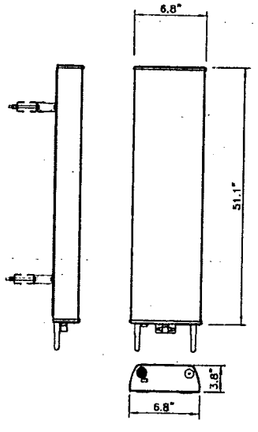


NOTE:
CONTRACTOR SHALL REMOVE UNUSED COAX PRIOR TO PROPOSED COAX PLACEMENT. STACK COAX IF NEEDED.

COAX SUPPORT DETAIL (3)
SCALE: N.T.S.



ANDREW LBX-9012DS-A1M
PANEL ANTENNA DETAIL (4)
SCALE: N.T.S.



ANDREW HBX-9014DS-T2M
PANEL ANTENNA DETAIL (5)
SCALE: N.T.S.

SPRINT NEXTEL CDMA ANTENNA INFORMATION

SECTOR	ANTENNA	BAND #	AZIMUTH	MAKER	MODEL	QTY.	ELECTRICAL DOWNTILT	RAD CENTER FT. AGL	COAXIAL CABLE SIZE	COAX MAKER	COAX QUANTITY	COAX MODEL #
ALPHA	RED	–	0°	ANDREW	HBX-9014DS-R2M	1	1°	148'	1 5/8"ø	ANDREW	2	FXL-1873
BETA	BLUE	–	120°	ANDREW	HBX-9014DS-R2M	1	1°	148'	1 5/8"ø	ANDREW	2	FXL-1873
GAMMA	YELLOW	–	220°	ANDREW	HBX-9014DS-R2M	1	1°	148'	1 5/8"ø	ANDREW	2	FXL-1873

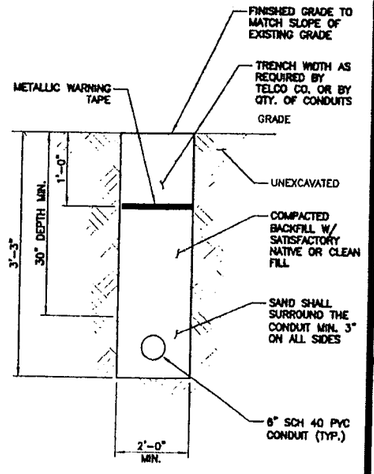
NOTE: AZIMUTHS BASED ON SPRINT EBTS FORM DATED 11/19/10.

SPRINT NEXTEL iDEN ANTENNA INFORMATION

SECTOR	ANTENNA	BAND #	AZIMUTH	MAKER	MODEL	QTY.	ELECTRICAL DOWNTILT	RAD CENTER FT. AGL	COAXIAL CABLE SIZE	COAX MAKER	COAX QUANTITY	COAX MODEL #
ALPHA	–	–	0°	ANDREW	LBX-9015DS-A1M	2	6°	148'	1 1/4"ø	ANDREW	3	FXL-1480
BETA	–	–	135°	ANDREW	LBX-9015DS-A1M	2	6°	148'	1 1/4"ø	ANDREW	3	FXL-1480
GAMMA	–	–	240°	ANDREW	LBX-9015DS-A1M	2	6°	148'	1 1/4"ø	ANDREW	3	FXL-1480

NOTE: AZIMUTHS BASED ON SPRINT EBTS FORM DATED 11/19/10.

COAX NOTE:
EXISTING COAX TO BE RE-USED FOR REPLACEMENT OF IDEN ANTENNAS (9 LINES OF 1 1/4"ø COAX FOR ALPHA, BETA, AND GAMMA SECTORS). CONTRACTOR TO VERIFY EXISTING LINES, SWEEP PROPERLY, AND REPLACE AS REQUIRED.



NOTE:
1. ALL CONDUIT SHALL MAINTAIN A DEPTH BELOW THE FROST LINE. (30" PER U. S. DEPT. OF COMMERCE: WEATHER BUREAU)

TRENCH DETAIL (6)
SCALE: N.T.S

(P) PROPOSED
(E) EXISTING

APPLICANT:
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PROSPECT – WATERBURY ROAD

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CT81XC010 / CT0946

CONSTRUCTION DRAWINGS

3	01/25/11	FINAL CONSTRUCTION
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0	11/01/10	ISSUED FOR REVIEW

PROFESSIONAL STAMP:
STATE OF CONNECTICUT
GORDON E. GOVALET
No. 18420
LICENSED
PROFESSIONAL ENGINEER
1.05.11

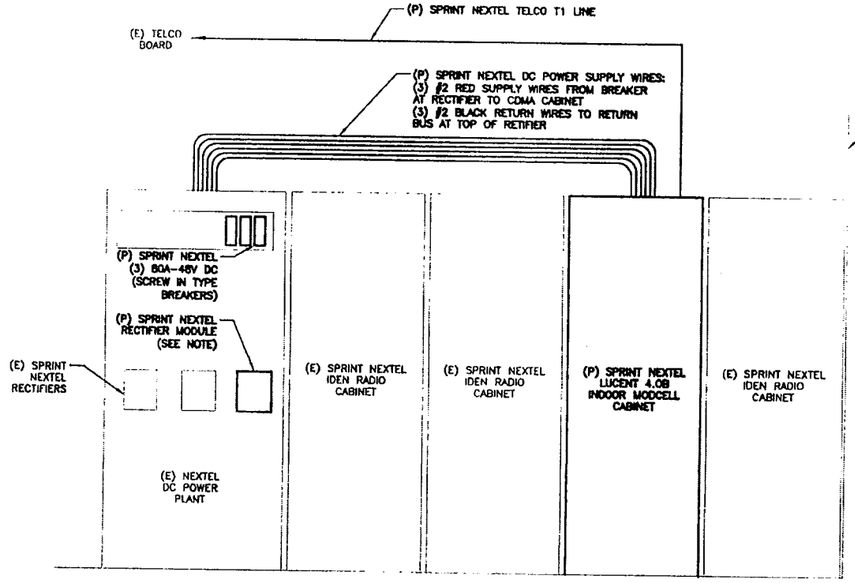
DRAWN BY: KW
CHECKED BY: JP/GG

JOB #: 3012.001

SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

SHEET TITLE:
CONSTRUCTION DETAILS

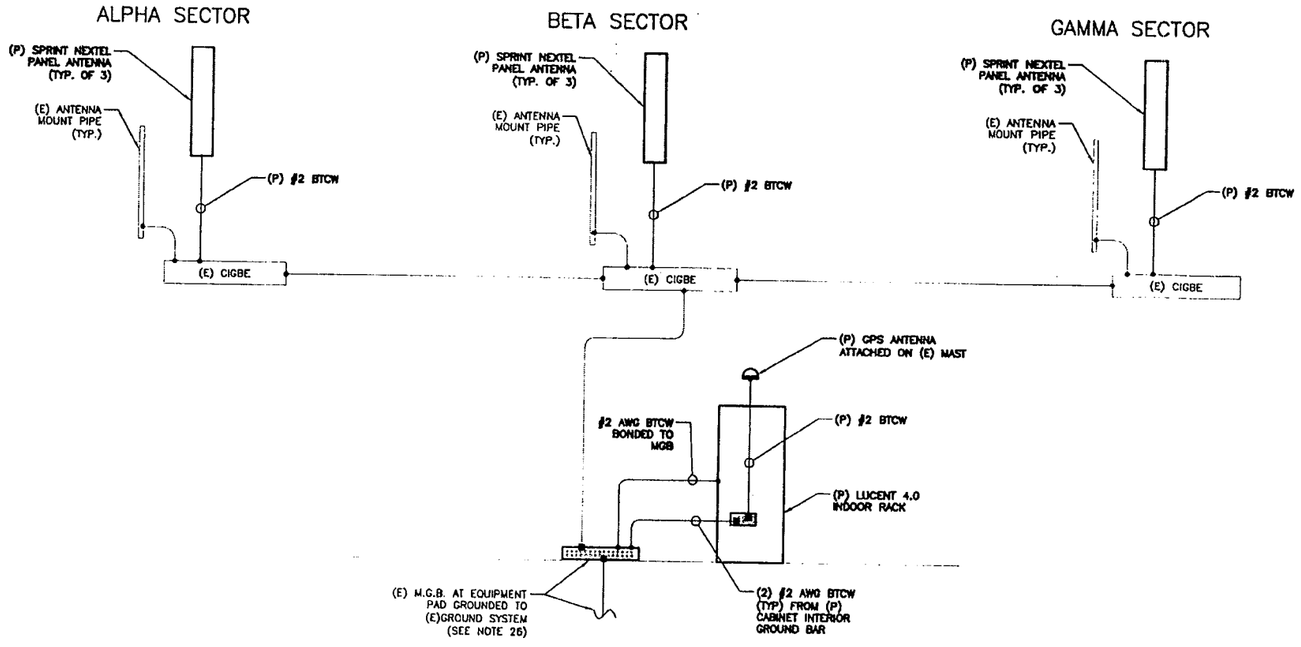
SHEET NUMBER:
A-3



POWER RISER DIAGRAM (1)
SCALE: N.T.S.

NOTES:

1. ALL TAP OFFS RUNS SHALL BE COORDINATED WITH NEXTEL CONSTRUCTION MANAGER.
2. CONTRACTOR TO COORDINATE WITH THE SITE OWNER, SPRINT AND THE NEXTEL CONSTRUCTION MANAGER TO ASSESS THE CAPACITY OF THE EXISTING DC POWER PLANT FOR AN ADDITIONAL RECTIFIER PLACEMENT.
3. IF EXISTING POWER PLANT NOT SUFFICIENT THE POWER PLANT CABINET SHALL BE UPGRADED. CONTRACTOR TO COORDINATE WITH NEXTEL FOR NEW POWER PLANT.
4. CONTRACTOR SHALL UPGRADE EXISTING HVAC UNITS FROM 2.5 TON TO MINIMUM 5 TON UNITS, COORDINATE WITH NEXTEL AS REQUIRED.



GROUNDING SCHEMATIC DIAGRAM (2)
SCALE: N.T.S.

(P) = PROPOSED
(E) = EXISTING

GROUNDING SPECIFICATIONS:

1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. GROUND WIRES SHALL BE TINNED #2 AWG BARE SOLID Cu UNLESS NOTED OTHERWISE.
4. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC (CADWELD) UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES. SPRAY CADWELD WITH GALVANIZING PAINT.
5. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 8" RADIUS.
6. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETSS KOPR-SHIELD (TM OF JET LUB INC.) PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHEILD OR EQUAL.
7. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING. INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1'-0" ABOVE GRADE AND SEAL TOP WITH SILICONE MATERIAL.
8. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
9. GROUNDING WIRE CONNECTIONS SHALL BE J-CRIMP C-TAP COMPRESSION TYPE. SPLIT BOLTS ARE NOT ACCEPTABLE.
10. GROUND RODS SHALL BE COPPER CLAD STEEL 5/8"x10'-0" SPACED NOT LESS THAN 10'-0" O.C.
11. CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS.
12. SURFACE CONNECTIONS SHALL BE MADE TO BARE METAL. PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. APPLY NON-OXIDIZING AGENT TO CONNECTIONS.
13. COPPER BUSES SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
14. GROUNDING CONDUCTORS SHALL BE RUN THROUGH PVC SLEEVE WHERE ROUTED THROUGH WALLS, FLOORS AND CEILING. ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
15. HARDWARE (I.E. NUTS, BOLTS, WASHERS, ECT.) IS TO BE STAINLESS STEEL.
16. EXOTHERMIC WELDS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
17. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDED USING LOCKNUTS AND BONDING NUTS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. RECEPTACLES AND EQUIPMENT BRANCH CIRCUITS SHALL BE GROUNDED WITH A FULL SIZED EQUIPMENT GROUNDING CONDUCTOR RUN IN THE CIRCUIT'S CONDUIT.
18. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.
19. GROUND BARS (SECTOR, COLLECTOR, MASTER) SHALL BE BARE 1/4"x4" COPPER; LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MIGB SHALL ELECTRICALLY INSULATE THE MIGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
20. APPLY T&B KOPR-SHIELD OR APPROVED EQUAL PRIOR TO MAKING MECHANICAL CONNECTIONS. CONNECTIONS SHALL BE MADE WITH STAINLESS STEEL BOLTS, NUTS AND LOCK WASHERS 3/8" DIAMETER MIN. WHERE GALVANIZING IS REMOVED FROM METAL. IT SHALL BE PAINTED OR TOUCHED UP WITH 'GALVONOX' OR EQUAL.
21. ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS, FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE WITH STAINLESS STEEL SELF-TAPPING SCREWS.
22. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON-CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
23. ALL BOLTS, WASHERS AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
24. THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT RESISTANCE TO EARTH DOES NOT EXCEED 5.0 OHMS. PROVIDE A COPY OF TESTING REPORT, INCLUDING THE METHOD AND INSTRUMENTS USED TO VERIFY RESISTANCE TO SPRINT NEXTEL REPRESENTATIVE.
25. BOND CABINET THROUGH THE MAIN GROUND BAR.
26. THE CONTRACTOR TO SECURE A COPY OF ANY SOIL RESISTIVITY AND/OR SITE RESISTANCE TO EARTH TESTING PREVIOUSLY PERFORMED. IF NO RECORDS ARE AVAILABLE A FOUR POINT SOIL RESISTIVITY TEST SHALL BE PERFORMED TO ASSURE 5 OHMS OR LESS WITH SOIL RESISTIVITY UP TO 50,000 OHM-CM.
27. WHEN SPRINT ANTENNAS EXCEED IN ELEVATION THE EXISTING LIGHTNING RODS THEN LIGHTNING RODS SHALL BE ADDED TO CLEAR WIRE ANTENNAS AS DETAILED IN SNP-312-203.
28. GROUNDING SYSTEM SHALL MEET SPRINT GROUNDING STANDARDS.

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0	11/01/10	ISSUED FOR REVIEW

PROFESSIONAL ENGINEER'S STAMP
STATE OF CONNECTICUT
GORDON E. GOVALETT
No. 18230
LICENSED
PROFESSIONAL ENGINEER
1-05-11

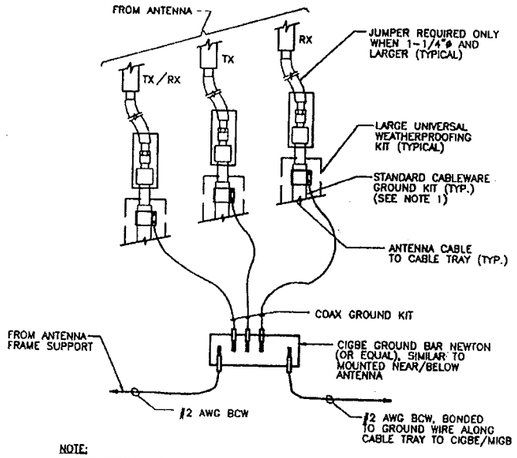
DRAWN BY: KW | CHECKED BY: JP/GG

JOB #: 3012.001

SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

SHEET TITLE:
POWER & GROUNDING RISER DIAGRAMS

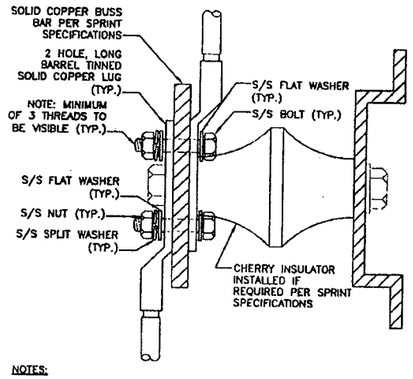
SHEET NUMBER:
E-1



NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

CONNECTION OF GROUND WIRES TO GROUNDING BAR (1)

SCALE: N.T.S.

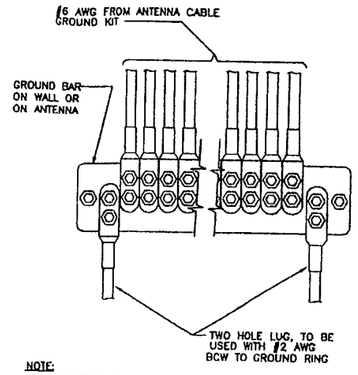


NOTES:

1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION LUG BARREL AND CRIMPING.
3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND LUG DETAIL (2)

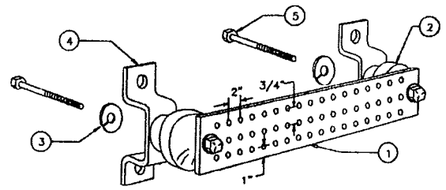
SCALE: N.T.S.



NOTE:
1. CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.

INSTALLATION OF GROUND WIRE TO GROUND BAR (3)

SCALE: N.T.S.



LEGEND

1- COPPER HARGER GROUND BAR, 1/4"X 4"X 20", GBIT 14420 J 2-7 HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2- STANDOFF INSULATORS, NEWTON INSTRUMENT CAT. NO 3061-4
3- 5/8" LOCKWASHERS, OR EQUAL
4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR EQUAL
5- 5/8-11 X 1" HEX HEAD CAP SCREW BOLT

NOTE:
ALL BOLTS, NUTS, WASHERS, AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.

GROUNDING - STANDARD DETAIL GROUND BAR (4)

SCALE: N.T.S.

APPLICANT:

Sprint

Together with NEXTEL

8 AIRLINE DRIVE
SUITE 105
ALBANY, NY 12205

MAXTON
MAXTON TECHNOLOGY, INC.
BAY STATE DESIGN
BAY STATE DESIGN, INC.
Architects · Engineers
241 Boston Post Rd. West Marlborough, MA. 01752
Phone: 508-229-4100
Fax: 508-485-5321

SITE NAME:
PROSPECT - WATERBURY ROAD

HOST #:

SITE #:
CT81XC010 / CT0946

CONSTRUCTION DRAWINGS

3	01/25/11	FINAL CONSTRUCTION
2	12/14/10	PER COMMENTS
1	12/02/10	CONSTRUCTION
0	11/01/10	ISSUED FOR REVIEW

PROFESSIONAL ENGINEER'S STAMP
STATE OF CONNECTICUT
GORDON E. GOUVEIA
No. 18490
LICENSED PROFESSIONAL ENGINEER
1.25.11

DRAWN BY: KW | CHECKED BY: JP/GG

JOB #: 3012.001

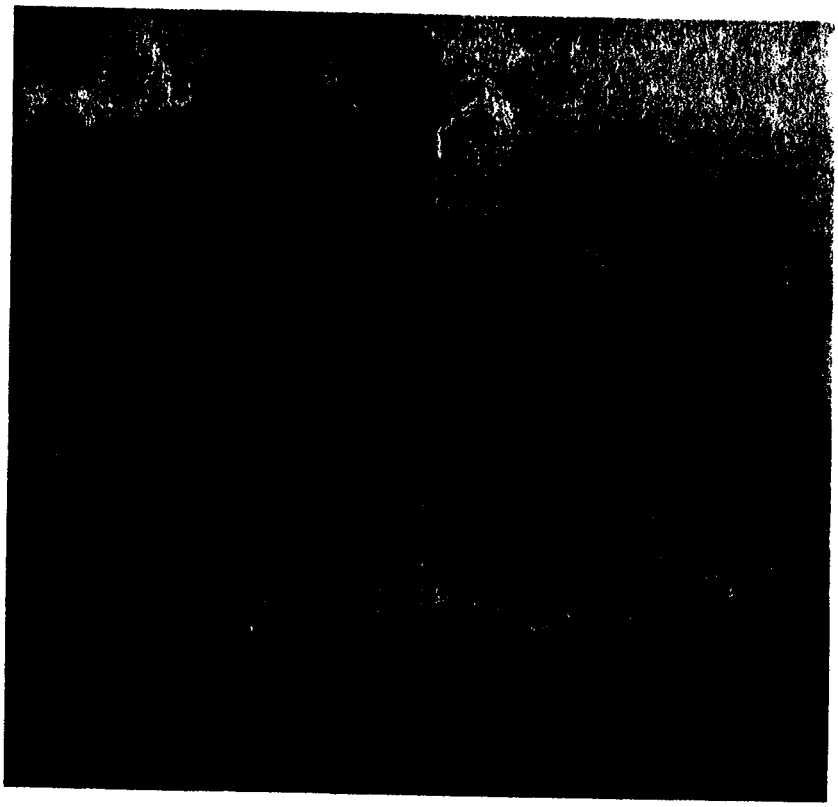
SITE ADDRESS:
54 WATERBURY ROAD
PROSPECT, CT 06712

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
E-2

BAY STATE
DESIGN

STRUCTURAL ANALYSIS REPORT



Sprint
Together with NEXTEL

CT81XC010
54 WATERBURY ROAD
PROSPECT, CT 06712

January 25, 2011

Bay State Design, Inc. 241 Boston Post Road Marlborough, MA 01752 TEL: (508) 229-4100 FAX: (508) 485-5321
Architects • Engineers

INTRODUCTION:

The purpose of this analysis is to determine the structural capability of the existing 160' guyed tower at 54 Waterbury Road in Prospect, CT. The tower is a Model 480 originally designed by Utility Tower Company and is a conventional three legged guyed tower with 20' sections. The tower is supported by single guy wires at (2) levels and double guy wires attached to a torque arm at 160'.

Sprint is proposing to replace the existing (9) panel antennas installed on the Sprint/Nextel mount with the following:

Quantity	Model No.	Elevation
6	Andrew LBX-9012DS-A1M Panel Antenna (2 per sector)	146'
3	Andrew HBX-9014DS-T2M Panel Antenna (1 per sector)	146'

Final coax cabling will consist of a total of (6) 1 5/8" and (9) 1 ¼" lines for the proposed Sprint configuration and is included in this analysis.

NOTE:

Clearwire Communications has previously applied to add (3) panel antennas and (2) Microwave Dishes to the same Sprint-Nextel mount referenced above. Bay State Design conducted a structural analysis for Clearwire's proposed loading on 9/21/10 and concluded that significant structural modifications are required to the guy cables, tower superstructure and guy anchor foundation blocks to accommodate the proposed Clearwire loading. All proposed modifications were considered complete as a basis for this structural analysis for the proposed Sprint loading, HOWEVER:

Sprint loading is not to proceed on this structure until proposed modifications for Clearwire have been installed and Bay State Design has inspected and approved the work.

ASSUMPTIONS:

All engineering services have been performed on the basis that the information used is current and accurate. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of Bay State Design, Inc., or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Bay State Design, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, BSD assumes that all structures were constructed in accordance with the drawings / specifications and are in good condition and have not significantly changed from the "as new" condition.

All services were performed to codes specified by the client. BSD does not imply to have met any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are different from the minimum values recommended by code, the client shall specify the exact requirement.

All services are performed in accordance with generally accepted engineering principles and practices. Bay State Design, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information provided.

REFERENCES:

This structural analysis was evaluated using RISA Tower, a general-purpose modeling, analysis, and design program created specifically for communications towers in accordance with the following:

- TIA/EIA 222-F Structural Standards for Steel Antenna Tower and Antenna Supporting Structures
- CT State Building Code 2005

Additionally, the following documentation was referenced in preparation of this analysis:

- Previous structural analysis & modification design conducted by Bay State Design for Clearwire Communications dated 9/21/10.
- Previous structural analysis & modification design conducted by All Points Technology (APT) for Verizon dated 12/6/2006.
- Sprint RFDS dated 11/19/10.

Existing tower inventory and geometry and existing foundation information for this analysis is based on a combination of ground observations made by BSD and the APT structural analysis referenced above. BSD assumes proposed modifications proposed by APT in their 12/6/2006 analysis have been completed.

GUYED TOWER ANALYSIS RESULTS:

Based on the attached calculations, Bay State Design, Inc. concludes the existing guyed tower meets the structural requirements as specified by TIA/EIA-222-F. Note, the following stresses were observed when taking into account the proposed Sprint loading:

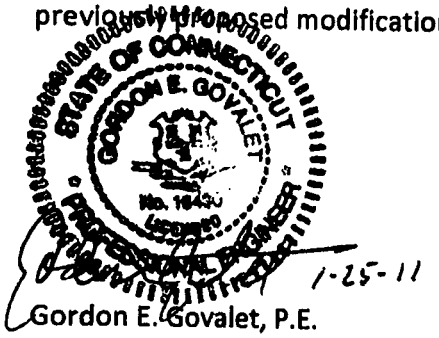
COMPONENT	ELEVATION	MAXIMUM STRESS RATIO	PASS / FAIL
LEG	113' - 106'	87.50%	PASS
DIAGONAL	100' - 80'	96.50%	PASS
HORIZONTAL	140' - 120'	29.00%	PASS
TOP GIRT	160' - 140'	28.40%	PASS
BOTTOM GIRT	20' - 6'	25.20%	PASS
GUY A	160'	91.60%	PASS
GUY B	160'	78.60%	PASS
GUY C	160'	91.50%	PASS

BASE FOUNDATION AND ANCHOR BLOCK ANALYSIS:

Assuming the previously referenced modifications have been made, the proposed Sprint loading has negligible impact on the base foundation and anchor blocks.

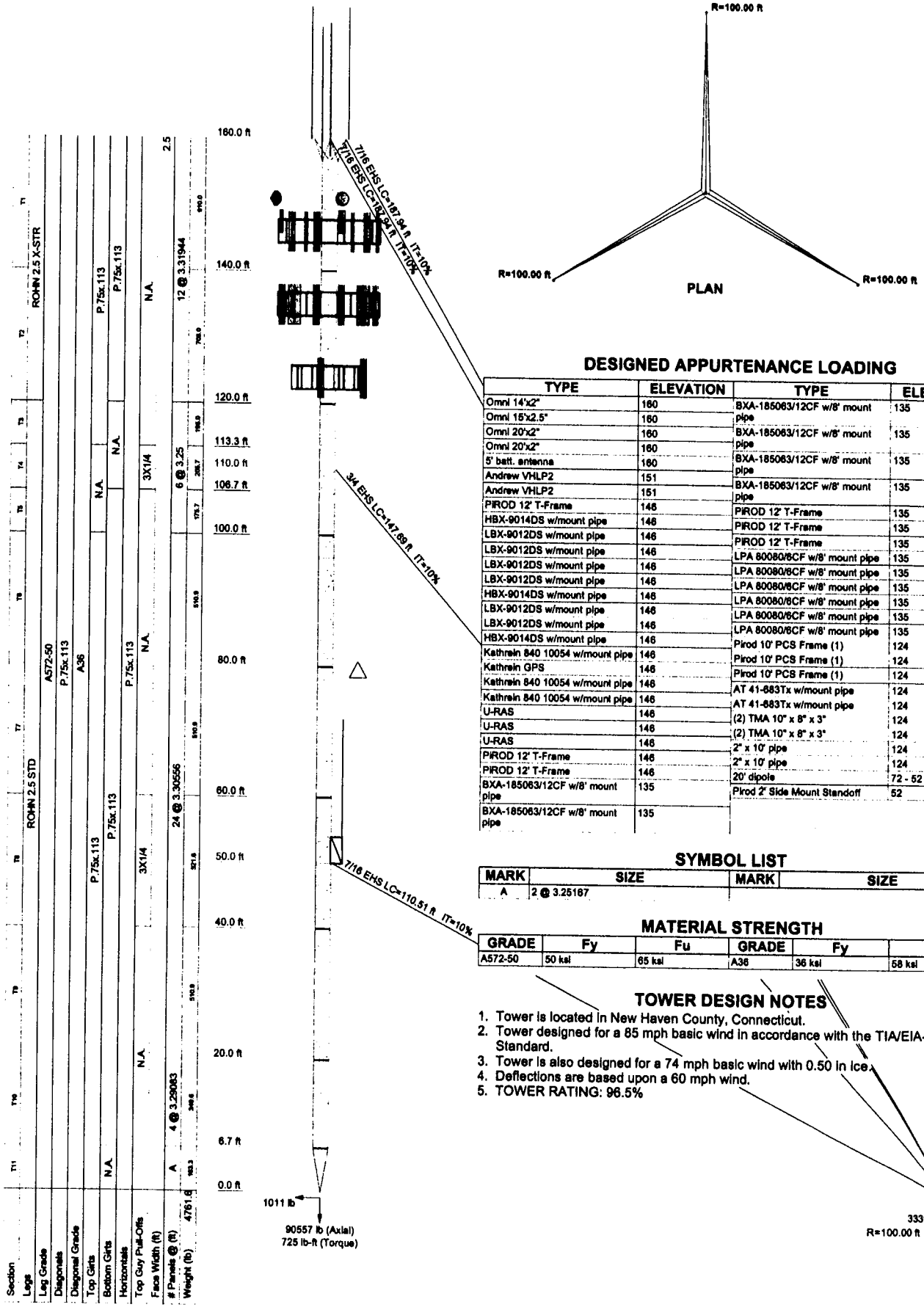
CONCLUSION & RECOMMENDATIONS:

Bay State Design, Inc. has concluded the above referenced tower and foundation are adequate providing previously proposed modifications have been implemented. The tower is rated at 96.5% of its capacity.



1-25-11

Gordon E. Govalet, P.E.
President
Bay State Design, Inc.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni 14'x2"	160	BXA-185063/12CF w/8' mount pipe	135
Omni 15'x2.5"	160	BXA-185063/12CF w/8' mount pipe	135
Omni 20'x2"	160	BXA-185063/12CF w/8' mount pipe	135
Omni 20'x2"	160	BXA-185063/12CF w/8' mount pipe	135
5' batt. antenna	160	PIROD 12' T-Frame	135
Andrew VHLP2	151	PIROD 12' T-Frame	135
Andrew VHLP2	151	PIROD 12' T-Frame	135
PIROD 12' T-Frame	146	LPA 80080/6CF w/8' mount pipe	135
HBX-9014DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
HBX-9014DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	Pirod 10' PCS Frame (1)	124
LBX-9012DS w/mount pipe	146	Pirod 10' PCS Frame (1)	124
HBX-9014DS w/mount pipe	146	Pirod 10' PCS Frame (1)	124
Kathrein 840 10054 w/mount pipe	146	AT 41-683Tx w/mount pipe	124
Kathrein GPS	146	AT 41-683Tx w/mount pipe	124
Kathrein 840 10054 w/mount pipe	146	(2) TMA 10" x 8" x 3"	124
Kathrein 840 10054 w/mount pipe	146	(2) TMA 10" x 8" x 3"	124
U-RAS	146	2" x 10' pipe	124
U-RAS	146	2" x 10' pipe	124
U-RAS	146	20' dipole	72 - 52
PIROD 12' T-Frame	146	Pirod 2' Side Mount Standoff	52
PIROD 12' T-Frame	146		
BXA-185063/12CF w/8' mount pipe	135		
BXA-185063/12CF w/8' mount pipe	135		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2 @ 3.25167		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 96.5%

Bay State Design
241 Boston Post Road West
Marlborough, MA 01752
Phone: (508) 229-4100
FAX: (508) 485-5321

Job: CT81XC010		
Project: 54 Waterbury Road, Prospect, CT 06712		
Client: Sprint	Drawn by: gkw	App'd:
Code: TIA/EIA-222-F	Date: 01/24/11	Scale: NTS
Path: N:\PROJECTS\Models\CT\CT-NHN0032A\CT-NHN0032A-SPRINT\CT-NHN0032A-SPRINT.eri		Dwg No. E-1

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 160.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 2.50 ft at the top and tapered at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	√ Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	**Poles**
√ Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		

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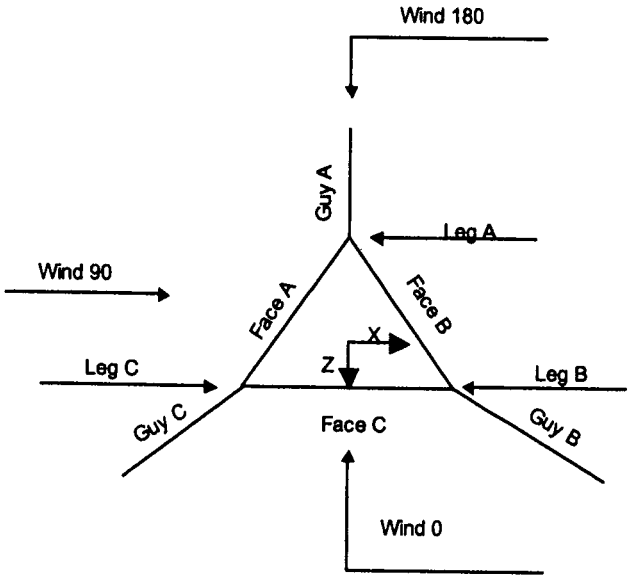
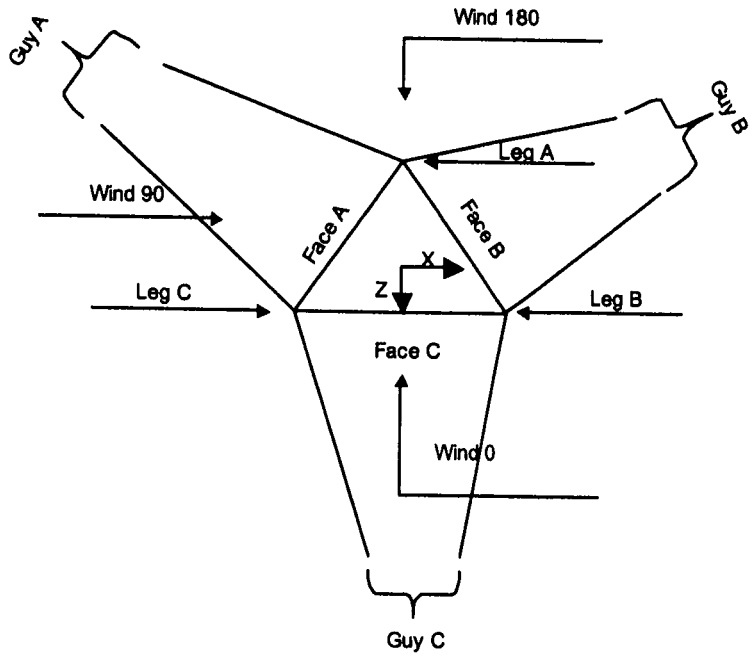


Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	160.00-140.00			2.50	1	20.00
T2	140.00-120.00			2.50	1	20.00
T3	120.00-113.33			2.50	1	6.67
T4	113.33-106.67			2.50	1	6.67
T5	106.67-100.00			2.50	1	6.67
T6	100.00-80.00			2.50	1	20.00
T7	80.00-60.00			2.50	1	20.00
T8	60.00-40.00			2.50	1	20.00
T9	40.00-20.00			2.50	1	20.00
T10	20.00-6.67			2.50	1	13.33
T11	6.67-0.00			2.50	1	6.67

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	160.00-140.00	3.32	K Brace Right	No	Yes	0.0000	1.0000
T2	140.00-120.00	3.32	CX Brace	No	Yes	0.0000	1.0000
T3	120.00-113.33	3.25	CX Brace	No	Yes	1.0000	1.0000
T4	113.33-106.67	3.25	CX Brace	No	Yes	1.0000	1.0000
T5	106.67-100.00	3.25	K Brace Right	No	Yes	1.0000	1.0000
T6	100.00-80.00	3.31	K Brace Right	No	Yes	1.0000	1.0000
T7	80.00-60.00	3.31	K Brace Right	No	Yes	1.0000	1.0000
T8	60.00-40.00	3.31	K Brace Right	No	Yes	1.0000	1.0000
T9	40.00-20.00	3.31	K Brace Right	No	Yes	1.0000	1.0000
T10	20.00-6.67	3.29	K Brace Right	No	Yes	1.0000	1.0000
T11	6.67-0.00	3.25	K Brace Right	No	Yes	1.0000	1.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 160.00-140.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T2 140.00-120.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T3 120.00-113.33	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T4 113.33-106.67	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T5 106.67-100.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T7 80.00-60.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T8 60.00-40.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T9 40.00-20.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T10 20.00-6.67	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T11 6.67-0.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P.75x.113	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 160.00-140.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T2 140.00-120.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 120.00-113.33	Pipe	P.75x.113	A36 (36 ksi)	Pipe		A36 (36 ksi)
T5 106.67-100.00	Pipe		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T6 100.00-80.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T7 80.00-60.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T8 60.00-40.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T9 40.00-20.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T10 20.00-6.67	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T11 6.67-0.00	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T2 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T3 120.00-113.33	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T4 113.33-106.67	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T5 106.67-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T6 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T7 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T8 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T9 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T10 20.00-6.67	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)
T11 6.67-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	P.75x.113	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T8 60.00-40.00	Pipe	P.75x.113	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 160.00-140.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T2 140.00-120.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T3 120.00-113.33	0.08	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T4 113.33-106.67	0.08	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T5 106.67-100.00	0.08	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T6 100.00-80.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T7 80.00-60.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T8 60.00-40.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T9 40.00-20.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T10 20.00-6.67	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000
T11 6.67-0.00	0.25	0.6250	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	Y	K Brace Diags X	Y	Single Diags X	Y	Girts X	Y	Horiz. X	Y	Sec. Horiz. X	Y	Inner Brace X	Y
T1 160.00-140.00	Yes	Yes	1	1		0.5		1		1		1		1		1	
T2 140.00-120.00	Yes	Yes	1	1		0.5		1		1		1		1		1	
T3 120.00-113.33	Yes	Yes	1	0.6		1		1		1		1		1		1	
T4 113.33-106.67	Yes	Yes	1	0.6		1		1		1		1		1		1	
T5 106.67-100.00	Yes	Yes	1	0.6		1		1		1		1		1		1	
T6	Yes	Yes	1	0.6		1		1		1		1		1		1	
				1		0.5		1		1		1		1		1	
				1		0.5		1		1		1		1		1	
				1		0.85		1		1		1		1		1	

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
100.00-80.00				1	0.85	1		1		1		1		1	
T7 80.00-60.00	Yes	Yes	1	1	0.85	1		1		1		1		1	
T8 60.00-40.00	Yes	Yes	1	1	0.85	1		1		1		1		1	
T9 40.00-20.00	Yes	Yes	1	1	0.85	1		1		1		1		1	
T10 20.00-6.67	Yes	Yes	1	1	0.85	1		1		1		1		1	
T11 6.67-0.00	Yes	Yes	1	1	0.85	1		1		1		1		1	
				1	0.85	1		1		1		1		1	

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 120.00-113.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 113.33-106.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 106.67-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.00-6.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 6.67-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 160.00-140.00	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T2 140.00-120.00	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 120.00-113.33	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 113.33-106.67	Flange	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 106.67-100.00	Flange	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 100.00-80.00	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 80.00-60.00	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 60.00-40.00	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 40.00-20.00	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 20.00-6.67	Flange	0.6250 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 6.67-0.00	Flange	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
160	EHS	A	7/16	2080.00	10%	21000	0.399	187.77	100.00	0.0000	0.00	100%
		B	7/16	2080.00	10%	21000	0.399	187.77	100.00	0.0000	0.00	100%
		C	7/16	2080.00	10%	21000	0.399	187.77	100.00	0.0000	0.00	100%
110	EHS	A	3/4	5830.00	10%	19000	1.155	147.56	100.00	0.0000	0.00	100%
		B	3/4	5830.00	10%	19000	1.155	147.56	100.00	0.0000	0.00	100%
		C	3/4	5830.00	10%	19000	1.155	147.56	100.00	0.0000	0.00	100%
50	EHS	A	7/16	2080.00	10%	21000	0.399	110.42	100.00	0.0000	0.00	100%
		B	7/16	2080.00	10%	21000	0.399	110.42	100.00	0.0000	0.00	100%
		C	7/16	2080.00	10%	21000	0.399	110.42	100.00	0.0000	0.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
160	Torque Arm	5.00	45.0000	Bat Ear	A36 (36 ksi)	Equal Angle	L3x3x3/8
110	Corner						
50	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
160.00	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Flat Bar	
110.00	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	3X1/4
50.00	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	3X1/4

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
160	74.92	74.92	74.92		3.33	3.33	3.33	
110	170.43	170.43	170.43		3.2 sec/pulse 2.14	3.2 sec/pulse 2.14	3.2 sec/pulse 2.14	
50	44.06	44.06	44.06		2.5 sec/pulse 1.16 1.9 sec/pulse	2.5 sec/pulse 1.16 1.9 sec/pulse	2.5 sec/pulse 1.16 1.9 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
160	No	No	1	1	1	1	1	1
110	No	No			1	1	1	1
50	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
160	0.8750 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
110	0.8750 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
50	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
160	A	80.00	24	18	0.5000
	B	80.00	24	18	0.5000
	C	80.00	24	18	0.5000
110	A	55.00	21	16	0.5000
	B	55.00	21	16	0.5000
	C	55.00	21	16	0.5000
50	A	25.00	18	14	0.5000
	B	25.00	18	14	0.5000
	C	25.00	18	14	0.5000

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2	A	Yes	Ar (CfAe)	160.00 - 6.00	0.0000	0.45	1	1	0.0000	0.5800		0.25
7/8	C	Yes	Ar (CaAa)	160.00 - 6.00	0.0000	0.3	2	2	0.0000	1.1100		0.54
1/2	A	Yes	Ar (CfAe)	160.00 - 6.00	0.0000	0.42	1	1	0.0000	0.5800		0.25
7/8	A	Yes	Ar (CaAa)	160.00 - 6.00	0.0000	0.38	1	1	0.0000	1.1100		0.54
FXL-1480	B	Yes	Ar (CfAe)	146.00 - 6.00	0.0000	0	9	5	1.2500	1.2500		0.70
1 5/8	A	Yes	Ar (CfAe)	135.00 - 6.00	0.0000	-0.35	12	6	0.0000	1.9800		1.04
1 1/4	C	Yes	Ar (CfAe)	124.00 - 6.00	0.0000	0	4	4	0.0000	1.5500		0.66
1/2	A	Yes	Ar (CfAe)	52.00 - 6.00	0.0000	0.35	1	1	0.0000	0.5800		0.25
1/2	B	Yes	Ar (CfAe)	146.00 - 6.00	0.0000	0.35	2	2	0.0000	0.5800		0.25
2" Rigid Conduit	B	Yes	Ar (CfAe)	146.00 - 6.00	0.0000	0.4	1	1	0.0000	2.0000		2.80
FXL-1873	C	Yes	Ar (CfAe)	146.00 - 6.00	0.0000	-0.4	6	6	1.6250	1.6250		0.70

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
T1	160.00-140.00	A	1.933	0.000	2.220	0.000	20.80
		B	7.205	0.000	0.000	0.000	57.60
		C	4.875	0.000	4.440	0.000	46.80
T2	140.00-120.00	A	17.028	0.000	2.220	0.000	208.00
		B	24.017	0.000	0.000	0.000	192.00
		C	18.317	0.000	4.440	0.000	116.16
T3	120.00-113.33	A	7.353	0.000	0.740	0.000	90.13
		B	8.006	0.000	0.000	0.000	64.00
		C	8.861	0.000	1.480	0.000	52.80
T4	113.33-106.67	A	7.353	0.000	0.740	0.000	90.13
		B	8.006	0.000	0.000	0.000	64.00
		C	8.861	0.000	1.480	0.000	52.80
T5	106.67-100.00	A	7.353	0.000	0.740	0.000	90.13
		B	8.006	0.000	0.000	0.000	64.00
		C	8.861	0.000	1.480	0.000	52.80

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T6	100.00-80.00	A	22.060	0.000	2.220	0.000	270.40
		B	24.017	0.000	0.000	0.000	192.00
		C	26.583	0.000	4.440	0.000	158.40
T7	80.00-60.00	A	22.060	0.000	2.220	0.000	270.40
		B	24.017	0.000	0.000	0.000	192.00
		C	26.583	0.000	4.440	0.000	158.40
T8	60.00-40.00	A	22.640	0.000	2.220	0.000	273.40
		B	24.017	0.000	0.000	0.000	192.00
		C	26.583	0.000	4.440	0.000	158.40
T9	40.00-20.00	A	23.027	0.000	2.220	0.000	275.40
		B	24.017	0.000	0.000	0.000	192.00
		C	26.583	0.000	4.440	0.000	158.40
T10	20.00-6.67	A	15.347	0.000	1.480	0.000	183.55
		B	16.007	0.000	0.000	0.000	127.97
		C	17.718	0.000	2.959	0.000	105.57
T11	6.67-0.00	A	0.771	0.000	0.074	0.000	9.23
		B	0.805	0.000	0.000	0.000	6.43
		C	0.891	0.000	0.149	0.000	5.31

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	160.00-140.00	A	0.500	5.267	0.000	4.220	0.000	66.86
		B		8.569	0.290	0.000	0.000	129.97
		C		7.875	0.000	7.920	0.000	123.89
T2	140.00-120.00	A	0.500	8.992	12.620	4.220	0.000	400.07
		B		28.563	0.967	0.000	0.000	433.23
		C		27.100	1.550	7.920	0.000	316.94
T3	120.00-113.33	A	0.500	3.411	5.609	1.407	0.000	170.38
		B		9.521	0.322	0.000	0.000	144.41
		C		10.167	2.583	2.640	0.000	139.26
T4	113.33-106.67	A	0.500	3.411	5.609	1.407	0.000	170.38
		B		9.521	0.322	0.000	0.000	144.41
		C		10.167	2.583	2.640	0.000	139.26
T5	106.67-100.00	A	0.500	3.411	5.609	1.407	0.000	170.38
		B		9.521	0.322	0.000	0.000	144.41
		C		10.167	2.583	2.640	0.000	139.26
T6	100.00-80.00	A	0.500	10.233	16.827	4.220	0.000	511.14
		B		28.563	0.967	0.000	0.000	433.23
		C		30.500	7.750	7.920	0.000	417.77
T7	80.00-60.00	A	0.500	10.233	16.827	4.220	0.000	511.14
		B		28.563	0.967	0.000	0.000	433.23
		C		30.500	7.750	7.920	0.000	417.77
T8	60.00-40.00	A	0.500	11.813	16.827	4.220	0.000	522.05
		B		28.563	0.967	0.000	0.000	433.23
		C		30.500	7.750	7.920	0.000	417.77
T9	40.00-20.00	A	0.500	12.867	16.827	4.220	0.000	529.33
		B		28.563	0.967	0.000	0.000	433.23
		C		30.500	7.750	7.920	0.000	417.77
T10	20.00-6.67	A	0.500	8.576	11.215	2.813	0.000	352.80
		B		19.037	0.644	0.000	0.000	288.75
		C		20.328	5.165	5.279	0.000	278.45
T11	6.67-0.00	A	0.500	0.431	0.564	0.141	0.000	17.73
		B		0.957	0.032	0.000	0.000	14.51
		C		1.022	0.260	0.265	0.000	14.00

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	160.00-140.00	A	0.281	1.273	0.000	0.000
		B	0.349	1.190	0.000	0.000
		C	0.637	1.920	0.000	0.000
T2	140.00-120.00	A	2.197	5.727	0.000	0.000
		B	1.849	6.295	0.000	0.000
		C	2.596	7.830	0.000	0.000
T3	120.00-113.33	A	0.883	2.212	0.000	0.000
		B	0.587	2.000	0.000	0.000
		C	1.134	3.189	0.000	0.000
T4	113.33-106.67	A	0.780	2.080	0.295	0.378
		B	0.519	1.880	0.196	0.342
		C	1.002	2.998	0.379	0.545
T5	106.67-100.00	A	0.648	1.623	0.000	0.000
		B	0.431	1.467	0.000	0.000
		C	0.832	2.340	0.000	0.000
T6	100.00-80.00	A	1.749	4.379	0.000	0.000
		B	1.163	3.959	0.000	0.000
		C	2.245	6.314	0.000	0.000
T7	80.00-60.00	A	1.749	4.379	0.000	0.000
		B	1.163	3.959	0.000	0.000
		C	2.245	6.314	0.000	0.000
T8	60.00-40.00	A	1.686	4.468	0.302	0.398
		B	1.094	3.839	0.196	0.342
		C	2.113	6.123	0.379	0.545
T9	40.00-20.00	A	1.820	4.760	0.000	0.000
		B	1.163	3.959	0.000	0.000
		C	2.245	6.314	0.000	0.000
T10	20.00-6.67	A	1.247	3.262	0.000	0.000
		B	0.797	2.713	0.000	0.000
		C	1.539	4.326	0.000	0.000
T11	6.67-0.00	A	0.043	0.113	0.000	0.000
		B	0.027	0.094	0.000	0.000
		C	0.053	0.149	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	160.00-140.00	0.9867	0.0244	0.8634	-0.4304
T2	140.00-120.00	1.2664	0.9170	1.5690	0.4280
T3	120.00-113.33	0.6984	1.4728	1.2694	0.6713
T4	113.33-106.67	0.6822	1.4042	1.2329	0.6293
T5	106.67-100.00	0.7189	1.5597	1.3589	0.7740
T6	100.00-80.00	0.7247	1.5843	1.3859	0.8040
T7	80.00-60.00	0.7247	1.5843	1.3859	0.8040
T8	60.00-40.00	0.7064	1.5011	1.3462	0.6894
T9	40.00-20.00	0.7035	1.4846	1.3405	0.6361
T10	20.00-6.67	0.6995	1.4733	1.3299	0.6276
T11	6.67-0.00	0.1913	0.4107	0.3724	0.1853

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert (ft / ft / ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
Omni 14'x2"	C	From Leg	0.00 0.00 7.00	0.0000	160.00	No Ice 1/2" Ice	2.80 4.22	2.80 4.22	75.00 96.61
Omni 15'x2.5"	A	From Leg	2.00 0.00 7.50	0.0000	160.00	No Ice 1/2" Ice	3.75 5.28	3.75 5.28	50.00 77.80
Omni 20'x2"	B	From Leg	2.00 0.00 10.00	0.0000	160.00	No Ice 1/2" Ice	4.00 6.03	4.00 6.03	45.00 75.77
Omni 20'x2"	C	From Leg	2.00 0.00 10.00	0.0000	160.00	No Ice 1/2" Ice	4.00 6.03	4.00 6.03	45.00 75.77
5' batt. antenna	A	From Leg	2.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice	1.36 1.67	1.36 1.67	30.00 41.10
PiROD 12' T-Frame	A	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
PiROD 12' T-Frame	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
PiROD 12' T-Frame	C	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
HBX-9014DS w/mount pipe	A	From Leg	4.00 6.00 0.00	0.0000	146.00	No Ice 1/2" Ice	3.92 4.36	3.90 4.58	47.34 84.57
LBX-9012DS w/mount pipe	A	From Leg	4.00 -2.00 0.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.26	4.47 5.15	60.74 107.59
LBX-9012DS w/mount pipe	A	From Leg	4.00 -6.00 0.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.26	4.47 5.15	60.74 107.59
LBX-9012DS w/mount pipe	B	From Leg	4.00 2.00 0.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.26	4.47 5.15	60.74 107.59
LBX-9012DS w/mount pipe	B	From Leg	4.00 -2.00 0.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.26	4.47 5.15	60.74 107.59
HBX-9014DS w/mount pipe	B	From Leg	4.00 -6.00 0.00	0.0000	146.00	No Ice 1/2" Ice	3.92 4.36	3.90 4.58	47.34 84.57
LBX-9012DS w/mount pipe	C	From Leg	4.00 2.00 0.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.26	4.47 5.15	60.74 107.59
LBX-9012DS w/mount pipe	C	From Leg	4.00 -2.00 0.00	0.0000	146.00	No Ice 1/2" Ice	5.75 6.26	4.47 5.15	60.74 107.59
HBX-9014DS w/mount pipe	C	From Leg	4.00 -6.00	0.0000	146.00	No Ice 1/2" Ice	3.92 4.36	3.90 4.58	47.34 84.57

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
PiROD 12' T-Frame	A	From Leg	0.00 4.00 0.00	0.0000	135.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
PiROD 12' T-Frame	B	From Leg	0.00 4.00 0.00	0.0000	135.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
PiROD 12' T-Frame	C	From Leg	0.00 4.00 0.00	0.0000	135.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
LPA 80080/6CF w/8' mount pipe	A	From Leg	0.00 4.00 6.00	0.0000	135.00	No Ice 1/2" Ice	4.82 5.47	11.00 12.38	50.20 116.33
LPA 80080/6CF w/8' mount pipe	A	From Leg	0.00 4.00 -6.00	0.0000	135.00	No Ice 1/2" Ice	4.82 5.47	11.00 12.38	50.20 116.33
LPA 80080/6CF w/8' mount pipe	B	From Leg	0.00 4.00 6.00	0.0000	135.00	No Ice 1/2" Ice	4.82 5.47	11.00 12.38	50.20 116.33
LPA 80080/6CF w/8' mount pipe	B	From Leg	0.00 4.00 -6.00	0.0000	135.00	No Ice 1/2" Ice	4.82 5.47	11.00 12.38	50.20 116.33
LPA 80080/6CF w/8' mount pipe	C	From Leg	0.00 4.00 6.00	0.0000	135.00	No Ice 1/2" Ice	4.82 5.47	11.00 12.38	50.20 116.33
LPA 80080/6CF w/8' mount pipe	C	From Leg	0.00 4.00 -6.00	0.0000	135.00	No Ice 1/2" Ice	4.82 5.47	11.00 12.38	50.20 116.33
BXA-185063/12CF w/8' mount pipe	A	From Leg	0.00 4.00 5.00	0.0000	135.00	No Ice 1/2" Ice	5.26 5.91	5.52 6.79	44.20 89.53
BXA-185063/12CF w/8' mount pipe	A	From Leg	0.00 4.00 -5.00	0.0000	135.00	No Ice 1/2" Ice	5.26 5.91	5.52 6.79	44.20 89.53
BXA-185063/12CF w/8' mount pipe	B	From Leg	0.00 4.00 5.00	0.0000	135.00	No Ice 1/2" Ice	5.26 5.91	5.52 6.79	44.20 89.53
BXA-185063/12CF w/8' mount pipe	B	From Leg	0.00 4.00 -5.00	0.0000	135.00	No Ice 1/2" Ice	5.26 5.91	5.52 6.79	44.20 89.53
BXA-185063/12CF w/8' mount pipe	C	From Leg	0.00 4.00 5.00	0.0000	135.00	No Ice 1/2" Ice	5.26 5.91	5.52 6.79	44.20 89.53
BXA-185063/12CF w/8' mount pipe	C	From Leg	0.00 4.00 -5.00	0.0000	135.00	No Ice 1/2" Ice	5.26 5.91	5.52 6.79	44.20 89.53
Pirod 10' PCS Frame (1)	A	From Leg	0.00 2.50 0.00	0.0000	124.00	No Ice 1/2" Ice	9.00 13.20	9.00 13.20	250.00 350.00
Pirod 10' PCS Frame (1)	B	From Leg	0.00 2.50 0.00	0.0000	124.00	No Ice 1/2" Ice	9.00 13.20	9.00 13.20	250.00 350.00
Pirod 10' PCS Frame (1)	C	From Leg	0.00 2.50 0.00	0.0000	124.00	No Ice 1/2" Ice	9.00 13.20	9.00 13.20	250.00 350.00
AT 41-683Tx w/mount pipe	B	From Leg	0.00 2.50 -5.00	0.0000	124.00	No Ice 1/2" Ice	12.54 13.36	8.14 9.76	100.50 181.54

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
AT 41-683Tx w/mount pipe	C	From Leg	0.00 2.50 -5.00	0.0000	124.00	No Ice 1/2" Ice	12.54 13.36	8.14 9.76	100.50 181.54
(2) TMA 10" x 8" x 3"	B	From Leg	0.00 2.50 -4.00	0.0000	124.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	15.00 20.06
(2) TMA 10" x 8" x 3"	C	From Leg	0.00 2.50 -4.00	0.0000	124.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	15.00 20.06
2" x 10' pipe	B	From Leg	0.00 2.50 5.00	0.0000	124.00	No Ice 1/2" Ice	2.38 3.41	2.38 3.41	37.00 54.88
2" x 10' pipe	C	From Leg	0.00 2.50 5.00	0.0000	124.00	No Ice 1/2" Ice	2.38 3.41	2.38 3.41	37.00 54.88
20' dipole	B	From Leg	0.00 2.00 0.00	0.0000	72.00 - 52.00	No Ice 1/2" Ice	4.00 6.03	4.00 6.03	55.00 85.77
Pirod 2' Side Mount Standoff	B	From Leg	0.00 1.00 0.00	0.0000	52.00	No Ice 1/2" Ice	1.80 2.70	1.80 2.70	35.00 55.00
Kathrein 840 10054 w/mount pipe	A	From Leg	0.00 4.00 2.00	0.0000	146.00	No Ice 1/2" Ice	6.76 7.46	4.16 5.03	90.64 145.28
Kathrein GPS	A	From Leg	1.50 4.00 2.00	0.0000	146.00	No Ice 1/2" Ice	0.07 0.12	0.07 0.12	1.00 2.20
Kathrein 840 10054 w/mount pipe	B	From Leg	1.50 4.00 6.00	0.0000	146.00	No Ice 1/2" Ice	6.76 7.46	4.16 5.03	90.64 145.28
Kathrein 840 10054 w/mount pipe	C	From Leg	1.50 4.00 6.00	0.0000	146.00	No Ice 1/2" Ice	6.76 7.46	4.16 5.03	90.64 145.28
U-RAS	A	From Leg	1.50 4.00 2.00	0.0000	146.00	No Ice 1/2" Ice	1.80 1.99	0.78 0.92	33.00 44.58
U-RAS	B	From Leg	1.50 4.00 6.00	0.0000	146.00	No Ice 1/2" Ice	1.80 1.99	0.78 0.92	33.00 44.58
U-RAS	C	From Leg	1.50 4.00 6.00	0.0000	146.00	No Ice 1/2" Ice	1.80 1.99	0.78 0.92	33.00 44.58
			1.50						

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft^2	Weight lb

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
Andrew VHLP2	A	Paraboloid w/Radome	From Leg	4.00 2.00 0.00	0.0000		151.00	2.18	No Ice 1/2" Ice	3.73 4.01	31.00 48.00
Andrew VHLP2	C	Paraboloid w/Radome	From Leg	4.00 6.00 0.00	0.0000		151.00	2.18	No Ice 1/2" Ice	3.73 4.01	31.00 48.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 90 deg - No Ice+Guy
4	Dead+Wind 180 deg - No Ice+Guy
5	Dead+Ice+Temp+Guy
6	Dead+Wind 0 deg+Ice+Temp+Guy
7	Dead+Wind 90 deg+Ice+Temp+Guy
8	Dead+Wind 180 deg+Ice+Temp+Guy
9	Dead+Wind 0 deg - Service+Guy
10	Dead+Wind 90 deg - Service+Guy
11	Dead+Wind 180 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	6	90556.76	-0.69	563.00
	Max. H_x	8	75387.83	4.49	-1011.38
	Max. H_z	6	90556.76	-0.69	563.00
	Max. M_x	1	0.00	-1.01	7.02
	Max. M_z	1	0.00	-1.01	7.02
	Max. Torsion	8	725.38	4.49	-1011.38
	Min. Vert	1	41359.58	-1.01	7.02
	Min. H_x	7	85354.63	-719.80	200.06
	Min. H_z	8	75387.83	4.49	-1011.38
	Min. M_x	1	0.00	-1.01	7.02
	Min. M_z	1	0.00	-1.01	7.02
	Min. Torsion	3	-679.90	-542.27	154.54
Guy C @ 100 ft Elev 0 ft Azimuth 240 deg	Max. Vert	4	-3976.84	-3106.48	1393.55
	Max. H_x	4	-3976.84	-3106.48	1393.55
	Max. H_z	7	-36521.85	-29216.40	16179.31
	Min. Vert	7	-36521.85	-29216.40	16179.31
	Min. H_x	7	-36521.85	-29216.40	16179.31
	Min. H_z	4	-3976.84	-3106.48	1393.55
Guy B @ 100 ft Elev 0 ft Azimuth 120 deg	Max. Vert	3	-1321.12	684.20	588.78
	Max. H_x	6	-31096.36	23998.46	15019.77
	Max. H_z	6	-31096.36	23998.46	15019.77

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy A @ 100 ft Elev 0 ft Azimuth 0 deg	Min. Vert	6	-31096.36	23998.46	15019.77
	Min. H_x	3	-1321.12	684.20	588.78
	Min. H_z	3	-1321.12	684.20	588.78
	Max. Vert	2	-805.41	0.08	-413.63
	Max. H_x	6	-1817.71	0.28	-879.73
	Max. H_z	2	-805.41	0.08	-413.63
	Min. Vert	8	-35837.77	-12.34	-32757.64
	Min. H_x	7	-19714.14	-1055.84	-17575.48
	Min. H_z	8	-35837.77	-12.34	-32757.64

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	41359.58	1.01	-7.02	0.00	0.00	-2.66
Dead+Wind 0 deg - No Ice+Guy	70035.78	3.37	-412.74	0.00	0.00	400.77
Dead+Wind 90 deg - No Ice+Guy	64477.56	542.27	-154.54	0.00	0.00	679.90
Dead+Wind 180 deg - No Ice+Guy	53140.36	0.70	779.10	0.00	0.00	-496.91
Dead+Ice+Temp+Guy	55950.84	-3.67	-12.85	0.00	0.00	-3.22
Dead+Wind 0 deg+Ice+Temp+Guy	90556.76	0.69	-563.00	0.00	0.00	626.73
Dead+Wind 90 deg+Ice+Temp+Guy	85354.63	719.80	-200.06	0.00	0.00	448.54
Dead+Wind 180 deg+Ice+Temp+Guy	75387.83	-4.49	1011.38	0.00	0.00	-725.38
Dead+Wind 0 deg - Service+Guy	44726.72	1.85	-406.09	0.00	0.00	228.38
Dead+Wind 90 deg - Service+Guy	43986.51	416.52	-15.15	0.00	0.00	370.22
Dead+Wind 180 deg - Service+Guy	43302.55	0.55	422.33	0.00	0.00	-250.12

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0.00	-15132.63	0.00	-0.01	15132.48	0.06	0.001%
2	13.47	-15199.30	-24556.09	-13.47	15199.27	24555.08	0.004%
3	24527.15	-15132.63	12.89	-24525.68	15132.59	-12.03	0.006%
4	3.82	-15065.97	24519.68	-3.89	15065.93	-24517.65	0.007%
5	0.00	-26376.68	0.00	-0.01	26376.68	-0.02	0.000%
6	10.86	-26522.18	-29712.90	-10.86	26522.13	29711.23	0.004%
7	29688.35	-26376.68	10.39	-29687.38	26376.65	-9.79	0.003%
8	3.08	-26231.19	29627.11	-3.26	26231.16	-29626.06	0.003%
9	6.71	-15165.85	-12235.56	-6.71	15165.84	12235.13	0.002%
10	12221.14	-15132.63	6.42	-12220.86	15132.63	-6.25	0.002%
11	1.90	-15099.42	12217.42	-1.92	15099.41	-12217.08	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00003709
2	Yes	17	0.00000001	0.00007411
3	Yes	16	0.00000001	0.00013899
4	Yes	11	0.00000001	0.00014377
5	Yes	6	0.00000001	0.00003915
6	Yes	17	0.00000001	0.00012670
7	Yes	17	0.00000001	0.00008223
8	Yes	12	0.00000001	0.00007660
9	Yes	14	0.00000001	0.00006177
10	Yes	13	0.00000001	0.00005955
11	Yes	10	0.00000001	0.00004824

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	160 - 140	5.135	9	0.0429	0.3715
T2	140 - 120	4.826	9	0.1906	0.6061
T3	120 - 113.333	3.572	9	0.3427	0.7125
T4	113.333 - 106.667	3.068	9	0.3143	0.7097
T5	106.667 - 100	2.667	9	0.2450	0.7068
T6	100 - 80	2.387	9	0.1952	0.7148
T7	80 - 60	1.768	9	0.1371	0.7234
T8	60 - 40	1.211	9	0.1223	0.6953
T9	40 - 20	0.815	9	0.0733	0.6353
T10	20 - 6.67	0.498	9	0.0972	0.5539
T11	6.67 - 0	0.182	11	0.1216	0.4669

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.00	Guy	9	5.135	0.0429	0.3715	13742
151.00	Andrew VHLP2	9	5.078	0.1012	0.4855	7635
146.00	PiROD 12' T-Frame	9	5.000	0.1381	0.5441	4908
135.00	PiROD 12' T-Frame	9	4.595	0.2415	0.6485	4353
124.00	Pirod 10' PCS Frame (1)	9	3.876	0.3329	0.7057	10577
110.00	Guy	9	2.851	0.2807	0.7071	4029
72.00	20' dipole	9	1.536	0.1333	0.7166	83365
67.00	20' dipole	9	1.395	0.1310	0.7094	38616
62.00	20' dipole	9	1.262	0.1258	0.6998	25543
57.00	20' dipole	9	1.140	0.1155	0.6878	23411
52.00	20' dipole	9	1.031	0.1013	0.6737	25759
50.00	Guy	9	0.991	0.0953	0.6677	26891

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	160 - 140	19.499	6	0.3906	0.6817
T2	140 - 120	17.604	6	0.6781	1.1047
T3	120 - 113.333	13.894	6	0.9875	1.2932
T4	113.333 - 106.667	12.515	6	0.9303	1.2791
T5	106.667 - 100	11.374	6	0.7896	1.2710
T6	100 - 80	10.506	6	0.6840	1.2905
T7	80 - 60	8.280	6	0.5348	1.3151
T8	60 - 40	5.979	6	0.5342	1.2646
T9	40 - 20	4.039	6	0.4060	1.1515
T10	20 - 6.67	2.293	6	0.4826	1.0051
T11	6.67 - 0	0.811	6	0.5560	0.8466

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.00	Guy	6	19.499	0.3906	0.6817	6850
151.00	Andrew VHLP2	6	18.804	0.5042	0.8865	3806
146.00	PiROD 12' T-Frame	6	18.330	0.5761	0.9921	2447
135.00	PiROD 12' T-Frame	6	16.833	0.7787	1.1823	2174
124.00	Pirod 10' PCS Frame (1)	6	14.735	0.9670	1.2845	5349
110.00	Guy	6	11.907	0.8625	1.2718	1668
72.00	20' dipole	6	7.355	0.5450	1.3038	14747
67.00	20' dipole	6	6.771	0.5485	1.2908	10006
62.00	20' dipole	6	6.200	0.5415	1.2731	7660
57.00	20' dipole	6	5.657	0.5177	1.2504	7220
52.00	20' dipole	6	5.146	0.4808	1.2237	7752
50.00	Guy	6	4.951	0.4649	1.2121	7998

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	160.00 (A) (385)	7/16 EHS	2080.00	20800.02	9521.46	10400.00	2.000	2.185 ✔
	160.00 (A) (386)	7/16 EHS	2080.00	20800.02	9200.84	10400.00	2.000	2.261 ✔
	160.00 (B) (379)	7/16 EHS	2080.00	20800.02	7831.26	10400.00	2.000	2.656 ✔
	160.00 (B) (380)	7/16 EHS	2080.00	20800.02	8169.82	10400.00	2.000	2.546 ✔
	160.00 (C) (373)	7/16 EHS	2080.00	20800.02	9174.88	10400.00	2.000	2.267 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	160.00 (C) (374)	7/16 EHS	2080.00	20800.02	9513.40	10400.00	2.000	2.186 ✔
T4	110.00 (A) (393)	3/4 EHS	5830.00	58299.92	23367.20	29150.00	2.000	2.495 ✔
	110.00 (B) (392)	3/4 EHS	5830.00	58299.92	20554.10	29150.00	2.000	2.836 ✔
	110.00 (C) (391)	3/4 EHS	5830.00	58299.92	24244.60	29150.00	2.000	2.405 ✔
T8	50.00 (A) (396)	7/16 EHS	2080.00	20800.02	7782.93	10400.00	2.000	2.673 ✔
	50.00 (B) (395)	7/16 EHS	2080.00	20800.02	6727.58	10400.00	2.000	3.092 ✔
	50.00 (C) (394)	7/16 EHS	2080.00	20800.02	7887.05	10400.00	2.000	2.637 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140	ROHN 2.5 X-STR	20.00	3.32	43.1 K=1.00	1.00	25.269	2.2535	-45619.10	56943.80	0.801 ✔
T2	140 - 120	ROHN 2.5 X-STR	20.00	3.32	43.1 K=1.00	1.00	25.277	2.2535	-44423.90	56962.40	0.780 ✔
T3	120 - 113.333	ROHN 2.5 STD	6.67	3.25	41.2 K=1.00	0.99	25.390	1.7040	-40924.80	43266.80	0.946 ✔
T4	113.333 - 106.667	ROHN 2.5 STD	6.67	3.25	41.2 K=1.00	0.97	24.777	1.7040	-49264.10	42220.80	1.167 ✔
T5	106.667 - 100	ROHN 2.5 STD	6.67	3.25	41.2 K=1.00	0.97	24.777	1.7040	-49264.10	42220.80	1.167 ✔
T6	100 - 80	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	0.96	24.491	1.7040	-39690.80	41733.60	0.951 ✔
T7	80 - 60	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	0.94	24.040	1.7040	-30503.70	40965.20	0.745 ✔
T8	60 - 40	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	0.98	25.067	1.7040	-38548.30	42714.90	0.902 ✔
T9	40 - 20	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	0.97	24.924	1.7040	-35507.10	42471.50	0.836 ✔
T10	20 - 6.67	ROHN 2.5 STD	13.33	3.29	41.7 K=1.00	0.97	24.936	1.7040	-35507.10	42492.80	0.836 ✔
T11	6.67 - 0	ROHN 2.5 STD	6.82	3.41	43.2 K=1.00	0.98	24.763	1.7040	-33158.10	42198.00	0.786 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140	P.75x.113	4.16	4.16	74.7 K=0.50	15.932	0.3326	-6781.93	5299.59	1.280 ✓
T2	140 - 120	P.75x.113	4.16	4.16	89.7 K=0.60	14.244	0.3326	-5378.57	4738.13	1.135 ✓
T3	120 - 113.333	P.75x.113	4.10	4.10	88.5 K=0.60	14.385	0.3326	-5836.70	4784.99	1.220 ✓
T4	113.333 - 106.667	P.75x.113	4.10	4.10	88.5 K=0.60	14.385	0.3326	-6014.14	4784.99	1.257 ✓
T5	106.667 - 100	P.75x.113	4.10	4.10	73.7 K=0.50	16.038	0.3326	-4449.85	5334.93	0.834 ✓
T6	100 - 80	P.75x.113	4.14	4.14	126.7 K=0.85	9.304	0.3326	-3982.16	3094.85	1.287 ✓
T7	80 - 60	P.75x.113	4.14	4.14	126.7 K=0.85	9.304	0.3326	-2809.46	3094.85	0.908 ✓
T8	60 - 40	P.75x.113	4.14	4.14	126.7 K=0.85	9.304	0.3326	-3669.20	3094.85	1.186 ✓
T9	40 - 20	P.75x.113	4.14	4.14	126.7 K=0.85	9.304	0.3326	-2804.57	3094.85	0.906 ✓
T10	20 - 6.67	P.75x.113	4.13	4.13	126.3 K=0.85	9.357	0.3326	-2736.87	3112.44	0.879 ✓
T11	6.67 - 0	P.75x.113	3.76	3.76	115.0 K=0.85	10.987	0.3326	-1973.62	3654.75	0.540 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-1738.45	4728.67	0.368 ✓
T2	140 - 120	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-1445.10	4728.67	0.306 ✓
T4	113.333 - 106.667	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-421.72	4728.67	0.089 ✓
T5	106.667 - 100	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-516.41	4728.67	0.109 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-1790.13	4728.67	0.379 ✓
T2	140 - 120	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-343.82	4728.67	0.073 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140	P.75x.113	2.50	2.50	89.9 K=1.00	14.216	0.3326	-355.70	4728.67	0.075 ✓

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140 (377)	L3x3x3/8	4.16	4.16	85.0 K=1.00	14.795	2.1100	-11449.70	31217.40	0.367 ✓
T1	160 - 140 (378)	L3x3x3/8	4.16	4.16	85.0 K=1.00	14.795	2.1100	-12679.10	31217.40	0.406 ✓
T1	160 - 140 (383)	L3x3x3/8	4.16	4.16	85.0 K=1.00	14.795	2.1100	-13612.00	31217.40	0.436 ✓
T1	160 - 140 (384)	L3x3x3/8	4.16	4.16	85.0 K=1.00	14.795	2.1100	-8395.72	31217.40	0.269 ✓
T1	160 - 140 (389)	L3x3x3/8	4.16	4.16	85.0 K=1.00	14.795	2.1100	-11675.40	31217.40	0.374 ✓
T1	160 - 140 (390)	L3x3x3/8	4.16	4.16	85.0 K=1.00	14.795	2.1100	-13055.40	31217.40	0.418 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140	ROHN 2.5 X-STR	20.00	3.32	43.1	30.000	2.2535	29769.80	67606.20	0.440 ✓
T2	140 - 120	ROHN 2.5 X-STR	20.00	3.32	43.1	30.000	2.2535	29747.10	67606.20	0.440 ✓
T3	120 - 113.333	ROHN 2.5 STD	6.67	0.08	1.1	30.000	1.7040	17426.80	51121.50	0.341 ✓
T4	113.333 - 106.667	ROHN 2.5 STD	6.67	3.25	41.2	30.000	1.7040	23779.40	51121.50	0.465 ✓
T5	106.667 - 100	ROHN 2.5 STD	6.67	3.25	41.2	30.000	1.7040	8325.63	51121.50	0.163 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T6	100 - 80	ROHN 2.5 STD	20.00	0.08	1.1	30.000	1.7040	508.59	51121.50	0.010

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140	P.75x.113	4.16	4.16	149.4	21.600	0.3326	6380.64	7184.92	0.888
T2	140 - 120	P.75x.113	4.16	4.16	149.4	21.600	0.3326	3823.24	7184.92	0.532
T3	120 - 113.333	P.75x.113	4.10	4.10	147.5	21.600	0.3326	3928.92	7184.92	0.547
T4	113.333 - 106.667	P.75x.113	4.10	4.10	147.5	21.600	0.3326	4426.74	7184.92	0.616
T5	106.667 - 100	P.75x.113	4.10	4.10	147.5	21.600	0.3326	3515.58	7184.92	0.489
T6	100 - 80	P.75x.113	4.14	4.14	149.0	21.600	0.3326	2646.51	7184.92	0.368
T7	80 - 60	P.75x.113	4.14	4.14	149.0	21.600	0.3326	754.23	7184.92	0.105
T8	60 - 40	P.75x.113	4.14	4.14	149.0	21.600	0.3326	2064.97	7184.92	0.287
T9	40 - 20	P.75x.113	4.14	4.14	149.0	21.600	0.3326	1099.90	7184.92	0.153
T10	20 - 6.67	P.75x.113	4.13	4.13	148.6	21.600	0.3326	1340.40	7184.92	0.187

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140	P.75x.113	2.50	2.50	89.9	21.600	0.3326	1827.25	7184.92	0.254
T2	140 - 120	P.75x.113	2.50	2.50	89.9	21.600	0.3326	2778.69	7184.92	0.387
T3	120 - 113.333	P.75x.113	2.50	2.50	89.9	21.600	0.3326	1911.68	7184.92	0.266
T4	113.333 - 106.667	P.75x.113	2.50	2.50	89.9	21.600	0.3326	2591.12	7184.92	0.361
T5	106.667 - 100	P.75x.113	2.50	2.50	89.9	21.600	0.3326	2695.73	7184.92	0.375
T6	100 - 80	P.75x.113	2.50	2.50	89.9	21.600	0.3326	704.72	7184.92	0.098

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T7	80 - 60	P.75x.113	2.50	2.50	89.9	21.600	0.3326	703.69	7184.92	0.098 ✓
T8	60 - 40	P.75x.113	2.50	2.50	89.9	21.600	0.3326	664.36	7184.92	0.092 ✓
T9	40 - 20	P.75x.113	2.50	2.50	89.9	21.600	0.3326	727.99	7184.92	0.101 ✓
T10	20 - 6.67	P.75x.113	2.50	2.50	89.9	21.600	0.3326	807.02	7184.92	0.112 ✓
T11	6.67 - 0	P.75x.113	1.25	1.25	45.0	21.600	0.3326	660.38	7184.92	0.092 ✓

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140	P.75x.113	2.50	2.50	89.9	21.600	0.3326	1623.95	7184.92	0.226 ✓
T2	140 - 120	P.75x.113	2.50	2.50	89.9	21.600	0.3326	635.79	7184.92	0.088 ✓
T3	120 - 113.333	P.75x.113	2.50	2.50	89.9	21.600	0.3326	692.88	7184.92	0.096 ✓
T6	100 - 80	P.75x.113	2.50	2.50	89.9	21.600	0.3326	328.08	7184.92	0.046 ✓
T7	80 - 60	P.75x.113	2.50	2.50	89.9	21.600	0.3326	297.88	7184.92	0.041 ✓
T8	60 - 40	P.75x.113	2.50	2.50	89.9	21.600	0.3326	380.42	7184.92	0.053 ✓
T9	40 - 20	P.75x.113	2.50	2.50	89.9	21.600	0.3326	304.55	7184.92	0.042 ✓
T10	20 - 6.67	P.75x.113	2.50	2.50	89.9	21.600	0.3326	355.52	7184.92	0.049 ✓
T11	6.67 - 0	P.75x.113	2.47	2.47	88.8	21.600	0.3326	2383.41	7184.92	0.332 ✓

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140	P.75x.113	2.50	2.50	89.9	21.600	0.3326	622.06	7184.92	0.087 ✓
T2	140 - 120	P.75x.113	2.50	2.50	89.9	21.600	0.3326	757.69	7184.92	0.105 ✓
T5	106.667 - 100	P.75x.113	2.50	2.50	89.9	21.600	0.3326	447.15	7184.92	0.062 ✓
T6	100 - 80	P.75x.113	2.50	2.50	89.9	21.600	0.3326	338.12	7184.92	0.047 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T7	80 - 60	P.75x.113	2.50	2.50	89.9	21.600	0.3326	274.20	7184.92	0.038 ✓
T8	60 - 40	P.75x.113	2.50	2.50	89.9	21.600	0.3326	406.00	7184.92	0.057 ✓
T9	40 - 20	P.75x.113	2.50	2.50	89.9	21.600	0.3326	375.23	7184.92	0.052 ✓
T10	20 - 6.67	P.75x.113	2.50	2.50	89.9	21.600	0.3326	2413.88	7184.92	0.336 ✓

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T4	113.333 - 106.667	3X1/4	2.50	2.50	415.7	32.500	0.5625	7674.08	18281.30	0.420 ✓
T8	60 - 40	3X1/4	2.50	2.50	415.7	32.500	0.5625	4451.70	18281.30	0.244 ✓

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140 (375)	L3x3x3/8	2.50	2.50	32.9	21.600	2.1100	7219.91	45576.00	0.158 ✓
T1	160 - 140 (376)	L3x3x3/8	2.50	2.50	32.9	21.600	2.1100	6434.18	45576.00	0.141 ✓
T1	160 - 140 (381)	L3x3x3/8	2.50	2.50	32.9	21.600	2.1100	7187.10	45576.00	0.158 ✓
T1	160 - 140 (382)	L3x3x3/8	2.50	2.50	32.9	21.600	2.1100	7159.70	45576.00	0.157 ✓
T1	160 - 140 (387)	L3x3x3/8	2.50	2.50	32.9	21.600	2.1100	5453.52	45576.00	0.120 ✓
T1	160 - 140 (388)	L3x3x3/8	2.50	2.50	32.9	21.600	2.1100	6412.38	45576.00	0.141 ✓

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	160 - 140 (377)	L3x3x3/8	4.16	4.16	54.6	21.600	2.1100	1670.50	45576.00	0.037

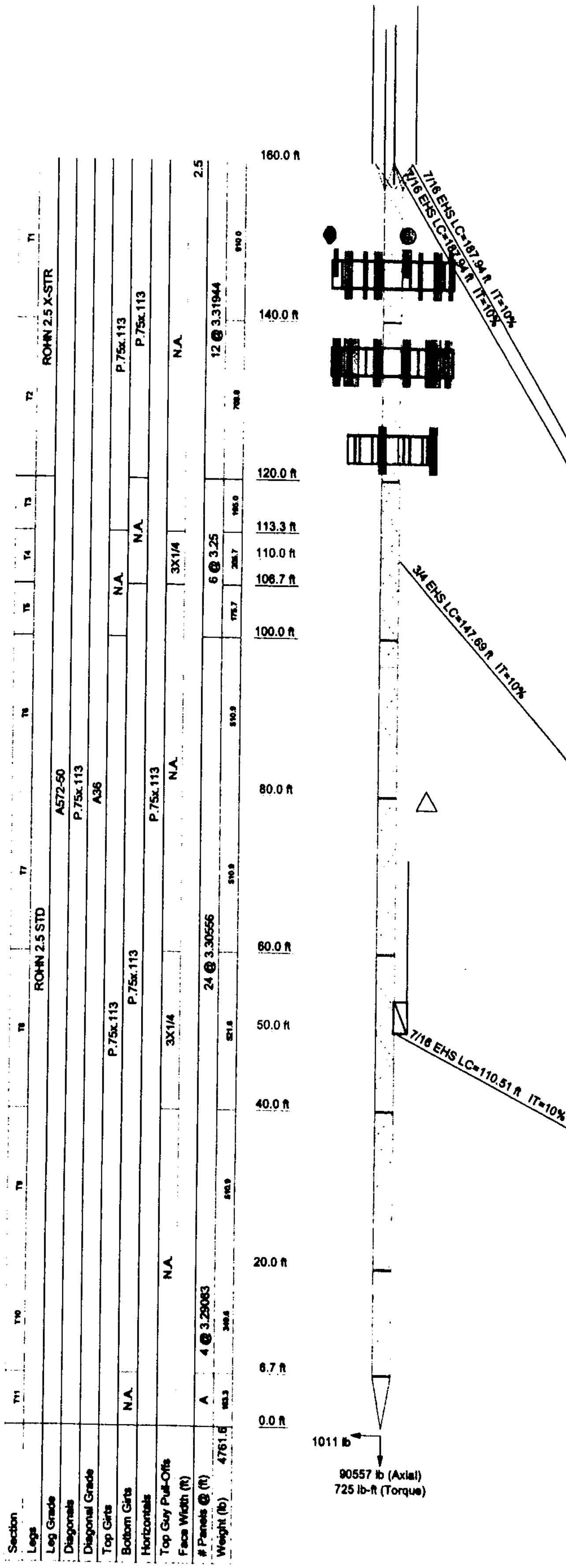
Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	160 - 140 (378)	L3x3x3/8	4.16	4.16	54.6	21.600	2.1100	2518.93	45576.00	0.055 ✓
T1	160 - 140 (384)	L3x3x3/8	4.16	4.16	54.6	21.600	2.1100	3169.43	45576.00	0.070 ✓
T1	160 - 140 (389)	L3x3x3/8	4.16	4.16	54.6	21.600	2.1100	1733.23	45576.00	0.038 ✓
T1	160 - 140 (390)	L3x3x3/8	4.16	4.16	54.6	21.600	2.1100	2649.99	45576.00	0.058 ✓

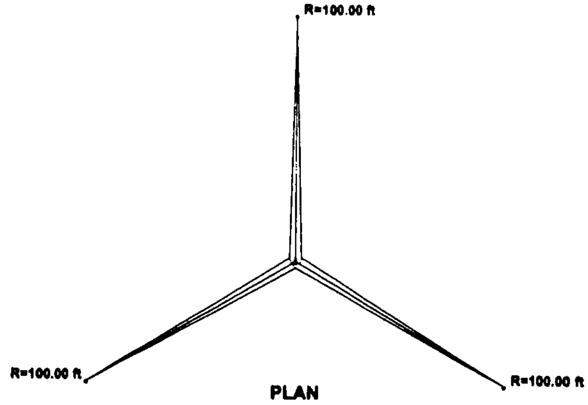
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	160 - 140	Leg	ROHN 2.5 X-STR	3	-45619.10	75906.08	60.1	Pass
T2	140 - 120	Leg	ROHN 2.5 X-STR	45	-44423.90	75930.87	58.5	Pass
T3	120 - 113.333	Leg	ROHN 2.5 STD	105	-40924.80	57674.64	71.0	Pass
T4	113.333 - 106.667	Leg	ROHN 2.5 STD	126	-49264.10	56280.33	87.5	Pass
T5	106.667 - 100	Leg	ROHN 2.5 STD	147	-49264.10	56280.33	87.5	Pass
T6	100 - 80	Leg	ROHN 2.5 STD	165	-39690.80	55630.89	71.3	Pass
T7	80 - 60	Leg	ROHN 2.5 STD	207	-30503.70	54606.61	55.9	Pass
T8	60 - 40	Leg	ROHN 2.5 STD	249	-38548.30	56938.96	67.7	Pass
T9	40 - 20	Leg	ROHN 2.5 STD	289	-35507.10	56614.51	62.7	Pass
T10	20 - 6.67	Leg	ROHN 2.5 STD	331	-35507.10	56642.90	62.7	Pass
T11	6.67 - 0	Leg	ROHN 2.5 STD	361	-33158.10	56249.93	58.9	Pass
T1	160 - 140	Diagonal	P.75x.113	28	-6781.93	7064.35	96.0	Pass
T2	140 - 120	Diagonal	P.75x.113	53	-5378.57	6315.93	85.2	Pass
T3	120 - 113.333	Diagonal	P.75x.113	110	-5836.70	6378.39	91.5	Pass
T4	113.333 - 106.667	Diagonal	P.75x.113	143	-6014.14	6378.39	94.3	Pass
T5	106.667 - 100	Diagonal	P.75x.113	160	-4449.85	7111.46	62.6	Pass
T6	100 - 80	Diagonal	P.75x.113	202	-3982.16	4125.44	96.5	Pass
T7	80 - 60	Diagonal	P.75x.113	214	-2809.46	4125.44	68.1	Pass
T8	60 - 40	Diagonal	P.75x.113	280	-3669.20	4125.44	88.9	Pass
T9	40 - 20	Diagonal	P.75x.113	330	-2804.57	4125.44	68.0	Pass
T10	20 - 6.67	Diagonal	P.75x.113	341	-2736.87	4148.88	66.0	Pass
T11	6.67 - 0	Diagonal	P.75x.113	371	-1973.62	4871.78	40.5	Pass
T1	160 - 140	Horizontal	P.75x.113	37	-1738.45	6303.32	27.6	Pass
T2	140 - 120	Horizontal	P.75x.113	94	2778.69	9577.50	29.0	Pass
T3	120 - 113.333	Horizontal	P.75x.113	115	1911.68	9577.50	20.0	Pass
T4	113.333 - 106.667	Horizontal	P.75x.113	127	2591.12	9577.50	27.1	Pass
T5	106.667 - 100	Horizontal	P.75x.113	149	2695.73	9577.50	28.1	Pass
T6	100 - 80	Horizontal	P.75x.113	200	704.72	9577.50	7.4	Pass
T7	80 - 60	Horizontal	P.75x.113	217	703.69	9577.50	7.3	Pass
T8	60 - 40	Horizontal	P.75x.113	259	664.36	9577.50	6.9	Pass
T9	40 - 20	Horizontal	P.75x.113	301	727.99	9577.50	7.6	Pass
T10	20 - 6.67	Horizontal	P.75x.113	343	807.02	9577.50	8.4	Pass
T11	6.67 - 0	Horizontal	P.75x.113	368	660.38	9577.50	6.9	Pass
T1	160 - 140	Top Girt	P.75x.113	6	-1790.13	6303.32	28.4	Pass
T2	140 - 120	Top Girt	P.75x.113	48	635.79	9577.50	6.6	Pass
T3	120 - 113.333	Top Girt	P.75x.113	106	692.88	9577.50	7.2	Pass
T6	100 - 80	Top Girt	P.75x.113	167	328.08	9577.50	3.4	Pass
T7	80 - 60	Top Girt	P.75x.113	208	297.88	9577.50	3.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T8	60 - 40	Top Girt	P.75x.113	251	380.42	9577.50	4.0	Pass
T9	40 - 20	Top Girt	P.75x.113	293	304.55	9577.50	3.2	Pass
T10	20 - 6.67	Top Girt	P.75x.113	335	355.52	9577.50	3.7	Pass
T11	6.67 - 0	Top Girt	P.75x.113	364	2383.41	9577.50	24.9	Pass
T1	160 - 140	Bottom Girt	P.75x.113	9	622.06	9577.50	6.5	Pass
T2	140 - 120	Bottom Girt	P.75x.113	49	757.69	9577.50	7.9	Pass
T5	106.667 - 100	Bottom Girt	P.75x.113	152	447.15	9577.50	4.7	Pass
T6	100 - 80	Bottom Girt	P.75x.113	170	338.12	9577.50	3.5	Pass
T7	80 - 60	Bottom Girt	P.75x.113	212	274.20	9577.50	2.9	Pass
T8	60 - 40	Bottom Girt	P.75x.113	255	406.00	9577.50	4.2	Pass
T9	40 - 20	Bottom Girt	P.75x.113	295	375.23	9577.50	3.9	Pass
T10	20 - 6.67	Bottom Girt	P.75x.113	337	2413.88	9577.50	25.2	Pass
T1	160 - 140	Guy A@160	7/16	385	9521.46	10400.00	91.6	Pass
T4	113.333 - 106.667	Guy A@110	3/4	393	23367.20	29150.00	80.2	Pass
T8	60 - 40	Guy A@50	7/16	396	7782.93	10400.00	74.8	Pass
T1	160 - 140	Guy B@160	7/16	380	8169.82	10400.00	78.6	Pass
T4	113.333 - 106.667	Guy B@110	3/4	392	20554.10	29150.00	70.5	Pass
T8	60 - 40	Guy B@50	7/16	395	6727.58	10400.00	64.7	Pass
T1	160 - 140	Guy C@160	7/16	374	9513.40	10400.00	91.5	Pass
T4	113.333 - 106.667	Guy C@110	3/4	391	24244.60	29150.00	83.2	Pass
T8	60 - 40	Guy C@50	7/16	394	7887.05	10400.00	75.8	Pass
T4	113.333 - 106.667	Top Guy Pull-Off@110	3X1/4	136	7674.08	24368.97	31.5	Pass
T8	60 - 40	Top Guy Pull-Off@50	3X1/4	273	4451.70	24368.97	18.3	Pass
T1	160 - 140	Torque Arm Top@160	L3x3x3/8	375	7219.91	60752.81	11.9	Pass
T1	160 - 140	Torque Arm Bottom@160	L3x3x3/8	383	-13612.00	41612.79	32.7	Pass

Summary		
Leg (T4)	87.5	Pass
Diagonal (T6)	96.5	Pass
Horizontal (T2)	29.0	Pass
Top Girt (T1)	28.4	Pass
Bottom Girt (T10)	25.2	Pass
Guy A (T1)	91.6	Pass
Guy B (T1)	78.6	Pass
Guy C (T1)	91.5	Pass
Top Guy Pull-Off (T4)	31.5	Pass
Torque Arm Top (T1)	11.9	Pass
Torque Arm Bottom (T1)	32.7	Pass
Bolt Checks	41.3	Pass
RATING =	**96.5**	**Pass**





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni 14'x2"	160	BXA-185063/12CF w/8' mount pipe	135
Omni 15'x2.5"	160	BXA-185063/12CF w/8' mount pipe	135
Omni 20'x2"	160	BXA-185063/12CF w/8' mount pipe	135
Omni 20'x2"	160	BXA-185063/12CF w/8' mount pipe	135
5' batt. antenna	160	PIROD 12' T-Frame	135
Andrew VHLP2	151	PIROD 12' T-Frame	135
Andrew VHLP2	151	PIROD 12' T-Frame	135
PIROD 12' T-Frame	146	LPA 80080/6CF w/8' mount pipe	135
HBX-9014DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
LBX-9012DS w/mount pipe	146	LPA 80080/6CF w/8' mount pipe	135
HBX-9014DS w/mount pipe	146	Pirod 10' PCS Frame (1)	124
LBX-9012DS w/mount pipe	146	Pirod 10' PCS Frame (1)	124
LBX-9012DS w/mount pipe	146	Pirod 10' PCS Frame (1)	124
HBX-9014DS w/mount pipe	146	AT 41-683Tx w/mount pipe	124
Kathrein 840 10054 w/mount pipe	146	AT 41-683Tx w/mount pipe	124
Kathrein GPS	146	(2) TMA 10" x 8" x 3"	124
Kathrein 840 10054 w/mount pipe	146	(2) TMA 10" x 8" x 3"	124
Kathrein 840 10054 w/mount pipe	146	2" x 10' pipe	124
U-RAS	146	2" x 10' pipe	124
U-RAS	146	20' dipole	72 - 52
U-RAS	146	Pirod 2' Side Mount Standoff	52
PIROD 12' T-Frame	146		
PIROD 12' T-Frame	146		
BXA-185063/12CF w/8' mount pipe	135		
BXA-185063/12CF w/8' mount pipe	135		

SYMBOL LIST

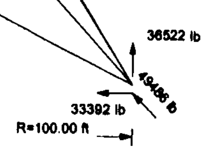
MARK	SIZE	MARK	SIZE
A	2 @ 3.25167		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 96.5%



Bay State Design	Job: CT81XC010		
241 Boston Post Road West	Project: 54 Waterbury Road, Prospect, CT 06712		
Marlborough, MA 01752	Client: Sprint	Drawn by: gkw	App'd:
Phone: (508) 229-4100	Code: TIA/EIA-222-F	Date: 01/24/11	Scale: NTS
FAX: (508) 485-5321	Path: N:\PROJECTS\Clearwire-CT\CT-NHN0032A\CT-NHN0032A-SPRINT\CT-NHN0032A-SPRINT.eri		Dwg No. E-1

C Squared Systems, LLC
920 Candia Road
Manchester, NH 03109
Phone: (603) 657 9702
support@csquaredsystems.com

Calculated Radio Frequency Emissions

Sprint

CT81XC010

54 Waterbury Road, Prospect, CT 06712

January 18, 2011

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List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing Sprint-Nextel antenna arrays mounted on the existing guyed tower located at 54 Waterbury Road in Prospect, CT. Sprint-Nextel, AT&T, Verizon, Clearwire, and multiple VHF/UHF tenants all have existing or proposed antennas mounted on the tower. The coordinates of the tower are 41-30-40.5 N, 72-58-57.2 W.

Sprint-Nextel is proposing the following modifications:

1) Replace two 850 MHz panel antennas with a different 850 MHz antenna model on each sector, 6 total;
2) Remove one 850 MHz panel antenna on each sector, 3 total;
3) Install one 1900 MHz panel antenna on each sector, 3 total;
4) Install CDMA base station equipment within the existing Sprint-Nextel equipment room;

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right)$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. All information for carriers other than Sprint-Nextel iDEN and Sprint-Nextel CDMA comes directly from the current CSC database.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
F&S Oil		451			0.0031	0.3007	1.03%
New Haven Transit		451			0.0031	0.3007	1.03%
US Post Office		415			0.0031	0.2767	1.12%
Central Comm.		452			0.0031	0.3013	1.03%
CT Motor Club		150.92			0.0381	0.2000	19.05%
Cingular TDMA	124	880	16	100	0.0374	0.5867	6.38%
Cingular GSM	124	880	2	296	0.0138	0.5867	2.36%
Cingular GSM	124	1930	2	427	0.0200	1.0000	2.00%
Verizon	135	880	9	200	0.0355	0.5867	6.05%
Verizon	135	1900	6	200	0.0237	1.0000	2.37%
Clearwire	146	2496	2	153	0.0052	1.0000	0.52%
Clearwire	151	23 GHz	1	211	0.0033	1.0000	0.33%
Sprint-Nextel iDEN	146	851	9	100	0.0152	0.5673	2.68%
Sprint-Nextel CDMA	146	1962.5	11	421	0.0781	1.0000	7.81%
						Total	**53.75%**

Table 1: Carrier Information[1]

[1] The proposed replacement Sprint-Nextel iDEN antennas have slightly lower gain characteristics relative to the current iDEN antennas. Therefore, the Sprint iDEN power density calculation has been unchanged to maintain a slightly more conservative cumulative analysis.

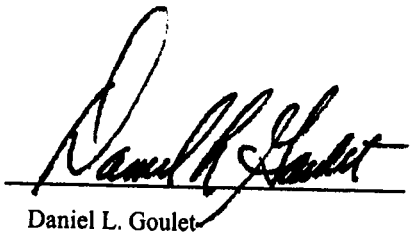
5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 53.75% of the FCC limit.

As noted above, obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

January 18, 2011
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[2]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[3]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[2] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[3] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

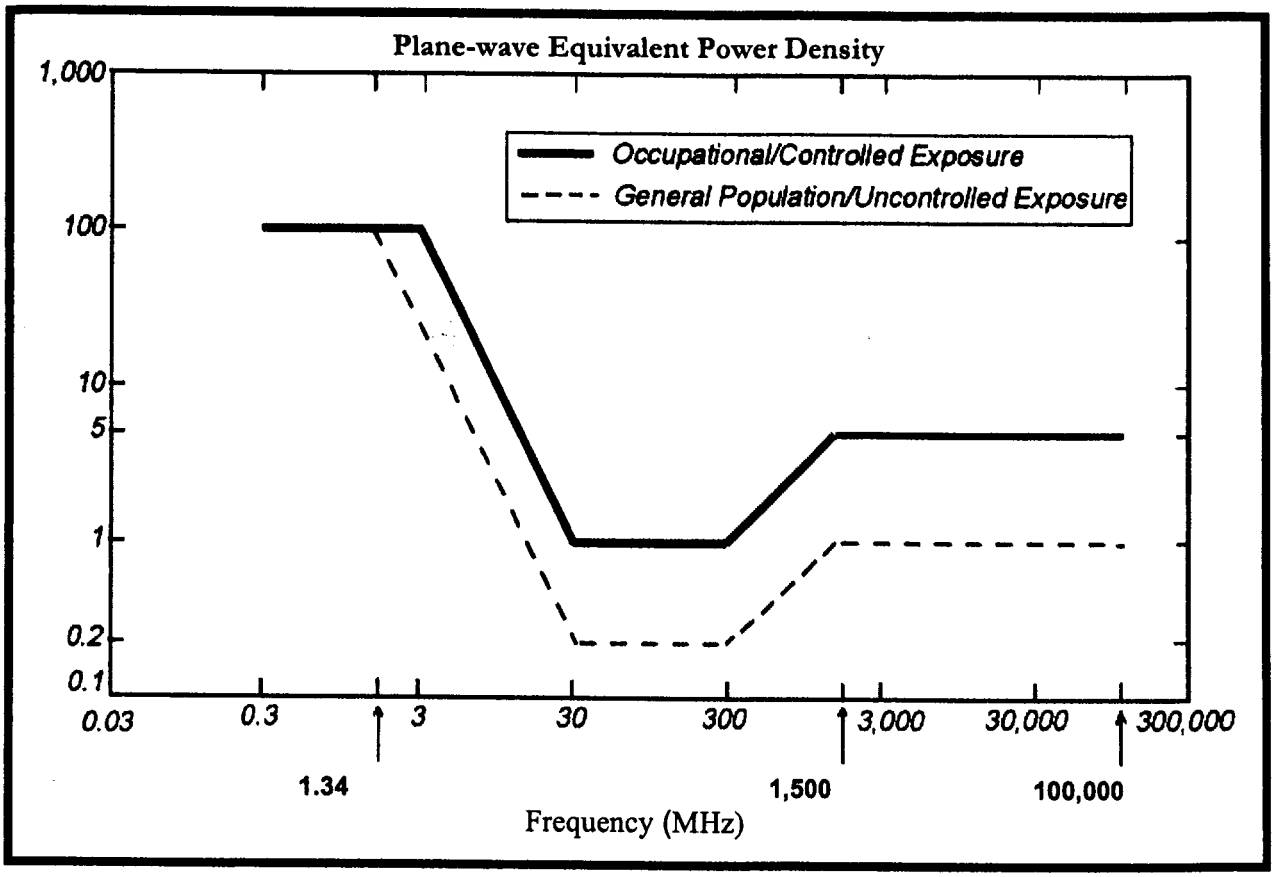


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)