THOMAS J. REGAN
direct dial: (860) 509-6522
tregan@brownrudnick.com

185 Asylum
Street
Hartford
Connecticut
06103
tel 860.509.6500
fax 860.509.6501

June 23, 2015

Robert Stein, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

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

Dear Mr. Stein:

On behalf of Sprint Corporation ("Sprint"), enclosed for filing are an original and two (2) 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.

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

Sincerely,

BROWN RUDNICK LLP

Thomas J. Regan

61970439 v1-WorksiteUS-080563/3273

CONNECTICUT SITING COUNCIL

In re:		
Sprint Corporation Notice to Make an Exempt Modification to an Existing Facility at 54 Waterbury Road, Prospect, Connecticut.	:	**EXEMPT MODIFICATION NO. _____**
	:	
	:	June 23, 2015

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), Sprint Corporation ("Sprint") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Prospect of Sprint's intent to make an exempt modification to an existing 160 foot guyed wire tower (the "Facility") located at 54 Waterbury Road in Prospect, Connecticut. The facility is currently owned by Charles and Averyll Bradshaw. Specifically, as part of its Network Vision initiative and 2.5 GHz upgrade, Sprint plans to replace its antennas and base station equipment at this site. These upgrades will enhance Sprint's overall network in Prospect.

In order to accomplish the upgrade at this site, Sprint will remove the three (3) existing 1900 MHz CDMA antennas and replace them with three (3) 2500 MHz LTE antennas and three (3) dual band 800/1900MHz CDMA/EVDO/LTE antennas. Additionally, Sprint install remote radio units ("RRU"s) and will make modifications to its base station equipment.

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

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
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(860) 509-6500

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 three (3) existing 1900 MHz CDMA antennas on the guyed wire tower spread over three sectors with an antenna centerline at 146 feet. Sprint's base station equipment is located in an equipment shelter at the base of the tower within the compound. A site plan with the Facility specifications is attached as **Exhibit A**.

Sprint plans to remove the three (3) existing antennas and replace them with three (3) 2500 MHz LTE antennas (one per sector, on existing mounts) and three (3) dual band 800/1900MHz CDMA/EVDO/LTE antennas (one per sector). Sprint will also install a total of nine (9) RRUs. Three (3) 2500 MHz RRUs (one per sector) will be mounted behind the 2500 MHz antennas and six (6) RRUs will be mounted behind the dual band antennas (two (2) per sector – one (1) 1900 MHz RRU and one (1) 800 MHz RRU). Sprint will also replace the existing coax cable with four (4) lines of Hybri-Flex (hybrid) cable (three (3) for the Network Vision antennas and one (1) for the 2500 MHz antennas).

To confirm that the Facility can support these changes, Sprint commissioned Infinigy to perform a structural analysis of the Facility (attached as **Exhibit B**). According to the structural analysis dated December 2, 2014, "the structure meets the specified TIA code requirements. The tower is therefore deemed adequate to support the existing and proposed loading…." With the proposed loading, the tower is rated at 69.2% of its capacity.

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Sprint will run the new hybrid cable via the existing underground conduits from the RRUs to a new fiber distribution box mounted on the wall inside the existing equipment shelter. Within the equipment shelter (which is inside an existing building), Sprint will replace its existing battery backup cabinet and replace an existing equipment cabinet. Sprint intends to also install a new two-inch underground conduit and drag line from the existing telco pedestal to the equipment shelter (approximately 150 feet). Sprint's planned equipment additions and replacements will not increase in the size of the boundaries of the site. Furthermore, excluding brief, minor, construction-related noise during the replacement and addition of the equipment, the proposed changes to the Facility will not increase noise levels at the site.

The replacement of the antennas and the addition of the RRUs 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 Federal Communications Commission's ("FCC") standard for Maximum Permissible Exposure ("MPE"). The FCC MPE limits are based on recommendations by the National Council on Radiation Protection and Measurements ("NCRP") which were developed by the Institute of Electrical and Electronics Engineers, Inc. ("IEEE") and adopted by the American National Standards Institute ("ANSI"). A cumulative power density analysis indicates that together, all of the antennas on the Facility will emit 82.53% of the FCC's MPE limits. 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 as **Exhibit C**.

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In conclusion, Sprint's proposed plan to replace its existing antennas with six (6) new antennas, add nine (9) new RRUs, replace its coax cable and make upgrades to its 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 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 23rd day of June, 2015, 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

61969850 v1-WorkSiteUS-080563/3273

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

EXHIBIT A

SHEET INDEX

DRIVING DIRECTIONS

DEPART FROM SPRINT:
1 INTERNATIONAL BLVD. MAHWAH, NJ 07495

TAKE LEISURE LN TO I-287 N/NJ-17 N. TAKE THE NEW JERSEY 17 N/INTERSTATE 287 N EXIT FROM LEISURE LN. TAKE I-87 S TO SAW MILL RIVER PARKWAY N IN ELMSFORD. TAKE EXIT 8A FROM I-87 S. GET ON I-684 N IN BEDFORD. TAKE I-84 E TO HAMILTON AVE IN WATERBURY. TAKE EXIT 23 FROM I-84 E. DRIVE TO CT-69 S/PROSPECT RD IN PROSPECT. TURN RIGHT ONTO HAMILTON AVE. CONTINUE ONTO CT-69 S/PROSPECT RD. DESTINATION WILL BE ON THE LEFT.

Sprint

NETWORK VISION MMBTS & 2.5 EQUIPMENT LAUNCH SOUTHERN CONNECTICUT MARKET

SITE NAME

PROSPECT - WATERBURY ROAD

SITE NUMBER

CT81XC010

SITE ADDRESS
54 WATERBURY ROAD
PROSPECT, CT 06712

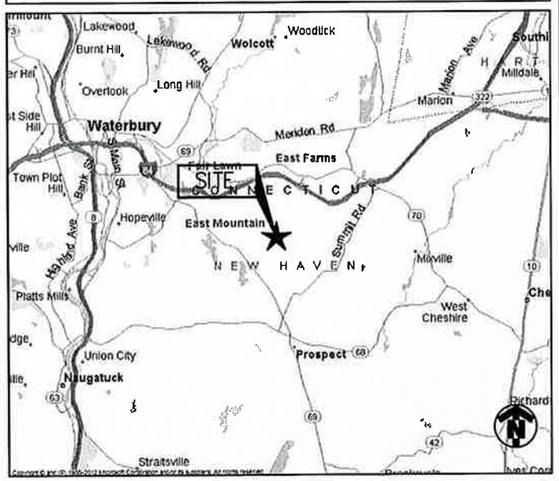
STRUCTURE TYPE
GUYED TOWER

811 Know what's below. Call before you dig. www.call811.com

PROJECT SUMMARY

SITE NAME:	PROSPECT – WATERBURY ROAD	
SITE NO.:	CT81XC010	
SITE ADDRESS:	54 WATERBURY ROAD PROSPECT, CT 06712	
COUNTY:	NEW HAVEN	
SITE COORDINATES:		
LATITUDE:	N 41° 30' 40.37"	(NAD 83)
LONGITUDE:	W 72° 58' 57.09"	(NAD 83)
GROUND ELEV.:	±878'	(AMSL)
JURISDICTION:	TOWN OF PROSPECT	
TAX MAP #	109-160-54	
TELCO PROVIDER:	VERIZON – (855) 277-5195	
FIBER PROVIDER:	AT&T – (800) 288-2020	
LAND OWNER:	BRADSHAW, CHARLES & AVERYLL 54 WATERBURY ROAD PROSPECT, CT 06712	
APPLICANT:	SPRINT 11 CENTURY HILL DRIVE, SUITE 208 LATHAM, NY 12110	
CONTACT:	PROJECT MANAGER: HEATHER CASTAGNARO (617) 247-4305	
CONSTRUCTION MANAGER:	KEITH JOHNSON (603) 231-2384 KEITH.2.JOHNSON@SPRINT.COM	
ENGINEER:	INFINIGY 1033 WATERVLIET SHAKER RD ALBANY, NY 12205	
CONTACT:	AJ DESANTIS – (518) 690-0790	
BUILDING CODE:	2003 INTERNATIONAL BUILDING CODE 2005 CONNECTICUT BUILDING CODE W/ 2009 AMENDMENT UNIFORM MECHANICAL CODE UNIFORM PLUMBING CODE LOCAL BUILDING CODE CITY/COUNTY ORDINANCES	
ELECTRICAL CODE:	NATIONAL ELECTRICAL CODE (LATEST EDITION)	

VICINITY MAP



PROJECT TEAM

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251
CUSTOMER

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
ENGINEER

SCOPE OF WORK:

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
- FACILITY HAS NO PLUMBING OR REFRIGERANTS
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. CABINETS, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR
- INSTALL NEW ANTENNAS/RRH'S ON EXISTING TOWER
- INSTALL NEW 9928 EQUIIPMENT CABINET TO REPLACE EXISTING
- INSTALL NEW BATTERY BACKUP CABINET TO REPLACE EXISTING
- REMOVE EXISTING CDMA ANTENNAS AND COAX CABLES
- REPLACE EXISTING GPS
- INSTALL (27) JUMPER CABLES FOR NV EQUIPMENT
- INSTALL (27) JUMPER CABLES FOR 2.5 EQUIPMENT
- INSTALL (4) HYBRIFLEX CABLES ((3) FOR NV & (1) FOR 2.5)

ENGINEER'S LICENSE

CERTIFICATION STATEMENT:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

LICENSED ENGINEER – STATE OF CONNECTICUT

APPROVALS

CONST. MANAGER		DATE
RF		DATE
LEASING/SITE ACQ.		DATE
IN-MARKET CONSTRUCTION LEAD		DATE
SITE OWNER	NAME/COMPANY: TITLE:	DATE

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

SUBMITTED AS PART OF AN APPLICATION FOR A PERMIT FOR ALTERATION, ADDITION OR DEMOLITION OF A BUILDING OR STRUCTURE IN VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

No.	Submittal / Revision	App'd	Date
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Drawn: AHS Date: 2/4/15
Designed: AJD Date: 2/4/15
Checked: AJD Date: 2/4/15

Project Number
286-065

Project Title
CT81XC010
PROSPECT - WATERBURY ROAD
54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For
Sprint

Drawing Scale: AS NOTED
Date: 5/11/15

Drawing Title
TITLE SHEET

Drawing Number
T1

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
D. AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).

1.2 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: SPRINT NEXTEL CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.

1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.7 NOTICE TO PROCEED:

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT NEXTEL WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY SPRINT NEXTEL TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.

2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:
CONTRACTOR IS RESPONSIBLE FOR SPRINT NEXTEL PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT NEXTEL OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

5.1 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.
C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS. HYBRIFLEX TESTING NOT LIMITED TO COAX SWEEPS.
G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PROJECT INFORMATION

THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT FACILITY AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS COMMUNICATIONS SERVICE.

NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.

NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.

NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

SPRINT MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.

LEGEND

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
M	KILOWATT HOUR METER
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
	UNDERGROUND UTILITIES
#	DENOTES REFERENCE NOTE
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION
OR ⊗	GROUND ROD
OR ⊠	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	PIN AND SLEEVE RECEPTACLE
	120AC DUPLEX RECEPTACLE
G OR	GROUND CONDUCTOR
# / #	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL
PVC	POLYVINYL CHLORIDE

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

No	Submittal / Revision	App'd	Date
B	REVISED PER COMMENTS	AHS	5/11/15
A	ISSUED FOR REVIEW	AHS	2/4/15

Drawn: AHS Date: 2/4/15
Designed: AJD Date: 2/4/15
Checked: AJD Date: 2/4/15

Project Number
286-065

Project Title

CT81XC010
PROSPECT -
WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For

Sprint

Drawing Scale:
AS NOTED

Date:
5/11/15

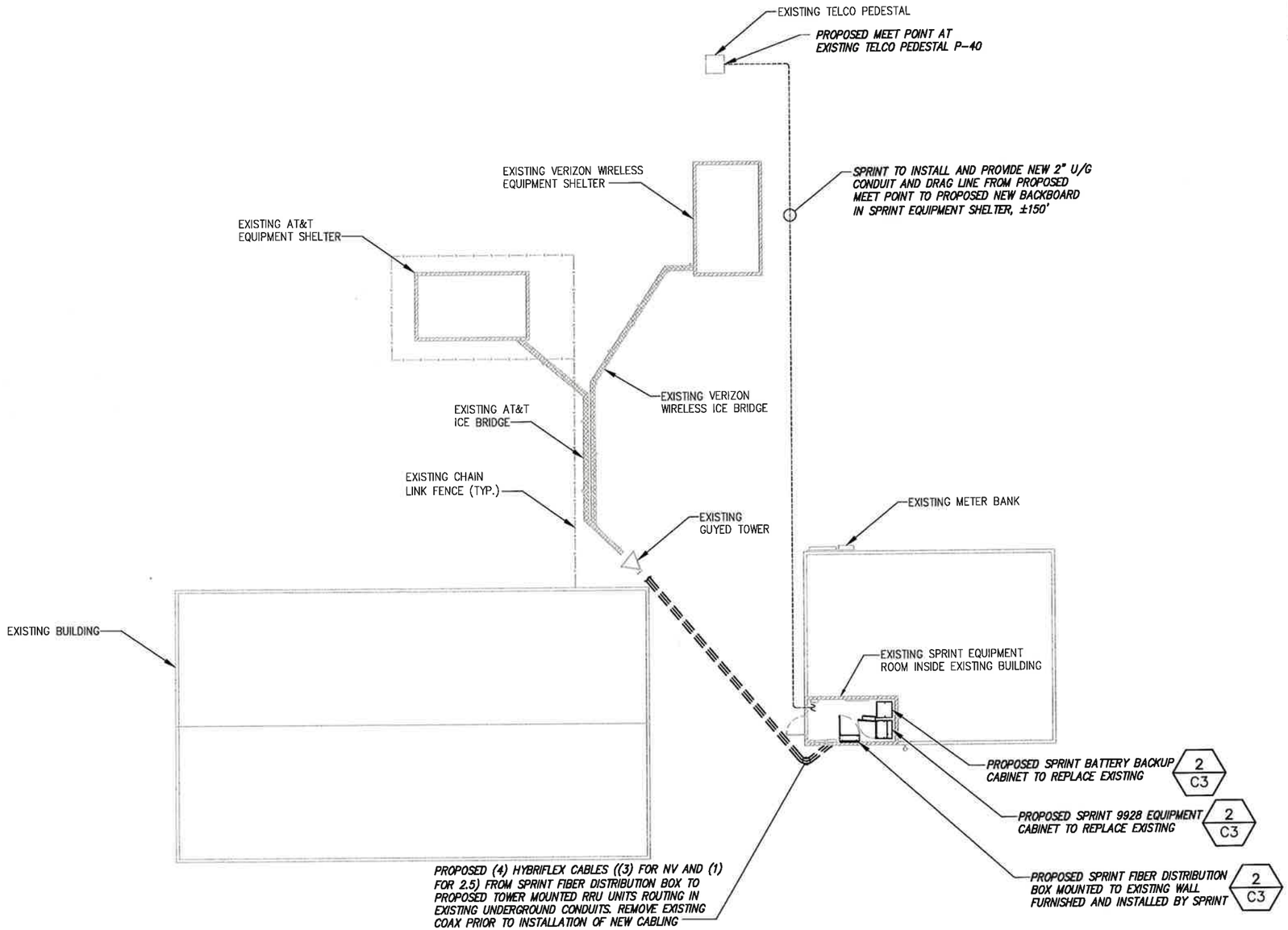
Drawing Title

GENERAL NOTES

Drawing Number

C1

FOR ADDITIONAL STRUCTURAL INFORMATION SEE STRUCTURAL ANALYSIS COMPLETED BY INFINIGY DATED: 12/2/14



CALLED NORTH

1 OVERALL SITE PLAN
SCALE AS NOTED:

5' 0 5' 10' 20'
(IN FEET)
SCALE: 22"X 34" SHEET 1"= 10'
SCALE: 11"X 17" SHEET 1"= 20'

BASEMAPPING PREPARED FROM A SITE VISIT PERFORMED BY INFINIGY ON 6/12/14.

NOTE:
ALL EXISTING AND PROPOSED EQUIPMENT, CONDUITS AND CABLE TRAYS ARE TO BE LABELED WITH SPRINT IDENTIFICATION

NOTE:
EMERGENCY CONTACT INFORMATION TO BE DISPLAYED ON FACE OF SPRINT BTS CABINET

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

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286-065

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CT81XC010
PROSPECT - WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For

Sprint

Drawing Scale:
AS NOTED

Date:
5/11/15

Drawing Title

OVERALL SITE PLAN

Drawing Number

C2

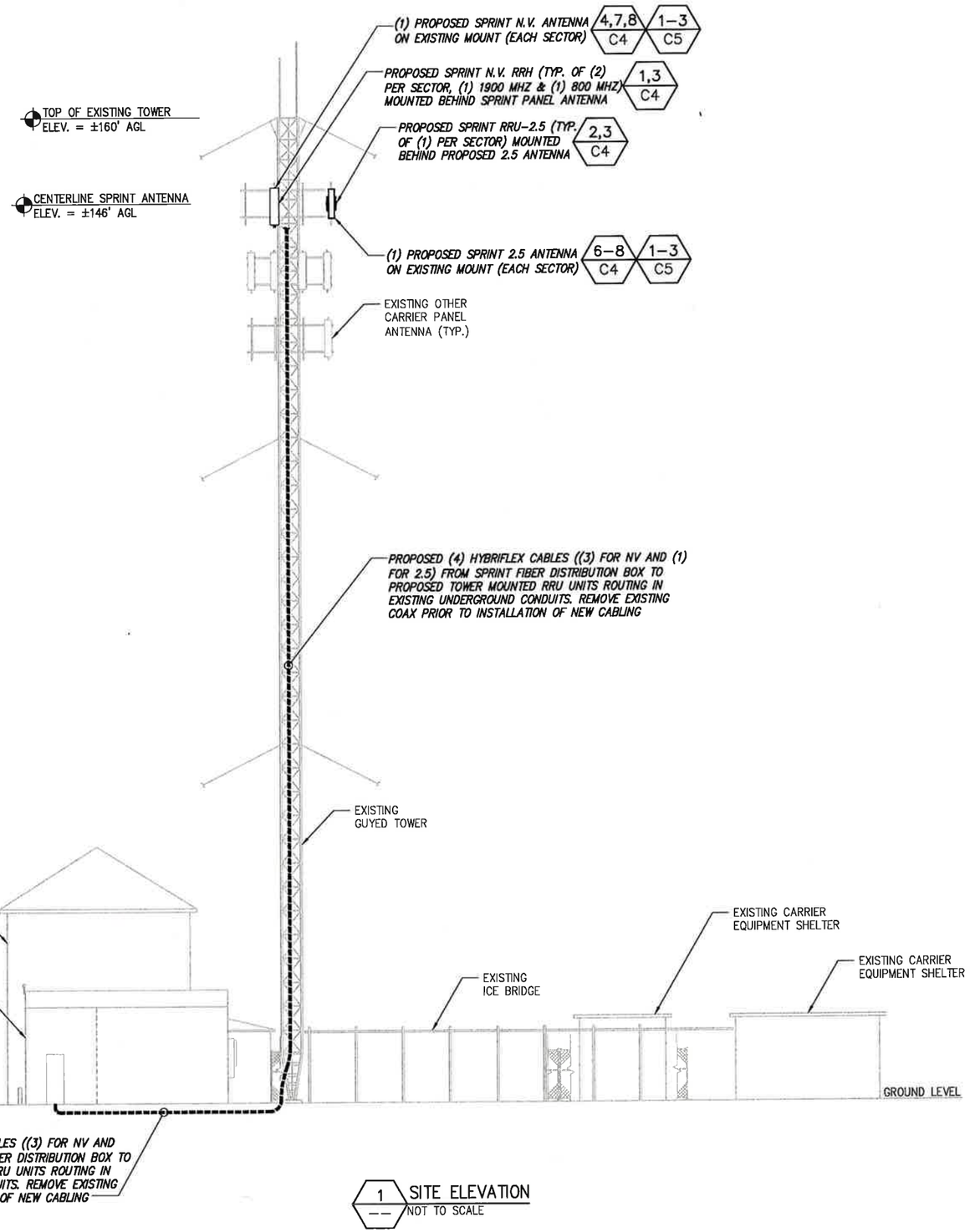
NOTE:
ALL EXISTING AND PROPOSED EQUIPMENT, CONDUITS AND CABLE TRAYS ARE TO BE LABELED WITH SPRINT IDENTIFICATION

NOTE:
EMERGENCY CONTACT INFORMATION TO BE DISPLAYED ON FACE OF SPRINT BTS CABINET

FOR ADDITIONAL STRUCTURAL INFORMATION SEE STRUCTURAL ANALYSIS COMPLETED BY INFINIGY TITLED: "TOWER ANALYSIS REPORT", DATED: "DECEMBER 2, 2014"; SITE NAME: "CT81XC010"

NOTE:
MOUNT ANALYSIS NOT COMPLETED AT TIME OF ISSUANCE OF THESES DRAWINGS

BASEMAPPING PREPARED FROM A SITE VISIT PERFORMED BY INFINIGY ON 6/12/14.



1 SITE ELEVATION
NOT TO SCALE

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0783

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

No.	Submittal / Revision	App'd	Date
B	REVISED PER COMMENTS	AHS	5/11/15
A	ISSUED FOR REVIEW	AHS	2/4/15

Drawn: AHS Date: 2/4/15
Designed: AJD Date: 2/4/15
Checked: AJD Date: 2/4/15

Project Number
288-065

Project Title

CT81XC010
PROSPECT -
WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For

Sprint

Drawing Scale:
AS NOTED

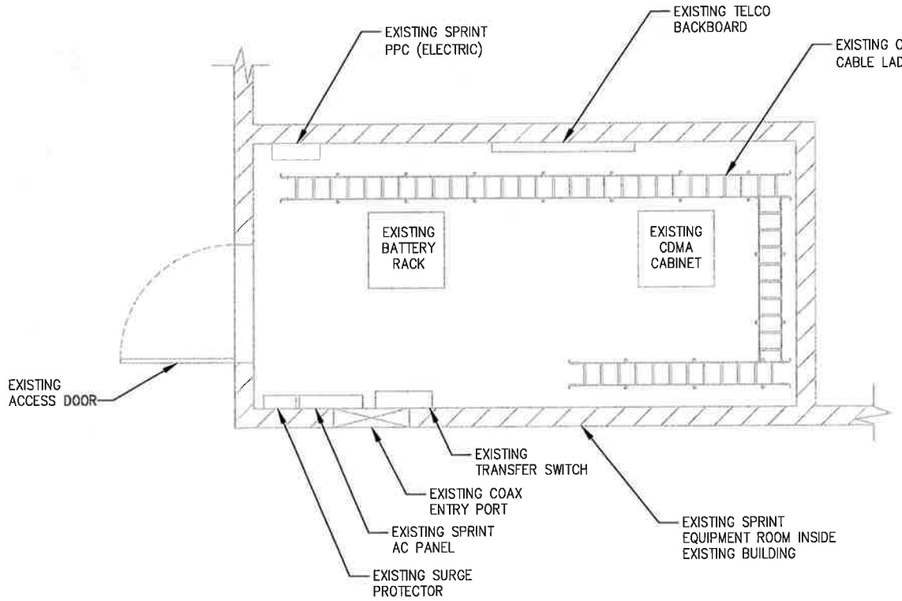
Date:
5/11/15

Drawing Title

ELEVATION VIEW

Drawing Number

C2A



CALLED NORTH

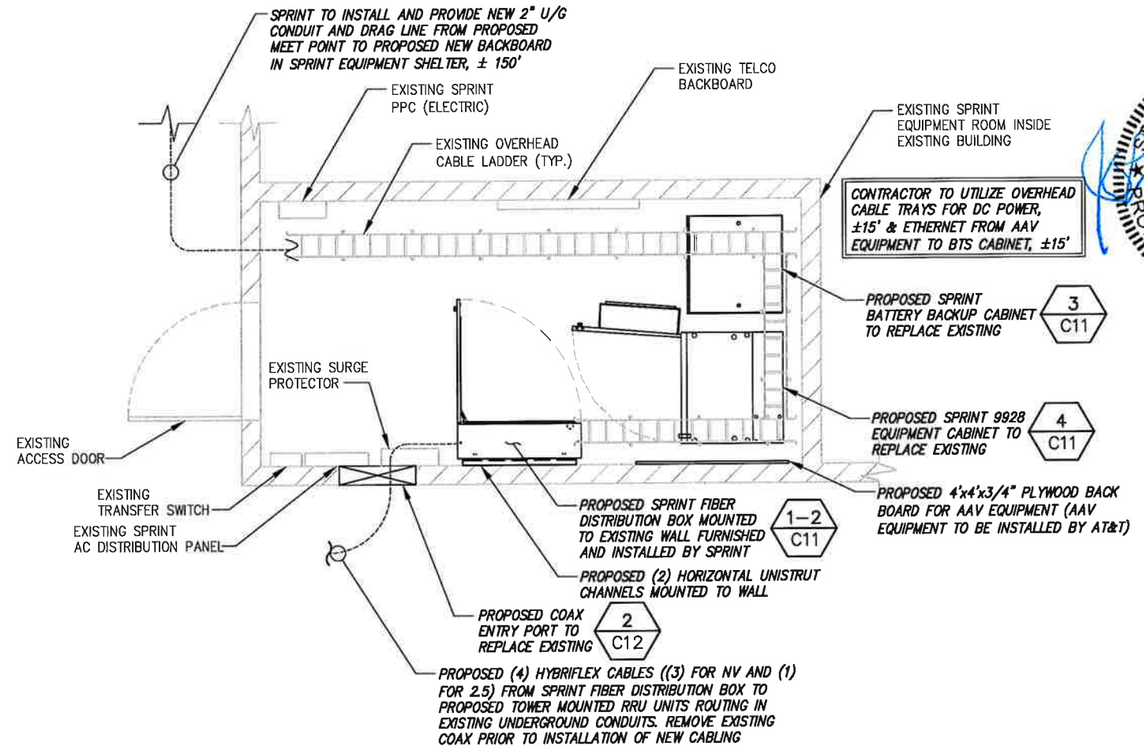
1 — EQUIPMENT SITE PLAN (EXISTING)

SCALE AS NOTED:

1' 0 1' 2' 4'

(IN FEET)

SCALE: 24"X 36" SHEET 1"= 2'
SCALE: 11"X 17" SHEET 1"= 4'



CALLED NORTH

2 — EQUIPMENT SITE PLAN (FINAL/PERMANENT)

SCALE AS NOTED:

1' 0 1' 2' 4'

(IN FEET)

SCALE: 24"X 36" SHEET 1"= 2'
SCALE: 11"X 17" SHEET 1"= 4'

BASEMAPPING PREPARED FROM A SITE VISIT PERFORMED BY INFINIGY ON 6/12/14.

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54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For
Sprint

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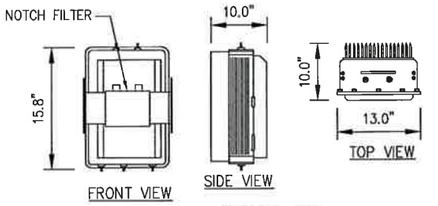
AS NOTED

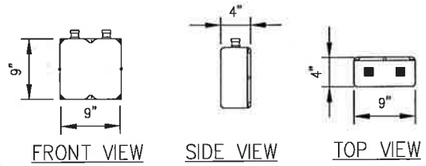
Date:
5/11/15

Drawing Title
EQUIPMENT SITE PLANS

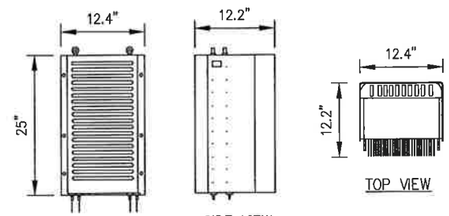
Drawing Number
C3



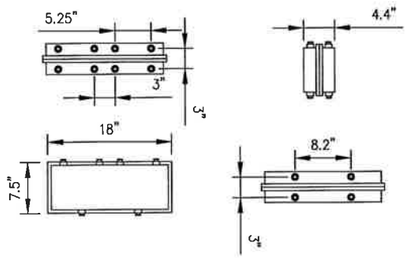
800 MHz RRH
(ALU)
WEIGHT = 53 LBS.



850 MHZ NOTCH FILTERS
WEIGHT = 11 LBS.



1900 MHz RRH
(ALU)
WEIGHT = 60 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)

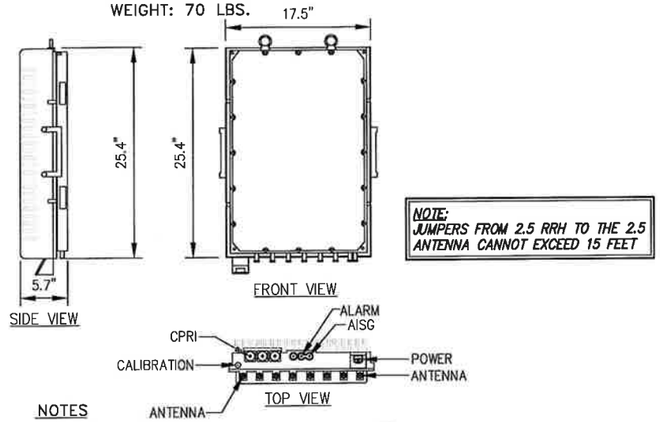


1900 RRH COMBINER
WEIGHT 40 LBS.

NOTE:
REFER TO R.F. SYSTEM SCHEDULE FOR EXACT RRH SPECIFICATIONS AND QUANTITIES.

1 N.V. RRH EQUIPMENT DETAILS
NOT TO SCALE

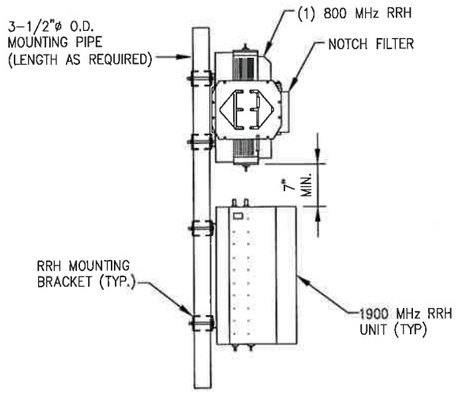
RRU: ALCATEL LUCENT TD-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



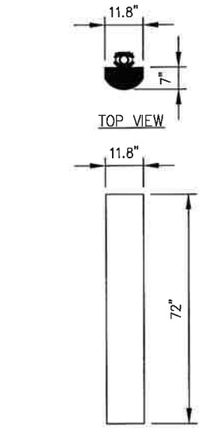
NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

NOTES
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.

2 2.5 RRU EQUIPMENT DETAILS
NOT TO SCALE

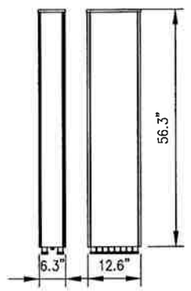


3 N.V. RRH MOUNTING DETAIL
NOT TO SCALE



RFS ANTENNA
P/N: APXVSPP18-C-A20

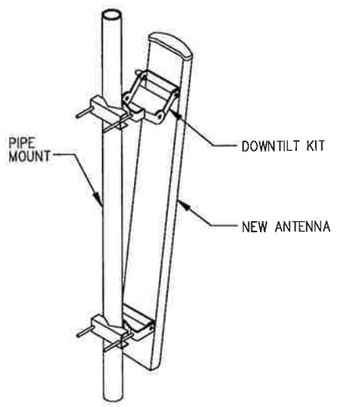
4 ANTENNA DETAILS
NOT TO SCALE



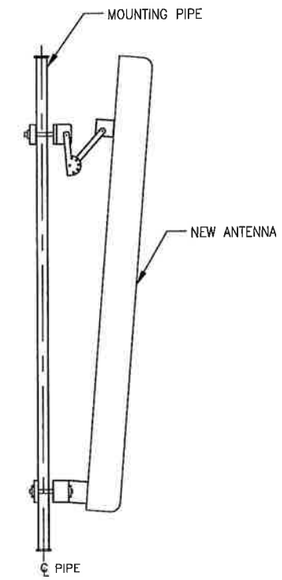
ANTENNA: RFS APXVTM14-ALU-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD in. (mm):	56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	52.9 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR

5 2.5 ANTENNA DETAILS
NOT TO SCALE



6 PANEL ANTENNA MOUNT DETAIL
NOT TO SCALE



7 ANTENNA MOUNT DETAIL
NOT TO SCALE

INFINIGY
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Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0753

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
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PROFESSIONAL ENGINEER

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Project Title
CT81XC010
PROSPECT -
WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

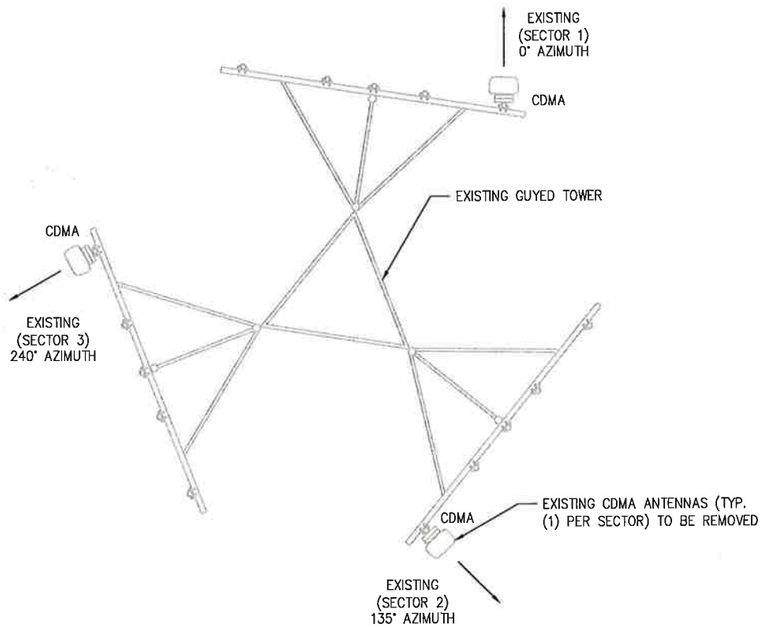
Prepared For
Sprint

Drawing Scale:
AS NOTED

Date:
5/11/15

Drawing Title
ANTENNA & RRH DETAILS

Drawing Number
C4

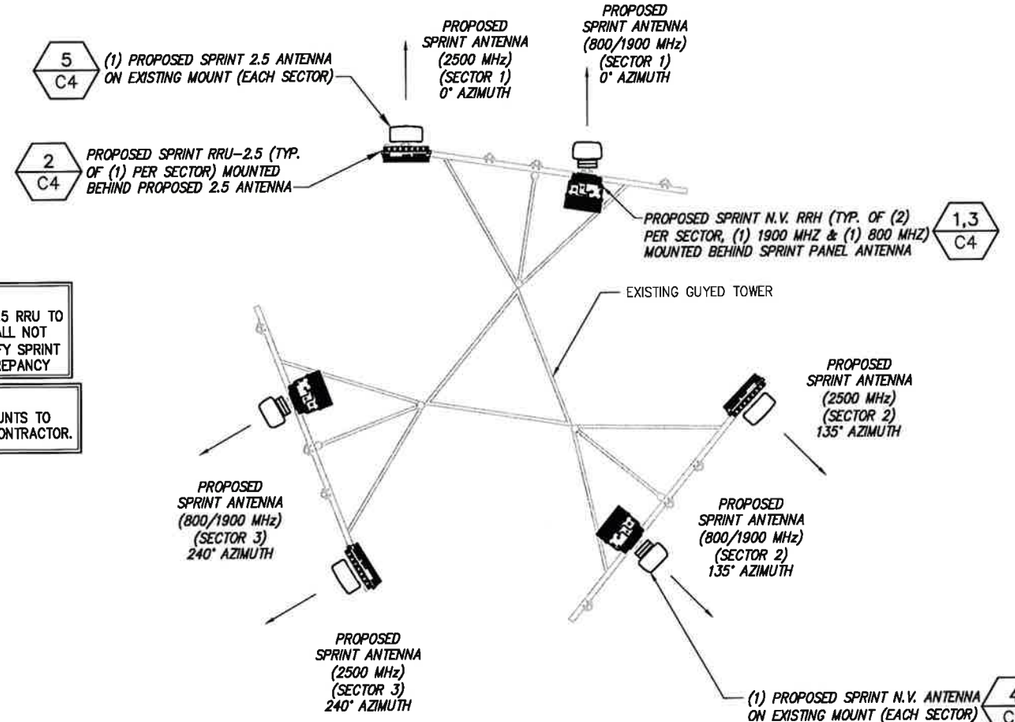


1 — ANTENNA CONFIGURATION (EXISTING)
NOT TO SCALE

CALLED NORTH

NOTE:
JUMPERS FROM 2.5 RRU TO 2.5 ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CM OF ANY DISCREPANCY

NOTE:
REQUIRED PIPE MOUNTS TO BE SUPPLIED BY CONTRACTOR.



2 — ANTENNA CONFIGURATION (FINAL/PERMANENT) (HOT SWAP)
NOT TO SCALE

CALLED NORTH

RRH NOTES:
- SEE PAGE C5 FOR RRH MOUNTING INFORMATION (TYP. ALL SECTORS).
- REFER TO RF SCHEDULE ON SHEETS C8-C10 FOR RRH UNIT SPECS AND QUANTITIES.

GENERAL NOTES:
1. NEW SPRINT PANEL ANTENNAS TO MEET RF DESIGN REQUIREMENTS PER EBTS, PER APPROVED STRUCTURAL ANALYSIS.
2. CONTRACTOR TO PROVIDE EXISTING ANTENNA VERIFICATION AND TO INCLUDE MOUNTING HEIGHT, RAD CENTER, TOP AND BOTTOM OF ANTENNA AND AZIMUTHS FOR ALL ANTENNAS.
3. CONTRACTOR SHALL VERIFY NEW PARTS BEFORE ORDERING.
4. REFER TO SHEET C7 FOR ANTENNAS SPECS.
5. CONTRACTOR TO USE PROPER TORQUE WRENCH WHEN INSTALLING AND TIGHTENING CONNECTORS TO INSURE PROPER FIT.
6. ALL HYBRID CABLES SHALL BE MARKED WITHIN 24" OF THE END OF EACH CABLE WITH 2" WIDE VINYL TAPE. THIS INCLUDES ALL JUMPERS AND MAIN LINE HYBRID CABLE.
7. CDMA ANTENNAS SHALL NOT BE REMOVED UNTIL ALL NEW MULTI-MODE ANTENNAS ARE INSTALLED AND ON-AIR.

FOR ADDITIONAL STRUCTURAL INFORMATION
SEE STRUCTURAL ANALYSIS COMPLETED
BY INFINIGY DATED: 12/2/14

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PROSPECT - WATERBURY ROAD
54 WATERBURY ROAD
PROSPECT, CT 06712

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Sprint

Drawing Scale:
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Date:
5/11/15

Drawing Title
ANTENNA PLANS

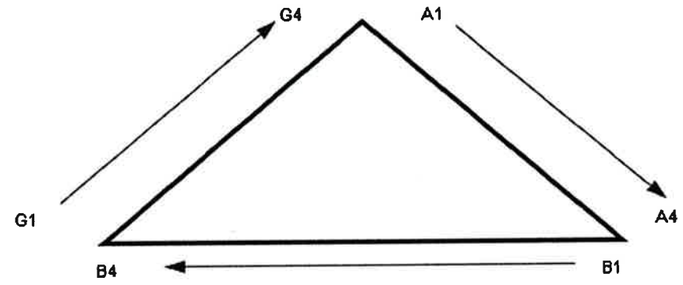
Drawing Number
C5

NV CABLES				
BAND	INDICATOR		PORT	COLOR
800-1	YEL	GRN	NV-1	GRN
1900-1	YEL	RED	NV-2	BLU
1900-2	YEL	BRN	NV-3	BRN
1900-3	YEL	BLU	NV-4	WHT
1900-4	YEL	SLT	NV-5	RED
800-2	YEL	ORG	NV-6	SLT
SPARE	YEL	WHT	NV-7	PPL
2500	YEL	PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.

2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.

3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.

4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.

5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.

6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.

7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.

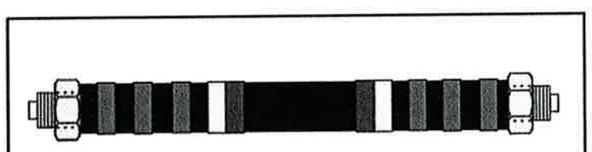
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2		No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2			No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2			
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

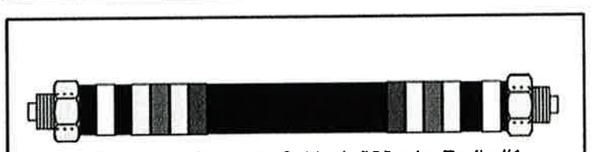
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

Example – Sector 2, Cable 2, 800mhz Radio #1



Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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LICENSED PROFESSIONAL ENGINEER

ALL CONSTRUCTION TO BE IN CONFORMANCE WITH THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE AND ALL APPLICABLE STATE AND/OR LOCAL LAWS

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WATERBURY ROAD

54 WATERBURY ROAD
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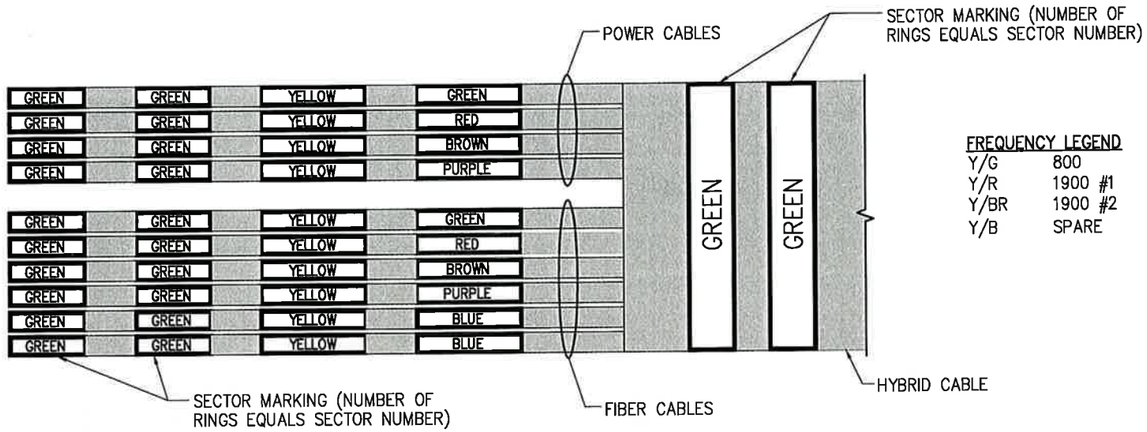
Drawing Title

2.5 COLOR CODING

Drawing Number

C6



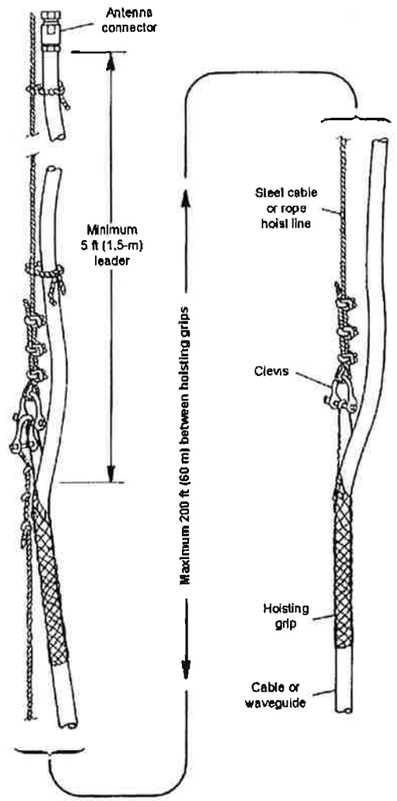
FREQUENCY LEGEND

Y/G	800
Y/R	1900 #1
Y/BR	1900 #2
Y/B	SPARE

HYBRID CABLE WILL BE MARKED IN A SIMILAR MANNER AS COAX CABLES. THE MAIN TRUNK OF THE HYBRID CABLE IS TO BE MARKED WITH THE SECTOR MARKINGS ONLY. THE INDIVIDUAL POWER PAIRS AND FIBER CABLES WILL BE LABELED WITH BOTH THE SECTOR CABLE MARKINGS AND FREQUENCY (EXAMPLE ABOVE IS FOR SECTOR 2)

1 COLOR CODING
NOT TO SCALE

1. DO NOT USE ONE HOISTING GRIP FOR HOISTING TWO OR MORE CABLES OR WAVEGUIDES. THIS CAN CAUSE THE HOISTING GRIP TO BREAK OR THE CABLES OR WAVEGUIDES TO FALL.
2. DO NOT USE THE HOISTING GRIP FOR LOWERING CABLE OR WAVEGUIDE. SNAGGING OF THE CABLE OR WAVEGUIDE MAY LOOSEN THE GRIP AND POSSIBLY CAUSE THE CABLE TO WAVEGUIDE TO SWAY OR FALL.
3. DO NOT REUSE HOISTING GRIPS. USED GRIPS MAY HAVE LOST ELASTICITY, STRETCHED, OR BECOME WEAKENED. REUSING A GRIP CAN CAUSE THE CABLE OR WAVEGUIDE TO SLIP, BREAK, OR FALL.
4. USE HOISTING GRIPS AT INTERVALS OF NO MORE THAN 200 FT (60 M).
5. MAKE SURE THAT THE PROPER HOISTING GRIP IS USED FOR THE CABLE OR WAVEGUIDE BEING INSTALLED. SLIPPAGE OR INSUFFICIENT GRIPPING STRENGTH WILL RESULT IF YOU ARE USING THE WRONG HOISTING GRIP.



2 HOIST GRIP DETAIL
NOT TO SCALE

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
office # (518) 690-0790
Fax # (518) 690-0793

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54 WATERBURY ROAD
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Drawing Title

N.V.
CABLE DETAILS

Drawing Number

C7

RF Design Sheet

Basic Information

Note: Italic text are RFDS instructions for RF Engineer. Please remove these comments prior to issuing RFDS form and remove italic formatting.

Cascade Number	CT81XC010
Site Name	Prospect-Waterbury Rd
Site Number 1 or 2 (for more than 3 sector site)	
99 Market Name	Southern Connecticut
OEM	ALU
Cluster ID	From POR
Issue Date	05/13/2014
Revision Date	05/13/2014
Solution ID	
PID	
RFDS Engineer (OEM RF Engineer)	
Sprint RF Engineer	Bill Hastings
Sprint RF Engineer (phone/e-mail)	
Sprint RF Manager	Jonathan Hull
Sprint RF Manager (phone/email)	
RF Need By Date	
Project Description	New 800/1900 NV and 2.5G TDD LTE service at existing site. Add new antennas, RRH and RAN equipment.

Location Information			
Latitude (decimal only)	41.51121388 °		
Longitude (decimal only)	-73.98252500 °		
Address	54 Waterbury Rd		
City, State, Zip Code	Prospect	CT	06712
County, E911 Phase	New Haven		Phase 2

Site Level Design Information 2500Mhz	Number of Sectors	Carrier Count when 2.5G is on air	Tx and Rx start and stop frequencies
LTE 2500	3	3	2496 MHz - 2690 MHz
3G 1900 Mhz			
LTE PCS G Block			
LTE PCS Block A-F			
3G 800Mhz			
LTE 800Mhz			
Microwave Backhaul			
Existing BTS Location			
Existing BTS Type			
New Growth Cabinet Make/Model			
New Growth Cabinet Quantity			
New Growth Cabinet Dimensions (L x W x H in inches)			
New Growth Cabinet Loaded weight (lbs)			
New Top Hat Make/Model	ALU Only		
New Top Hat Cabinet Quantity	ALU Only		
New Top Hat Dimensions (L x W x H in inches)	ALU Only		
New Top Hat Loaded weight (lbs)	ALU Only		
Incremental Power Draw needed by new Growth Cabinet or Top Hat			
Site Structure Type			
Current Ethernet Speed			
Required Ethernet Speed			
Homerun Coax Cable Make/Model	Required if site is ground mounted or if deployment requires long jumper lengths.		
Homerun Coax Cable Qty	Required if site is ground mounted or if deployment requires long jumper lengths.		
Homerun Coax Cable Length	Required if site is ground mounted or if deployment requires long jumper lengths.		
Homerun Coax Cable Diameter (inches)	Required if site is ground mounted or if deployment requires long jumper lengths.		
Homerun Coax Cable weight per foot (lbs)	Required if site is ground mounted or if deployment requires long jumper lengths.		
1) Does Home Run AISG (RET) Cable Exist? 2) If so, How many? 3) If new ones will be run, incremental additional number of cables.			
Additional GPS antenna required?			
A&E Drawing Requirements:	1) Calculate and call-out hybrid/fiber/coax main line cable route and lengths. 2) Calculate and call-out AISG cable route and lengths. 3) All antenna heights are to center of horizontal antennna. 4) Verify CL height with as-built drawings in Siterra or per Sprint site development. 5) No object is to be located 45 degrees left and right of front of antenna or 67.5 degress from horizontal from top and bottom of antenna. If this is not possible, contact RF Engineer for further instruction. In addition, 2.5G antenna is not to be placed in front of any other antenna using the same rules as above. Reference Sprint Antenna Placement Guidelines in Siterra General Library for more details. This includes Sprint and non-Sprint antennas. If necessary, 2.5G antenna can be placed at far edge of horizontal antenna mount member for clear Line Of Site or even on another sector mount for clear Line Of Site. 6) Horizontally, 2.5G antenna must be at least 18" from 1900Mhz antenna, 30" from 800Mhz antenna and 30Mhz from dual band 1900Mhz and 800Mhz antenna. Reference Sprint Antenna Placement Guidelines in Siterra General Library for vertical spacing requirements.		

1 SPRINT RFDS (PAGE 1)
NOT TO SCALE

RF Design Sheet

Special Construction Requirements:	1) AISG tests to verify operation is to be performed AFTER final installation of antennas and AISG cables have been connected. Verfy operation of ALL existing Sprint AISG equipment including 800Mhz, 1.9Ghz and 2.5G. Test include complete downtilt, azimuth (if applicable) and beamwidth swings (if applicable). Document AISG test results in Coax Sweep Test spreadsheet. 3) General Contractor must insure that no object is located in front of antenna. This means no object is to be located 45 degrees left and right of front of antenna or 67.5 degress from horizontal from top and bottom of antenna. If this is not possible, contact RF Engineer for further instruction. In addition, 2.5G antenna is not to be placed in front of any other antenna using the same rules as above. This includes Sprint and non-Sprint antennas. 4) General Contract is required to use a digital alignment tool to set azimuth, roll and downtilt. Azimuth accuracy is to be within 3 degrees. Downtilt and roll (left to right tilt) is to be within 0.1 degrees. If for some reason this accuracy cannot be achieved, update as-built drawings and email Sprint RF Engineer with as-built settings. Use 3Z RF alignment tool or equivalent tool. http://www.3rtelecom.com/antenna-alignment-tool/
Addetional RF Notes:	

Sector and Antenna Information - 2500 MHz

[1] If antenna combined with another band (ie, 800 1900 and 2500)
[2] If antenna is dual or tri band, put band antenna is combined with. Make sure antenna model is listed and same as other band.
3 If Split sector, enter both into same cell and separate sector and antenna information information with " | " (space bar space).

Final/New Configuration	Sector 1	Sector 2	Sector 3
Azimuth	0°	135°	240°
Antenna Center Line (ft)	148	148	148
Antenna Manufacturer	RFS	RFS	RFS
Antenna Model	APXVTM14-ALU120	APXVTM14-ALU120	APXVTM14-ALU120
Antenna Weight (lbs including mount)	55.1 lbs	55.1 lbs	55.1 lbs
Antenna Dimensions (L x W x H in inches)	56.3" x 12.6" x 6.3"	56.3" x 12.6" x 6.3"	56.3" x 12.6" x 6.3"
Antenna Qty	1	1	1
Antenna Mechanical Downtilt	0 °	0 °	0 °
Antenna Electrical Downtilt	2 °	2 °	2 °
Combined with [1]			
Upper Splitter Make/Model	N/A	N/A	N/A
Upper Splitter Qty	0	0	0
Upper Splitter Dimensions (L x W x H in inches)	N/A	N/A	N/A
Upper Splitter Weight (lbs)	N/A	N/A	N/A
Top Jumper Make/Model	Coax Jumper Mfg TBD	Coax Jumper Mfg TBD	Coax Jumper Mfg TBD
Top Jumper Quantity	9	9	9
Top Jumper length in feet	8	8	8
Bottom Jumper Make/Model	N/A	N/A	N/A
Bottom Jumper Quantity	0	0	0
Bottom Jumper length in feet	N/A	N/A	N/A
Surge Arrestor			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
Upper Diplexer/Triplexor/Duplexor Dimensions (L x W x H in inches)			
Upper Diplexer/Triplexor/Duplexor Weight (lbs)			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
DC Block (specify port)			
RF Filter Make/Model	N/A	N/A	N/A
RF Filter Quantity	0	0	0
RF Filter Dimensions (L x W x H in inches)			
RF Filter Weight (lbs)			
Hybrid/Fiber Cable Make/Model			
Hybrid/Fiber Qty	1	1	1
Hybrid/Fiber Length	TBD	TBD	TBD
Hybrid/Fiber Diameter (inches)			
Hybrid/Fiber weight per foot (lbs)			
Homerun Coax Cable Make/Model			
Homerun Coax Cable Qty			
Homerun Coax Cable Length			
Homerun Coax Cable Diameter (inches)			
RRH / RRU/TMA Model	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25
RRH / RRU/TMA Qty	1	1	1
RRH/RRU/TMA Weight (lbs including mount)			
RRH / RRU/TMA Dimensions (L x W x H in inches)			
Power Junction Cylinder Make/Model			
Power Junction Cylinder Qty			
Power Junction Cylinder Dimensions (L x W x H in inches)			
Power Junction Cylinder Weight (lbs)			
Optical Junction Cylinder Make/Model			
Optical Junction Cylinder Qty			
Optical Junction Cylinder Dimensions (L x W x H in inches)			
Optical Junction Cylinder Weight (lbs)			
Radio Configuration			
Split Mode			

2 SPRINT RFDS (PAGE 2)
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NOTE:
RFDS SHOWN PROVIDED BY SPRINT DATED 05/13/14.

NOTE:
COORDINATE RF ANTENNA INSTALLATION WITH FINAL SPRINT RFDS. COORDINATE RF MW DISH (IF APPLICABLE) INSTALLATION WITH FINAL SPRINT RFDS.

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No	Submittal / Revision	Appd	Date
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A	ISSUED FOR REVIEW	AHS	2/4/15

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Project Number
286-085

Project Title
CT81XC010
PROSPECT - WATERBURY ROAD
54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For
Sprint

Drawing Scale:
AS NOTED
Date:
5/11/15

Drawing Title
SPRINT RFDS

Drawing Number
C8

RF Design Sheet

Radio Scenario			
Plumbing Diagram Number			
			Sector and Antenna Information - 1900 MHz
* If different than called out below, HALT ANTENNA WORK for one hour, call Sprint RF Engineer using contact information above for further instructions. If Sprint does			
Existing Configuration	**Sector 1**	**Sector 2**	**Sector 3**
Azimuth	0°	135°	240°
Antenna Center Line (ft)	148	148	148
Antenna Manufacturer	Andrew/Commscope	Andrew/Commscope	Andrew/Commscope
Antenna Model	HBX-9014DS-R2M	HBX-9014DS-R2M	HBX-9014DS-R2M
Antenna Weight (lbs)			
Antenna Dimensions (L x W x H in inches)			
Antenna Qty	1	1	1
Antenna Mechanical Downtilt	0	0	0
Antenna Electrical Downtilt	2 °	2 °	2 °
Combined with [1]			
Upper Splitter Make/Model			
Upper Splitter Qty			
Upper Splitter Dimensions (L x W x H in inches)			
Upper Splitter Weight (lbs)			
Top Jumper Make/Model			
Top Jumper Quantity			
Top Jumper length in feet			
Bottom Jumper Make/Model			
Bottom Jumper Quantity			
Bottom Jumper length in feet			
Surge Arrestor			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
Upper Diplexer/Triplexor/Duplexor Dimensions (L x W x H in inches)			
Upper Diplexer/Triplexor/Duplexor Weight (lbs)			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
DC Block (specify port)			
RF Filter Make/Model			
RF Filter Quantity			
RF Filter Dimensions (L x W x H in inches)			
RF Filter Weight (lbs)			
Hybrid/Fiber Cable Make/Model			
Hybrid/Fiber Qty			
Hybrid/Fiber Length			
Hybrid/Fiber Diameter (inches)			
Hybrid/Fiber weight per foot (lbs)			
Homerun Coax Cable Make/Model			
Homerun Coax Cable Qty			
Homerun Coax Cable Length			
Homerun Coax Cable Diameter (inches)			
RRH / RRU/TMA Model			
RRH / RRU/TMA Qty			
RRH/RRU/TMA Weight (lbs including mount)			
RRH / RRU/TMA Dimensions (L x W x H in inches)			
Final/New Configuration	**Sector 1**	**Sector 2**	**Sector 3**
Azimuth	0°	135°	240°
Antenna Center Line (ft)	148	148	148
Antenna Manufacturer	RFS	RFS	RFS
Antenna Model	APXVSPP18-C-A20	APXVSPP18-C-A20	APXVSPP18-C-A20
Antenna Weight (lbs)	57	57	57
Antenna Dimensions (L x W x H in inches)	72" x 11.8" x 7"	72" x 11.8" x 7"	72" x 11.8" x 7"
Antenna Qty	1	1	1
Antenna Mechanical Downtilt	0	0	0
Antenna Electrical Downtilt	2 °	2 °	2 °
Combined with [2]			
Upper Splitter Make/Model			
Upper Splitter Qty			
Upper Splitter Dimensions (L x W x H in inches)			
Upper Splitter Weight (lbs)			
Top Jumper Make/Model			
Top Jumper Quantity			
Top Jumper length in feet			
Bottom Jumper Make/Model			
Bottom Jumper Quantity			
Bottom Jumper length in feet			
Surge Arrestor			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
Upper Diplexer/Triplexor/Duplexor Dimensions (L x W x H in inches)			
Upper Diplexer/Triplexor/Duplexor Weight (lbs)			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
DC Block (specify port)			
RF Filter Make/Model			
RF Filter Quantity			
RF Filter Dimensions (L x W x H in inches)			
RF Filter Weight (lbs)			
Hybrid/Fiber Cable Make/Model			
Hybrid/Fiber Qty	1	1	1
Hybrid/Fiber Length	TBD	TBD	TBD
Hybrid/Fiber Diameter (inches)			
Hybrid/Fiber weight per foot (lbs)			
Homerun Coax Cable Make/Model			
Homerun Coax Cable Qty			
Homerun Coax Cable Length			

1 — SPRINT RFDS (PAGE 3)
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RF Design Sheet

Homerun Coax Cable Diameter (inches)			
RRH / RRU/TMA Model	1900 RRH	1900 RRH	1900 RRH
RRH / RRU/TMA Qty	1	1	1
RRH/RRU/TMA Weight (lbs including mount)			
RRH / RRU/TMA Dimensions (L x W x H in inches)			
			Sector and Antenna Information - 800 MHz
* If different than called out below, HALT ANTENNA WORK for one hour, call Sprint RF Engineer using contact information above for further instructions. If Sprint does			
Existing Configuration	**Sector 1**	**Sector 2**	**Sector 3**
Azimuth	0°	135°	240°
Antenna Center Line (ft)	148	148	148
Antenna Manufacturer	Andrew/Commscope	Andrew/Commscope	Andrew/Commscope
Antenna Model	LBX-9012DS-A1M	LBX-9012DS-A1M	LBX-9012DS-A1M
Antenna Weight (lbs including mount)			
Antenna Dimensions (L x W x H in inches)			
Antenna Qty	1	1	1
Antenna Mechanical Downtilt	0 °	0 °	0 °
Antenna Electrical Downtilt	6 °	6 °	6 °
Combined with [2]			
Upper Splitter Make/Model			
Upper Splitter Qty			
Upper Splitter Dimensions (L x W x H in inches)			
Upper Splitter Weight (lbs)			
Top Jumper Make/Model			
Top Jumper Quantity			
Top Jumper length in feet			
Bottom Jumper Make/Model			
Bottom Jumper Quantity			
Bottom Jumper length in feet			
Surge Arrestor			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
Upper Diplexer/Triplexor/Duplexor Dimensions (L x W x H in inches)			
Upper Diplexer/Triplexor/Duplexor Weight (lbs)			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
DC Block (specify port)			
RF Filter Make/Model			
RF Filter Quantity			
RF Filter Dimensions (L x W x H in inches)			
RF Filter Weight (lbs)			
Hybrid/Fiber Cable Make/Model			
Hybrid/Fiber Qty			
Hybrid/Fiber Length			
Hybrid/Fiber Diameter (inches)			
Hybrid/Fiber weight per foot (lbs)			
Homerun Coax Cable Make/Model			
Homerun Coax Cable Qty			
Homerun Coax Cable Length			
Homerun Coax Cable Diameter (inches)			
RRH / RRU/TMA Model			
RRH / RRU/TMA Qty			
RRH/RRU/TMA Weight (lbs including mount)			
RRH / RRU/TMA Dimensions (L x W x H in inches)			
Final/New Configuration	**Sector 1**	**Sector 2**	**Sector 3**
Azimuth	0°	135°	240°
Antenna Center Line (ft)	148	148	148
Antenna Manufacturer	RFS	RFS	RFS
Antenna Model	APXVSPP18-C-A20	APXVSPP18-C-A20	APXVSPP18-C-A20
Antenna Weight (lbs including mount)	57	57	57
Antenna Dimensions (L x W x H in inches)	72" x 11.8" x 7"	72" x 11.8" x 7"	72" x 11.8" x 7"
Antenna Qty	1	1	1
Antenna Mechanical Downtilt	0	0	0
Antenna Electrical Downtilt	4 °	4 °	4 °
Combined with [2]			
Upper Splitter Make/Model			
Upper Splitter Qty			
Upper Splitter Dimensions (L x W x H in inches)			
Upper Splitter Weight (lbs)			
Top Jumper Make/Model			
Top Jumper Quantity			
Top Jumper length in feet			
Bottom Jumper Make/Model			
Bottom Jumper Quantity			
Bottom Jumper length in feet			
Surge Arrestor			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
Upper Diplexer/Triplexor/Duplexor Dimensions (L x W x H in inches)			
Upper Diplexer/Triplexor/Duplexor Weight (lbs)			
Upper Diplexer/Triplexor/Duplexor Model			
Upper Diplexer/Triplexor/Duplexor Qty			
DC Block (specify port)			
RF Filter Make/Model			
RF Filter Quantity			
RF Filter Dimensions (L x W x H in inches)			
RF Filter Weight (lbs)			
Hybrid/Fiber Cable Make/Model			
Hybrid/Fiber Qty	1	1	1
Hybrid/Fiber Length	TBD	TBD	TBD
Hybrid/Fiber Diameter (inches)			
Hybrid/Fiber weight per foot (lbs)			

2 — SPRINT RFDS (PAGE 4)
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NOTE:
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No.	Submittal / Revision	Appd	Date
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A	ISSUED FOR REVIEW	AHS	2/4/15

Drawn: AHS Date: 2/4/15
Designed: AJD Date: 2/4/15
Checked: AJD Date: 2/4/15

Project Number
286-065

Project Title
CT81XC010
PROSPECT - WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

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Sprint

Drawing Scale:
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Date:
5/11/15

Drawing Title
SPRINT RFDS

Drawing Number
C9

RF Design Sheet

Homerun Coax Cable Make/Model			
Homerun Coax Cable Qty			
Homerun Coax Cable Length			
Homerun Coax Cable Diameter (inches)			
RRH / RRU/TMA Model	800 RRH	800 RRH	800 RRH
RRH / RRU/TMA Qty	1	1	1
RRH/RRU/TMA Weight (lbs including mount)			
RRH / RRU/TMA Dimensions (L x W x H in inches)			

1 SPRINT RFDS (PAGE 5)
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LICENSED PROFESSIONAL ENGINEER

SIGNATURE AFFIXED AND SEAL APPLICATION TO DOCUMENT DOES NOT CERTIFICATION OF COMPLIANCE WITH LOCAL LAWS

No.	Submittal / Revision	Appd	Date
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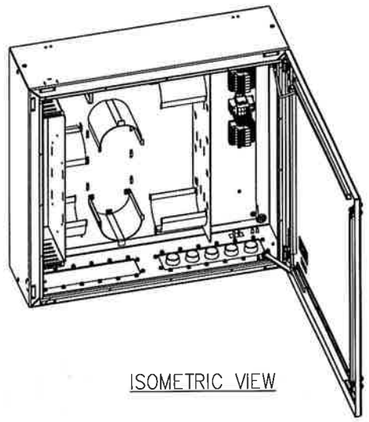
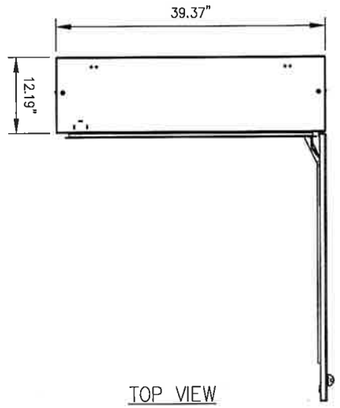
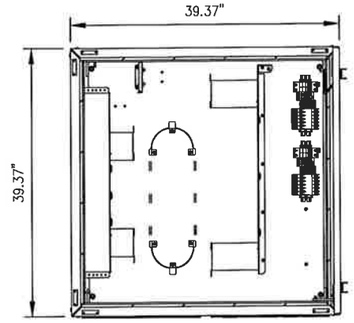
Drawing Number
C10



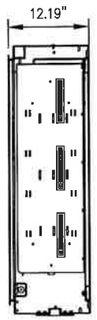
ISOMETRIC VIEW



TOP VIEW

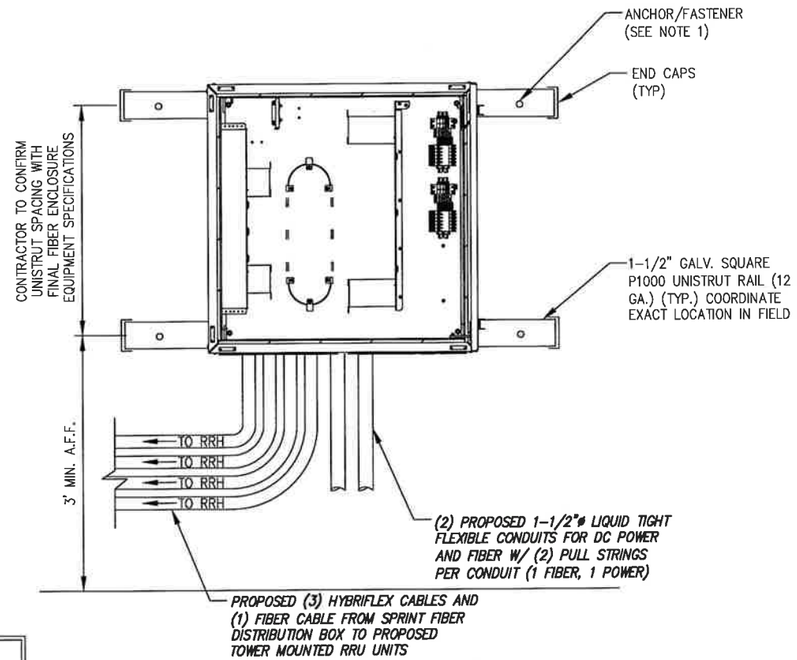


FRONT VIEW



SIDE VIEW

1 DISTRIBUTION BOX DETAIL
NOT TO SCALE



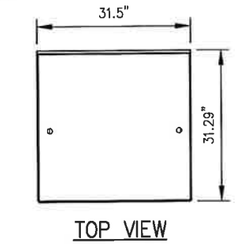
NOTE:
– DISTRIBUTION BOX IS KITTED WITH 50' OF 1–1/2" LIQUID–TIGHT CONDUIT AND CONNECTORS. THIS SHOULD BE:
* SPLIT IN HALF,
* TERMINATED TO THE DISTRIBUTION BOX AS SHOWN,
* RAN TO AND COILED AS CLOSE TO WHERE THE CABINET IS GOING TO BE MOUNTED AS POSSIBLE.

– DISTRIBUTION BOX IS KITTED WITH 2 AWG, POWER CABLE 35' x 2EA. RUNS RED AND 2EA. RUNS BLACK. THIS SHOULD BE COILED AND LEFT INSIDE DISTRIBUTION BOX.

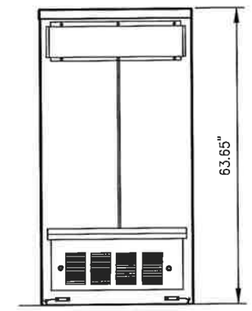
– BTS INSTALLATION TEAM WILL TERMINATE LIQUID–TIGHT, RUN THE FIBER JUMPERS AND POWER CABLES FROM BTS CABINET TO DISTRIBUTION BOX.

1. INSTALL ANCHORS/FASTENERS A MAXIMUM OF 2'–0" ON CENTERS.
   - WOOD STUDS – 1/4"ø LAG BOLT W/ 1" EMBEDMENT IN WOOD
   - CONCRETE – 1/4"ø HILTI KWIK BOLT III W/ 1–1/2" EMBEDMENT OR EQUIVALENT
   - THROUGH BOLT – 1/4"ø A36/A307 THREADED ROD W/ NUTS AND WASHERS
2. ANCHORS AND UNISTRUT CHANNEL SHALL HAVE HOT–DIPPED GALVANIZED FINISH.
3. MOUNT FIBER AND POWER DISTRIBUTION BOX WITH FOUR (4) 1/4"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS.

2 DISTRIBUTION BOX ON EXISTING WALL
NOT TO SCALE



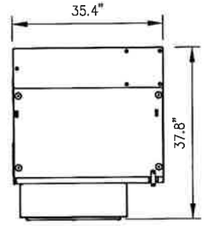
TOP VIEW



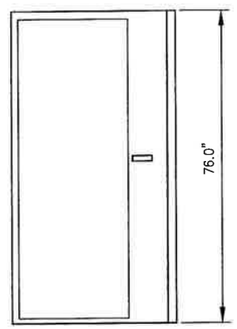
REAR VIEW

MANUFACTURER: TBD
MODEL: 60ECv2

3 BATTERY CABINET PROFILE
NOT TO SCALE



TOP VIEW



FRONT VIEW

MANUFACTURER: ALU
MODEL: 9928

4 BTS CABINET PROFILE
NOT TO SCALE

DESIGN CRITERIA:

2009 INTERNATIONAL BUILDING CODE W/ STATE MODIFICATION	
WIND SPEED (ASCE–7–05)	90 MPH
EXPOSURE B	
IMPORTANCE FACTOR	1.0
SEISMIC SITE CLASS	D
Ss=0.152 S¹=0.050	
SEISMIC IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	B
9928 MM BTS CABINET WEIGHT:	1074 LBS.
EMERSON BATTERY CABINET SPECIFICATIONS:	
(31.29"x31.5"x63.65")	
WEIGHTS:	
SHIPPING WEIGHT:	600 LBS.
LIFT WEIGHT:	540 LBS.
TOTAL WEIGHT:	2640 LBS (WITH BATTERIES)
INDIVIDUAL BATTERY WEIGHT:	105 LBS
(DO NOT LIFT WITH BATTERIES IN CABINET)	
MATERIAL SPECIFICATIONS	
C–, M–, AND ANGLE SHAPES:	ASTM A36
HIGH–STRENGTH BOLTS:	ASTM A325SC OR (A325N)
STRUCTURAL WF SHAPES:	ASTM A572–GR50
TUBE STEEL & PIPE COLUMNS:	ASTM A500, GRADE B
WELDING ELECTRODES:	E70XX
W – SHAPES:	ASTM A992, GRADE 50
U–BOLTS:	ASTM A36

INFINIGY
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Fax # (518) 690-0793

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

No.	Submittal / Revision	App'd	Date
B	REVISED PER COMMENTS	AHS	5/11/15
A	ISSUED FOR REVIEW	AHS	2/4/15

Drawn: AHS Date: 2/4/15
Designed: AD Date: 2/4/15
Checked: AD Date: 2/4/15

Project Number
286-065

Project Title
CT81XC010
PROSPECT - WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

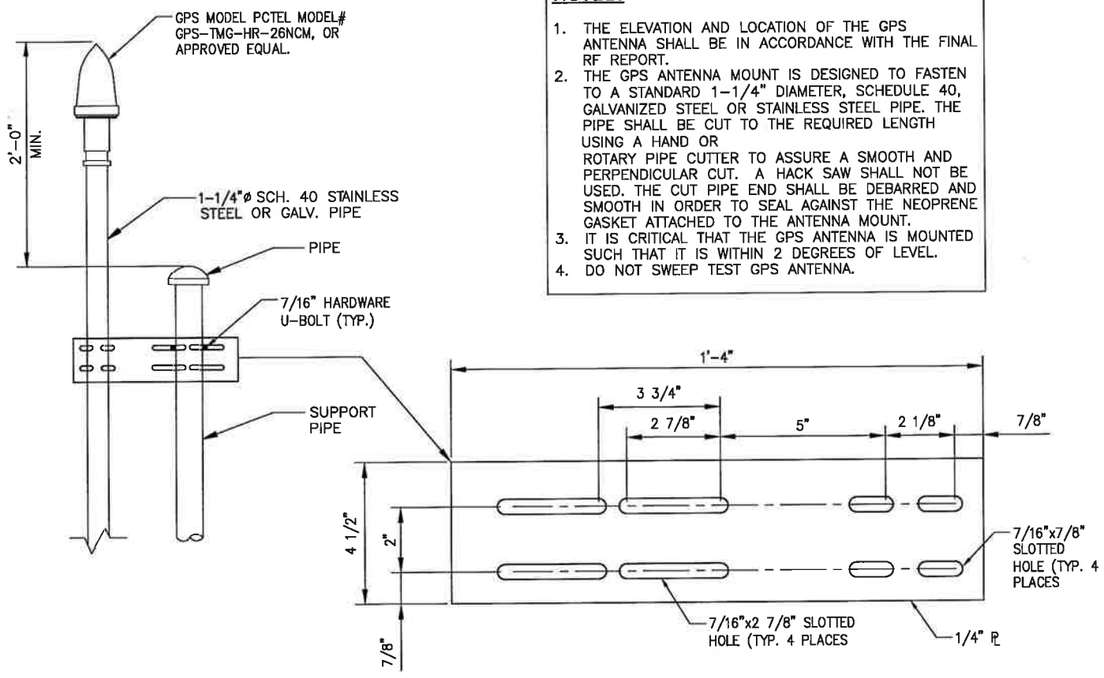
Prepared For
Sprint

Drawing Scale:
AS NOTED
Date:
5/11/15

Drawing Title
EQUIPMENT DETAILS

Drawing Number
C11

NOTES:
CONTRACTOR TO FIELD VERIFY GPS LOCATION.

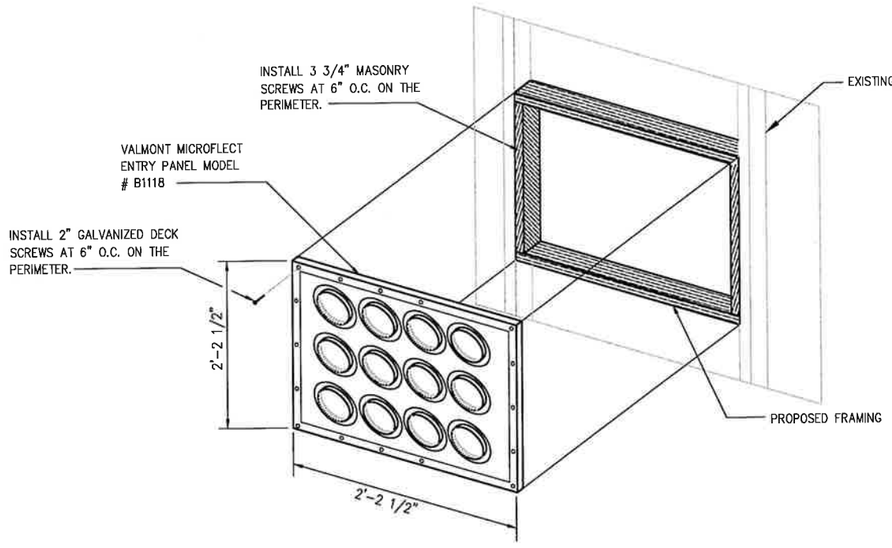


1 GPS ANTENNA DETAIL
NOT TO SCALE

GPS MINIMUM SKY VIEW REQUIREMENTS

NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/4" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBARRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF LEVEL.
4. DO NOT SWEEP TEST GPS ANTENNA.



2 COAX ENTRY PANEL
NOT TO SCALE

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ANY ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

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DETAILS

Drawing Number
C12

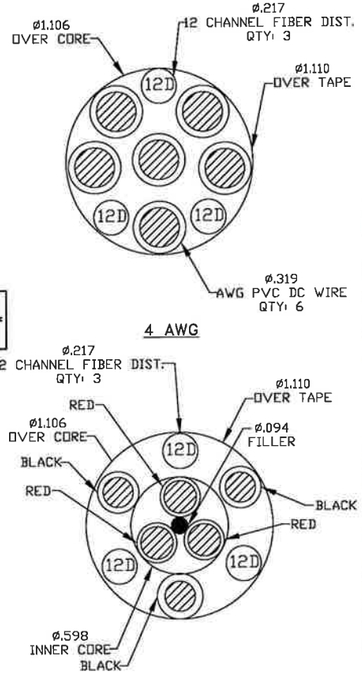
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	**Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft *
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

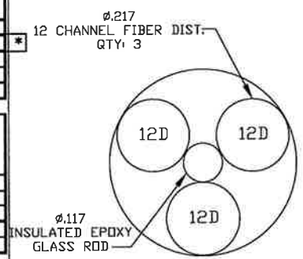
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft *
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



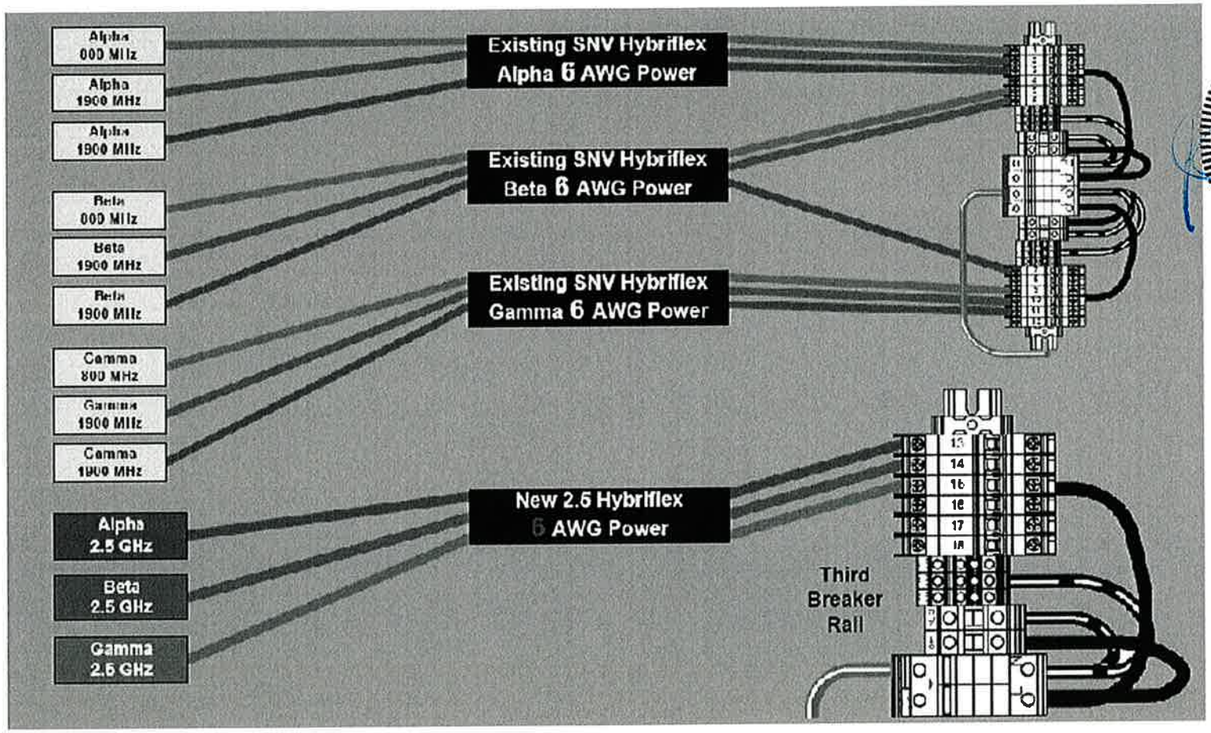
4 AWG

8 & 6 AWG



FIBER ONLY

1 — 2.5 CABLE CROSS SECTION DATA
NOT TO SCALE



2 — CABLING DETAILS
NOT TO SCALE

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Drawing Title
CABLING DETAILS

Drawing Number
C13

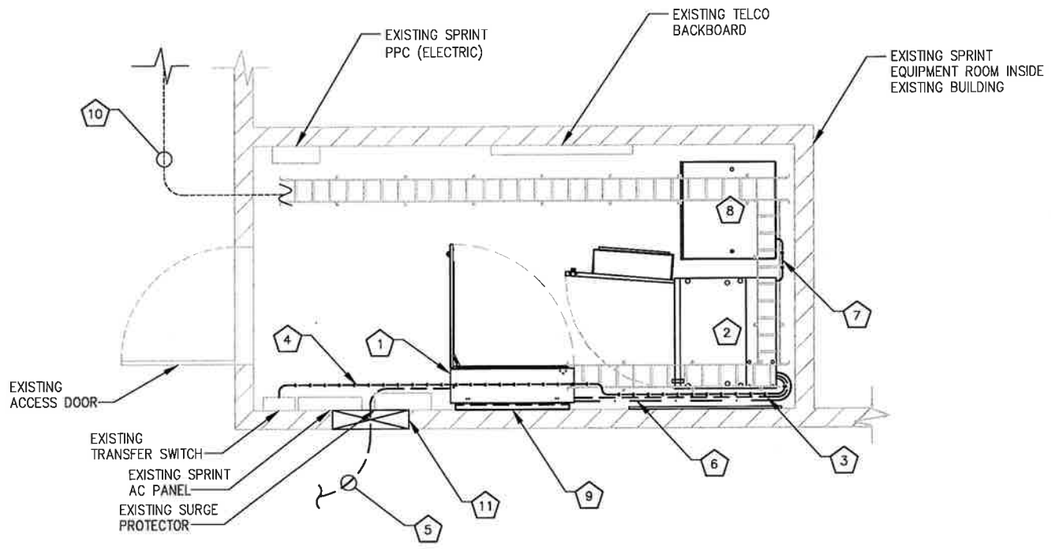
CODED NOTES:

1. PROPOSED SPRINT FIBER DISTRIBUTION BOX MOUNTED ON EXISTING WALL FURNISHED AND INSTALLED BY SPRINT
2. PROPOSED SPRINT N.V. 9928 EQUIPMENT CABINET TO REPLACE EXISTING
3. PROPOSED 1-1/2" LIQUID TIGHT CONDUIT WITH PULL-STRING FOR TELCO FROM FIBER DISTRIBUTION BOX TO RADIO EQUIPMENT CABINET, ±10'
4. PROPOSED A/C POWER TO 100A BREAKER FOR POWER CABINET IN 2" FLEXIBLE METALLIC LIQUID TIGHT CONDUIT (6' MAX.)
5. PROPOSED (4) HYBRIFLEX CABLES ((3) FOR NV AND (1) FOR 2.5) FROM SPRINT FIBER DISTRIBUTION BOX TO PROPOSED TOWER MOUNTED RRU UNITS ROUTING IN EXISTING UNDERGROUND CONDUITS. REMOVE EXISTING COAX PRIOR TO INSTALLATION OF NEW CABLING
6. PROPOSED 1-1/2" LIQUID TIGHT CONDUIT WITH PULL-STRING FOR DC POWER FROM FIBER DISTRIBUTION BOX TO RADIO EQUIPMENT CABINET, ± 10'
7. (1) PROPOSED 2" FLEXIBLE METALLIC LIQUID TIGHT CONDUITS FOR DC POWER FLOW
8. PROPOSED SPRINT BATTERY BACKUP CABINET TO REPLACE EXISTING
9. PROPOSED (2) HORIZONTAL UNISTRUT CHANNELS MOUNTED TO WALL
10. SPRINT TO INSTALL AND PROVIDE NEW 2" U/G CONDUIT AND DRAG LINE FROM PROPOSED MEET POINT TO PROPOSED NEW BACKBOARD IN SPRINT EQUIPMENT SHELTER, ± 150'.
11. PROPOSED COAX ENTRY PORT

NOTES:

1. CONTRACTOR TO USE EXISTING SPARE CONDUITS, IF AVAILABLE. CONDUIT SIZES MUST BE EQUAL TO OR GREATER THAN THAT ALLOWED BY CODE.
2. EXISTING ALARMS NEED TO BE RE-ROUTED AND VERIFIED IN PROPER
3. WORKING CONDITION WHEN NEW MMBTS EQUIPMENT IS INSTALLED.
4. REMAINING GROUND LEADS FROM REMOVED CABINETS TO BE COILED (NOT ON WALKING SURFACE).

   REMAINING UNUSED CONDUITS FROM EXISTING CABINETS TO BE COVERED WITH WATERPROOF CAPS (NOT DUCT TAPE).



CALLED NORTH

1 UTILITY SITE PLAN
SCALE:

1' 0 1' 2' 4'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 2'
SCALE: 11"X 17" SHEET 1"= 4'

120/240V, 1 PHASE, 3W
200A BUS, 10 KAIC

PANEL SCHEDULE

CKT NO.	CKT BKR AMPS	CKT BKR POLES	DESCRIPTION	LOAD (WATTS) L1	L2	LCL	L2	L1	DESCRIPTION	CKT BKR POLES	CKT BKR AMPS	CKT NO.
1	TBD	2	SURGE ARRESTOR	TBD*			TBD		RECEPT	1	TBD	2
3					TBD*			TBD	RECEPT	1	TBD	4
5	TBD	1	LIGHTING	TBD*			TBD		GFI RECEPT	1	TBD	6
7	TBD	1	TELCO RECEPT		TBD*			TBD	SMOKE DETECTOR	1	TBD	8
9												10
11												12
13												14
15												16
17							TBD*		A/C	2	TBD	18
19								TBD*				20
21	TBD	2	A/C	TBD*			TBD*		FEED FOR PANEL "A"	2	TBD	22
23					TBD*			TBD*				24
25	100	2	GROWTH CABINET	TBD								26
27					TBD							28
29												30
PHASE TOTALS (WATTS)				TBD*	TBD*		TBD*	TBD*				
TOTAL CONNECTED (WATTS)				TBD*	TBD*							
PHASE BALANCE				TBD*	TBD*							
TOTAL AMPS PER PHASE (AMPS)				TBD*	TBD*							
TOTAL LOAD (AMPS)				TBD*								

* - INSUFFICIENT FIELD DATA TO SHOW SITE-SPECIFIC INFORMATION

2 EXISTING PANELBOARD SCHEDULE
NOT TO SCALE

ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (N.E.C.), AND APPLICABLE LOCAL CODES
2. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF NATIONAL ELECTRICAL CODE.
3. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED.
4. ALL WIRES SHALL BE AWG MIN #12 THHN COPPER UNLESS NOTED.
5. CONDUCTORS SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT UNLESS NOTED OTHERWISE.
6. LABEL SPRINT SERVICE DISCONNECT SWITCH AND PPC CABINET WITH ENGRAVED LAMACOID LABELS, LETTERS 1" IN HEIGHT.
7. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 8" RADIUS.
8. ENGAGE AN INDEPENDENT TESTING FIRM TO TEST AND VERIFY THAT RESISTANCE DOES NOT EXCEED 5 OHMS TO GROUND. TEST GROUND RING RESISTANCE PRIOR TO MAKING FINAL GROUND CONNECTIONS TO INFRASTRUCTURE AND EQUIPMENT. GROUNDING AND OTHER OPERATIONAL TESTING SHALL BE WITNESSED BY SPRINTS REPRESENTATIVE.
9. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE REQUIRED SO THAT CONDUIT BENDS DO NOT EXCEED 360°.
10. OBTAIN PERMITS AND PAY FEES RELATED TO ELECTRICAL WORK PERFORMED ON THIS PROJECT. DELIVER COPIES OF ALL PERMITS TO SPRINT REPRESENTATIVE.
11. SCHEDULE AND ATTEND INSPECTIONS RELATED TO ELECTRICAL WORK REQUIRED BY JURISDICTION HAVING AUTHORITY. CORRECT AND PAY FOR ANY WORK REQUIRED TO PASS ANY FAILED INSPECTION.
12. REDLINED AS-BUILTS ARE TO BE DELIVERED TO SPRINT REPRESENTATIVE.
13. PROVIDE TWO COPIES OF OPERATION AND MAINTENANCE MANUALS IN THREE-RING BINDER.
14. FURNISH AND INSTALL THE COMPLETE ELECTRICAL SERVICE, TELCO CONDUIT, AND THE COMPLETE GROUNDING SYSTEM.
15. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY SPRINT REPRESENTATIVE.
16. CONDUCT A PRE-CONSTRUCTION SITE VISIT AND VERIFY EXISTING SITE CONDITIONS AFFECTING THIS WORK. REPORT ANY OMISSIONS OR DISCREPANCIES FOR CLARIFICATION PRIOR TO THE START OF CONSTRUCTION.
17. PROTECT ADJACENT STRUCTURES AND FINISHES FROM DAMAGE. REPAIR TO ORIGINAL CONDITION ANY DAMAGED AREA.
18. REMOVE DEBRIS ON A DAILY BASIS. DEBRIS NOT REMOVED IN A TIMELY FASHION WILL BE REMOVED BY OTHERS AND THE RESPONSIBLE SUBCONTRACTOR SHALL BE CHARGED ACCORDINGLY. REMOVAL OF DEBRIS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE. DEBRIS SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED OF LEGALLY.
19. UPON COMPLETION OF WORK, THE SITE SHALL BE CLEAN AND FREE OF DUST AND FINGERPRINTS.
20. PRIOR TO ANY TRENCHING, CONTACT LOCAL UTILITY TO VERIFY LOCATION OF ANY EXISTING BURIED SERVICE CONDUITS.
21. DOCUMENT GROUND RING INSTALLATION AND CONNECTIONS TO IT WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PRESENT PHOTO ARCHIVE AT SITE "PUNCH LIST" WALK TO SPRINT'S REPRESENTATIVE.
22. ALL ABOVE GRADE CONDUIT TO BE RIGID METALLIC.

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Drawing Title

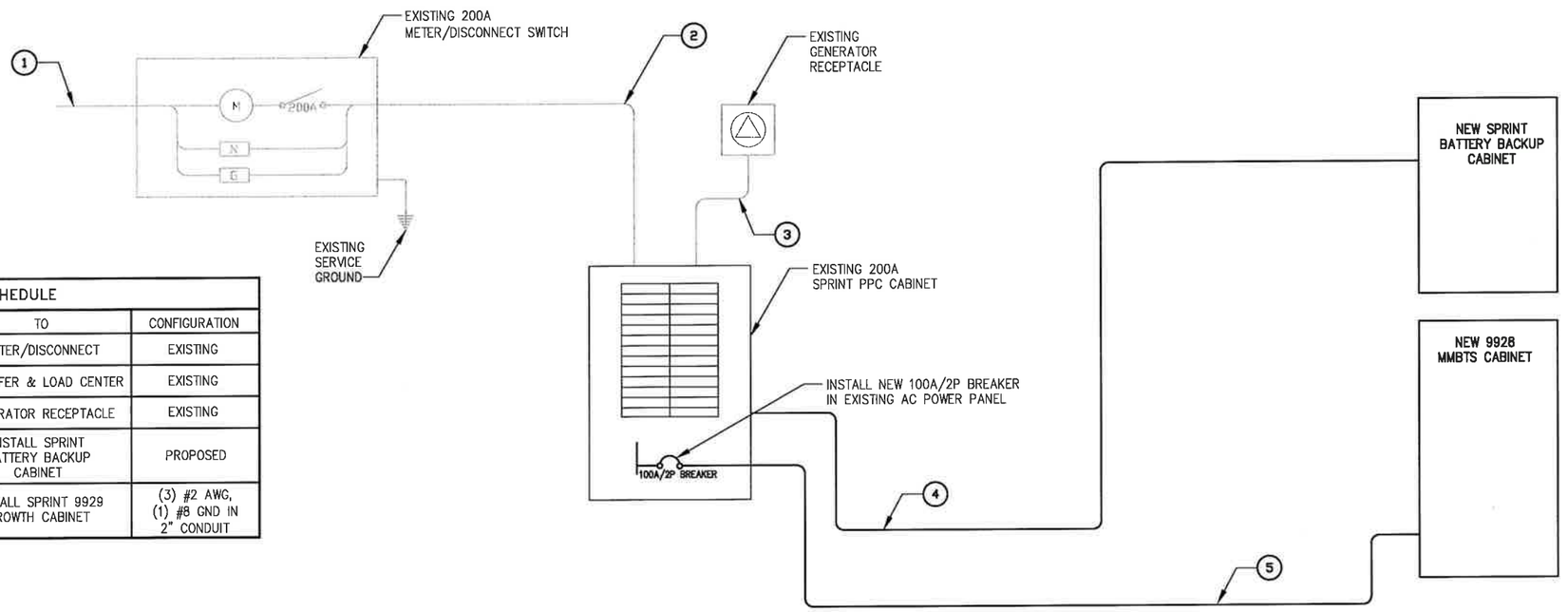
UTILITY SITE PLAN

Drawing Number

E1

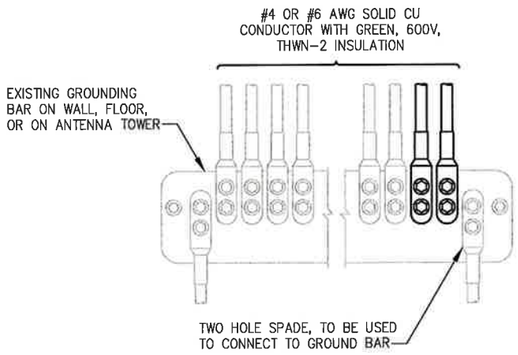
NOTES

GC SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	INSTALL SPRINT BATTERY BACKUP CABINET	PROPOSED
5	TRANSFER & LOAD CENTER	INSTALL SPRINT 9929 GROWTH CABINET	(3) #2 AWG, (1) #8 GND IN 2" CONDUIT

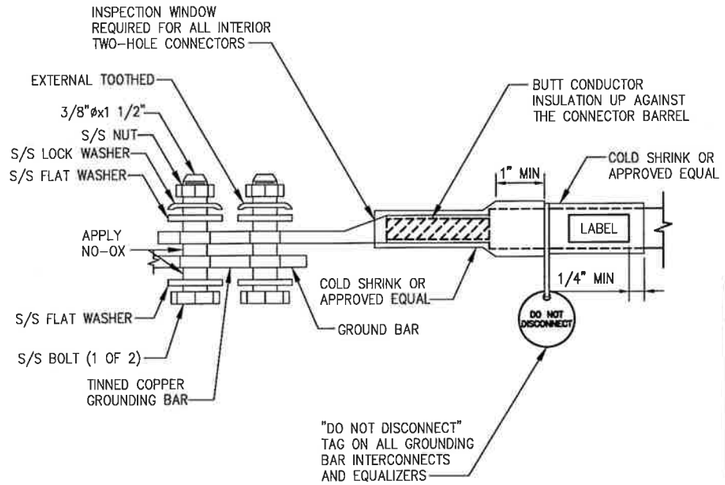
1 -- ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



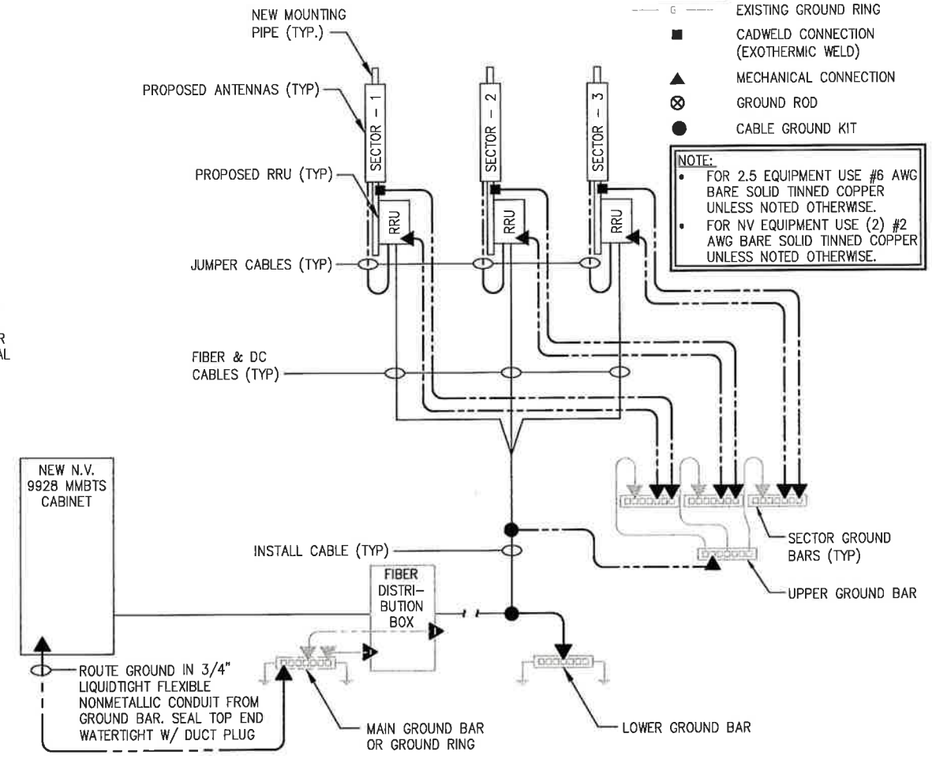
NOTES

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

2 -- INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR
NOT TO SCALE



3 -- TWO HOLE LUG
NOT TO SCALE



4 -- GROUNDING RISER DIAGRAM
NOT TO SCALE

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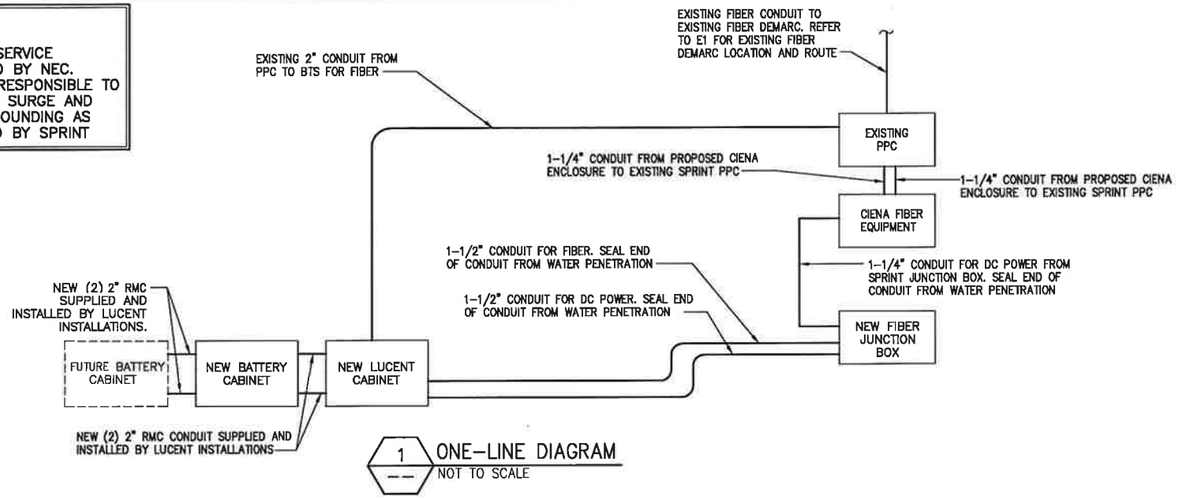
Drawing Title
ONE-LINE DIAGRAM AND DETAILS

Drawing Number
E2

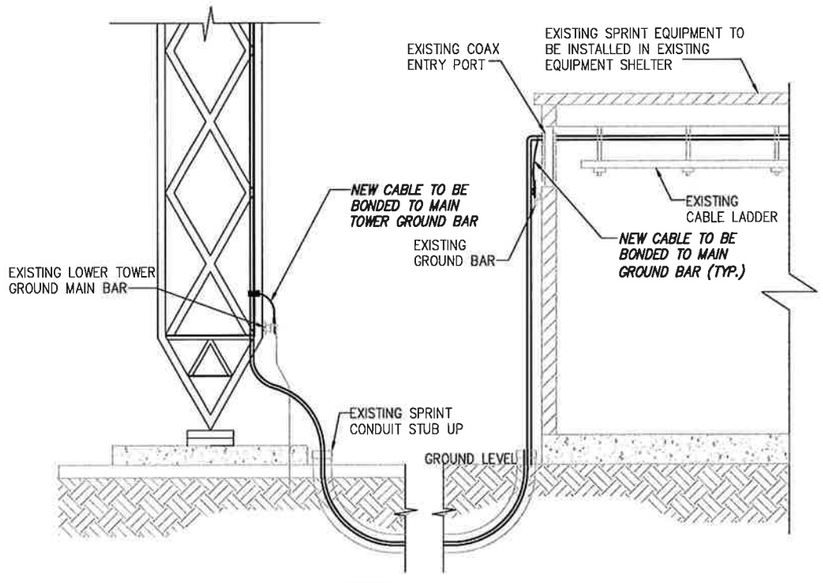
GROUNDING NOTE:

IN ADDITION TO POWER SERVICE GROUNDING AS REQUIRED BY NEC. CONTRACTOR SHALL BE RESPONSIBLE TO COORD AND INSTALL ALL SURGE AND LIGHTING PROTECTION GROUNDING AS REQUIRED AND SPECIFIED BY SPRINT

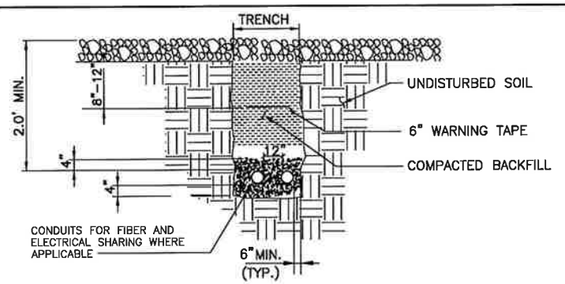


1 ONE-LINE DIAGRAM
NOT TO SCALE

2 DETAIL NOT USED
NOT TO SCALE



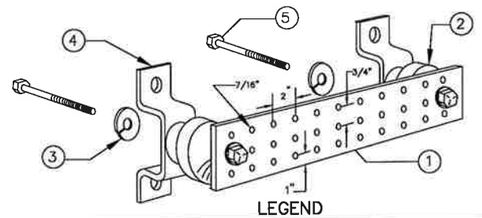
3 EQUIPMENT GROUNDING PLAN
NOT TO SCALE



– SEPARATION DIMENSIONS MUST BE VERIFIED WITH LOCAL UTILITY CO. REQUIREMENTS.

*HAND DIG INSIDE COMPOUND

4 UTILITY TRENCH DETAIL
NOT TO SCALE

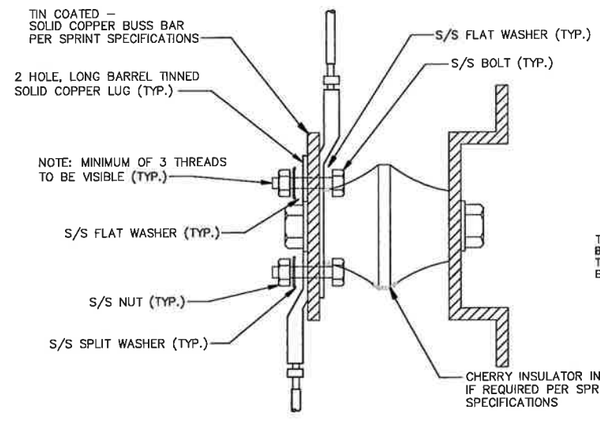


LEGEND

1. TINNED COPPER GROUND BAR, $\frac{1}{4}$" x 4" x 20", NEWTON INSTRUMENT Co., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH
2. NEMA DOUBLE LUG CONFIGURATION.
3. INSULATORS, NEWTON INSTRUMENT Co. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
4. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
   WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
   5/8-11 x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

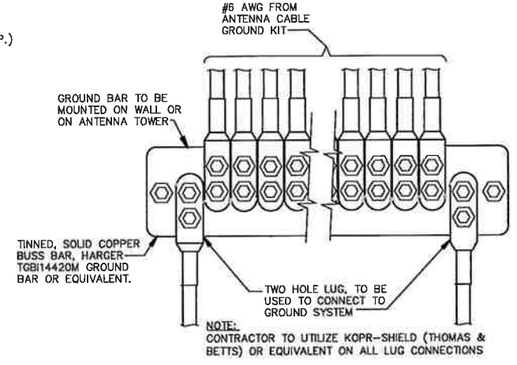
NOTE:
1) ALL MOUNTING HARDWARE CAN ALSO BE USED ON 6", 12", 18", ETC. GROUND BARS.
2) ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.

GROUND BAR



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

GROUND LUG



ANTENNA GROUND BAR

5 GROUND BAR DETAILS
NOT TO SCALE

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE LATEST EDITION OF APPLICABLE CODES AS ADOPTED BY LOCAL LAWS

No	Submittal / Revision	App'd	Date
B	REVISED PER COMMENTS	AHS	5/11/15
A	ISSUED FOR REVIEW	AHS	2/4/15

Drawn: AHS Date: 2/4/15
Designed: AJD Date: 2/4/15
Checked: AJD Date: 2/4/15

Project Number
286-065

Project Title

CT81XC010
PROSPECT - WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For

Sprint

Drawing Scale:
AS NOTED

Date:
5/11/15

Drawing Title

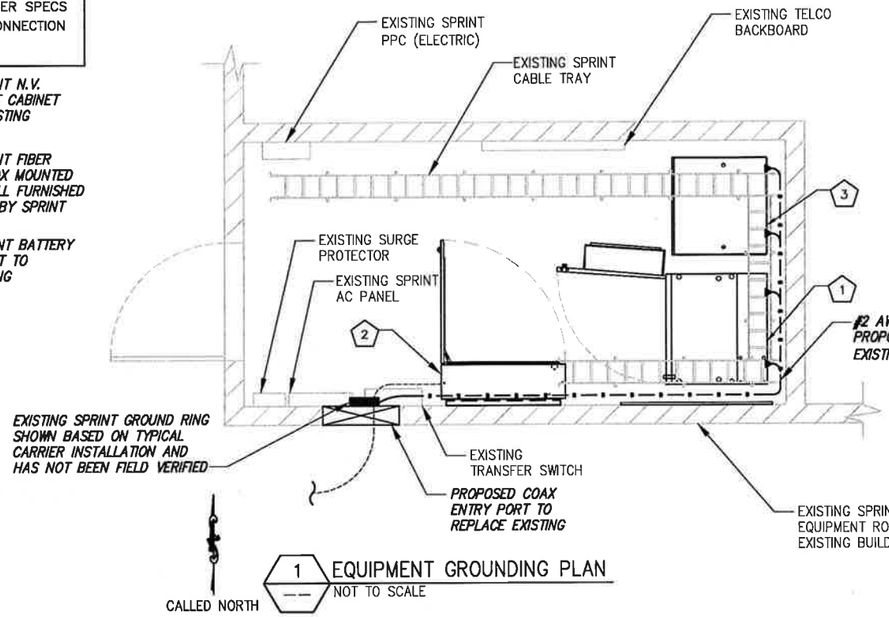
DETAILS

Drawing Number

E3

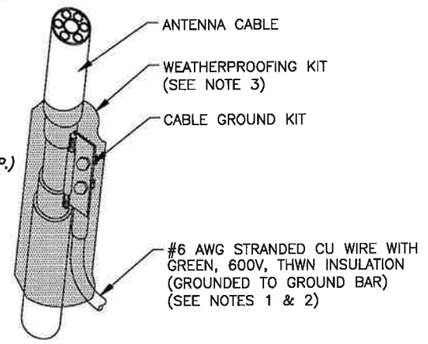
SYMBOL	
⊗	COPPER GROUND ROD
▶	CONNECT PER MANUFACTURER SPECS
●	CADWELD CONNECTION
▬	GROUND

1. *PROPOSED SPRINT N.V. 9928 EQUIPMENT CABINET TO REPLACE EXISTING*
2. *PROPOSED SPRINT FIBER DISTRIBUTION BOX MOUNTED ON EXISTING WALL FURNISHED AND INSTALLED BY SPRINT*
3. *PROPOSED SPRINT BATTERY BACKUP CABINET TO REPLACE EXISTING*

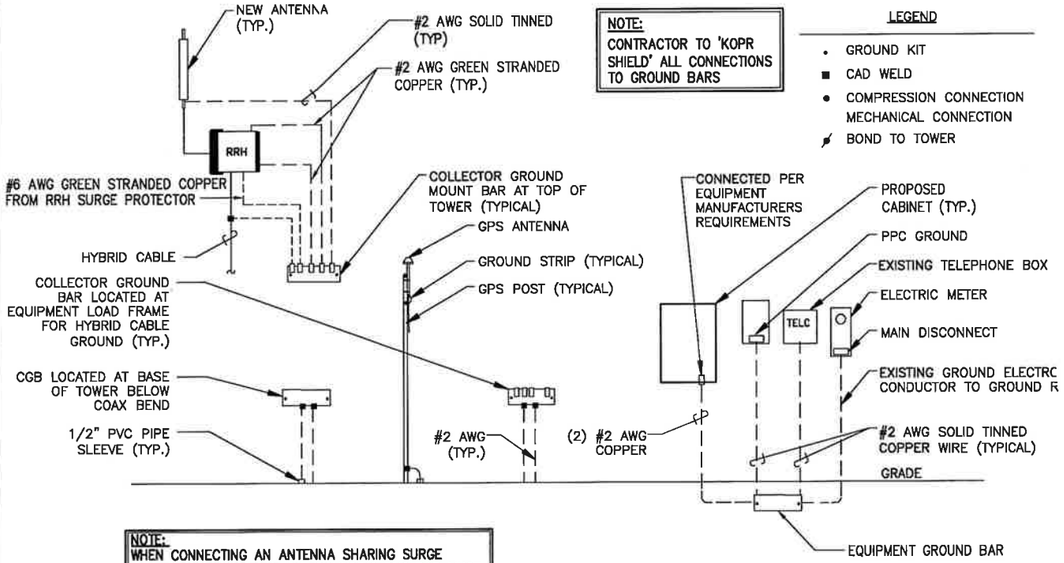


1 EQUIPMENT GROUNDING PLAN
NOT TO SCALE

NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.



3 CONNECTION OF GROUND KIT TO ANTENNA CABLE
NOT TO SCALE



NOTE:
CONTRACTOR TO 'KOPR SHIELD' ALL CONNECTIONS TO GROUND BARS

LEGEND
- GROUND KIT
- CAD WELD
- COMPRESSION CONNECTION MECHANICAL CONNECTION
- BOND TO TOWER

NOTE:
WHEN CONNECTING AN ANTENNA SHARING SURGE PROTECTOR TO GROUND, A GROUNDING BUS BAR MUST BE INSTALLED WITHIN 6' OF RRH'S. THIS APPLIES TO ANTENNA SHARING/DAISY CHAIN INSTALLATIONS.

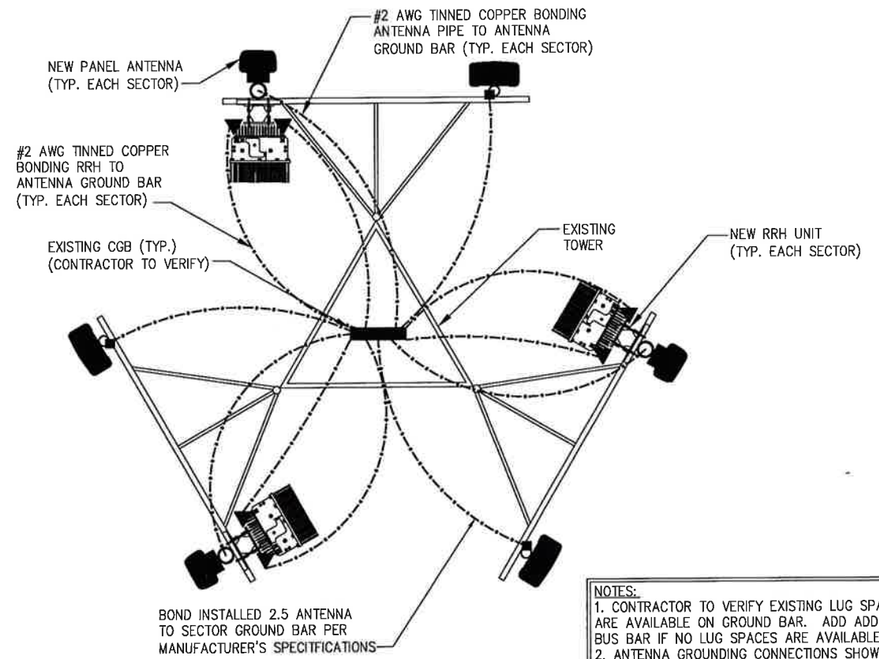
NOTE:
DIAGRAM FOR GRAPHICAL PURPOSES ONLY. REFER ACTUAL SITE LAYOUT AND RF PAGES FOR ADDITIONAL INFORMATION

NOTE:
ALL GROUND WIRES ENTERING GROUND SHALL BE IN PVC SLEEVE.

2 GROUNDING RISER DIAGRAM
NOT TO SCALE

GROUNDING NOTES:

1. ALL DOWN CONDUCTORS AND GROUND RING CONDUCTOR SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNO. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONDUCTOR SHALL BE A MINIMUM DEPTH BELOW GRADE OF 30 INCHES OR TO THE LEDGE. MINIMUM BEND RADIUS SHALL BE 8 INCHES. CONDUCTOR SHALL BE AT LEAST 24 INCHES FROM ANY FOUNDATION, UNO.
2. WHERE MECHANICAL CONDUCTOR CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
3. GRIND OFF GALVANIZING IN AFFECTED AREA. EXOTHERMICALLY WELD #2 CONDUCTOR AT 6 INCHES ABOVE GRADE OR FOUNDATION, WHICHEVER IS HIGHER. COLD-GALV AFTER. EXOTHERMICALLY WELD OTHER END TO GROUND.
4. GROUND CONDUCTORS ON EXTERIOR WALL OF SHELTER SHALL BE ENCASED IN 3/4" PVC CONDUIT TO GRADE. MOUNT PVC WITH GALVANIZED "C" CLAMPS. SEAL TOP ENDS.
5. FOLLOWING COMPLETION OF WORK, CONDUCT GROUND TEST. SUBMIT WRITTEN TEST TO CONSTRUCTION MANAGER AND PROJECT MANAGER.
6. ALL GROUNDING WORK SHALL COMPLY WITH CARRIER(S) STANDARDS.
7. GROUNDING REQUIREMENTS SHOWN ON THIS PLAN ARE FOR ITEMS THAT ARE LOCATED NEAR GRADE LEVEL AND THAT NEED TO BE TIED TO THE BELOW GRADE GROUND RING.
8. UNLESS NOTED OTHERWISE, ALL GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT'S SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES", AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING". ALL GROUNDING SHALL ALSO COMPLY WITH ALL STATE AND LOCAL CODES, AND THE NATIONAL ELECTRICAL CODE (NEC).
9. UNLESS NOTED OTHERWISE, ALL GROUNDING CONNECTIONS SHALL BE MADE BY AN EXOTHERMIC WELD.
10. RESISTANCE TO EARTH TESTING IS REQUIRED PER SPRINT STANDARDS ON ALL NEW SITES.



NOTES:
1. CONTRACTOR TO VERIFY EXISTING LUG SPACES ARE AVAILABLE ON GROUND BAR. ADD ADDITIONAL BUS BAR IF NO LUG SPACES ARE AVAILABLE.
2. ANTENNA GROUNDING CONNECTIONS SHOWN ARE NOT EXACT TO THIS SITE. FOR EXACT ANTENNA LAYOUT REFER TO ANTENNA CONFIGURATION SHEET.

4 TYPICAL ANTENNA GROUNDING PLAN
NOT TO SCALE

INFINIGY
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Albany, NY 12205
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Fax # (518) 690-0793

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

No.	Submittal / Revision	Appd	Date
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Project Number: 286-065

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CT81XC010
PROSPECT - WATERBURY ROAD

54 WATERBURY ROAD
PROSPECT, CT 06712

Prepared For: Sprint

Drawing Scale: AS NOTED
Date: 5/11/15

Drawing Title:
GROUNDING PLAN AND DETAILS

Drawing Number:
E4

EXHIBIT B

INFINIGY Design. Build. Deliver.

1033 Watervliet Shaker Road | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

Tower Analysis Report

December 2, 2014

Site Name	CT81XC010
Infinigy Job Number	333-365
Client	Sprint
Proposed Carrier	Sprint
Site Location	54 Waterbury Road, Prospect, CT 06712 New Haven County 41° 30' 39" N NAD83 72° 58' 57" W NAD83
Structure Type	160' Guyed Tower
Structural Usage Ratio	**69.2%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower is therefore deemed adequate to support the existing and proposed loading as listed in this report.

Charles T. Robertson III
Structural Engineer I

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GA Office: 2255 Sewell Mill Road | Ste 130 | Marietta, GA 30062
CO Office: 7301 Federal Boulevard | Ste 301 | Westminster, CO 80030

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 160' Utility Tower Guyed Tower. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 6.1.3.1 tower analysis software.

Supporting Documentation

Construction Drawings	Bay State Design Job # 3012.001, dated January 25, 2011
Previous Analysis	Bay State Design Job # 3012.001, dated January 25, 2011
Previous Analysis	Armor Tower, dated May 30, 2012
Proposed Loading	RFDS, dated May 13, 2014

Analysis Code Requirements

Wind Speed	100 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 3/4" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2003 IBC w/ 2005 CT Supplement & 2013 CT Amendment
Structure Class	2
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower is therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

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Structural Engineer I
2255 Sewell Mill Road | Marietta, GA 30062
M: 770.363.1290 | O: 678.444.4463
crobertson@infinigy.com | www.infinigy.com

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
160.0	2	20’ Omni	Pipe	--	--
	2	15’ Omni	Pipe		--
146.0	2	Andrew VHLP2	Sector Frames	(2) 1/2" (1) 2” Conduit	ClearWire
135.0	3	Antel BXA-171063-12CF	Sector Frames	(3) 1/2" (3) 7/8” (18) 1-5/8”	Verizon
	3	Antel LPA-70063-4CF			
	4	Swedcom SC-E 6014 Rev2			
	2	Antel LPA-80080/6CF			
	2	Swedcom SLCP 2x6014			
126.0	3	AM-X-CD-16-65-00T-RET	Sector Frames	(12) 1-1/4” (3) 3” Conduit	AT&T
	6	SBNH-1D6565C			
	6	Ericsson RRUS-11			
	6	TMA			
52.0	1	20’ Dipole	Pipe	(1) 1/2"	--

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
146.0	3	RFS APXVSPP18-C-A20	Sector Frames	(4) 1-1/4” Hybriflex	Sprint
	3	RFS APXVTM14-ALUI20			
	3	TD-RRH8x20-25			
	3	ALU 800 RRH			
	3	ALU 1900 RRH			

***Stack lines as illustrated in the documents below**

Structure Usages

Leg (T11)	57.8	Pass
Diagonal (T4)	69.2	Pass
Horizontal (T1)	21.8	Pass
Top Girt (T11)	23.6	Pass
Bottom Girt (T10)	23.4	Pass
Guy A (T4)	62.3	Pass
Guy B (T4)	62.4	Pass
Guy C (T4)	62.4	Pass
Top Guy Pull-Off (T4)	28.2	Pass
Torque Arm Top (T1)	8.4	Pass
Torque Arm Bottom (T1)	22.2	Pass
Bolt Checks	27.7	Pass
RATING =	**69.2**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions	Design Reactions x 1.35	Analysis Reactions	Result
Base Compression (kip)	--	--	104.4	--
Base Shear (kip)	--	--	0.9	--
Anchor Uplift (kip)	--	--	31.5	--
Anchor Shear (kip)	--	--	29.0	--

*** Design reactions are multiplied by 1.35 per ANSI/TIA-222-G 15.5.1**

The existing foundation was not evaluated because no information was made available at the time of this analysis.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (^{o})	Sway (^{o})
146.0	1.61	0.14	0.02

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

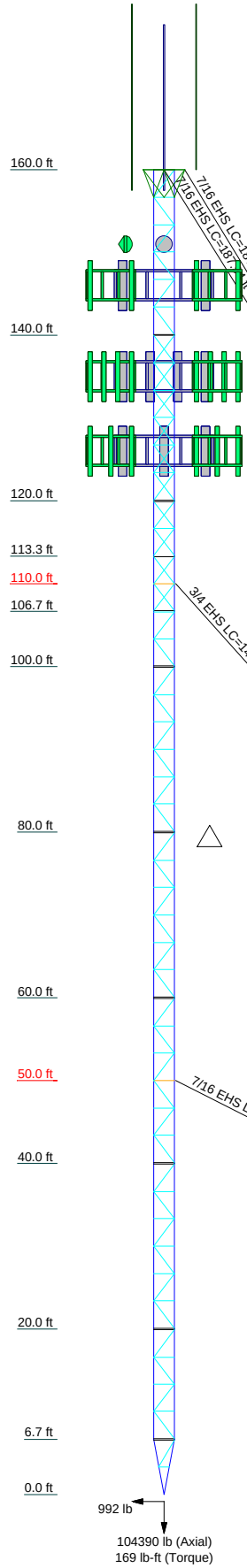
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. If actual conditions differ from those described in this report we should be notified immediately to complete a revised evaluation.

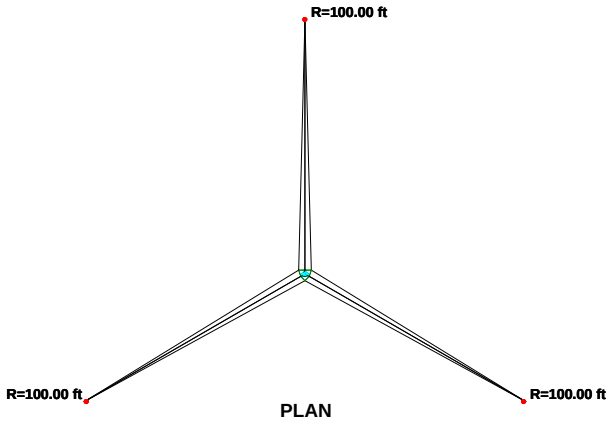
Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11
Legs	ROHN 2.5 X-STR						ROHN 2.5 STD				
Leg Grade						A572-50					
Diagonals						P.75x.113					
Diagonal Grade						A36					
Top Girts		P.75x.113			N.A.		P.75x.113				
Bottom Girts		P.75x.113	N.A.				P.75x.113				N.A.
Horizontals		P.75x.113		N.A.			P.75x.113				
Top Guy Pull-Offs		N.A.		3x.226			N.A.	3x.226			
Face Width (ft)	2.5										
# Panels @ (ft)		12 @ 3.31944		6 @ 3.25			24 @ 3.30556			4 @ 3.29166	2 @ 3.25
Weight (lb)	890.9	688.9	188.6	205.9	169.3	491.8	491.8	500.6	491.8	330.5	144.1

4594.1





PLAN

DESIGNED APPURTENANCE LOADING

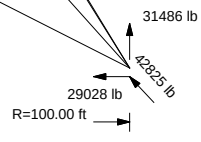
TYPE	ELEVATION	TYPE	ELEVATION
20' Omni	160	SLCP 2x6014	135
20' Omni	160	SLCP 2x6014	135
15' Omni	160	(2) LPA-80080/6CF	135
15' Omni	160	(2) SC-E 6014 rev2	135
6' Dipole	160	(2) SC-E 6014 rev2	135
TD-RRH8X20	146	Angle Sector Frame	135
APXVSPP18-C-A20	146	Angle Sector Frame	135
APXVSPP18-C-A20	146	Angle Sector Frame	135
APXVSPP18-C-A20	146	BXA-171063-12CF	135
800 MHz w/ Notch Filter	146	BXA-171063-12CF	135
800 MHz w/ Notch Filter	146	(2) RRUS-11	126
800 MHz w/ Notch Filter	146	(2) TTA	126
1900 MHz RRH	146	(2) TTA	126
1900 MHz RRH	146	(2) TTA	126
1900 MHz RRH	146	AM-X-CD-16-65-00T-RET	126
APXVTM14-C-120	146	AM-X-CD-16-65-00T-RET	126
APXVTM14-C-120	146	AM-X-CD-16-65-00T-RET	126
APXVTM14-C-120	146	(2) SBNH-1D6565C (60.8 lbs)	126
TD-RRH8X20	146	(2) SBNH-1D6565C (60.8 lbs)	126
TD-RRH8X20	146	(2) SBNH-1D6565C (60.8 lbs)	126
Angle Sector Frame	146	Pipe Sector Frame	126
Angle Sector Frame	146	Pipe Sector Frame	126
Angle Sector Frame	146	Pipe Sector Frame	126
VHLP2 (ClearWire)	146	(2) RRUS-11	126
VHLP2 (ClearWire)	146	(2) RRUS-11	126
BXA-171063-12CF	135	20' Dipole	52
LPA-70063-4CF	135		

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 Exposure B to the TIA-222-G Standard.
3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 69.2%



ALL REACTIONS ARE FACTORED

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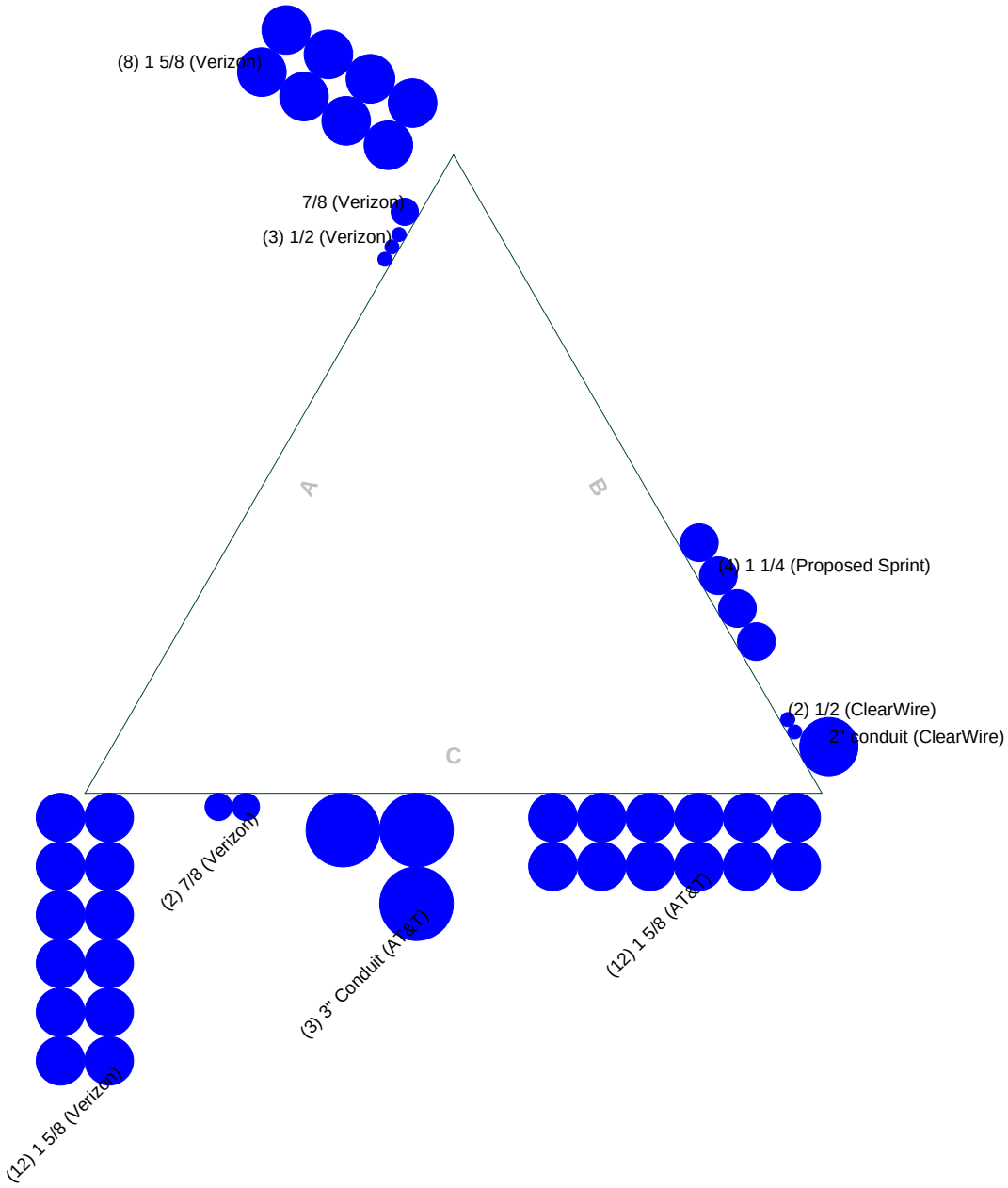
Phone: (678) 444-4463
FAX:

Job: ***333-365***			
Project: ***CT81XC010***			
Client: Sprint	Drawn by: Charles T. Robertson III		App'd:
Code: TIA-222-G	Date: 12/02/14		Scale: NTS
Path: C:\Users\crobertson\Desktop\CT81XC010.eri			Dwg No. E-1

Feed Line Plan

Round Flat App In Face App Out Face



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Project: ***CT81XC010***			
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Code: TIA-222-G	Date: 12/02/14	Scale: NTS	
Path: C:\Users\crobertson\Desktop\CT81XC010.eri		Dwg No. E-7	

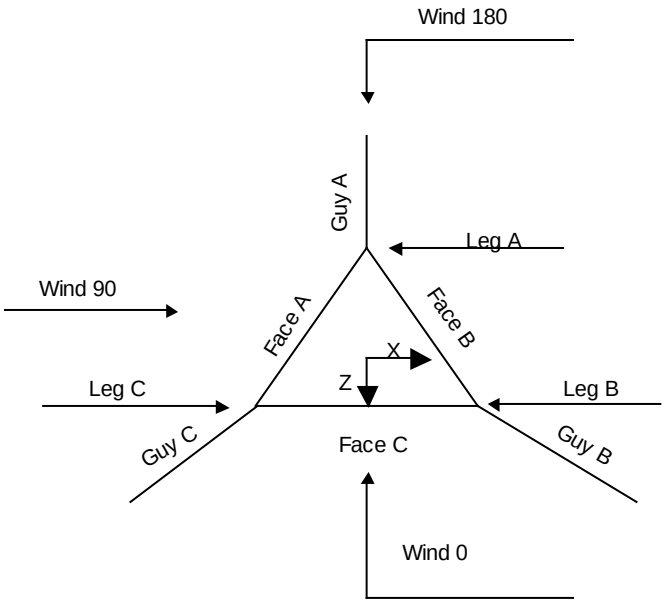
Tower Input Data

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-222-G standard.
The following design criteria apply:

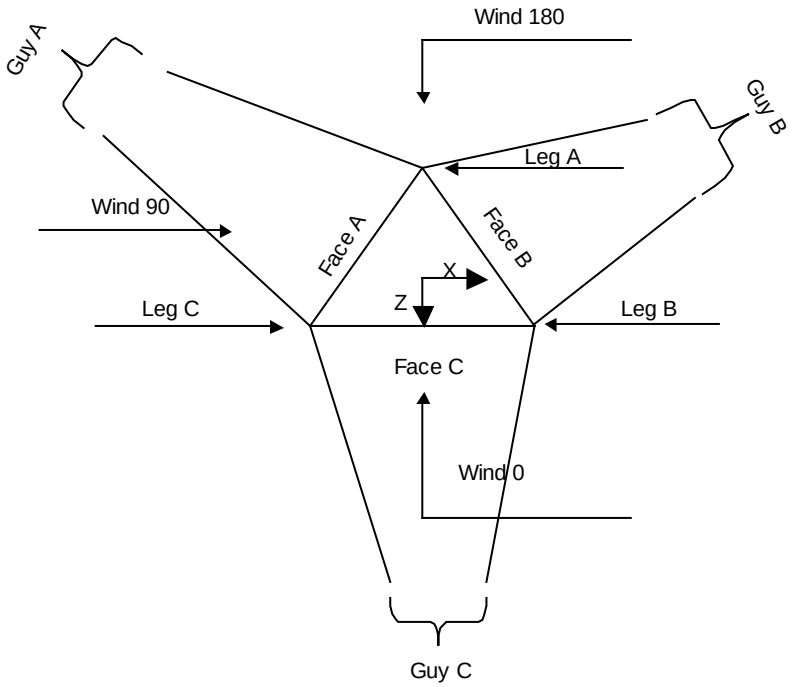
- Tower is located in New Haven County, Connecticut.
- Basic wind speed of 100 mph.
- Structure Class II.
- Exposure Category B.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 0.7500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 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 1.
- Stress ratio used in tower member design is 1.
- Local bending stresses due to climbing loads, feed line 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		Use TIA-222-G Tension Splice Capacity Exemption		



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)
T4 113.33-106.67	Pipe	P.75x.113	A36 (36 ksi)	Pipe	P.75x.113	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	Gusset Area (per face) ft^2	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	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T2 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T3 120.00-113.33	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T4 113.33-106.67	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T5 106.67-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T6 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T8 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T10 20.00-6.67	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	36.0000
T11 6.67-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	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	No	Yes	1	1	0.5	1	1	1	1	1
160.00-140.00				1	0.5	1	1	1	1	1
T2	No	Yes	1	0.6	1	1	1	1	1	1
140.00-120.00				0.6	1	1	1	1	1	1
T3	No	Yes	1	0.6	1	1	1	1	1	1
120.00-113.33				0.6	1	1	1	1	1	1
T4	No	Yes	1	0.6	1	1	1	1	1	1
113.33-106.67				0.6	1	1	1	1	1	1
T5	No	Yes	1	1	0.5	1	1	1	1	1
106.67-100.00				1	0.5	1	1	1	1	1
T6	No	Yes	1	1	0.5	1	1	1	1	1
100.00-80.00				1	0.5	1	1	1	1	1
T7	No	Yes	1	1	0.85	1	1	1	1	1
80.00-60.00				1	0.85	1	1	1	1	1
T8	No	Yes	1	1	0.85	1	1	1	1	1
60.00-40.00				1	0.85	1	1	1	1	1
T9	No	Yes	1	1	0.85	1	1	1	1	1
40.00-20.00				1	0.85	1	1	1	1	1
T10	No	Yes	1	1	0.85	1	1	1	1	1
20.00-6.67				1	0.85	1	1	1	1	1
T11 6.67-0.00	No	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		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	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		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 160.00-140.00	Flange	0.6250 A325N	4	0.5000 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 140.00-120.00	Flange	0.6250 A325N	4	0.5000 A325X	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	0	0.5000 A325X	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	0.5000 A325X	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	4	0.5000 A325X	0	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 100.00-80.00	Flange	0.6250 A325N	4	0.5000 A325X	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	0.5000 A325X	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	0.5000 A325X	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	0.5000 A325X	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	0.5000 A325X	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		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T11 6.67-0.00	Flange	0.6250 A325N	0	0.5000 A325X	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	3x.226
50.00	A572-50 (50 ksi)	Solid Round			No	A572-50 (50 ksi)	Flat Bar	3x.226

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 3.2 sec/pulse	3.33 3.2 sec/pulse	3.33 3.2 sec/pulse	
110	170.43	170.43	170.43		2.14 2.5 sec/pulse	2.14 2.5 sec/pulse	2.14 2.5 sec/pulse	
50	44.06	44.06	44.06		1.16 1.9 sec/pulse	1.16 1.9 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	0.0000 A325N	0	0.0000	1	0.5000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
110	0.0000 A325N	0	0.0000	1	0.5000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
50	0.6250 A325N	0	0.0000	0.75	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
160	A	80.00	20	5	1.6389
	B	80.00	20	5	1.6389
	C	80.00	20	5	1.6389
110	A	55.00	18	5	1.5786
	B	55.00	18	5	1.5786
	C	55.00	18	5	1.5786
50	A	25.00	15	4	1.4589
	B	25.00	15	4	1.4589
	C	25.00	15	4	1.4589

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
2" conduit (ClearWire)	B	No	Ar (CaAa)	146.00 - 6.00	0.0000	0.45	1	1	0.0000	2.3800		3.65
1/2 (ClearWire)	B	No	Ar (CaAa)	146.00 - 6.00	0.0000	0.4	2	2	0.0000	0.5800		0.25
1 1/4 (Proposed Sprint)	B	No	Ar (CaAa)	146.00 - 6.00	0.0000	0.2	4	4	0.0000	1.5500		0.66
1/2 (Verizon)	A	No	Ar (CaAa)	135.00 - 6.00	0.0000	0.35	3	3	0.0000	0.5800		0.25
7/8 (Verizon)	A	No	Ar (CaAa)	135.00 - 6.00	0.0000	0.4	1	1	0.0000	1.1100		0.54
1 5/8 (Verizon)	A	No	Ar (CaAa)	135.00 - 6.00	1.5000	0.5	8	2	0.0000	1.9800		1.04
1 5/8 (Verizon)	C	No	Ar (CaAa)	135.00 - 6.00	0.0000	0.5	12	2	0.0000	1.9800		1.04
7/8 (Verizon)	C	No	Ar (CaAa)	135.00 - 6.00	0.0000	0.3	2	2	0.0000	1.1100		0.54
3" Conduit (AT&T)	C	No	Ar (CaAa)	126.00 - 6.00	0.0000	0.1	3	2	0.0000	3.0000		5.48
1 5/8 (AT&T)	C	No	Ar (CaAa)	126.00 - 6.00	0.0000	-0.3	12	6	0.0000	1.9800		1.04

Feed Line/Linear Appurtenances Section Areas

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
T1	160.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	5.844	0.000	40.74
		C	0.000	0.000	0.000	0.000	0.00
T2	140.00-120.00	A	0.000	0.000	28.035	0.000	144.15
		B	0.000	0.000	19.480	0.000	135.80
		C	0.000	0.000	58.626	0.000	376.92
T3	120.00-113.33	A	0.000	0.000	12.460	0.000	64.07
		B	0.000	0.000	6.493	0.000	45.27
		C	0.000	0.000	39.160	0.000	283.20
T4	113.33-106.67	A	0.000	0.000	12.460	0.000	64.07
		B	0.000	0.000	6.493	0.000	45.27
		C	0.000	0.000	39.160	0.000	283.20
T5	106.67-100.00	A	0.000	0.000	12.460	0.000	64.07
		B	0.000	0.000	6.493	0.000	45.27
		C	0.000	0.000	39.160	0.000	283.20
T6	100.00-80.00	A	0.000	0.000	37.380	0.000	192.20
		B	0.000	0.000	19.480	0.000	135.80
		C	0.000	0.000	117.480	0.000	849.60
T7	80.00-60.00	A	0.000	0.000	37.380	0.000	192.20
		B	0.000	0.000	19.480	0.000	135.80
		C	0.000	0.000	117.480	0.000	849.60
T8	60.00-40.00	A	0.000	0.000	37.380	0.000	192.20
		B	0.000	0.000	19.480	0.000	135.80
		C	0.000	0.000	117.480	0.000	849.60

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
T9	40.00-20.00	A	0.000	0.000	37.380	0.000	192.20
		B	0.000	0.000	19.480	0.000	135.80
		C	0.000	0.000	117.480	0.000	849.60
T10	20.00-6.67	A	0.000	0.000	24.920	0.000	128.13
		B	0.000	0.000	12.987	0.000	90.53
		C	0.000	0.000	78.320	0.000	566.40
T11	6.67-0.00	A	0.000	0.000	1.246	0.000	6.41
		B	0.000	0.000	0.649	0.000	4.53
		C	0.000	0.000	3.916	0.000	28.32

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	1.745	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	16.350	0.000	211.79
		C		0.000	0.000	0.000	0.000	0.00
T2	140.00-120.00	A	1.720	0.000	0.000	44.545	0.000	640.03
		B		0.000	0.000	54.057	0.000	694.92
		C		0.000	0.000	68.296	0.000	1174.25
T3	120.00-113.33	A	1.702	0.000	0.000	19.687	0.000	281.48
		B		0.000	0.000	17.909	0.000	228.91
		C		0.000	0.000	45.367	0.000	814.83
T4	113.33-106.67	A	1.692	0.000	0.000	19.628	0.000	279.89
		B		0.000	0.000	17.850	0.000	227.44
		C		0.000	0.000	45.276	0.000	811.51
T5	106.67-100.00	A	1.681	0.000	0.000	19.565	0.000	278.21
		B		0.000	0.000	17.788	0.000	225.90
		C		0.000	0.000	45.179	0.000	808.01
T6	100.00-80.00	A	1.658	0.000	0.000	58.280	0.000	823.65
		B		0.000	0.000	52.952	0.000	667.63
		C		0.000	0.000	134.905	0.000	2401.11
T7	80.00-60.00	A	1.617	0.000	0.000	57.542	0.000	804.26
		B		0.000	0.000	52.221	0.000	649.87
		C		0.000	0.000	133.776	0.000	2360.48
T8	60.00-40.00	A	1.564	0.000	0.000	56.584	0.000	779.43
		B		0.000	0.000	51.270	0.000	627.14
		C		0.000	0.000	132.309	0.000	2308.15
T9	40.00-20.00	A	1.486	0.000	0.000	55.189	0.000	744.04
		B		0.000	0.000	49.887	0.000	594.82
		C		0.000	0.000	130.176	0.000	2232.98
T10	20.00-6.67	A	1.370	0.000	0.000	35.412	0.000	462.06
		B		0.000	0.000	31.890	0.000	365.62
		C		0.000	0.000	84.673	0.000	1415.61
T11	6.67-0.00	A	1.193	0.000	0.000	1.665	0.000	20.63
		B		0.000	0.000	1.490	0.000	16.04
		C		0.000	0.000	4.072	0.000	65.35

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	160.00-140.00	0.8282	0.1767	0.3103	0.0882
T2	140.00-120.00	-0.3664	0.5145	0.0086	0.1313
T3	120.00-113.33	-0.2424	0.9716	0.0148	0.3018
T4	113.33-106.67	-0.2390	0.9578	0.0130	0.2719
T5	106.67-100.00	-0.2452	0.9830	0.0159	0.3440
T6	100.00-80.00	-0.2460	0.9861	0.0153	0.3563
T7	80.00-60.00	-0.2460	0.9861	0.0135	0.3628
T8	60.00-40.00	-0.2452	0.9830	0.0111	0.3694
T9	40.00-20.00	-0.2460	0.9861	0.0074	0.3841
T10	20.00-6.67	-0.2458	0.9853	0.0015	0.4022
T11	6.67-0.00	-0.1281	0.5081	-0.0034	0.1286

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	2" conduit	140.00 - 146.00	0.6000	0.4104
T1	2	1/2	140.00 - 146.00	0.6000	0.4104
T1	3	1 1/4	140.00 - 146.00	0.6000	0.4104
T2	1	2" conduit	120.00 - 140.00	0.6000	0.2756
T2	2	1/2	120.00 - 140.00	0.6000	0.2756
T2	3	1 1/4	120.00 - 140.00	0.6000	0.2756
T2	4	1/2	120.00 - 135.00	0.6000	0.2756
T2	5	7/8	120.00 - 135.00	0.6000	0.2756
T2	6	1 5/8	120.00 - 135.00	0.6000	0.2756
T2	7	1 5/8	120.00 - 135.00	0.6000	0.2756
T2	8	7/8	120.00 - 135.00	0.6000	0.2756
T2	9	3" Conduit	120.00 - 126.00	0.6000	0.2756
T2	10	1 5/8	120.00 - 126.00	0.6000	0.2756
T3	1	2" conduit	113.33 - 120.00	0.6000	0.2975
T3	2	1/2	113.33 - 120.00	0.6000	0.2975
T3	3	1 1/4	113.33 - 120.00	0.6000	0.2975
T3	4	1/2	113.33 - 120.00	0.6000	0.2975
T3	5	7/8	113.33 - 120.00	0.6000	0.2975
T3	6	1 5/8	113.33 - 120.00	0.6000	0.2975
T3	7	1 5/8	113.33 -	0.6000	0.2975

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T3	8	7/8	113.33 - 120.00	0.6000	0.2975
T3	9	3" Conduit	113.33 - 120.00	0.6000	0.2975
T3	10	1 5/8	113.33 - 120.00	0.6000	0.2975
T4	1	2" conduit	106.67 - 113.33	0.6000	0.2401
T4	2	1/2	106.67 - 113.33	0.6000	0.2401
T4	3	1 1/4	106.67 - 113.33	0.6000	0.2401
T4	4	1/2	106.67 - 113.33	0.6000	0.2401
T4	5	7/8	106.67 - 113.33	0.6000	0.2401
T4	6	1 5/8	106.67 - 113.33	0.6000	0.2401
T4	7	1 5/8	106.67 - 113.33	0.6000	0.2401
T4	8	7/8	106.67 - 113.33	0.6000	0.2401
T4	9	3" Conduit	106.67 - 113.33	0.6000	0.2401
T4	10	1 5/8	106.67 - 113.33	0.6000	0.2401
T5	1	2" conduit	100.00 - 106.67	0.6000	0.3964
T5	2	1/2	100.00 - 106.67	0.6000	0.3964
T5	3	1 1/4	100.00 - 106.67	0.6000	0.3964
T5	4	1/2	100.00 - 106.67	0.6000	0.3964
T5	5	7/8	100.00 - 106.67	0.6000	0.3964
T5	6	1 5/8	100.00 - 106.67	0.6000	0.3964
T5	7	1 5/8	100.00 - 106.67	0.6000	0.3964
T5	8	7/8	100.00 - 106.67	0.6000	0.3964
T5	9	3" Conduit	100.00 - 106.67	0.6000	0.3964
T5	10	1 5/8	100.00 - 106.67	0.6000	0.3964
T6	1	2" conduit	80.00 - 100.00	0.6000	0.4268
T6	2	1/2	80.00 - 100.00	0.6000	0.4268
T6	3	1 1/4	80.00 - 100.00	0.6000	0.4268
T6	4	1/2	80.00 - 100.00	0.6000	0.4268
T6	5	7/8	80.00 - 100.00	0.6000	0.4268
T6	6	1 5/8	80.00 - 100.00	0.6000	0.4268
T6	7	1 5/8	80.00 - 100.00	0.6000	0.4268
T6	8	7/8	80.00 - 100.00	0.6000	0.4268
T6	9	3" Conduit	80.00 - 100.00	0.6000	0.4268
T6	10	1 5/8	80.00 - 100.00	0.6000	0.4268
T7	1	2" conduit	60.00 - 80.00	0.6000	0.4344
T7	2	1/2	60.00 - 80.00	0.6000	0.4344
T7	3	1 1/4	60.00 - 80.00	0.6000	0.4344
T7	4	1/2	60.00 - 80.00	0.6000	0.4344
T7	5	7/8	60.00 - 80.00	0.6000	0.4344

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	6	1 5/8	60.00 - 80.00	0.6000	0.4344
T7	7	1 5/8	60.00 - 80.00	0.6000	0.4344
T7	8	7/8	60.00 - 80.00	0.6000	0.4344
T7	9	3" Conduit	60.00 - 80.00	0.6000	0.4344
T7	10	1 5/8	60.00 - 80.00	0.6000	0.4344
T8	1	2" conduit	40.00 - 60.00	0.6000	0.4382
T8	2	1/2	40.00 - 60.00	0.6000	0.4382
T8	3	1 1/4	40.00 - 60.00	0.6000	0.4382
T8	4	1/2	40.00 - 60.00	0.6000	0.4382
T8	5	7/8	40.00 - 60.00	0.6000	0.4382
T8	6	1 5/8	40.00 - 60.00	0.6000	0.4382
T8	7	1 5/8	40.00 - 60.00	0.6000	0.4382
T8	8	7/8	40.00 - 60.00	0.6000	0.4382
T8	9	3" Conduit	40.00 - 60.00	0.6000	0.4382
T8	10	1 5/8	40.00 - 60.00	0.6000	0.4382
T9	1	2" conduit	20.00 - 40.00	0.6000	0.4589
T9	2	1/2	20.00 - 40.00	0.6000	0.4589
T9	3	1 1/4	20.00 - 40.00	0.6000	0.4589
T9	4	1/2	20.00 - 40.00	0.6000	0.4589
T9	5	7/8	20.00 - 40.00	0.6000	0.4589
T9	6	1 5/8	20.00 - 40.00	0.6000	0.4589
T9	7	1 5/8	20.00 - 40.00	0.6000	0.4589
T9	8	7/8	20.00 - 40.00	0.6000	0.4589
T9	9	3" Conduit	20.00 - 40.00	0.6000	0.4589
T9	10	1 5/8	20.00 - 40.00	0.6000	0.4589
T10	1	2" conduit	6.67 - 20.00	0.6000	0.4752
T10	2	1/2	6.67 - 20.00	0.6000	0.4752
T10	3	1 1/4	6.67 - 20.00	0.6000	0.4752
T10	4	1/2	6.67 - 20.00	0.6000	0.4752
T10	5	7/8	6.67 - 20.00	0.6000	0.4752
T10	6	1 5/8	6.67 - 20.00	0.6000	0.4752
T10	7	1 5/8	6.67 - 20.00	0.6000	0.4752
T10	8	7/8	6.67 - 20.00	0.6000	0.4752
T10	9	3" Conduit	6.67 - 20.00	0.6000	0.4752
T10	10	1 5/8	6.67 - 20.00	0.6000	0.4752
T11	1	2" conduit	6.00 - 6.67	0.6000	0.3059
T11	2	1/2	6.00 - 6.67	0.6000	0.3059
T11	3	1 1/4	6.00 - 6.67	0.6000	0.3059
T11	4	1/2	6.00 - 6.67	0.6000	0.3059
T11	5	7/8	6.00 - 6.67	0.6000	0.3059
T11	6	1 5/8	6.00 - 6.67	0.6000	0.3059
T11	7	1 5/8	6.00 - 6.67	0.6000	0.3059
T11	8	7/8	6.00 - 6.67	0.6000	0.3059
T11	9	3" Conduit	6.00 - 6.67	0.6000	0.3059
T11	10	1 5/8	6.00 - 6.67	0.6000	0.3059

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft	ft^2	ft^2	lb

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
*** Proposed ***									
APXVTM14-C-120	A	From Leg	3.00	0.0000	146.00	No Ice	6.53	3.38	52.90
			0.00			1/2" Ice	6.96	3.72	90.49
			2.00			1" Ice	7.40	4.07	132.96
APXVTM14-C-120	B	From Leg	3.00	0.0000	146.00	No Ice	6.53	3.38	52.90
			0.00			1/2" Ice	6.96	3.72	90.49
			2.00			1" Ice	7.40	4.07	132.96
APXVTM14-C-120	C	From Leg	3.00	0.0000	146.00	No Ice	6.53	3.38	52.90
			0.00			1/2" Ice	6.96	3.72	90.49
			2.00			1" Ice	7.40	4.07	132.96
TD-RRH8X20	A	From Leg	3.00	0.0000	146.00	No Ice	4.32	1.41	66.14
			0.00			1/2" Ice	4.60	1.61	90.08
			0.00			1" Ice	4.89	1.83	117.36
TD-RRH8X20	B	From Leg	3.00	0.0000	146.00	No Ice	4.32	1.41	66.14
			0.00			1/2" Ice	4.60	1.61	90.08
			0.00			1" Ice	4.89	1.83	117.36
TD-RRH8X20	C	From Leg	3.00	0.0000	146.00	No Ice	4.32	1.41	66.14
			0.00			1/2" Ice	4.60	1.61	90.08
			0.00			1" Ice	4.89	1.83	117.36
APXVSPP18-C-A20	A	From Leg	3.00	0.0000	146.00	No Ice	8.26	5.28	57.00
			0.00			1/2" Ice	8.81	5.74	106.52
			2.00			1" Ice	9.36	6.20	162.12
APXVSPP18-C-A20	B	From Leg	3.00	0.0000	146.00	No Ice	8.26	5.28	57.00
			0.00			1/2" Ice	8.81	5.74	106.52
			2.00			1" Ice	9.36	6.20	162.12
APXVSPP18-C-A20	C	From Leg	3.00	0.0000	146.00	No Ice	8.26	5.28	57.00
			0.00			1/2" Ice	8.81	5.74	106.52
			2.00			1" Ice	9.36	6.20	162.12
800 MHz w/ Notch Filter	A	From Leg	3.00	0.0000	146.00	No Ice	2.49	2.91	61.80
			0.00			1/2" Ice	2.71	3.14	87.79
			0.00			1" Ice	2.93	3.38	117.08
800 MHz w/ Notch Filter	B	From Leg	3.00	0.0000	146.00	No Ice	2.49	2.91	61.80
			0.00			1/2" Ice	2.71	3.14	87.79
			0.00			1" Ice	2.93	3.38	117.08
800 MHz w/ Notch Filter	C	From Leg	3.00	0.0000	146.00	No Ice	2.49	2.91	61.80
			0.00			1/2" Ice	2.71	3.14	87.79
			0.00			1" Ice	2.93	3.38	117.08
1900 MHz RRH	A	From Leg	3.00	0.0000	146.00	No Ice	2.73	1.45	44.09
			0.00			1/2" Ice	2.96	1.64	62.32
			0.00			1" Ice	3.20	1.84	83.43
1900 MHz RRH	B	From Leg	3.00	0.0000	146.00	No Ice	2.73	1.45	44.09
			0.00			1/2" Ice	2.96	1.64	62.32
			0.00			1" Ice	3.20	1.84	83.43
1900 MHz RRH	C	From Leg	3.00	0.0000	146.00	No Ice	2.73	1.45	44.09
			0.00			1/2" Ice	2.96	1.64	62.32
			0.00			1" Ice	3.20	1.84	83.43
*** Existing ***									
20' Omni	C	From Leg	3.00	0.0000	160.00	No Ice	6.00	6.00	55.00
			0.00			1/2" Ice	8.03	8.03	98.17
			10.00			1" Ice	10.08	10.08	154.01
20' Omni	B	From Leg	3.00	0.0000	160.00	No Ice	6.00	6.00	55.00
			0.00			1/2" Ice	8.03	8.03	98.17
			10.00			1" Ice	10.08	10.08	154.01
15' Omni	A	From Leg	3.00	0.0000	160.00	No Ice	4.50	4.50	15.00
			0.00			1/2" Ice	6.03	6.03	47.48
			7.50			1" Ice	7.58	7.58	89.58
15' Omni	C	From Leg	3.00	0.0000	160.00	No Ice	4.50	4.50	15.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00					1/2" Ice	6.03	6.03	47.48
			7.50					1" Ice	7.58	7.58	89.58
6' Dipole	A	From Leg	3.00			0.0000	160.00	No Ice	1.77	1.77	15.00
			0.00					1/2" Ice	2.13	2.13	28.24
			0.00					1" Ice	2.50	2.50	45.59
(2) LPA-80080/6CF	A	From Leg	3.00			0.0000	135.00	No Ice	4.32	9.10	21.00
			0.00					1/2" Ice	4.76	9.65	69.26
			0.00					1" Ice	5.21	10.21	123.51
(2) SC-E 6014 rev2	B	From Leg	3.00			0.0000	135.00	No Ice	3.55	3.34	15.00
			0.00					1/2" Ice	3.89	3.68	42.16
			0.00					1" Ice	4.24	4.02	73.37
(2) SC-E 6014 rev2	C	From Leg	3.00			0.0000	135.00	No Ice	3.55	3.34	15.00
			0.00					1/2" Ice	3.89	3.68	42.16
			0.00					1" Ice	4.24	4.02	73.37
BXA-171063-12CF	A	From Leg	3.00			0.0000	135.00	No Ice	4.79	3.62	15.00
			0.00					1/2" Ice	5.24	4.06	42.45
			0.00					1" Ice	5.70	4.50	75.45
BXA-171063-12CF	B	From Leg	3.00			0.0000	135.00	No Ice	4.79	3.62	15.00
			0.00					1/2" Ice	5.24	4.06	42.45
			0.00					1" Ice	5.70	4.50	75.45
BXA-171063-12CF	C	From Leg	3.00			0.0000	135.00	No Ice	4.79	3.62	15.00
			0.00					1/2" Ice	5.24	4.06	42.45
			0.00					1" Ice	5.70	4.50	75.45
LPA-70063-4CF	A	From Leg	3.00			0.0000	135.00	No Ice	7.00	6.04	25.00
			0.00					1/2" Ice	7.41	6.43	77.41
			0.00					1" Ice	7.83	6.84	134.92
SLCP 2x6014	B	From Leg	3.00			0.0000	135.00	No Ice	7.21	5.67	25.00
			0.00					1/2" Ice	7.65	6.09	75.49
			0.00					1" Ice	8.10	6.51	131.23
SLCP 2x6014	C	From Leg	3.00			0.0000	135.00	No Ice	7.21	5.67	25.00
			0.00					1/2" Ice	7.65	6.09	75.49
			0.00					1" Ice	8.10	6.51	131.23
AM-X-CD-16-65-00T-RET	A	From Leg	3.00			0.0000	126.00	No Ice	8.26	4.64	48.50
			0.00					1/2" Ice	8.81	5.09	95.00
			0.00					1" Ice	9.36	5.54	147.50
AM-X-CD-16-65-00T-RET	B	From Leg	3.00			0.0000	126.00	No Ice	8.26	4.64	48.50
			0.00					1/2" Ice	8.81	5.09	95.00
			0.00					1" Ice	9.36	5.54	147.50
AM-X-CD-16-65-00T-RET	C	From Leg	3.00			0.0000	126.00	No Ice	8.26	4.64	48.50
			0.00					1/2" Ice	8.81	5.09	95.00
			0.00					1" Ice	9.36	5.54	147.50
(2) SBNH-1D6565C (60.8 lbs)	A	From Leg	3.00			0.0000	126.00	No Ice	11.45	7.70	60.80
			0.00					1/2" Ice	12.06	8.29	126.67
			0.00					1" Ice	12.69	8.89	200.21
(2) SBNH-1D6565C (60.8 lbs)	B	From Leg	3.00			0.0000	126.00	No Ice	11.45	7.70	60.80
			0.00					1/2" Ice	12.06	8.29	126.67
			0.00					1" Ice	12.69	8.89	200.21
(2) SBNH-1D6565C (60.8 lbs)	C	From Leg	3.00			0.0000	126.00	No Ice	11.45	7.70	60.80
			0.00					1/2" Ice	12.06	8.29	126.67
			0.00					1" Ice	12.69	8.89	200.21
(2) RRUS-11	A	From Leg	3.00			0.0000	126.00	No Ice	4.42	1.63	55.00
			0.00					1/2" Ice	4.71	1.84	80.77
			0.00					1" Ice	5.00	2.06	109.98
(2) RRUS-11	B	From Leg	3.00			0.0000	126.00	No Ice	4.42	1.63	55.00
			0.00					1/2" Ice	4.71	1.84	80.77
			0.00					1" Ice	5.00	2.06	109.98
(2) RRUS-11	C	From Leg	3.00			0.0000	126.00	No Ice	4.42	1.63	55.00

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*
			0.00			1/2" Ice	4.71	1.84	80.77
			0.00			1" Ice	5.00	2.06	109.98
(2) TTA	A	From Leg	3.00	0.0000	126.00	No Ice	1.40	0.70	10.00
			0.00			1/2" Ice	1.56	0.82	20.34
			0.00			1" Ice	1.73	0.95	32.81
(2) TTA	A	From Leg	3.00	0.0000	126.00	No Ice	1.40	0.70	10.00
			0.00			1/2" Ice	1.56	0.82	20.34
			0.00			1" Ice	1.73	0.95	32.81
(2) TTA	A	From Leg	3.00	0.0000	126.00	No Ice	1.40	0.70	10.00
			0.00			1/2" Ice	1.56	0.82	20.34
			0.00			1" Ice	1.73	0.95	32.81
20' Dipole	A	From Leg	1.00	0.0000	52.00	No Ice	6.00	6.00	60.00
			0.00			1/2" Ice	8.03	8.03	103.17
			10.00			1" Ice	10.08	10.08	159.01
*** Mounts ***									
Angle Sector Frame	A	From Leg	1.50	0.0000	146.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	B	From Leg	1.50	0.0000	146.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	C	From Leg	1.50	0.0000	146.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	A	From Leg	1.50	0.0000	135.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	B	From Leg	1.50	0.0000	135.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	C	From Leg	1.50	0.0000	135.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Pipe Sector Frame	A	From Leg	1.50	0.0000	126.00	No Ice	14.40	7.20	300.00
			0.00			1/2" Ice	19.50	10.50	415.00
			0.00			1" Ice	24.60	13.80	530.00
Pipe Sector Frame	B	From Leg	1.50	0.0000	126.00	No Ice	14.40	7.20	300.00
			0.00			1/2" Ice	19.50	10.50	415.00
			0.00			1" Ice	24.60	13.80	530.00
Pipe Sector Frame	C	From Leg	1.50	0.0000	126.00	No Ice	14.40	7.20	300.00
			0.00			1/2" Ice	19.50	10.50	415.00
			0.00			1" Ice	24.60	13.80	530.00

Dishes

Description	*Face or Leg*	*Dish Type*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft*	*Azimuth Adjustment* *°*	*3 dB Beam Width* *°*	*Elevation* *ft*	*Outside Diameter* *ft*		*Aperture Area* *ft^2*	*Weight* *lb*
VHLP2	A	Paraboloid	From	3.00	0.0000		146.00	2.00	No Ice	3.14	25.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
(ClearWire)		w/Radome	Leg	0.00					1/2" Ice	3.41	25.02
				5.00					1" Ice	3.68	25.04
VHLP2	C	Paraboloid	From	3.00	0.0000		146.00	2.00	No Ice	3.14	25.00
(ClearWire)		w/Radome	Leg	0.00					1/2" Ice	3.41	25.02
				5.00					1" Ice	3.68	25.04

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	160 - 140	1.532	37	0.0370	0.0927
T2	140 - 120	1.605	33	0.0250	0.1549
T3	120 - 113.333	1.329	33	0.0881	0.1508
T4	113.333 - 106.667	1.199	34	0.0786	0.1435
T5	106.667 - 100	1.109	34	0.0530	0.1337
T6	100 - 80	1.064	34	0.0386	0.1190
T7	80 - 60	0.941	32	0.0420	0.0979
T8	60 - 40	0.715	32	0.0588	0.0866
T9	40 - 20	0.509	28	0.0417	0.0833
T10	20 - 6.66667	0.317	28	0.0612	0.0782
T11	6.66667 - 0	0.116	28	0.0772	0.0662

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	37	1.532	0.0370	0.0927	38371
151.00	VHLP2	37	1.593	0.0167	0.1267	21317
146.00	APXVTM14-C-120	37	1.611	0.0162	0.1422	13704
135.00	(2) LPA-80080/6CF	33	1.568	0.0415	0.1594	11513
126.00	AM-X-CD-16-65-00T-RET	33	1.443	0.0763	0.1566	17997
110.00	Guy	34	1.147	0.0659	0.1392	10160
52.00	20' Dipole	28	0.626	0.0524	0.0847	82994
50.00	Guy	28	0.605	0.0501	0.0844	83804

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	160 - 140	15.099	10	0.1125	0.5616
T2	140 - 120	14.490	10	0.3389	0.6987
T3	120 - 113.333	12.259	10	0.6314	0.6529
T4	113.333 - 106.667	11.320	10	0.5928	0.6145
T5	106.667 - 100	10.556	10	0.4799	0.5885
T6	100 - 80	9.996	10	0.4160	0.5442
T7	80 - 60	8.384	6	0.4354	0.4147
T8	60 - 40	6.326	6	0.5105	0.3493
T9	40 - 20	4.366	2	0.4320	0.3229
T10	20 - 6.66667	2.465	2	0.5224	0.2855
T11	6.66667 - 0	0.867	2	0.5963	0.2404

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	10	15.099	0.1125	0.5616	8522

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
151.00	VHLP2	10	14.959	0.1901	0.6383	4734
146.00	APXVTM14-C-120	10	14.807	0.2493	0.6724	3044
135.00	(2) LPA-80080/6CF	10	14.084	0.4306	0.7047	2566
126.00	AM-X-CD-16-65-00T-RET	10	13.074	0.5838	0.6838	4062
110.00	Guy	10	10.909	0.5375	0.6018	2149
52.00	20' Dipole	6	5.508	0.4809	0.3381	17975
50.00	Guy	2	5.311	0.4702	0.3355	18249

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	160	Leg	A325N	0.6250	4	5739.78	20708.70	0.277 ✔	1	Bolt Tension
T2	140	Leg	A325N	0.6250	4	1468.81	20708.70	0.071 ✔	1	Bolt Tension
T5	106.667	Leg	A325N	0.6250	4	2329.66	20708.70	0.112 ✔	1	Bolt Tension
T6	100	Leg	A325N	0.6250	4	2282.64	20708.70	0.110 ✔	1	Bolt Tension
T7	80	Leg	A325N	0.6250	4	2361.55	20708.70	0.114 ✔	1	Bolt Tension
T8	60	Leg	A325N	0.6250	4	2695.98	20708.70	0.130 ✔	1	Bolt Tension
T9	40	Leg	A325N	0.6250	4	3000.04	20708.70	0.145 ✔	1	Bolt Tension
T10	20	Leg	A325N	0.6250	4	2996.50	20708.70	0.145 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T1	160.00 (A) (388)	7/16 EHS	2080.00	20800.02	7268.97	12480.00	1.000	1.717 ✔
	160.00 (A) (389)	7/16 EHS	2080.00	20800.02	7457.63	12480.00	1.000	1.673 ✔
	160.00 (B) (382)	7/16 EHS	2080.00	20800.02	7254.68	12480.00	1.000	1.720 ✔
	160.00 (B) (383)	7/16 EHS	2080.00	20800.02	7240.94	12480.00	1.000	1.724 ✔
	160.00 (C) (376)	7/16 EHS	2080.00	20800.02	7440.63	12480.00	1.000	1.677 ✔
	160.00 (C) (377)	7/16 EHS	2080.00	20800.02	7265.39	12480.00	1.000	1.718 ✔
T4	110.00 (A) (396)	3/4 EHS	5830.00	58299.91	21788.00	34980.00	1.000	1.605 ✔
	110.00 (B) (395)	3/4 EHS	5830.00	58299.91	21827.90	34980.00	1.000	1.603 ✔
	110.00 (C) (394)	3/4 EHS	5830.00	58299.91	21834.70	34980.00	1.000	1.602 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T8	50.00 (A) (399)	7/16 EHS	2080.00	20800.02	7457.77	12480.00	1.000	1.673 ✔
	50.00 (B) (398)	7/16 EHS	2080.00	20800.02	7458.20	12480.00	1.000	1.673 ✔
	50.00 (C) (397)	7/16 EHS	2080.00	20800.02	7455.18	12480.00	1.000	1.674 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	ROHN 2.5 X-STR	20.00	3.32	43.1 K=1.00	2.2535	0.99	-37378.70	87874.20	0.425 [1] ✔
T2	140 - 120	ROHN 2.5 X-STR	20.00	3.32	43.1 K=1.00	2.2535	0.99	-37273.00	87855.30	0.424 [1] ✔
T3	120 - 113.333	ROHN 2.5 STD	6.67	3.25	41.2 K=1.00	1.7040	0.98	-29634.30	66678.50	0.444 [1] ✔
T4	113.333 - 106.667	ROHN 2.5 STD	6.67	3.25	41.2 K=1.00	1.7040	0.95	-36899.90	64244.90	0.574 [1] ✔
T5	106.667 - 100	ROHN 2.5 STD	6.67	3.25	41.2 K=1.00	1.7040	0.95	-36901.40	64244.60	0.574 [1] ✔
T6	100 - 80	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	1.7040	0.88	-27391.60	59392.60	0.461 [1] ✔
T7	80 - 60	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	1.7040	0.88	-28338.60	59089.80	0.480 [1] ✔
T8	60 - 40	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	1.7040	0.95	-32351.80	63936.60	0.506 [1] ✔
T9	40 - 20	ROHN 2.5 STD	20.00	3.31	41.9 K=1.00	1.7040	0.95	-36000.50	64093.90	0.562 [1] ✔
T10	20 - 6.66667	ROHN 2.5 STD	13.33	3.29	41.7 K=1.00	1.7040	0.95	-35958.00	63979.60	0.562 [1] ✔
T11	6.66667 - 0	ROHN 2.5 STD	6.82	3.41	43.2 K=1.00	1.7040	0.96	-36939.00	63951.00	0.578 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	4.16	3.76	67.6 K=0.50	0.3326	-4963.55	8475.25	0.586 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	140 - 120	P.75x.113	4.16	3.76	81.1 K=0.60	0.3326	-4845.28	7624.89	0.635 [1]
T3	120 - 113.333	P.75x.113	4.10	3.71	80.0 K=0.60	0.3326	-5232.21	7694.92	0.680 [1]
T4	113.333 - 106.667	P.75x.113	4.10	3.71	80.0 K=0.60	0.3326	-5321.73	7694.92	0.692 [1]
T5	106.667 - 100	P.75x.113	4.10	3.71	66.7 K=0.50	0.3326	-4433.77	8529.22	0.520 [1]
T6	100 - 80	P.75x.113	4.14	3.75	67.4 K=0.50	0.3326	-3865.59	8486.11	0.456 [1]
T7	80 - 60	P.75x.113	4.14	3.75	114.5 K=0.85	0.3326	-2719.92	5401.55	0.504 [1]
T8	60 - 40	P.75x.113	4.14	3.75	114.5 K=0.85	0.3326	-3730.39	5401.55	0.691 [1]
T9	40 - 20	P.75x.113	4.14	3.75	114.5 K=0.85	0.3326	-2802.25	5401.55	0.519 [1]
T10	20 - 6.66667	P.75x.113	4.13	3.74	114.2 K=0.85	0.3326	-2042.46	5421.49	0.377 [1]
T11	6.66667 - 0	P.75x.113	3.76	3.28	100.4 K=0.85	0.3326	-1807.69	6338.99	0.285 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-1656.87	7610.79	0.218 [1]
T2	140 - 120	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-993.56	7610.79	0.131 [1]
T5	106.667 - 100	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-438.09	7610.79	0.058 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-1608.59	7610.79	0.211 [1]
T2	140 - 120	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-264.84	7610.79	0.035 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	113.333 - 106.667	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-223.24	7610.79	0.029 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-266.18	7610.79	0.035 [1]
T4	113.333 - 106.667	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-85.77	7610.79	0.011 [1]
T5	106.667 - 100	P.75x.113	2.50	2.26	81.3 K=1.00	0.3326	-12.62	7610.79	0.002 [1]

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140 (380)	L3x3x3/8	4.16	3.96	80.9 K=1.00	2.1100	-10691.50	48446.40	0.221 [1]
T1	160 - 140 (381)	L3x3x3/8	4.16	3.96	80.9 K=1.00	2.1100	-10749.10	48446.40	0.222 [1]
T1	160 - 140 (386)	L3x3x3/8	4.16	3.96	80.9 K=1.00	2.1100	-10365.10	48446.40	0.214 [1]
T1	160 - 140 (387)	L3x3x3/8	4.16	3.96	80.9 K=1.00	2.1100	-10316.00	48446.40	0.213 [1]
T1	160 - 140 (392)	L3x3x3/8	4.16	3.96	80.9 K=1.00	2.1100	-10526.30	48446.40	0.217 [1]
T1	160 - 140 (393)	L3x3x3/8	4.16	3.96	80.9 K=1.00	2.1100	-10541.60	48446.40	0.218 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	ROHN 2.5 X-STR	20.00	3.32	43.1	2.2535	22959.10	101409.00	0.226 [1] ✔
T2	140 - 120	ROHN 2.5 X-STR	20.00	3.32	43.1	2.2535	23824.20	101409.00	0.235 [1] ✔
T3	120 - 113.333	ROHN 2.5 STD	6.67	3.25	41.2	1.7040	12254.40	76682.30	0.160 [1] ✔
T4	113.333 - 106.667	ROHN 2.5 STD	6.67	3.25	41.2	1.7040	17958.90	76682.30	0.234 [1] ✔
T5	106.667 - 100	ROHN 2.5 STD	6.67	3.25	41.2	1.7040	3504.12	76682.30	0.046 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	4.16	3.76	135.1	0.3326	4581.91	10777.40	0.425 [1] ✔
T2	140 - 120	P.75x.113	4.16	3.76	135.1	0.3326	3644.60	10777.40	0.338 [1] ✔
T3	120 - 113.333	P.75x.113	4.10	3.71	133.3	0.3326	3805.50	10777.40	0.353 [1] ✔
T4	113.333 - 106.667	P.75x.113	4.10	3.71	133.3	0.3326	4429.06	10777.40	0.411 [1] ✔
T5	106.667 - 100	P.75x.113	4.10	3.71	133.3	0.3326	3542.82	10777.40	0.329 [1] ✔
T6	100 - 80	P.75x.113	4.14	3.75	134.8	0.3326	2583.22	10777.40	0.240 [1] ✔
T7	80 - 60	P.75x.113	4.14	3.75	134.8	0.3326	1443.34	10777.40	0.134 [1] ✔
T8	60 - 40	P.75x.113	4.14	3.75	134.8	0.3326	2207.91	10777.40	0.205 [1] ✔
T9	40 - 20	P.75x.113	4.14	3.75	134.8	0.3326	1261.81	10777.40	0.117 [1] ✔
T10	20 - 6.66667	P.75x.113	4.13	3.74	134.4	0.3326	720.00	10777.40	0.067 [1] ✔

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	2.50	2.26	81.3	0.3326	1754.24	10777.40	0.163 [1] ✔
T2	140 - 120	P.75x.113	2.50	2.26	81.3	0.3326	2274.78	10777.40	0.211 [1] ✔
T3	120 - 113.333	P.75x.113	2.50	2.26	81.3	0.3326	1697.54	10777.40	0.158 [1] ✔
T5	106.667 - 100	P.75x.113	2.50	2.26	81.3	0.3326	1166.94	10777.40	0.108 [1] ✔
T6	100 - 80	P.75x.113	2.50	2.26	81.3	0.3326	601.46	10777.40	0.056 [1] ✔
T7	80 - 60	P.75x.113	2.50	2.26	81.3	0.3326	611.35	10777.40	0.057 [1] ✔
T8	60 - 40	P.75x.113	2.50	2.26	81.3	0.3326	664.03	10777.40	0.062 [1] ✔
T9	40 - 20	P.75x.113	2.50	2.26	81.3	0.3326	720.35	10777.40	0.067 [1] ✔
T10	20 - 6.66667	P.75x.113	2.50	2.26	81.3	0.3326	726.02	10777.40	0.067 [1] ✔
T11	6.66667 - 0	P.75x.113	1.25	1.01	36.3	0.3326	603.99	10777.40	0.056 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140	P.75x.113	2.50	2.26	81.3	0.3326	1608.32	10777.40	0.149 [1] ✔
T2	140 - 120	P.75x.113	2.50	2.26	81.3	0.3326	670.67	10777.40	0.062 [1] ✔
T3	120 - 113.333	P.75x.113	2.50	2.26	81.3	0.3326	793.75	10777.40	0.074 [1] ✔
T4	113.333 - 106.667	P.75x.113	2.50	2.26	81.3	0.3326	1871.66	10777.40	0.174 [1] ✔
T6	100 - 80	P.75x.113	2.50	2.26	81.3	0.3326	273.90	10777.40	0.025 [1] ✔
T7	80 - 60	P.75x.113	2.50	2.26	81.3	0.3326	285.61	10777.40	0.027 [1] ✔
T8	60 - 40	P.75x.113	2.50	2.26	81.3	0.3326	344.38	10777.40	0.032 [1] ✔
T9	40 - 20	P.75x.113	2.50	2.26	81.3	0.3326	330.56	10777.40	0.031 [1] ✔
T10	20 - 6.66667	P.75x.113	2.50	2.26	81.3	0.3326	362.96	10777.40	0.034 [1] ✔
T11	6.66667 - 0	P.75x.113	2.47	2.23	80.2	0.3326	2543.68	10777.40	0.236 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	160 - 140	P.75x.113	2.50	2.26	81.3	0.3326	629.95	10777.40	0.058 [1] ✔
T2	140 - 120	P.75x.113	2.50	2.26	81.3	0.3326	737.94	10777.40	0.068 [1] ✔
T4	113.333 - 106.667	P.75x.113	2.50	2.26	81.3	0.3326	1228.10	10777.40	0.114 [1] ✔
T5	106.667 - 100	P.75x.113	2.50	2.26	81.3	0.3326	402.74	10777.40	0.037 [1] ✔
T6	100 - 80	P.75x.113	2.50	2.26	81.3	0.3326	307.06	10777.40	0.028 [1] ✔
T7	80 - 60	P.75x.113	2.50	2.26	81.3	0.3326	287.09	10777.40	0.027 [1] ✔
T8	60 - 40	P.75x.113	2.50	2.26	81.3	0.3326	365.55	10777.40	0.034 [1] ✔
T9	40 - 20	P.75x.113	2.50	2.26	81.3	0.3326	357.21	10777.40	0.033 [1] ✔
T10	20 - 6.66667	P.75x.113	2.50	2.26	81.3	0.3326	2527.20	10777.40	0.234 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T4	113.333 - 106.667	3x.226	2.50	2.26	415.8	0.5085	6988.26	24789.40	0.282 [1] ✔
T8	60 - 40	3x.226	2.50	2.26	415.8	0.6780	4233.58	30510.00	0.139 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	160 - 140 (378)	L3x3x3/8	2.50	2.38	31.3	2.1100	5616.51	68364.00	0.082 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140 (379)	L3x3x3/8	2.50	2.38	31.3	2.1100	5606.54	68364.00	0.082 [1] ✔
T1	160 - 140 (384)	L3x3x3/8	2.50	2.38	31.3	2.1100	5734.99	68364.00	0.084 [1] ✔
T1	160 - 140 (385)	L3x3x3/8	2.50	2.38	31.3	2.1100	5377.08	68364.00	0.079 [1] ✔
T1	160 - 140 (390)	L3x3x3/8	2.50	2.38	31.3	2.1100	5594.70	68364.00	0.082 [1] ✔
T1	160 - 140 (391)	L3x3x3/8	2.50	2.38	31.3	2.1100	5650.38	68364.00	0.083 [1] ✔

[1] $P_u / \phi P_n$ controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	160 - 140 (380)	L3x3x3/8	4.16	3.96	52.0	2.1100	2054.55	68364.00	0.030 [1] ✔
T1	160 - 140 (381)	L3x3x3/8	4.16	3.96	52.0	2.1100	2009.00	68364.00	0.029 [1] ✔
T1	160 - 140 (386)	L3x3x3/8	4.16	3.96	52.0	2.1100	1824.15	68364.00	0.027 [1] ✔
T1	160 - 140 (387)	L3x3x3/8	4.16	3.96	52.0	2.1100	1862.93	68364.00	0.027 [1] ✔
T1	160 - 140 (392)	L3x3x3/8	4.16	3.96	52.0	2.1100	2035.08	68364.00	0.030 [1] ✔
T1	160 - 140 (393)	L3x3x3/8	4.16	3.96	52.0	2.1100	2044.89	68364.00	0.030 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	160 - 140	Leg	ROHN 2.5 X-STR	1	-37378.70	87874.20	42.5	Pass
		Diagonal	P.75x.113	30	-4963.55	8475.25	58.6	Pass
		Horizontal	P.75x.113	38	-1656.87	7610.79	21.8	Pass
		Top Girt	P.75x.113	6	-1608.59	7610.79	21.1	Pass
		Bottom Girt	P.75x.113	9	629.95	10777.40	5.8	Pass
		Guy A@160	7/16	389	7457.63	12480.00	59.8	Pass
		Guy B@160	7/16	382	7254.68	12480.00	58.1	Pass
		Guy C@160	7/16	376	7440.63	12480.00	59.6	Pass
		Torque Arm Top@160	L3x3x3/8	384	5734.99	68364.00	8.4	Pass
		Torque Arm	L3x3x3/8	381	-10749.10	48446.40	22.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Bottom@160						
T2	140 - 120	Leg	ROHN 2.5 X-STR	43	-37273.00	87855.30	42.4	Pass
		Diagonal	P.75x.113	56	-4845.28	7624.89	63.5	Pass
		Horizontal	P.75x.113	95	2274.78	10777.40	21.1	Pass
		Top Girt	P.75x.113	48	670.67	10777.40	6.2	Pass
		Bottom Girt	P.75x.113	51	737.94	10777.40	6.8	Pass
T3	120 - 113.333	Leg	ROHN 2.5 STD	103	-29634.30	66678.50	44.4	Pass
		Diagonal	P.75x.113	114	-5232.21	7694.92	68.0	Pass
		Horizontal	P.75x.113	117	1697.54	10777.40	15.8	Pass
		Top Girt	P.75x.113	108	793.75	10777.40	7.4	Pass
T4	113.333 - 106.667	Leg	ROHN 2.5 STD	124	-36899.90	64244.90	57.4	Pass
		Diagonal	P.75x.113	147	-5321.73	7694.92	69.2	Pass
		Top Girt	P.75x.113	128	1871.66	10777.40	17.4	Pass
		Bottom Girt	P.75x.113	130	1228.10	10777.40	11.4	Pass
		Guy A@110	3/4	396	21788.00	34980.00	62.3	Pass
		Guy B@110	3/4	395	21827.90	34980.00	62.4	Pass
		Guy C@110	3/4	394	21834.70	34980.00	62.4	Pass
		Top Guy Pull-Off@110	3x.226	140	6988.26	24789.40	28.2	Pass
T5	106.667 - 100	Leg	ROHN 2.5 STD	148	-36901.40	64244.60	57.4	Pass
		Diagonal	P.75x.113	163	-4433.77	8529.22	52.0	Pass
		Horizontal	P.75x.113	151	1166.94	10777.40	10.8	Pass
		Bottom Girt	P.75x.113	154	402.74	10777.40	3.7	Pass
T6	100 - 80	Leg	ROHN 2.5 STD	168	-27391.60	59392.60	46.1	Pass
		Diagonal	P.75x.113	205	-3865.59	8486.11	45.6	Pass
		Horizontal	P.75x.113	202	601.46	10777.40	5.6	Pass
		Top Girt	P.75x.113	169	273.90	10777.40	2.5	Pass
		Bottom Girt	P.75x.113	173	307.06	10777.40	2.8	Pass
T7	80 - 60	Leg	ROHN 2.5 STD	208	-28338.60	59089.80	48.0	Pass
		Diagonal	P.75x.113	219	-2719.92	5401.55	50.4	Pass
		Horizontal	P.75x.113	226	611.35	10777.40	5.7	Pass
		Top Girt	P.75x.113	213	285.61	10777.40	2.7	Pass
		Bottom Girt	P.75x.113	216	287.09	10777.40	2.7	Pass
T8	60 - 40	Leg	ROHN 2.5 STD	250	-32351.80	63936.60	50.6	Pass
		Diagonal	P.75x.113	279	-3730.39	5401.55	69.1	Pass
		Horizontal	P.75x.113	263	664.03	10777.40	6.2	Pass
		Top Girt	P.75x.113	255	344.38	10777.40	3.2	Pass
		Bottom Girt	P.75x.113	256	365.55	10777.40	3.4	Pass
		Guy A@50	7/16	399	7457.77	12480.00	59.8	Pass
		Guy B@50	7/16	398	7458.20	12480.00	59.8	Pass
		Guy C@50	7/16	397	7455.18	12480.00	59.7	Pass
		Top Guy Pull-Off@50	3x.226	274	4233.58	30510.00	13.9	Pass
T9	40 - 20	Leg	ROHN 2.5 STD	292	-36000.50	64093.90	56.2	Pass
		Diagonal	P.75x.113	331	-2802.25	5401.55	51.9	Pass
		Horizontal	P.75x.113	310	720.35	10777.40	6.7	Pass
		Top Girt	P.75x.113	295	330.56	10777.40	3.1	Pass
		Bottom Girt	P.75x.113	299	357.21	10777.40	3.3	Pass
T10	20 - 6.66667	Leg	ROHN 2.5 STD	334	-35958.00	63979.60	56.2	Pass
		Diagonal	P.75x.113	345	-2042.46	5421.49	37.7	Pass
		Horizontal	P.75x.113	360	726.02	10777.40	6.7	Pass
		Top Girt	P.75x.113	339	362.96	10777.40	3.4	Pass
		Bottom Girt	P.75x.113	341	2527.20	10777.40	23.4	Pass
T11	6.66667 - 0	Leg	ROHN 2.5 STD	364	-36939.00	63951.00	57.8	Pass
		Diagonal	P.75x.113	375	-1807.69	6338.99	28.5	Pass
		Horizontal	P.75x.113	372	603.99	10777.40	5.6	Pass
		Top Girt	P.75x.113	367	2543.68	10777.40	23.6	Pass
							Summary	
						Leg (T11)	57.8	Pass
						Diagonal	69.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						(T4)		
						Horizontal (T1)	21.8	Pass
						Top Girt (T11)	23.6	Pass
						Bottom Girt (T10)	23.4	Pass
						Guy A (T4)	62.3	Pass
						Guy B (T4)	62.4	Pass
						Guy C (T4)	62.4	Pass
						Top Guy Pull-Off (T4)	28.2	Pass
						Torque Arm Top (T1)	8.4	Pass
						Torque Arm Bottom (T1)	22.2	Pass
						Bolt Checks	27.7	Pass
						RATING =	**69.2**	**Pass**

EXHIBIT C

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Calculated Radio Frequency Emissions Report

CT81XC010 – Prospect Waterbury Road

54 Waterbury Road, Prospect, CT 06712

May 26, 2015

Table of Contents

List of Tables

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 antenna arrays mounted on the guyed tower located at 54 Waterbury Road in Prospect, CT. The coordinates of the tower are 41° 30' 40.36" N, 72° 58' 57.08" W.

Sprint is proposing the following modifications:

1) Remove three 1900MHz CDMA/EVDO antennas (one per sector);
2) Install three dualband 865/1900MHz CDMA/EVDO/LTE antennas (one per sector);
3) Install three 865MHz & three 1900MHz remote radio heads (two per sector);
4) Install three 2500 MHz LTE antennas (one per sector);
5) Install three 2500 MHz LTE remote radio heads (one per sector).

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:

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna patterns

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. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final site configuration.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed Sprint antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical patterns of the proposed Sprint antennas. The calculated results for Sprint's proposed antenna configuration in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
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%*
Clearwire	*146*	*2496*	*2*	*153*	*0.0052*	*1.0000*	*0.52%*
Clearwire	*151*	*23000*	*1*	*211*	*0.0033*	*1.0000*	*0.33%*
F&S Oil	N/A	451	N/A	N/A	0.0031	0.3007	1.03%
New Haven Transit	N/A	451	N/A	N/A	0.0031	0.3007	1.03%
US Post Office	N/A	415	N/A	N/A	0.0031	0.2767	1.12%
Central Comm.	N/A	452	N/A	N/A	0.0031	0.3013	1.03%
CT Motor Club	N/A	150.92	N/A	N/A	0.0381	0.2000	19.05%
AT&T UMTS	126	880	2	1077	0.0488	0.5867	8.32%
AT&T UMTS	126	1900	2	1556	0.0705	1.0000	7.05%
AT&T GSM	126	880	1	538	0.0122	0.5867	2.08%
AT&T GSM	126	1900	4	934	0.0846	1.0000	8.46%
AT&T LTE	126	734	1	1375	0.0311	0.4893	6.36%
Verizon Cellular	135	869	9	348	0.0618	0.5793	10.67%
Verizon PCS	135	1970	7	423	0.0584	1.0000	5.84%
Verizon LTE	135	746	1	819	0.0162	0.4973	3.25%
Verizon AWS	135	2145	1	2691	0.0531	1.0000	5.31%
Sprint CDMA/EVDO	146	865	1	350	0.0006	0.5767	0.10%
Sprint CDMA/EVDO	146	1900	5	622	0.0052	1.0000	0.52%
Sprint LTE	146	865	1	875	0.0015	0.5767	0.26%
Sprint LTE	146	1900	1	3112	0.0052	1.0000	0.52%
Sprint LTE	146	2500	1	3112	0.0052	1.0000	0.52%
						Total:	**82.53%**

Table 1: Carrier Information[1] [2]

[1] The existing CSC filings for Sprint-Nextel and Clearwire should be removed and replaced with the updated Sprint values provided in Table 1. The power density information for carriers other than Sprint was taken directly from the CSC database dated 5/4/2015. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

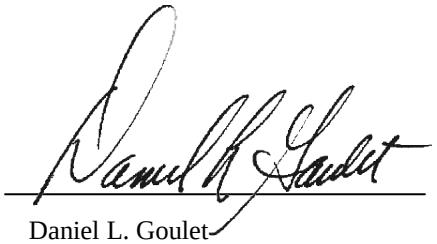
[2] Antenna heights listed for Sprint are in reference to the Infinigy Construction Drawings, dated 5/11/2015.

5. Conclusion

The above analysis verifies that emissions from the final site configuration will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. The highest, cumulative expected percent of Maximum Permissible Exposure at ground level is **82.53% of the FCC Uncontrolled/General Population limit.**

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/IEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



May 26, 2015

Daniel L. Goulet
C Squared Systems, LLC

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[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)
0.3-3.0	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[4]

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)

[3] 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.

[4] 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.

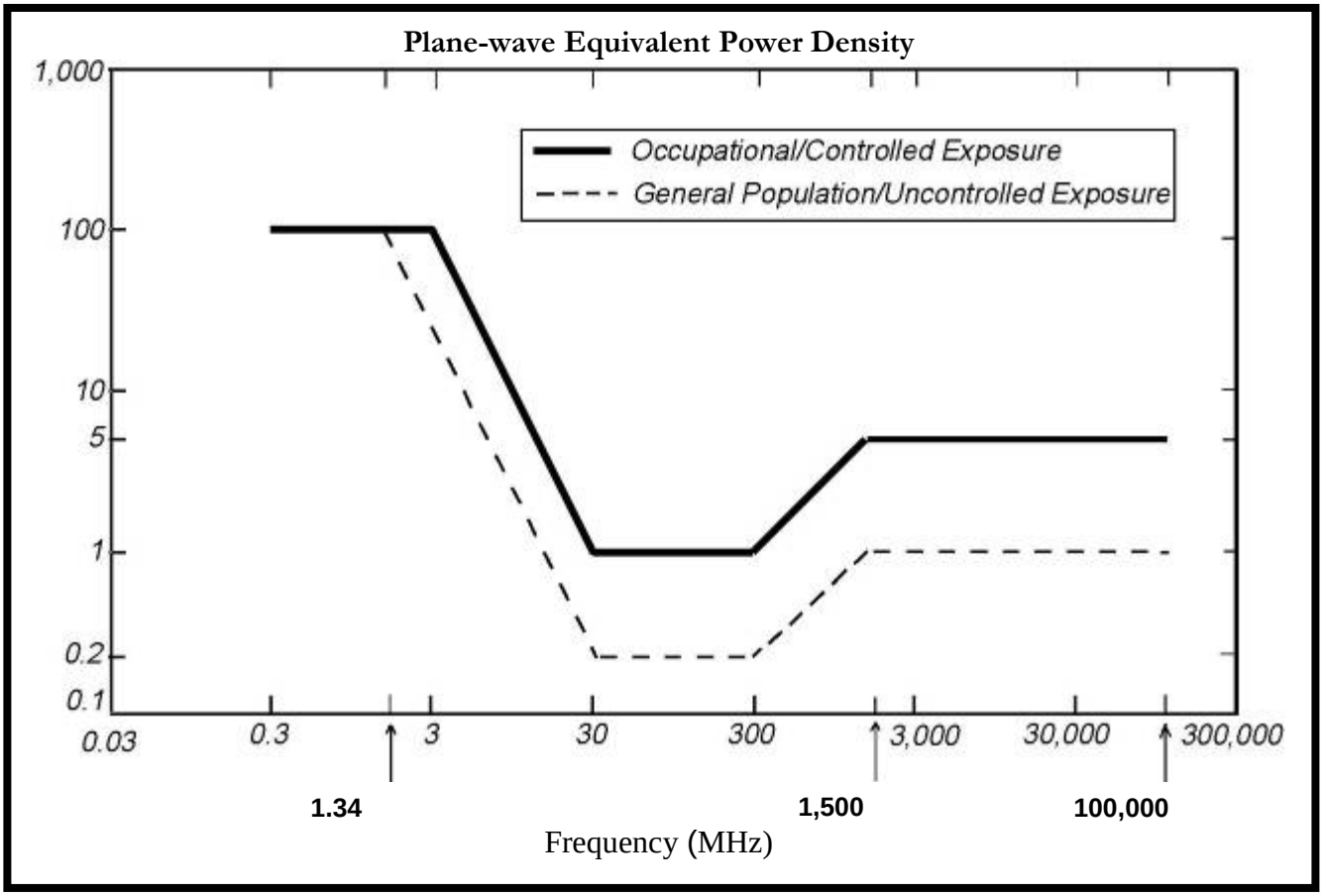
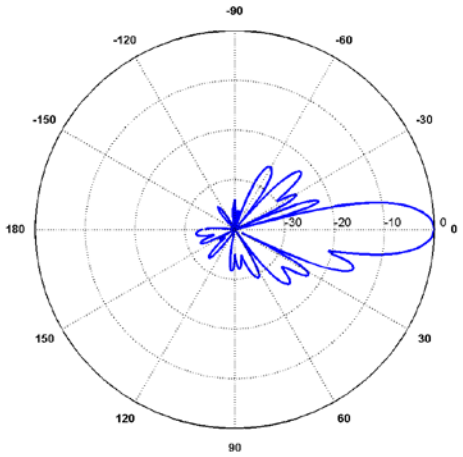


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Sprint's Antenna Model Data Sheets and Electrical Patterns

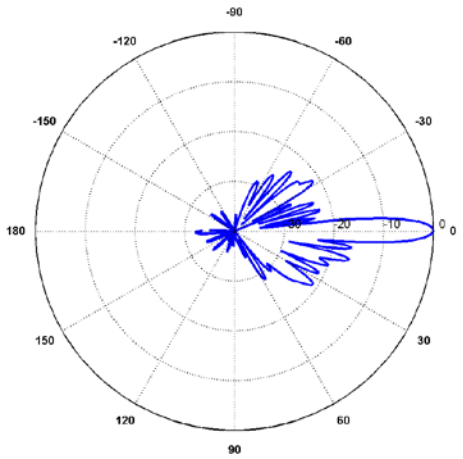
865 MHz CDMA/EVDO/LTE

Manufacturer:	RFS
Model #:	APXVSPP18-C-A20
Frequency Band:	806-869 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	11.5°
Horizontal Beamwidth:	65°
Polarization:	Dual Pol ± 45°
Size L x W x D:	72.0" x 11.8" x 7.0"



1900 MHz CDMA/EVDO/LTE

Manufacturer:	RFS
Model #:	APXVSPP18-C-A20
Frequency Band:	1850-1995 MHz
Gain:	15.9 dBd
Vertical Beamwidth:	5.5°
Horizontal Beamwidth:	65°
Polarization:	Dual Pol ± 45°
Size L x W x D:	72.0" x 11.8" x 7.0"



2500 MHz LTE

Manufacturer:	RFS
Model #:	APXVTM14-C-I20
Frequency Band:	2490-2690 MHz
Gain:	15.9 dBd
Vertical Beamwidth:	5°
Horizontal Beamwidth:	65°
Polarization:	Dual Pol ±45°
Size L x W x D:	56.3" x 12.6" x 6.3"