

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

www.ct.gov/csc

October 17, 2012

David Weisman
Vertical Development LLC
7 Sycamore Way, Unit 1
Branford, CT 06405

RE: **EM-SPRINT-NEXTEL-014-120924** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 850 West Main Street, Branford, Connecticut.

Dear Mr. Weisman:

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

- The coax lines shall be installed in accordance with the recommendations made in the Structural Analysis prepared by FDH Engineering dated May 24, 2012 and stamped by Christopher Murphy; and
- Following the installation of the proposed equipment, Sprint shall provide documentation certifying that the installation complied with the engineer's recommendation;
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated September 20, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

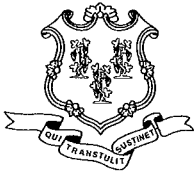
Very truly yours,



Linda Roberts
Executive Director

LR/CDM/jbw

c: The Honorable Anthony "Unk" DaRos, First Selectman, Town of Branford
Daniel Shapiro, Chm, Inland Wetland Commission, Town of Branford
Laura Magaraci, Zoning Enforcement Officer, Town of Branford
Crown Castle



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

www.ct.gov/csc

September 28, 2012

The Honorable Anthony "Unk" DaRos
First Selectman
Town of Branford
Town Hall
1019 Main Street
P. O. Box 150
Branford, CT 06405-0150

RE: **EM-SPRINT-NEXTEL-014-120924** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 850 West Main Street, Branford, Connecticut.

Dear First Selectman DaRos:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by October 15, 2012.

Thank you for your cooperation and consideration.

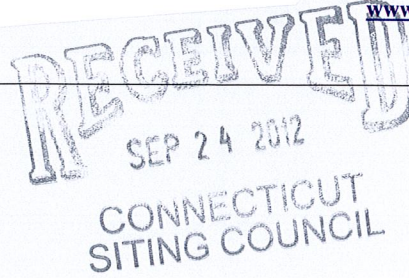
Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Daniel Shapiro, Chm, Inland Wetland Commission, Town of Branford
Laura Magaraci, Zoning Enforcement Officer, Town of Branford



September 20, 2012

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Linda Roberts, Executive Director

Re: Notice of Exempt Modification for 850 West Main Street, Branford, CT

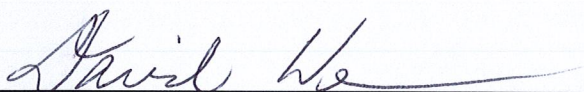
Dear Ms. Roberts,

On behalf of Sprint Nextel Corporation ("Sprint"), enclosed for filing are an original and five (5) copies of Sprint's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of \$625.00 representing the fee for the Notice of Exempt Modification.

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

Thank you,

By: 

Name: David Weisman
Vertical Development LLC, an authorized representative of Sprint Nextel
Vertical Development LLC
7 Sycamore Way, Unit 1
Branford, CT 06405
Phone – 401-743-9011
Fax – 401-633-6202

CC: Mr. Anthony DaRos, First Selectman
Town of Branford
1019 Main Street
Branford, CT 06405

Notice of Exempt Modification

850 West Main Street, Branford, CT

Sprint Nextel Corporation ("Sprint") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with Sprint's planned modification of antennas and associated equipment on an existing 130' monopole tower located at 850 West Main Street in the Town of Branford. More particularly, Sprint plans to upgrade this site by adding 4G LTE technology to its facilities. The proposed modifications will not increase the tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six (6) decibels, or add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Connecticut General Statutes § 22a-162.

To better meet the growing voice and data demands of its wireless customers, Sprint is upgrading their network nationwide to include 4G technology, which will provide faster service and better overall performance. Pursuant to the 4G upgrade at this site, Sprint will replace existing panel antennas, install RRHs and notch filters, and install related equipment to its equipment area within the fenced compound at the base of the tower.

The 130' monopole tower located at 850 West Main Street in the Town of Branford (lat. 41° 16' 40.03", long. 72° 50' 12.72") is owned by Global Signal Acquisitions II LLC. It is in an approximately 570 square fenced compound within a 2,500 square foot area. Sprint currently has six (6) CDMA antennas (two (2) per sector) mounted at 120' installed on the tower. Sprint's base station equipment is located adjacent to the base of the tower within the fenced compound. A site plan depicting this is attached.

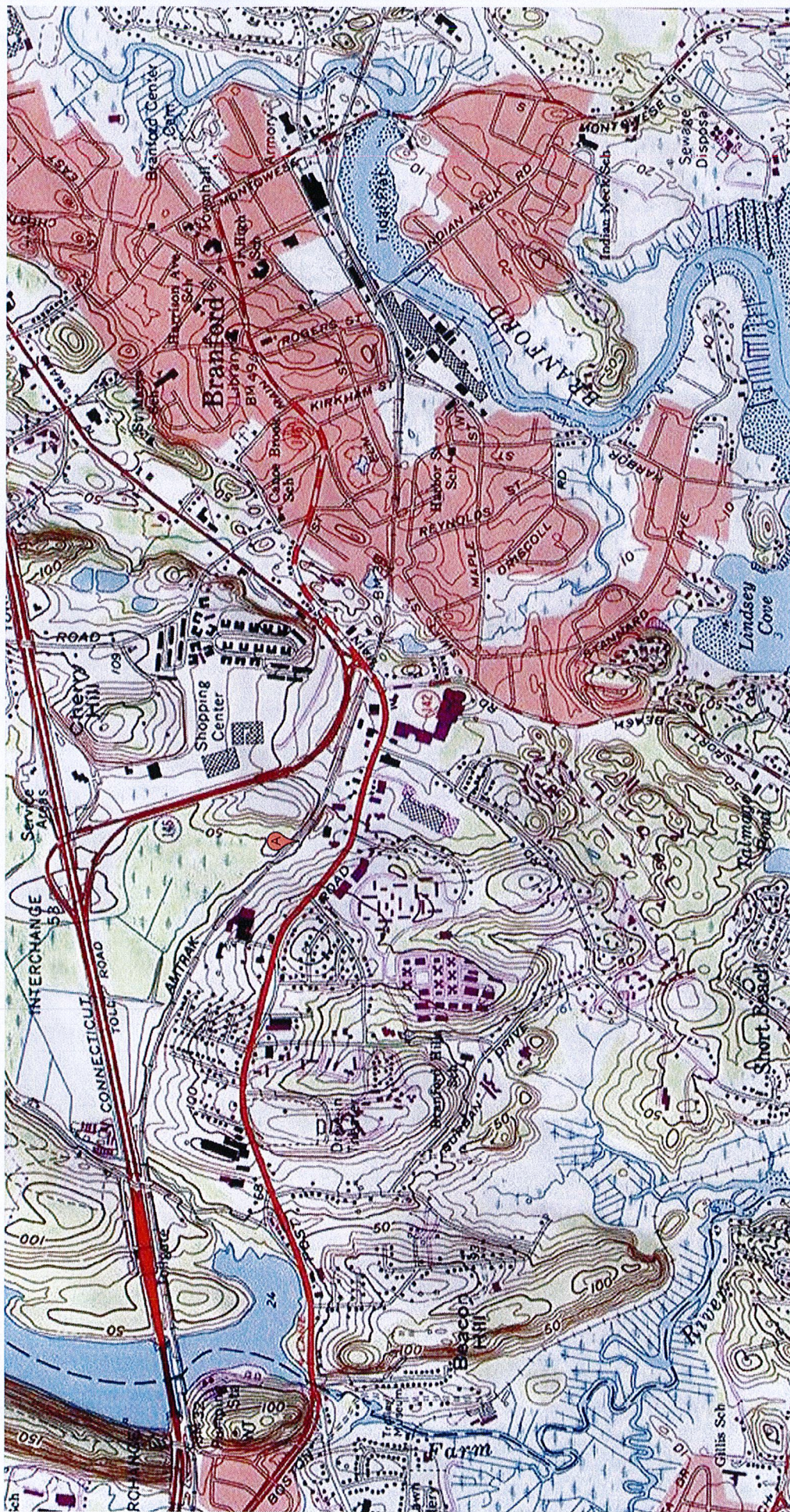
Sprint plans to remove the six (6) existing CDMA antennas (two (2) per sector) and replace them with, in each sector, one (1) RFS APXVSPP18-C-A20 and one (1) dual pole CDMA antenna, all mounted at 120'. Connected to each new RFS antenna will be one (1) ALU 800 MHz RRH with one (1) ALU 800 MHz notch filter attached to it and one (1) ALU 1900 MHz RRH, all of which will be located behind the antenna. After the new antennas have been tested and are deployed on-air, the three (3) dual pole CDMA antennas will be removed. The height of the monopole will not need to be increased. Sprint also plans to install a new fiber junction box on a new H-frame and a new Ciena equipment enclosure into their equipment space within the tower compound's fenced border, and to replace the existing BTS cabinet and extend the ice bridge. The compound's boundaries will not need to be extended. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

Sprint commissioned FDH Engineering, Inc., to perform a structural analysis of the tower and foundation to verify that they can support the proposed loading. The tower and foundation were found to be of "Sufficient Capacity" (see the first page of Structural Analysis Report, May 24, 2012). The tower is rated at 95.8% of its capacity (see Page 5 of Structural Analysis Report, May 24, 2012).

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Connecticut General Statutes § 22a-162. A radio frequency emissions analysis prepared by EBI Consulting indicates that the proposed final configuration (including other carriers on the tower) will emit 49.462% of the allowable FCC established general public limit sampled at the ground level (see the 5th page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, August 21, 2012). Emission values for the Sprint antennas have been calculated from the sample

point, which is the top of a six foot person standing at the base of the tower. Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 3rd and 4th page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, August 21, 2012). The information used in the report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1 (see the second page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, August 21, 2012).

In conclusion, Sprint's proposed modifications do not constitute a modification subject to the Council's review because Sprint will not change the height of the tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards. Therefore, Sprint respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.



A/E Consultant:

infinigy
engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submitted / Revision	App'd	Date
4	FINAL CD'S	EXM	7/30/12
3	REVISED PER COMMENTS	EXM	5/22/12
2	REVISED PER COMMENTS	EXM	5/8/12
1	REVISED PER COMMENTS	EXM	4/16/12
0	ISSUED FOR REVIEW	EXM	3/27/12

Drawn: M.B. Date: 3/27/12
Designed: EXM Date: 3/27/12
Checked: A.B. Date: 3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: Implementation Team:



Drawing Scale: AS NOTED
Date: 7/30/12

Drawing Title

TITLE SHEET

Drawing Number

T1

PROJECT SUMMARY

SITE NAME: BEACON HILL
SITE NO.: CT03XC048
SITE ADDRESS: 850 WEST MAIN STREET
BRANFORD, CT 06405
COUNTY: NEW HAVEN
SITE COORDINATES:
LATITUDE: 41° 16' 40.18" N (NAD 83)
LONGITUDE: 72° 50' 12.70" W (NAD 83)
GROUND ELEV.: ±53' (AMSL)

JURISDICTION: TOWN OF BRANFORD

APPLICANT: SPRINT
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07495

LAND OWNER: CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

CONSTRUCTION MANAGER: TODD AMANN
914-715-9363

BUILDING CODE: 2003 INTERNATIONAL BUILDING CODE
2005 CONNECTICUT BUILDING CODE
W/ 2009 AMENDMENT

ELECTRICAL CODE: 2005 NATIONAL ELECTRIC CODE

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

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



NETWORK VISION MMBTS LAUNCH CONNECTICUT MARKET

SITE NAME

BEACON HILL

SITE NUMBER

CT03XC048

SITE ADDRESS

850 WEST MAIN STREET
BRANFORD, CT 06405

STRUCTURE TYPE

MONOPOLE



UNDERGROUND SERVICE ALERT
CALL TOLL FREE
1-800-922-4455

THREE WORKING DAYS BEFORE YOU DIG

PROJECT TEAM



808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27650

PROJECT MANAGER



11 Herbert Drive
Latham, NY 12110
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 BTS OR RETROFIT EXISTING BTS IN EXISTING EQUIPMENT AREA
- REMOVE EXISTING CDMA ANTENNAS AND COAX CABLES
- SPRINT TO REPLACE EXISTING POWER CABINET WITH NEW SECOND BATTERY CABINET OR INSTALL NEW SECOND BATTERY CABINET IF THERE IS AVAILABLE SPACE IN EXISTING SPRINT LEASE AREA.

SHEET INDEX

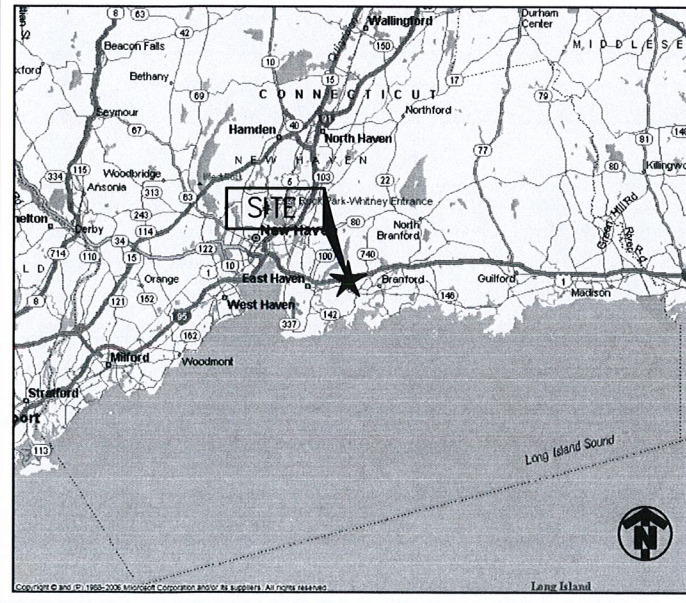
NO.	DESCRIPTION
T1	TITLE SHEET
AAV1	OVERALL AND ENLARGED SITE PLANS
AAV2	NOTES AND DETAILS
C1	GENERAL NOTES
C2	COMPOUND SITE PLAN
C3	EQUIPMENT SITE PLANS
C4	SITE ELEVATION AND ANTENNA/RRH DETAILS
C5	ANTENNA PLANS
C6	ANTENNA CABLE RISER AND H-FRAME DETAILS
C7	RF AND CABLE DETAILS
C8	JUNCTION BOX DETAILS
C9	DETAILS
E1	UTILITY SITE PLAN
E2	ONE-LINE DIAGRAMS AND DETAILS
E3	GROUNDING PLAN AND DETAILS

DRIVING DIRECTIONS

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

1. HEAD SOUTH ON INTERNATIONAL BLVD TOWARD AVE OF AMERICAS 0.1 MI 2. TURN RIGHT ONTO PARK LN 197 FT 3. CONTINUE STRAIGHT ONTO LEISURE LN 0.1 MI 4. SLIGHT RIGHT ONTO NJ-17 N 0.3 MI 5. MERGE ONTO I-287 N/NJ-17 N VIA THE RAMP ON THE LEFT TO I-87/N Y. THRUWAY ENTERING NEW YORK 0.6 MI 6. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-87 S/I-287/TAPPAN ZEE BR/NEW YORK CITY/NEW YORK THRUWAY AND MERGE ONTO I-287 E/I-87 N CONTINUE TO FOLLOW I-287 E PARTIAL TOLL ROAD 30.2 MI 7. TAKE THE EXIT ONTO I-95 N ENTERING CONNECTICUT 50.1 MI 8. TAKE EXIT 51 TO MERGE ONTO U.S. 1 TOWARD EAST HAVEN/FRONTAGE ROAD DESTINATION WILL BE ON THE LEFT 3.1 MI.

VICINITY MAP



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

4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

No.	Submitted / Revision	App'd	Date
Drawn:	MJB	Date:	3/27/12
Designed:	EKM	Date:	3/27/12
Checked:	AJD	Date:	3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
 BEACON HILL**

850 WEST MAIN STREET
 BRANFORD, CT 06405

Client: Implementation Team:



Drawing Scale: AS NOTED
 Date: 7/30/12

Drawing Title:
**OVERALL &
 ENLARGED
 SITE PLANS**

Drawing Number:
AAV1

NOTE:
 PROPOSED H-FRAME POST TO BE EXTENDED VERTICALLY TO SUPPORT PROPOSED ICE BRIDGE EXTENSION, (TYP. OF (1) POST)

NOTE:
 PROPOSED ICE BRIDGE TO HAVE 2' MIN. CLEARANCE ABOVE SPRINT EQUIPMENT.

PROPOSED CAT5 CABLE ROUTED IN PROPOSED 2" UNDERGROUND PVC CONDUIT ROUTED FROM PROPOSED CIENA 3911 EQUIPMENT ENCLOSURE TO EXISTING SPRINT BTS CABINET, 15' FURNISHED AND INSTALLED BY SPRINT

PROPOSED (2) HORIZONTAL STRUTS TO BE MOUNTED TO EXISTING PPC SUPPORT FRAME, FURNISHED AND INSTALLED BY SPRINT

1 AAV2 PROPOSED CIENA 3911 EQUIPMENT ENCLOSURE, FURNISHED AND INSTALLED BY AT&T

PROPOSED 2" UNDERGROUND PVC CONDUIT WITH PULL-STRING FOR FIBER ROUTED FROM PROPOSED CIENA ENCLOSURE TO PROPOSED FIBER MEET POINT AT PROPOSED AT&T CORNING BOX, 15'. CONDUIT FURNISHED AND INSTALLED BY SPRINT. CIENA ENCLOSURE FURNISHED AND INSTALLED BY AT&T

SPRINT TO PROVIDE #6 GROUND COIL NEAR CIENA LOCATION

PROPOSED 1-1/4" ABOVE GROUND LIQUID TIGHT CONDUIT WITH PULL-STRING FOR DC POWER FROM FIBER JUNCTION BOX TO CIENA EQUIPMENT CABINET, 10'

PROPOSED SPRINT FIBER JUNCTION BOX FURNISHED AND INSTALLED BY ALU 1-2 C8

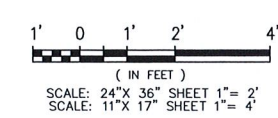
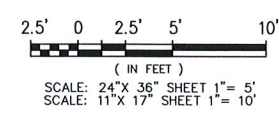
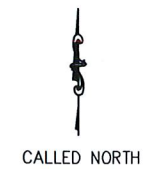
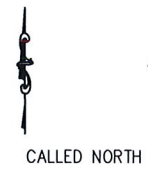
PROPOSED H-FRAME FURNISHED AND INSTALLED BY SPRINT 3 AAV2

PROPOSED SPRINT ICE BRIDGE EXTENSION (TYP.) 3 C9



1 OVERALL SITE PLAN
 SCALE:

1 EQUIPMENT AREA
 SCALE:



PROPOSED 2" UNDERGROUND PVC CONDUIT WITH PULL-STRING FOR FIBER ROUTED FROM PROPOSED CIENA ENCLOSURE TO PROPOSED FIBER MEET POINT AT PROPOSED AT&T CORNING BOX, 15'. CONDUIT FURNISHED AND INSTALLED BY SPRINT. CIENA ENCLOSURE FURNISHED AND INSTALLED BY AT&T

EXISTING UTILITY BACKBOARD

EXISTING FIBER ENCLOSURE

PROPOSED MEET POINT AT PROPOSED CORNING BOX FURNISHED AND INSTALLED BY AT&T

PROPOSED 3/4" THICK, 30" WIDE PLYWOOD UTILITY BACKBOARD EXTENSION, FURNISHED AND INSTALLED BY SPRINT

EXISTING FENCED COMPOUND

EXISTING EQUIPMENT PAD (TYP.)

EXISTING ICE BRIDGE (TYP.)

EXISTING MONOPOLE TOWER

EXISTING ICE BRIDGE (TYP.)

EXISTING EQUIPMENT SHELTER

EXISTING SPRINT CONCRETE PAD

EXISTING DOUBLE SWING GATE

EXISTING PARKING LOT

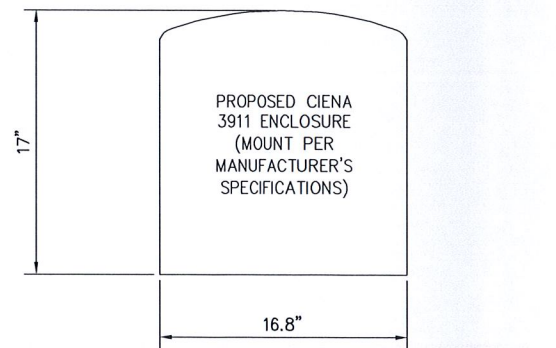
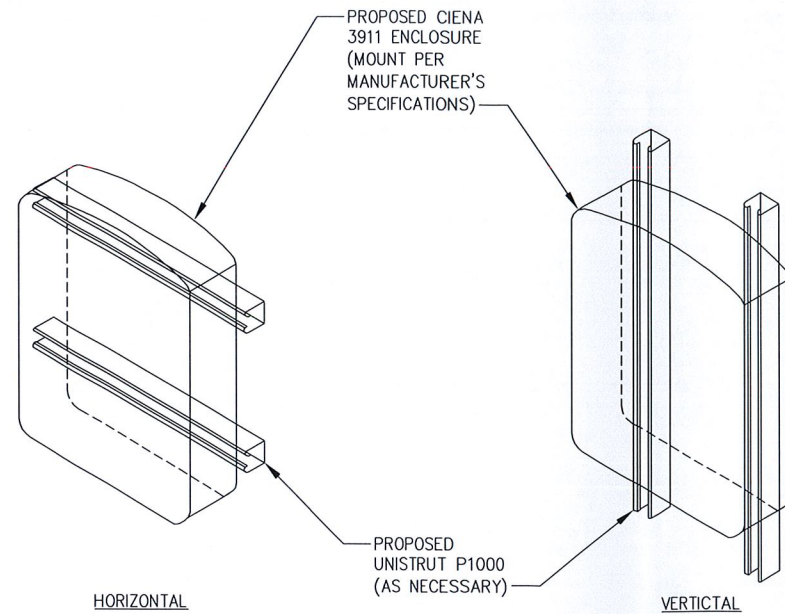
BASEMAPPING PREPARED FROM A SITE VISIT PERFORMED BY INFINIGY ENGINEERING, AND INFORMATION PROVIDED BY SPRINT NEXTEL, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.

GENERAL NOTES:

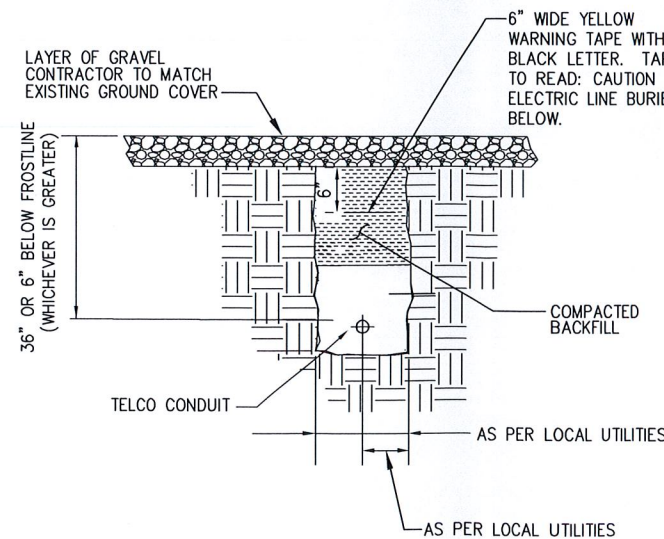
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
4. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OF PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDORS SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
7. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
8. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
10. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
11. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
12. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
13. THE CONTRACTOR SHALL NOTIFY THE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE REPRESENTATIVE.
14. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
15. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD OR VIA A REPRESENTATIVE. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. SEE UNDERGROUND UTILITY COMPANY SHEET T-1 (DIG SAFE, MISS UTILITY, ETC.)
16. IF ASSUMED EXISTING CONDITION DIFFERS, ENGINEER MUST BE INFORMED OF ACTUAL FIELD CONDITION.
17. REFER TO THE SITE PLAN FOR APPROXIMATE LENGTH OF ALL U/G WORK AND LOCATION. FINAL LOCATION TO BE DETERMINED BY CLIENT. ALL MATERIALS TO BE USED AS ACCORDING TO DETAIL INSTRUCTIONS. ALL MATERIALS NOT INCLUDED IN THE DETAILS SHALL BE USED ACCORDING TO CODE AND/OR LOCAL JURISDICTION REGULATIONS INCLUDING MATERIALS, PREPARATION, EXACERBATION, EQUIPMENT AND INSTALLATION FOR UNDERGROUND WORK.
18. CONTRACTOR TO COORDINATE WITH SPRINT & PROVIDE GROUND BOND PER NE-250 & SPRINT STANDARDS FOR CLIENT EQUIPMENT AS REQUIRED.
19. ALL ELECTRICAL SPECIFICATIONS SHALL BE IN STRICT ACCORDANCE TO SECTIONS 16010, 16075, 16110, 16120, 16410 AND 16450 OF THE N.E.C.

ELECTRICAL AND GROUNDING NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AN PROCURED PER SPECIFICATION REQUIREMENTS. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIREMENT IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS
4. PROVISION OF AC/DC POWER IS UNDER SEPARATE SCOPE OF WORK
5. GROUNDING SHALL COMPLY WITH NEC ART. 250. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION FITTINGS. TEST COMPLETED GROUND SYSTEM AND ENSURE ADEQUACY.
6. CONTRACTOR TO PROVIDE GALV. P1000 UNISTRUT FRAMING AND 3/8" GALV. U-BOLTS/BOLTS AS NECESSARY FOR EXISTING CONDITIONS AND TO VERIFY SPACE IS APPROVED BY ALL NECESSARY PARTIES.

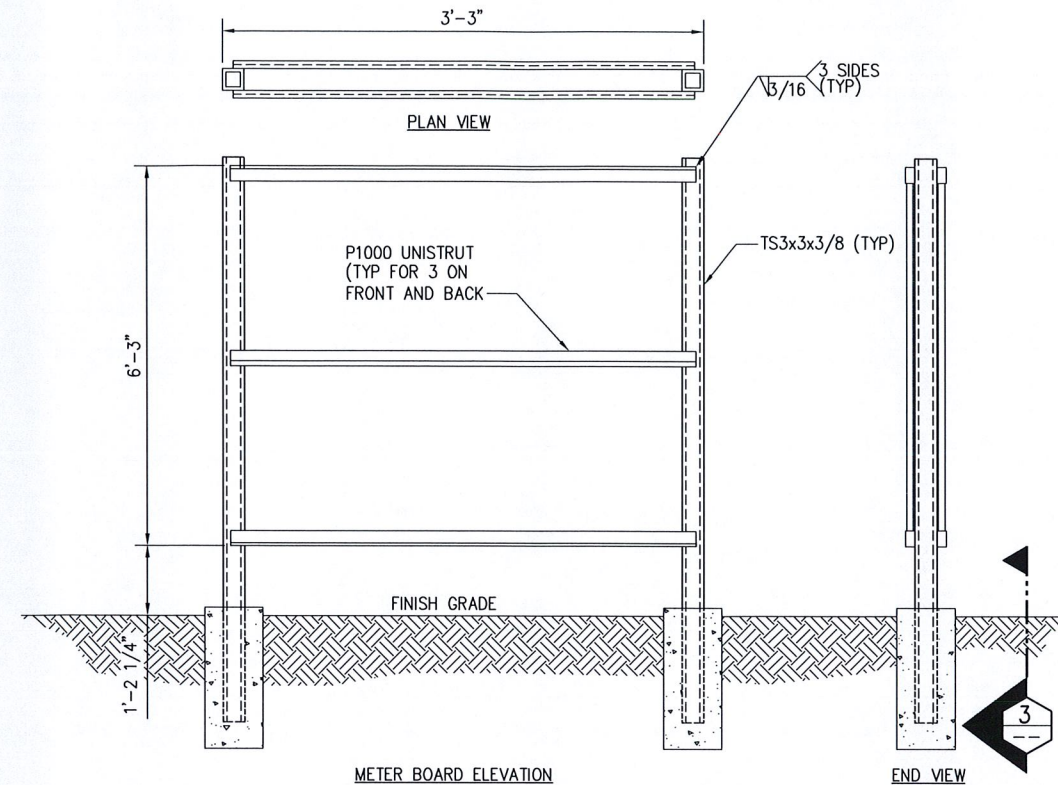


1 TYPICAL CIENA 3911 MOUNTING DETAIL
SCALE: NOT TO SCALE

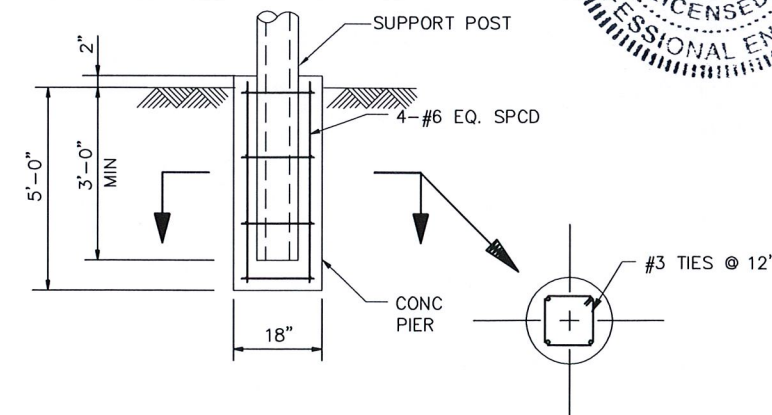


NOTE:
NUMBER AND SIZE OF CONDUITS MAY VARY. SEE DWG FOR CONDUIT SIZE AND LOCATION. CONFIRM CONDUIT SEPARATION AND DIMENSIONS SHOWN WITH LOCAL UTILITY COMPANY.

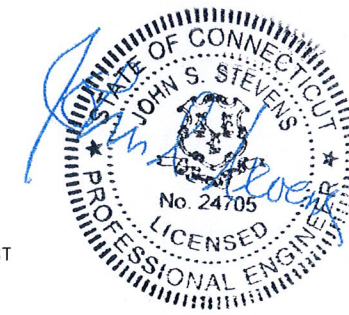
2 CONDUIT TRENCH DETAIL
NO SCALE



3 3'-0" WIDE H-FRAME FABRICATION DETAIL
NOT TO SCALE



4 SUPPORT PIER
NOT TO SCALE



A/E Consultant:

infinigy
engineering

11 Herbert Drive
Latham, NY 12110
(516) 690-0790

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

No.	Submittal / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: M.S. Date: 3/27/12
 Designed: EKM Date: 3/27/12
 Checked: A.D. Date: 3/27/12

Project Number: 286-028

Project Title: **CT03XC048 BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: **Sprint**
1 WILLOW PARK, SUITE 200, BRANFORD, CT 06405

Implementation Team: **ALCATEL-LUCENT**
808 AVIATION PARKWAY, SUITE 700, MORRISVILLE, NC 27650

Drawing Scale: AS NOTED
 Date: 7/30/12

Drawing Title: **NOTES & DETAILS**

Drawing Number: **AAV2**

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. HYBERFLEX TESTING NOT LIMITED TO COAX SWEEPS.
 - G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 - TRENCHING AND BACKFILLING

- 6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.
- A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.
 - B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.
 - C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
 - D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.
 - E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.
 - F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.
 - G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTling THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

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
	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
	TRANSFORMER
	KILOWATT HOUR METER
	JUNCTION BOX
	PULL BOX TO NEC/TELCO STANDARDS
-----	UNDERGROUND UTILITIES
	DENOTES REFERENCE NOTE
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION (E.G. LUMP) C-
	GROUND ROD
	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	PIN AND SLEEVE RECEPTACLE
	120AC DUPLEX RECEPTACLE
	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

A/E Consultant:

infinity
engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submitted / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: MB Date: 3/27/12
Designed: FM Date: 3/27/12
Checked: AD Date: 3/27/12

Project Number 286-028

Project Title
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: Implementation Team:

Sprint
INTERNATIONAL BLDG.
WATKINS, NJ 07895

ALCATEL-LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27650

Drawing Scale:
AS NOTED

Date:
7/30/12

Drawing Title
GENERAL NOTES

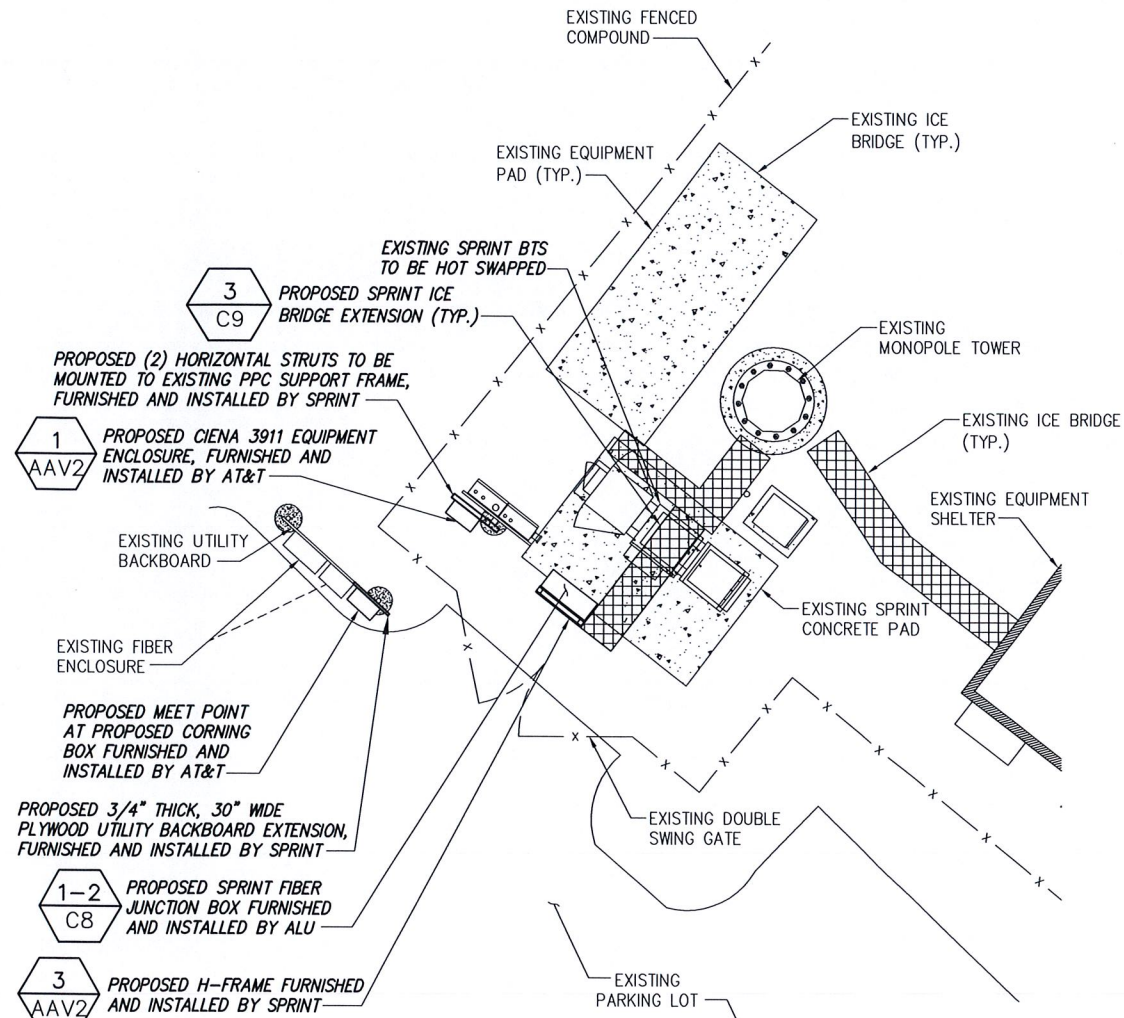
Drawing Number

C1

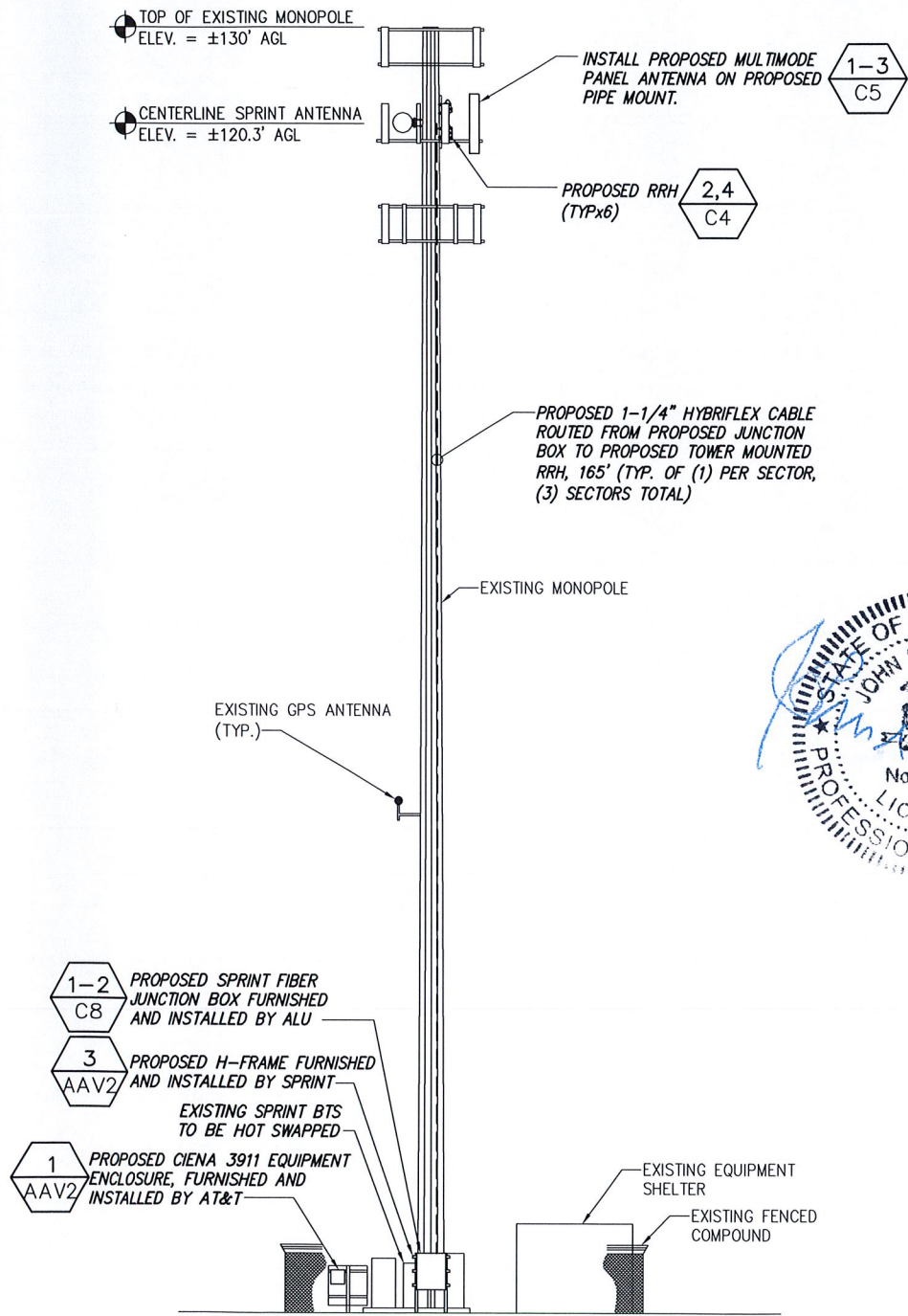


STRUCTURAL NOTE:
 BASED ON PROVIDED INFORMATION FROM FDH
 ENGINEERING, INC., TITLED; CROWN CASTLE SITE NAME:
 TARTAGLIA PROPERTY, DATED; 5-24-12. THE TOWER
 HAS INSUFFICIENT CAPACITY FOR BOTH EXISTING AND
 PROPOSED INSTALLATION (INTERIM/TEMPORARY).

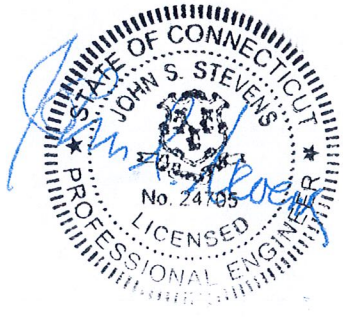
INFORMATION CONTAINED WITHIN DRAWINGS
 ARE BASED ON PROVIDED INFORMATION.



1 COMPOUND SITE PLAN
 SCALE:



2 SITE ELEVATION
 NOT TO SCALE



A/E Consultant:
infinity
 engineering
 11 Herbert Drive
 Latham, NY 12110
 (518) 690-0790

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

No.	Submital / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: MB Date: 3/27/12
 Designed: EKM Date: 3/27/12
 Checked: AD Date: 3/27/12

Project Number 286-028

Project Title
**CT03XC048
 BEACON HILL**

850 WEST MAIN STREET
 BRANFORD, CT 06405

Client: **sprint**
 Implementation Team: **ALCATEL-LUCENT**
 808 AVIATION PARKWAY
 SUITE 700
 MORRISVILLE, NC 27650

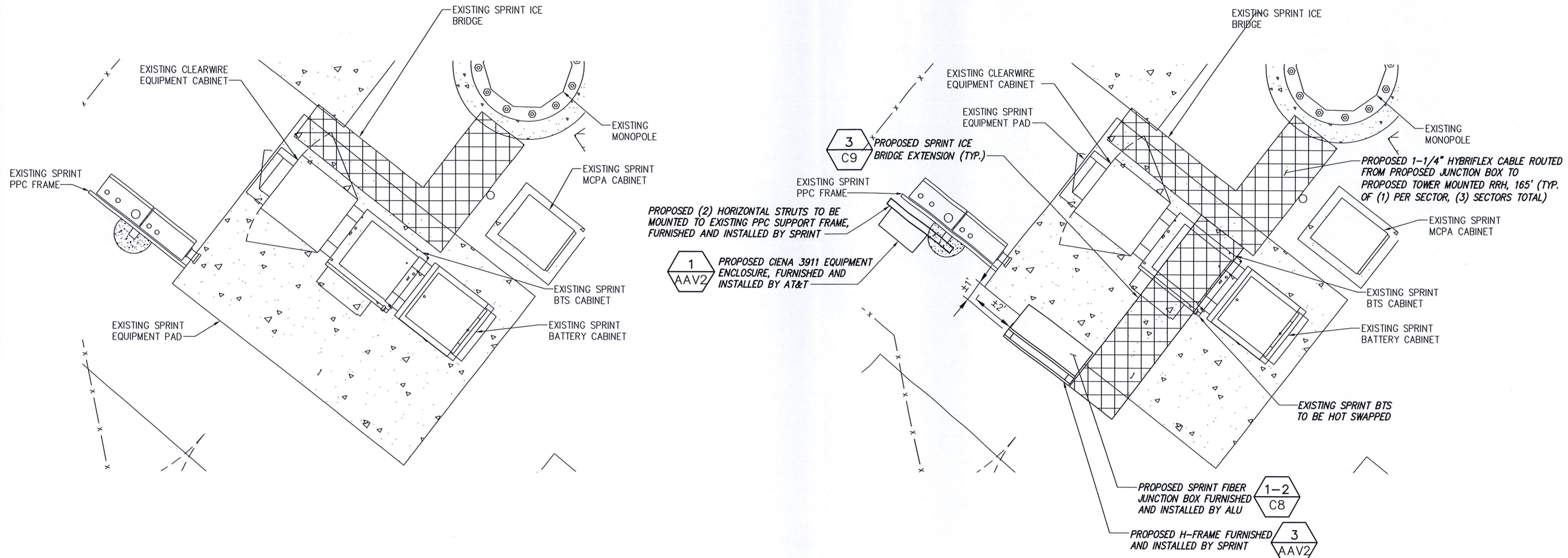
Drawing Scale:
 AS NOTED
 Date:
 7/30/12

Drawing Title
**COMPOUND
 SITE PLAN**

Drawing Number
C2

NOTE:
PROPOSED H-FRAME POST TO BE EXTENDED
VERTICALLY TO SUPPORT PROPOSED ICE
BRIDGE EXTENSION, (TYP. OF (1) POST)

NOTE:
PROPOSED ICE BRIDGE TO HAVE 2' MIN.
CLEARANCE ABOVE SPRINT EQUIPMENT.



1 EQUIPMENT SITE PLAN (EXISTING)

SCALE:

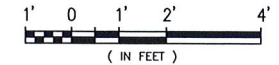


SCALE: 24"X 36" SHEET 1"= 2'
SCALE: 11"X 17" SHEET 1"= 4'

CALLLED NORTH

2 EQUIPMENT SITE PLAN (FINAL/PERMANENT)

SCALE:



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

CALLLED NORTH



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

No.	Submital / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: M.B. Date: 3/27/12
Designed: EKM Date: 3/27/12
Checked: A.D. Date: 3/27/12

Project Number 286-028

Project Title
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: Implementation Team:



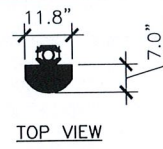
Drawing Scale: AS NOTED

Date: 7/30/12

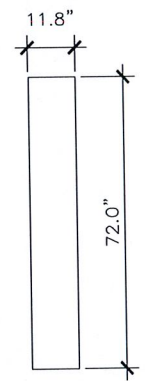
Drawing Title
**EQUIPMENT
SITE PLANS**

Drawing Number

C3

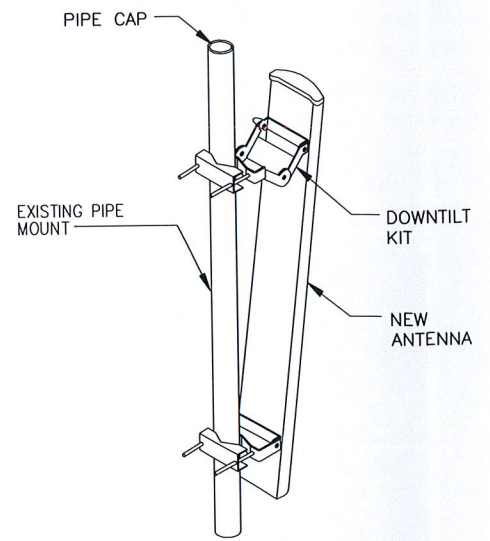


TOP VIEW

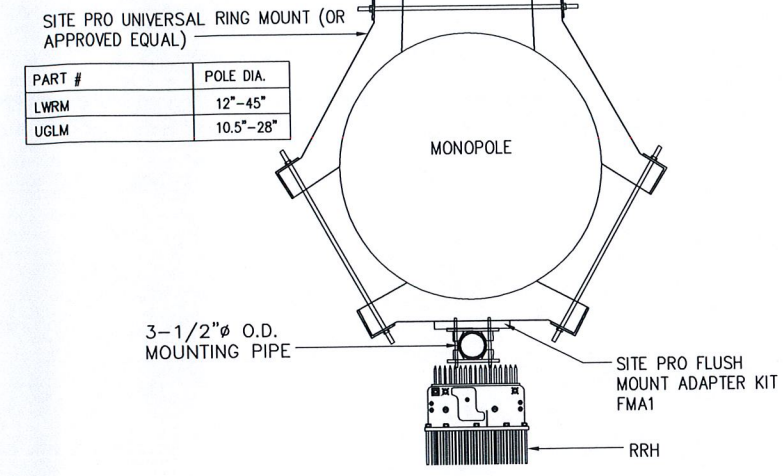


FRONT VIEW
800/1900
MULTI-MODE

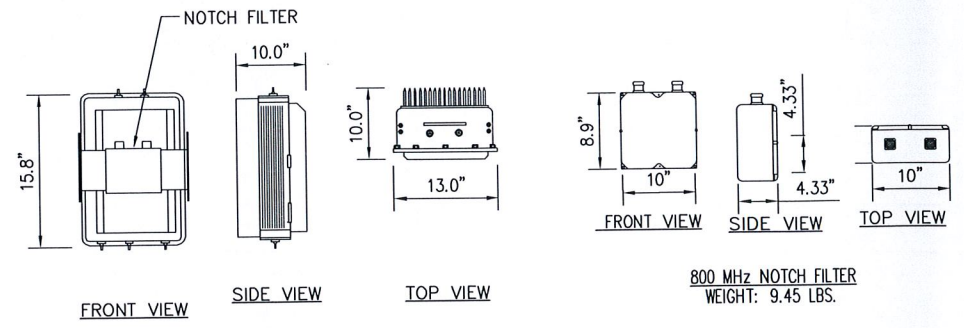
1 ANTENNA DETAILS
-- NOT TO SCALE



2 PANEL ANTENNA
MOUNT DETAIL
-- NOT TO SCALE

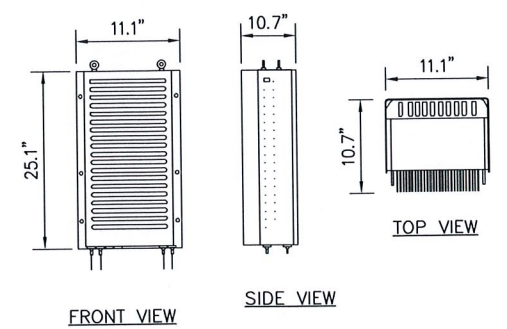


PART #	POLE DIA.
LWRM	12"-45"
UGLM	10.5"-28"



800 MHz NOTCH FILTER
WEIGHT: 9.45 LBS.

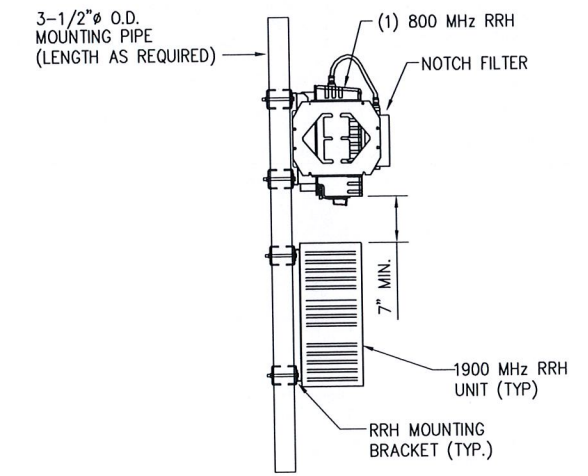
800 MHz RRH
(ALU)
WEIGHT = 50.6 LBS.



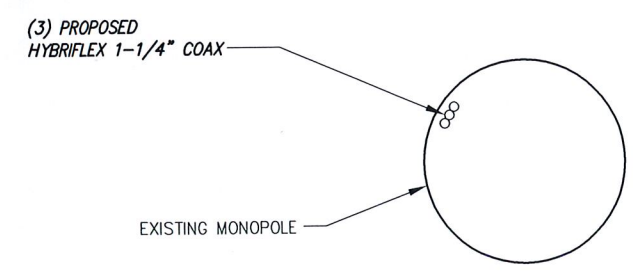
1900 MHz RRH
(ALU)
WEIGHT = 60 LBS.

3 RRH EQUIPMENT DETAILS
-- NOT TO SCALE

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



4 RRH MOUNTING DETAIL
-- NOT TO SCALE



5 COAX ROUTING DETAIL
-- NOT TO SCALE

NOTE:
1. SUBCONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

A/E Consultant:
infinigy
engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submittal / Revision	App'd.	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: MJB Date: 3/27/12
Designed: EKM Date: 3/27/12
Checked: AJD Date: 3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: **sprint**
Implementation Team: **ALCATEL-LUCENT**
808 AVIATION PARKWAY
MORRISVILLE, NC 27650

Drawing Scale: AS NOTED
Date: 7/30/12

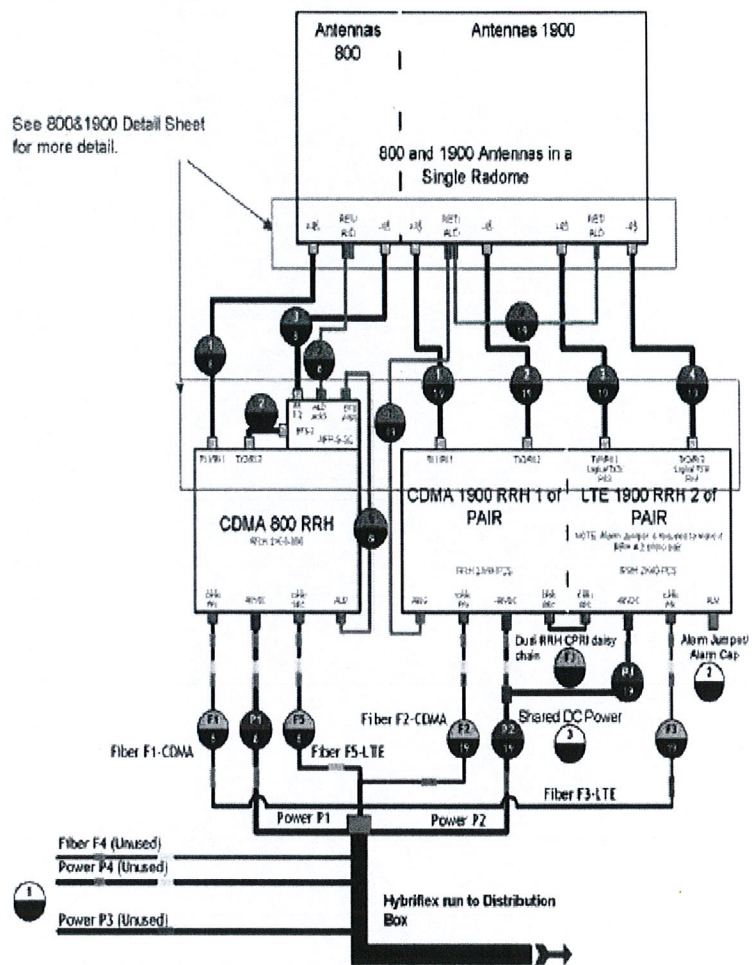
Drawing Title:
**SITE
ELEVATION &
ANTENNA/RRH
DETAILS**

Drawing Number:
C4

TOWER TOP SCENARIO 2

800 AND SINGLE 1900 RRH PAIR WITH SINGLE 800/1900 RADOME ANTENNA

See 800&1900 Detail Sheet for more detail.



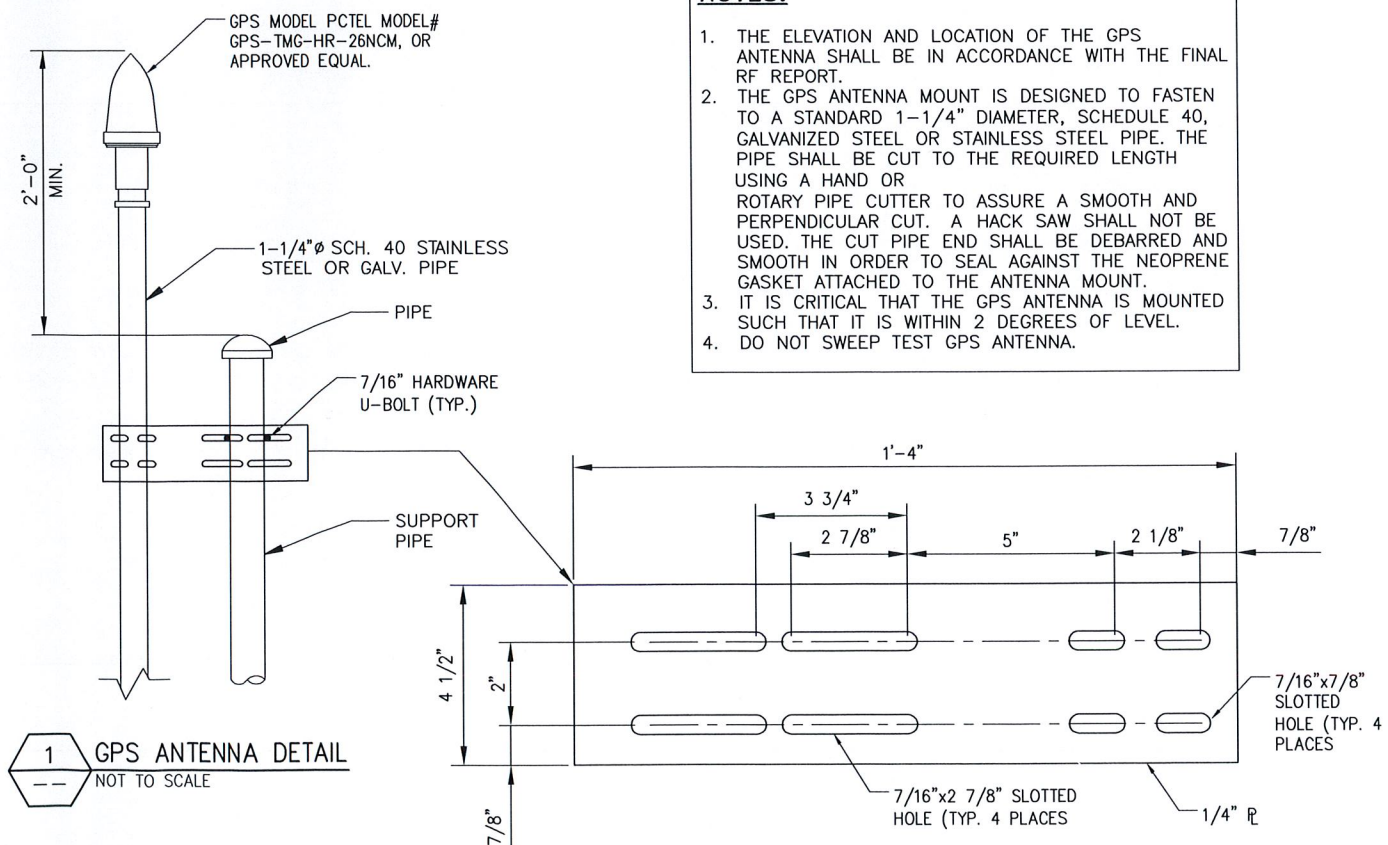
Power Feed Polarity Definition:
 Black= -48VDC Feed (Battery)
 Black/White Stripe= Return

NOTE: For power feed use the same Hybriflex OEM color designator as the fiber.

MM Pair 1= F1= Green= P1(Green)
 MM Pair 2= F2= Blue= P2(Blue)
 MM Pair 3= F3= Red= P3(Red)
 MM Pair 4= F4= Yellow= P4(Yellow)
 MM Pair 5= F5= Orange= (No P5 power feed)

OEM COLOR CODE
 HYBRIFLEX

NOTES:
 CONTRACTOR TO FIELD VERIFY GPS LOCATION.



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.

INSTALLER VERIFY LATEST PLUMBING/WIRING DIAGRAMS, PRIOR TO INSTALLATION.

WEATHERPROOFING CONNECTORS AND GROUND KITS NOTE:

A. ALL CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED USING BUTYL RUBBER WEATHERPROOFING AND TAPE, THIS INSTALLATION MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION OR PER THE FOLLOWING INSTRUCTIONS (WHICHEVER IS GREATER):

1. THE COAXIAL CABLE CONNECTION OR GROUND KIT CAN BE ENCOMPASSED INTO COLD SHRINK AND COMPLETELY WRAPPED WITH 2 IN. WIDE ELECTRICAL TAPE OVERLAPPING EACH ROW BY APPROXIMATELY 1/2" AND EXTENDING PAST THE CONNECTION BY TWO INCHES AS DISCUSSED BELOW; OR
2. THE COAXIAL CABLE CONNECTION OR GROUND KIT CAN BE WRAPPED WITH LAYERS OF ELECTRICAL/BUTYL RUBBER/ELECTRICAL TAPE AS DISCUSSED BELOW; OR
3. THE COAXIAL CABLE CONNECTION OR GROUND KIT CAN BE WRAPPED WITH TWO LAYERS OF 1.5 INCH WIDE SELF-AMALGAMATING TAPE COVERED WITH TWO LAYERS OF ELECTRICAL TAPE.

RRH JUMPERS NOTES:

1. FOR DISTANCES BETWEEN RRH'S AND ANTENNAS LESS THAN 10'-0" USE A 1/2" JUMPER.
2. FOR DISTANCES BETWEEN RRH'S AND ANTENNAS GREATER THAN 10'-0" USE A 7/8" JUMPER.



A/E Consultant:
infinigy
 engineering
 11 Herbert Drive
 Latham, NY 12110
 (518) 690-0790

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

No.	Submission / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: MJB Date: 3/27/12
 Designed: EKM Date: 3/27/12
 Checked: AJD Date: 3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
 BEACON HILL**

850 WEST MAIN STREET
 BRANFORD, CT 06405

Client: Sprint
 Implementation Team: Alcatel-Lucent



Drawing Scale: AS NOTED
 Date: 7/30/12

Drawing Title:
**ANTENNA
 CABLE RISER
 AND H-FRAME
 DETAILS**

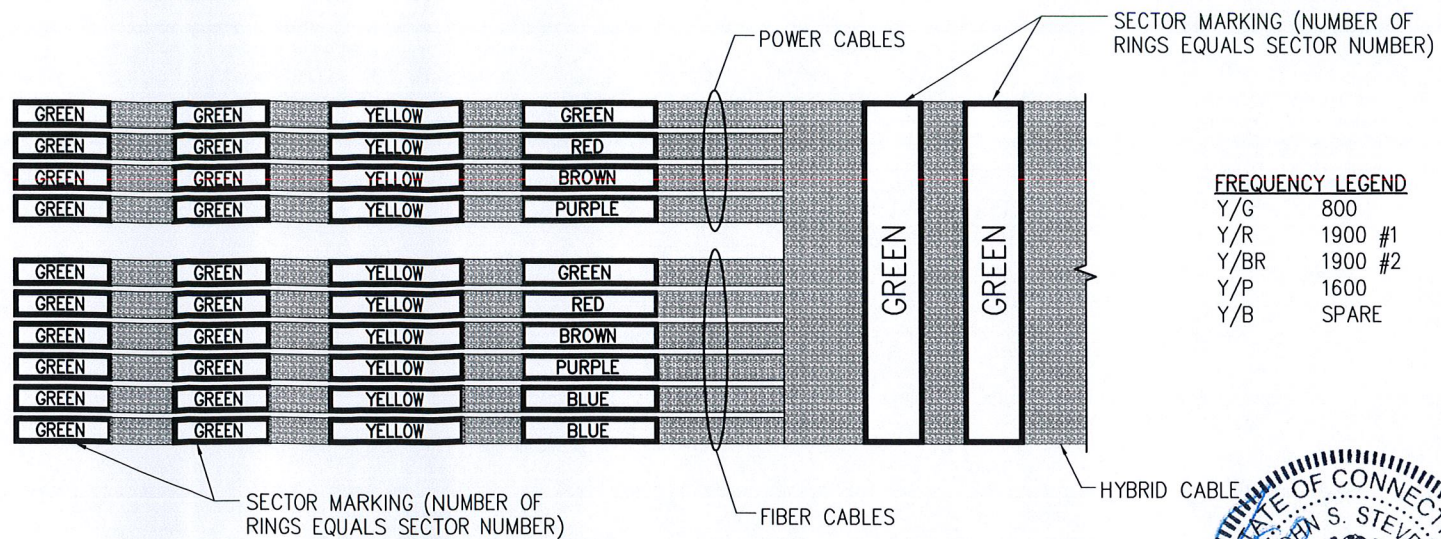
Drawing Number:

Market: Southern Connecticut				
Cascade ID: CT03XC048				
	SECTOR 1	SECTOR 2	SECTOR 3	
1900MHz_Azimuth	10	150	250	
1900_MHz_No_of_Antennas	1	1	1	
1900MHz_RADCenter(ft)	120.3	120.3	120.3	
1900MHz_Antenna Make	RFS	RFS	RFS	
1900MHz_Antenna Model	APXVSP18-C-A20	APXVSP18-C-A20	APXVSP18-C-A20	
1900MHz_Horizontal_Beamwidth	65	65	65	
1900MHz_Vertical_Beamwidth	5.5	5.5	5.5	
1900MHz_AntennaHeight (ft)	6	6	6	
1900MHz_AntennaGain(dBd)	15.9	15.9	15.9	
1900MHz_E_Tilt	0	-1	0	
1900MHz_M_Tilt	0	0	0	
1900_Carrier_Forecast_Year_2013	3	3	3	
1900_RRH Manufacturer	ALU	ALU	ALU	
1900_RRH Model	TBD	TBD	TBD	
1900_RRH Count	1	1	1	
1900_RRH Location	Tower-top	Tower-top	Tower-top	
1900 Combiner Model	N/A	N/A	N/A	
1900_Top_Jumper #1_Length (RRH or Combiner-to-Antenna, ft)	10	10	10	
1900_Top_Jumper_Cable_Model (RRH or Combiner-to-Antenna)	LCF12-50J	LCF12-50J	LCF12-50J	
1900_Top_Jumper #2_Length (RRH-to-Combiner, ft)	N/A	N/A	N/A	
1900_Top_Jumper #2_Cable_Model (RRH-to-Combiner)	N/A	N/A	N/A	
1900_Main_Coax_Cable_Length (ft)	N/A	N/A	N/A	
1900_Main_Coax_Cable_Model	N/A	N/A	N/A	
1900_Bottom_Jumper #1_Length (Ground-based-RRH-OR_Combiner-to-Main-Coax, ft)	N/A	N/A	N/A	
1900_Bottom_Jumper #1_Cable_Model (Ground-based-RRH-OR_Combiner-to-Main-Coax)	N/A	N/A	N/A	
1900_Bottom_Jumper #2_Length (Ground-based-Combiner-to-Main-Coax, ft)	N/A	N/A	N/A	
1900_Bottom_Jumper #2_Cable_Model (Ground-based-Combiner-to-Main-Coax)	N/A	N/A	N/A	
800MHz_Azimuth	10	150	250	
800_MHz_No_of_Antennas	0	0	0	
800MHz_RADCenter(ft)	120.3	120.3	120.3	
800MHz_AntennaMake	RFS	RFS	RFS	
800MHz_AntennaModel	APXVSP18-C-A20 (Shared w/1900)	APXVSP18-C-A20 (Shared w/1900)	APXVSP18-C-A20 (Shared w/1900)	
800MHz_Horizontal_Beamwidth	65	65	65	
800MHz_Vertical_Beamwidth	11.5	11.5	11.5	
800MHz_AntennaHeight (ft)	6	6	6	
800MHz_AntennaGain (dBd)	13.4	13.4	13.4	
800MHz_E_Tilt	0	-1	-1	
800MHz_M_Tilt	0	0	0	
800_RRH Manufacturer	ALU	ALU	ALU	
800_RRH Model	TBD	TBD	TBD	
800_RRH Count	1	1	1	
1900_RRH Location	Tower-top	Tower-top	Tower-top	
800_Top_Jumper #1_Length (RRH or Combiner-to-Antenna, ft)	10	10	10	
800_Top_Jumper_Cable_Model (RRH or Combiner-to-Antenna)	LCF12-50J	LCF12-50J	LCF12-50J	
800_Main_Coax_Cable_Length (ft)	N/A	N/A	N/A	
800_Main_Coax_Cable_Model	N/A	N/A	N/A	
800_Bottom_Jumper #1_Length (Ground-based-RRH-Main-Coax, ft)	N/A	N/A	N/A	
800_Bottom_Jumper #1_Cable_Model (Ground-based-RRH-OR_Combiner-to-Main-Coax)	N/A	N/A	N/A	



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

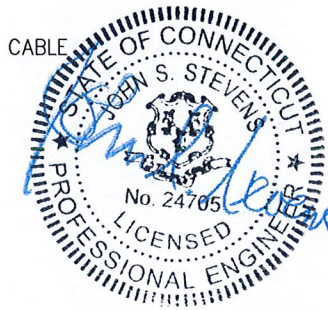
NOTE:
RFDS SHOWN PROVIDED BY SPRINT DATED 12/07/11.



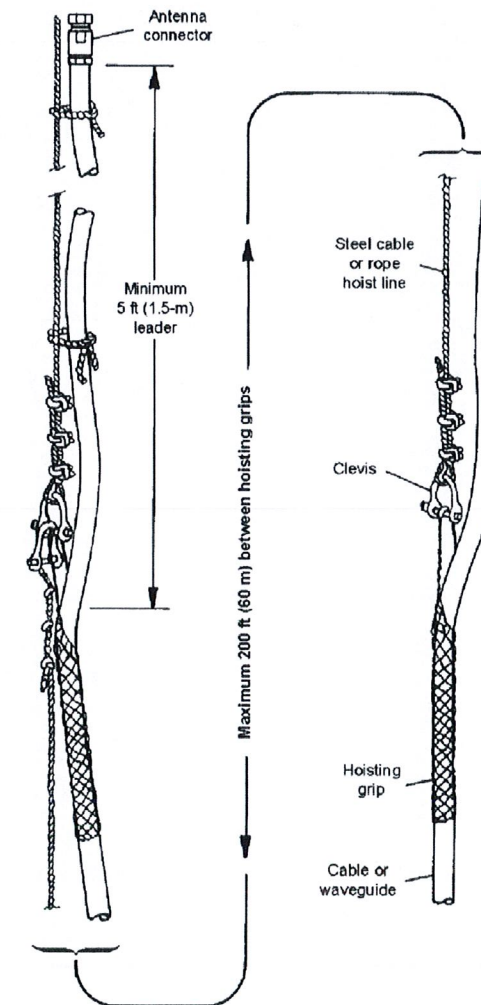
HYBRID CABLE WILL BE MARKED IN A SIMILAR MANNER AS COAX CABLES. THE MAIN TRUNK OF THE HYBRID CABLE IS TO BE MARKED WITH THE SECTOR MARKINGS ONLY. THE INDIVIDUAL POWER PAIRS AND FIBER CABLES WILL BE LABELED WITH BOTH THE SECTOR CABLE MARKINGS AND FREQUENCY (EXAMPLE ABOVE IS FOR SECTOR 2)

FREQUENCY LEGEND

Y/G	800
Y/R	1900 #1
Y/BR	1900 #2
Y/P	1600
Y/B	SPARE



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



A/E Consultant:

infinigy
engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submital / Revision	App'd	Date
4	FINAL CO'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: M.B. Date: 3/27/12
Designed: EKM Date: 3/27/12
Checked: A.D. Date: 3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: Sprint
Implementation Team: Alcatel-Lucent



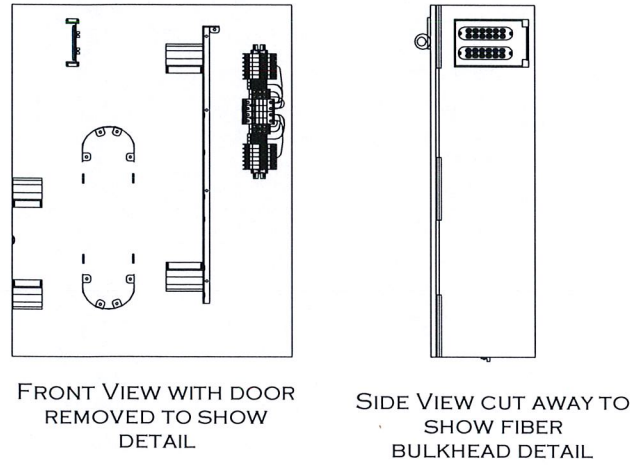
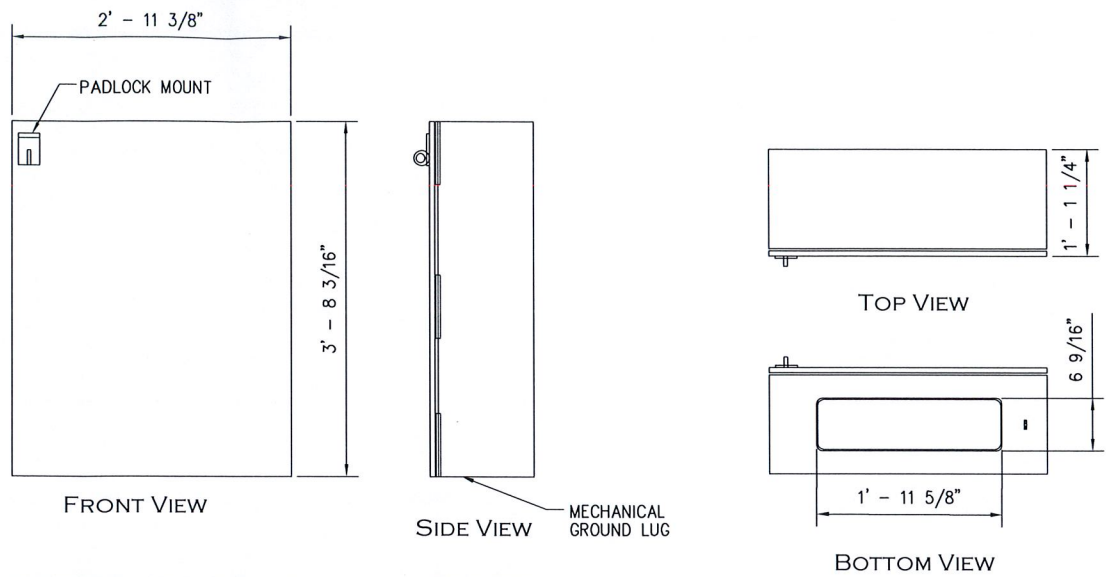
Drawing Scale: AS NOTED

Date: 7/30/12

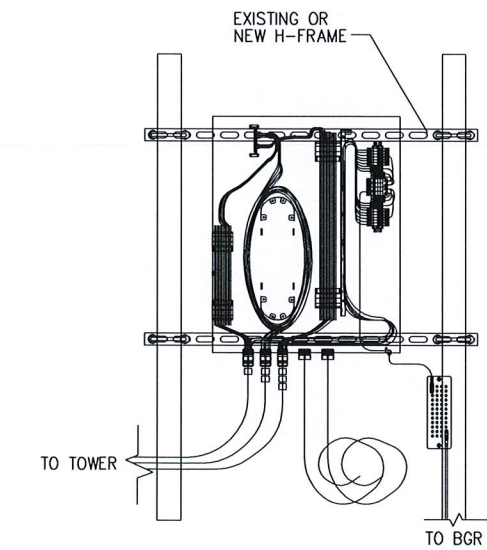
Drawing Title:
**RF AND
CABLE DETAILS**

Drawing Number:

C7



1 DISTRIBUTION BOX DETAIL
NOT TO SCALE



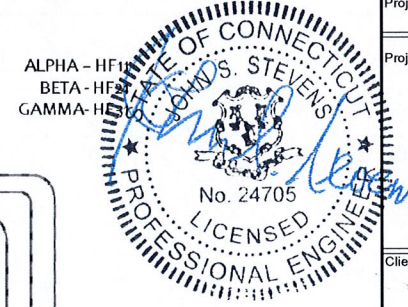
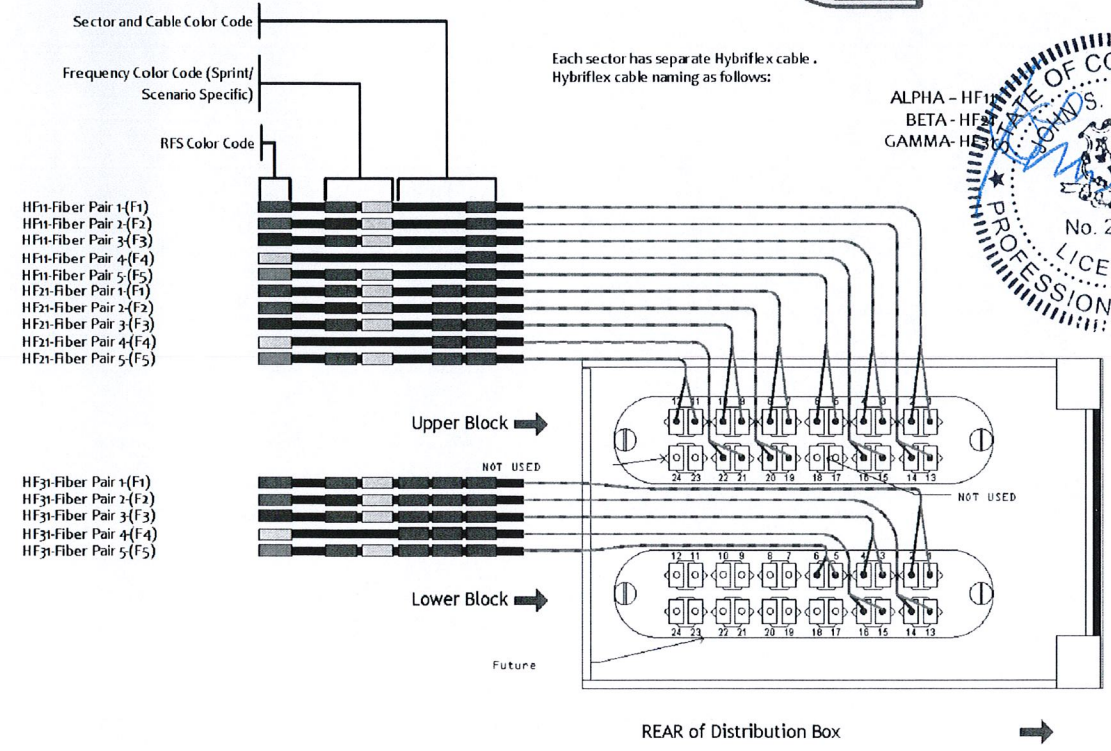
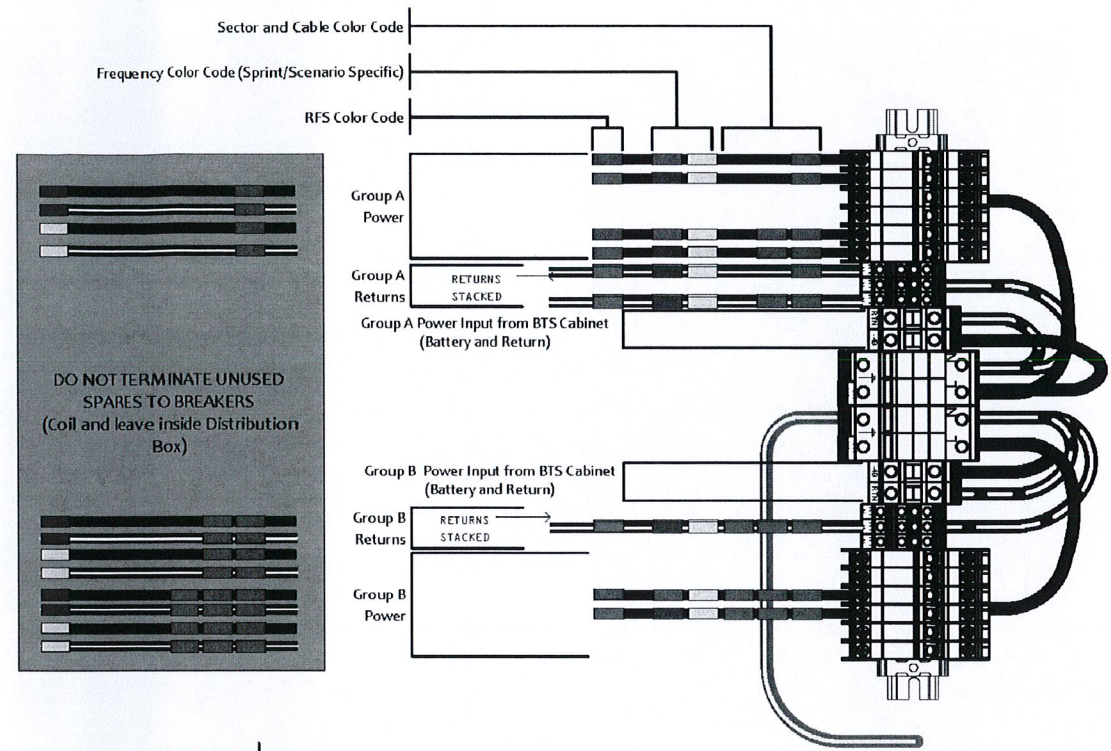
2 DISTRIBUTION BOX INSTALL COMPLETE VIEW
NOT TO SCALE

NOTES:

- DISTRIBUTION BOX IS ALU SUPPLIED WITH OF 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 24AWG, POWER CABLE 27' 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.

INSTALLER VERIFY LATEST PLUMBING/WIRING DIAGRAMS, PRIOR TO INSTALLATION.

3 FIBER & DC CONNECTION DETAILS
NOT TO SCALE



A/E Consultant:
infinigy
engineering
11 Herbert Drive
Latham, NY 12110
(518) 680-0790

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

No.	Submittal / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: MJB Date: 3/27/12
Designed: EKM Date: 3/27/12
Checked: AJD Date: 3/27/12

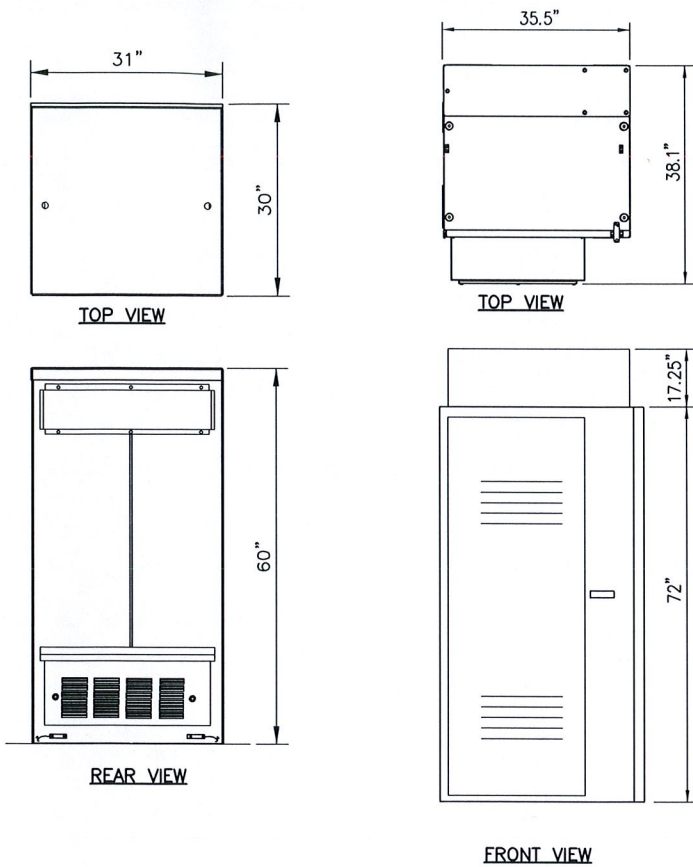
Project Number: 286-028
Project Title: CT03XC048 BEACON HILL
850 WEST MAIN STREET BRANFORD, CT 06405

Client: Sprint
Implementation Team: ALCATEL-LUCENT
808 AVIATION PARKWAY SUITE 200 MORRISVILLE, NC 27650

Drawing Scale: AS NOTED
Date: 7/30/12

Drawing Title: **JUNCTION BOX DETAILS**

Drawing Number: C8



1 BATTERY CABINET PROFILE
NOT TO SCALE

2 CABINET PROFILE
NOT TO SCALE

DESIGN CRITERIA:

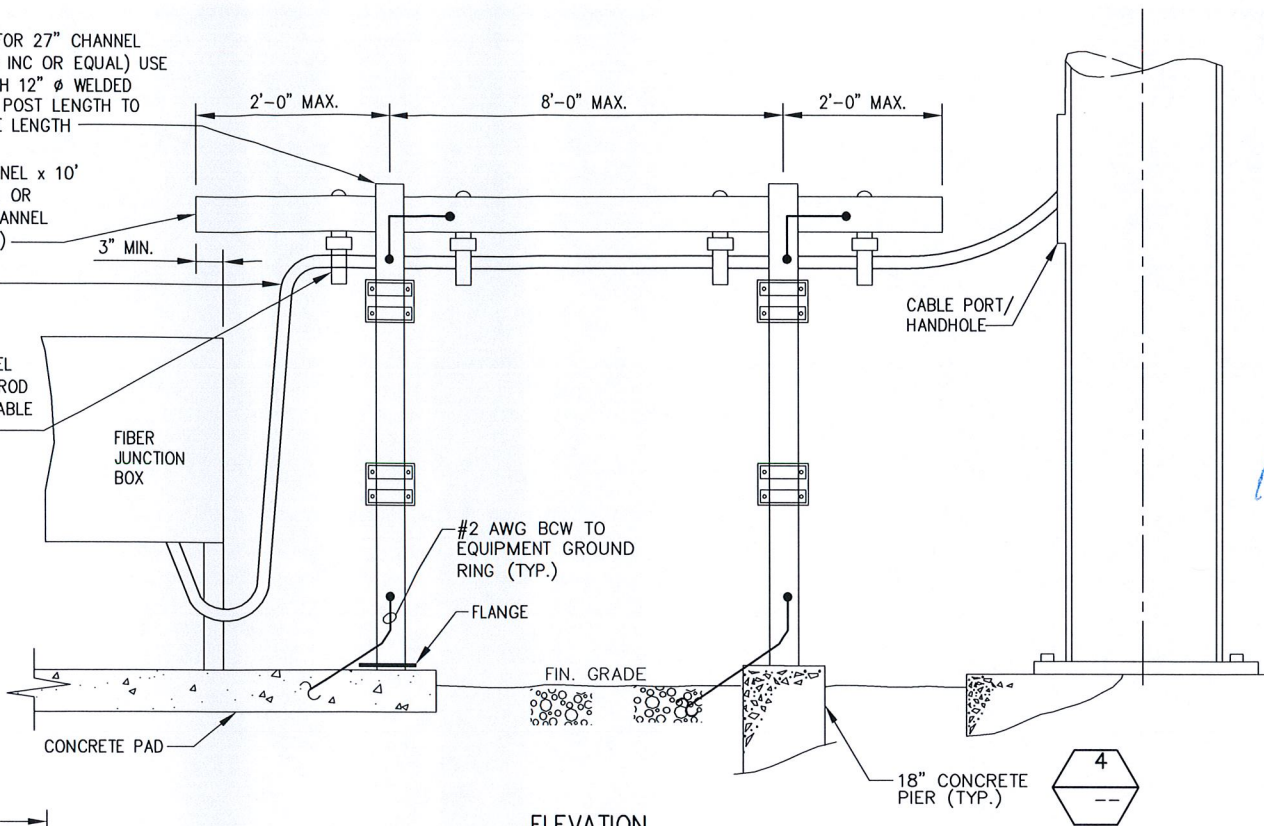
2009 INTERNATIONAL BUILDING CODE W/ STATE MODIFICATION	
WIND SPEED (ASCE-7-05)	90 MPH
EXPOSURE	B
IMPORTANCE FACTOR	1.0
SEISMIC SITE CLASS	D
S _s =0.152	S ₁ = 0.050
SEISMIC IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	B
CABINET WEIGHT:	
9928 MM BTS CABINET	1625 lbs.
60EC V2 BATTERY CABINET	2830 lbs.
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

SUPPORT POST + BRACKET FOR 27" CHANNEL (3-9" PART #802225 (PIROD INC OR EQUAL) USE PART #150410 FOR POST WITH 12" Ø WELDED FLANGE + BOLT HOLES. CUT POST LENGTH TO SUIT OR ORDER APPROPRIATE LENGTH)

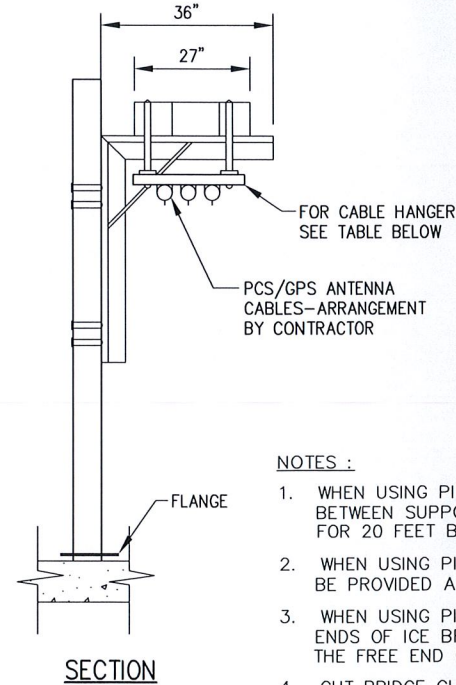
27" ICE BRIDGE 3-9" CHANNEL x 10" PART # 124470 (PIROD INC. OR EQUAL) CUT ICE BRIDGE CHANNEL LENGTH TO SUIT (SEE NOTE)

1-1/4" HYBRIFLEX CABLE

HANGER BRACKET TYPE LEVEL CHANNEL PART #802257 (PIROD INC OR EQUAL). MAXIMUM CABLE SPAN = 3' TYP.



ELEVATION



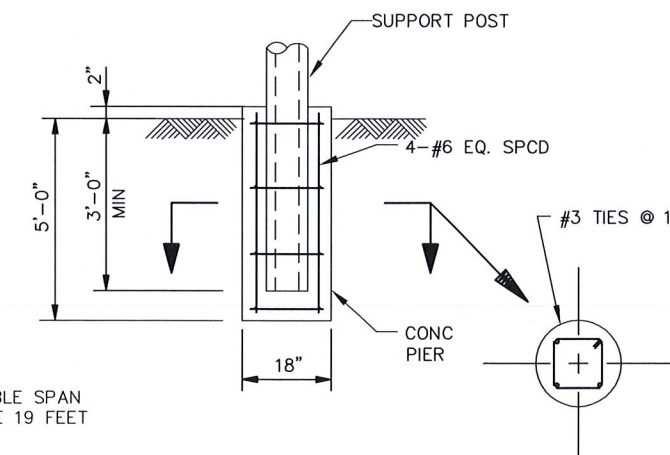
SECTION

NOTE: CONTRACTOR TO SUPPORT HYBRIFLEX CABLING IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

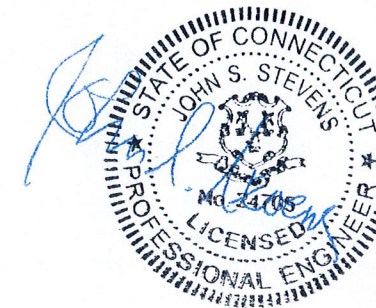
NOTES:

1. WHEN USING PIROD COMPONENTS AS SHOWN IN STANDARD DETAILS, MAXIMUM ALLOWABLE SPAN BETWEEN SUPPORTS ON A CONTINUOUS SINGLE SECTION OF BRIDGE CHANNEL SHALL BE 19 FEET FOR 20 FEET BRIDGE CHANNEL, OR 9 FEET FOR 10 FEET BRIDGE CHANNEL.
2. WHEN USING PIROD COMPONENTS FOR SPLICING BRIDGE CHANNEL SECTIONS, THE SPLICE SHOULD BE PROVIDED AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE SUPPORT.
3. WHEN USING PIROD COMPONENTS, SUPPORT SHOULD BE PROVIDED AS CLOSE AS POSSIBLE TO THE ENDS OF ICE BRIDGES, WITH A MAXIMUM CANTILEVER DISTANCE OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE ICE BRIDGE.
4. CUT BRIDGE CHANNEL SECTIONS SHOULD HAVE RAW EDGES TREATED WITH A MATERIAL TO RESTORE THE EDGES TO THE ORIGINAL CHANNEL, OR EQUIVALENT, FINISH.
5. ICE BRIDGES MAY BE CONSTRUCTED WITH COMPONENTS FROM MANUFACTURERS OTHER THAN PIROD, PROVIDED THE MANUFACTURER'S INSTALLATION GUIDELINES ARE FOLLOWED.
6. DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
7. ATTACH FLANGED END OF SUPPORT POST TO CONCRETE PAD USING 4 - 3/8" DIA. HILT-HY 150 ADHESIVE ANCHORS. PROVIDE MINIMUM OF 1/2" EMBEDMENT.
8. DEVIATIONS FROM ICE BRIDGE FOUNDATIONS SHOWN ON SITE SPECIFIC DRAWINGS OR STANDARD DETAILS REQUIRE ENGINEERING APPROVAL.

3 ICE BRIDGE
NOT TO SCALE



4 SUPPORT POST FOOTING
NOT TO SCALE



A/E Consultant:
infinigy
engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submital / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: M.B. Date: 3/27/12
Designed: EKM Date: 3/27/12
Checked: A.D. Date: 3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: Sprint
Implementation Team: Alcatel-Lucent



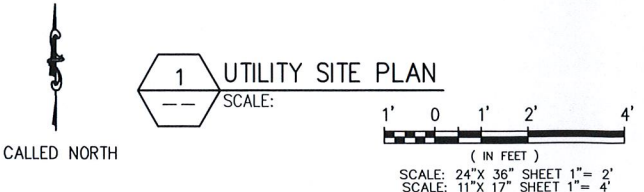
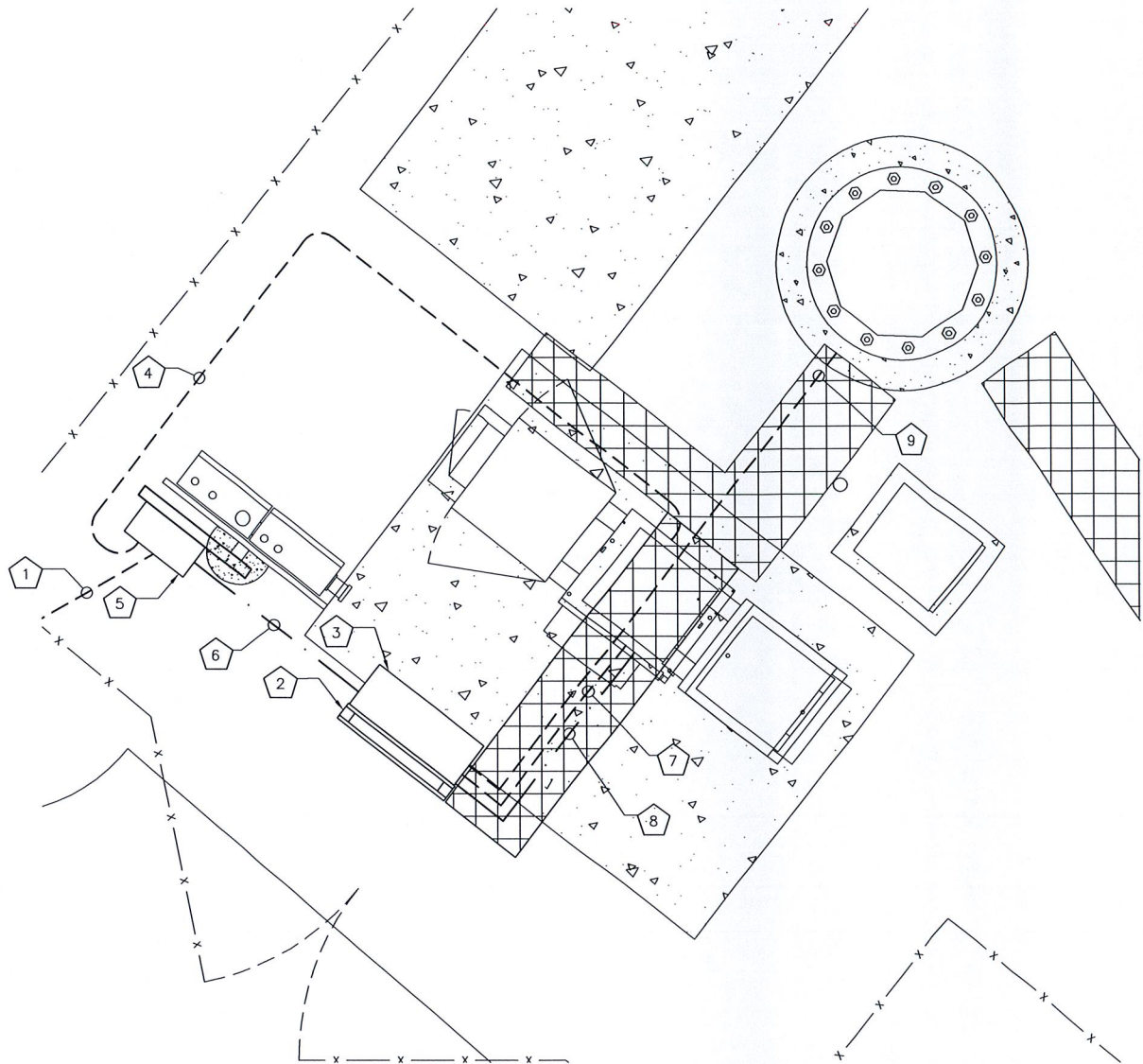
Drawing Scale: AS NOTED
Date: 7/30/12

Drawing Title:
DETAILS

Drawing Number:
C9

CODING NOTES:

- 1 PROPOSED 2" UNDERGROUND PVC CONDUIT WITH PULL-STRING FOR FIBER ROUTED FROM PROPOSED CIENA ENCLOSURE TO PROPOSED FIBER MEET POINT AT PROPOSED AT&T CORNING BOX, 15'. CONDUIT FURNISHED AND INSTALLED BY SPRINT. CIENA ENCLOSURE FURNISHED AND INSTALLED BY AT&T
- 2 PROPOSED H-FRAME FURNISHED AND INSTALLED BY SPRINT
- 3 PROPOSED SPRINT FIBER JUNCTION BOX FURNISHED AND INSTALLED BY ALU
- 4 PROPOSED CAT5 CABLE ROUTED IN PROPOSED 2" UNDERGROUND PVC CONDUIT ROUTED FROM PROPOSED CIENA 3911 EQUIPMENT ENCLOSURE TO EXISTING SPRINT BTS CABINET, 15' FURNISHED AND INSTALLED BY SPRINT
- 5 PROPOSED CIENA EQUIPMENT ENCLOSURE, FURNISHED AND INSTALLED BY AT&T
- 6 PROPOSED 1-1/4" ABOVE GROUND LIQUID TIGHT CONDUIT WITH PULL-STRING FOR DC POWER FROM FIBER JUNCTION BOX TO CIENA EQUIPMENT CABINET, 10'
- 7 PROPOSED 2" LIQUID TIGHT CONDUIT WITH PULL-STRING FOR TELCO FROM FIBER JUNCTION BOX TO LUCENT EQUIPMENT CABINET
- 8 PROPOSED 2" LIQUID TIGHT CONDUIT WITH PULL-STRING FOR DC POWER FROM FIBER JUNCTION BOX TO LUCENT EQUIPMENT CABINET
- 9 PROPOSED 1-1/4" HYBRIFLEX CABLE ROUTED FROM PROPOSED JUNCTION BOX TO PROPOSED TOWER MOUNTED RRH, 165' (TYP. OF (1) PER SECTOR, (3) SECTORS TOTAL)



- 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 WORKING CONDITION WHEN NEW MMBTS EQUIPMENT IS INSTALLED.
 - 3. REMAINING GROUND LEADS FROM REMOVED CABINETS TO BE COILED (NOT ON WALKING SURFACE).
 - 4. REMAINING UNUSED CONDUITS FROM EXISTING CABINETS TO BE COVERED WITH WATERPROOF CAPS (NOT DUCT TAPE).

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 THIN 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. PROJECT 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.



A/E Consultant:
infinigy
 engineering
 11 Herbert Drive
 Latham, NY 12110
 (518) 690-0790

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

4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12
No.	Submitted / Revision	App'd	Date

Drawn: M.B. Date: 3/27/12
 Designed: EKM Date: 3/27/12
 Checked: A.D. Date: 3/27/12

Project Number: 286-028

Project Title:
**CT03XC048
 BEACON HILL**

850 WEST MAIN STREET
 BRANFORD, CT 06405

Client:  INTERNATIONAL BLDG. 1 WASHINGTON, NJ 07095

Implementation Team:  **ALCATEL-LUCENT**
 808 AVIATION PARKWAY SUITE 700 MORRISVILLE, NC 27650

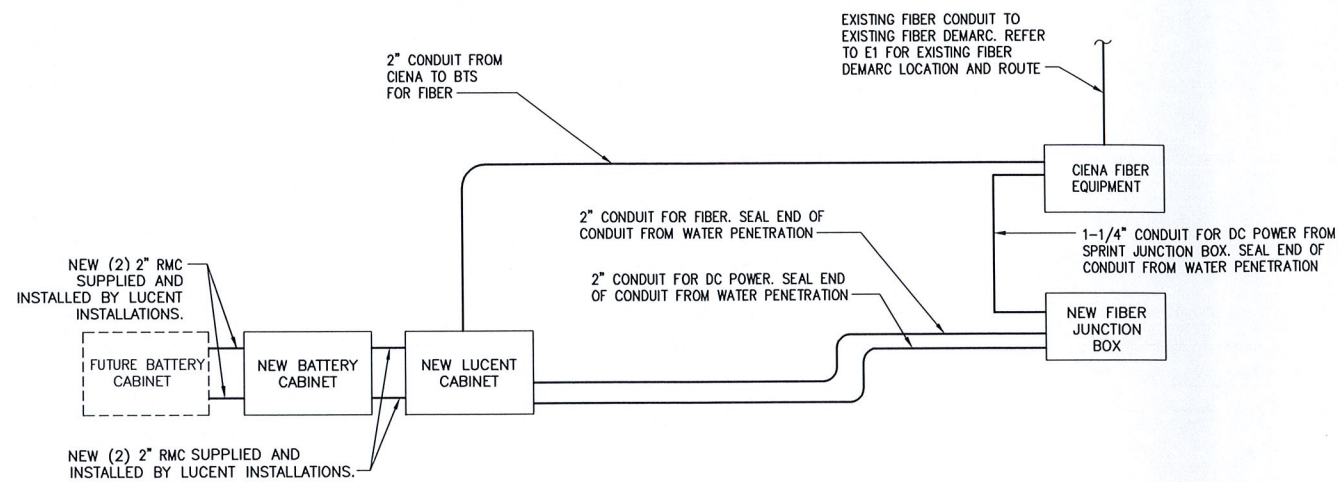
Drawing Scale: AS NOTED
 Date: 7/30/12

Drawing Title:
UTILITY SITE PLAN

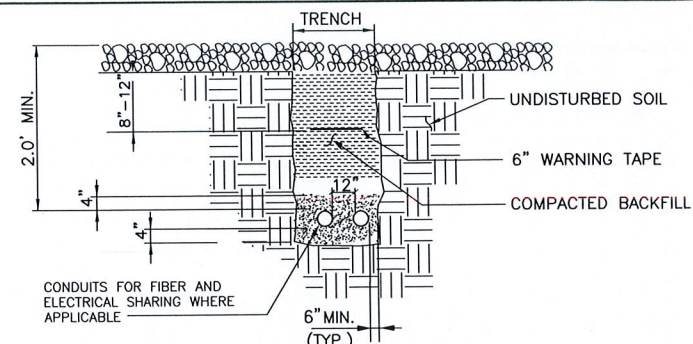
Drawing Number:
E1

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



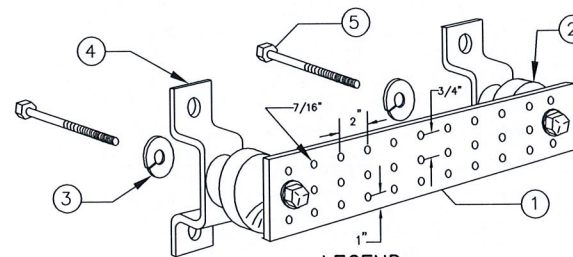
1 ONE-LINE DIAGRAM
NOT TO SCALE



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

***HAND DIG INSIDE COMPOUND**

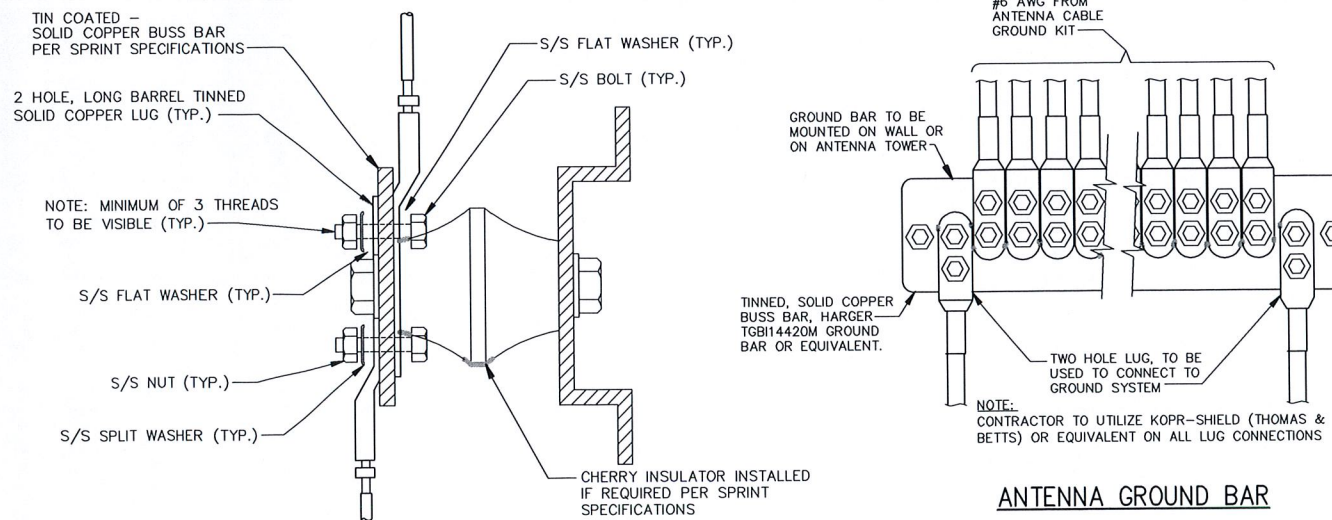
2 UTILITY TRENCH DETAIL
NOT TO SCALE



- LEGEND**
1. TINNED COPPER GROUND BAR, 1/2" x 4" x 20", NEWTON INSTRUMENT Co., HARGER TGB14420M, 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.
 5. WALL MOUNTING BRACKET, NEWTON INSTRUMENT Co. CAT. NO. A-6056 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 TGB14420M.

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

3 GROUND BAR DETAILS
NOT TO SCALE



A/E Consultant:
infinigy
engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submit / Revision	App'd	Date
4	FINAL CD'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12

Drawn: MJB Date: 3/27/12
Designed: EKM Date: 3/27/12
Checked: AJD Date: 3/27/12

Project Number 286-028

Project Title
**CT03XC048
BEACON HILL**

850 WEST MAIN STREET
BRANFORD, CT 06405

Client: **Sprint** Implementation Team: **ALCATEL-LUCENT**



Drawing Scale: AS NOTED

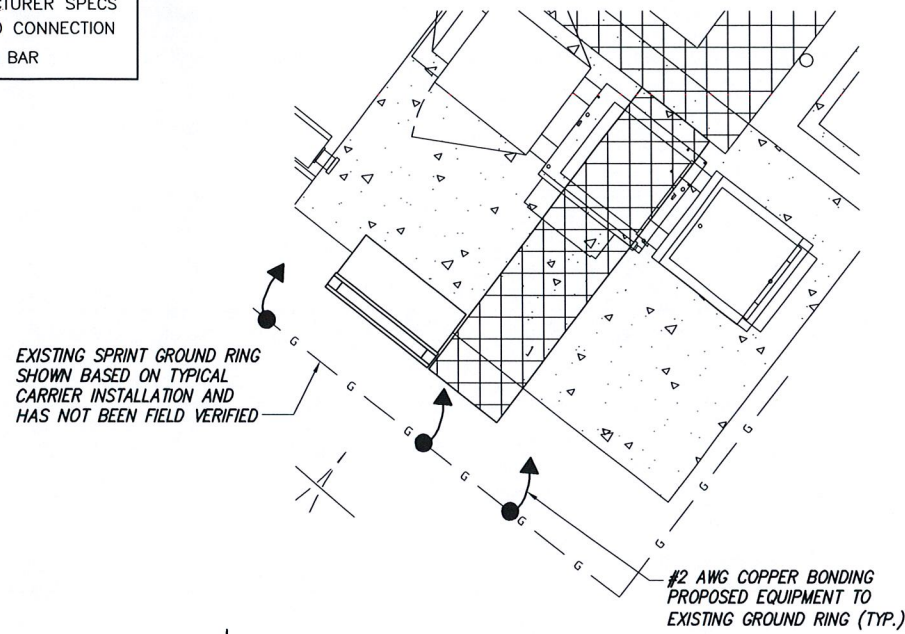
Date: 7/30/12

Drawing Title
**ONE-LINE
DIAGRAM
AND DETAILS**

Drawing Number

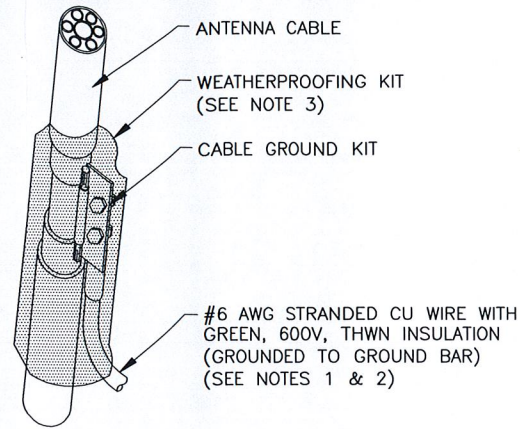
E2

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



1 EQUIPMENT GROUNDING PLAN
NOT TO SCALE

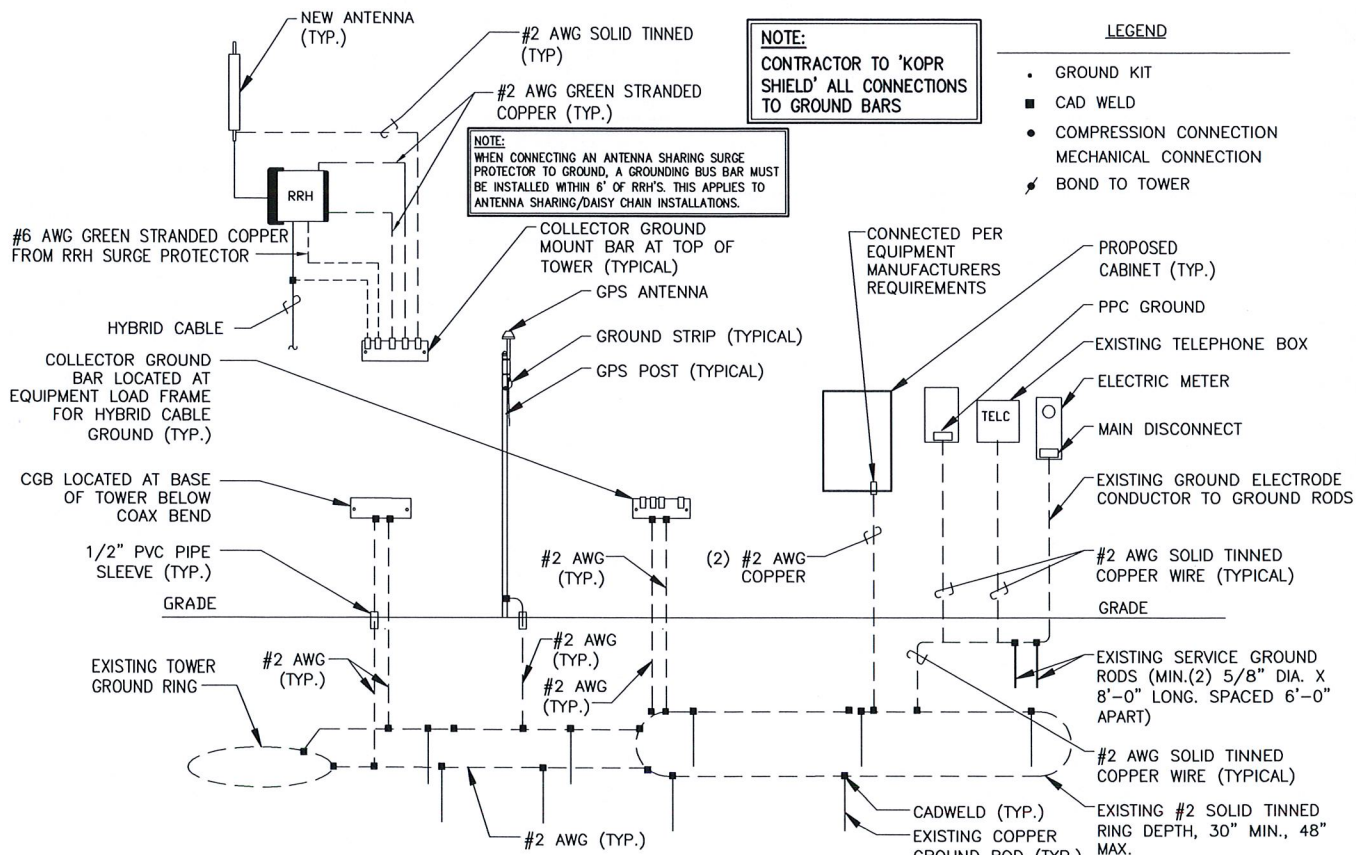
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 - GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 - WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.



3 CONNECTION OF GROUND KIT TO ANTENNA CABLE
NOT TO SCALE

GROUNDING NOTES:

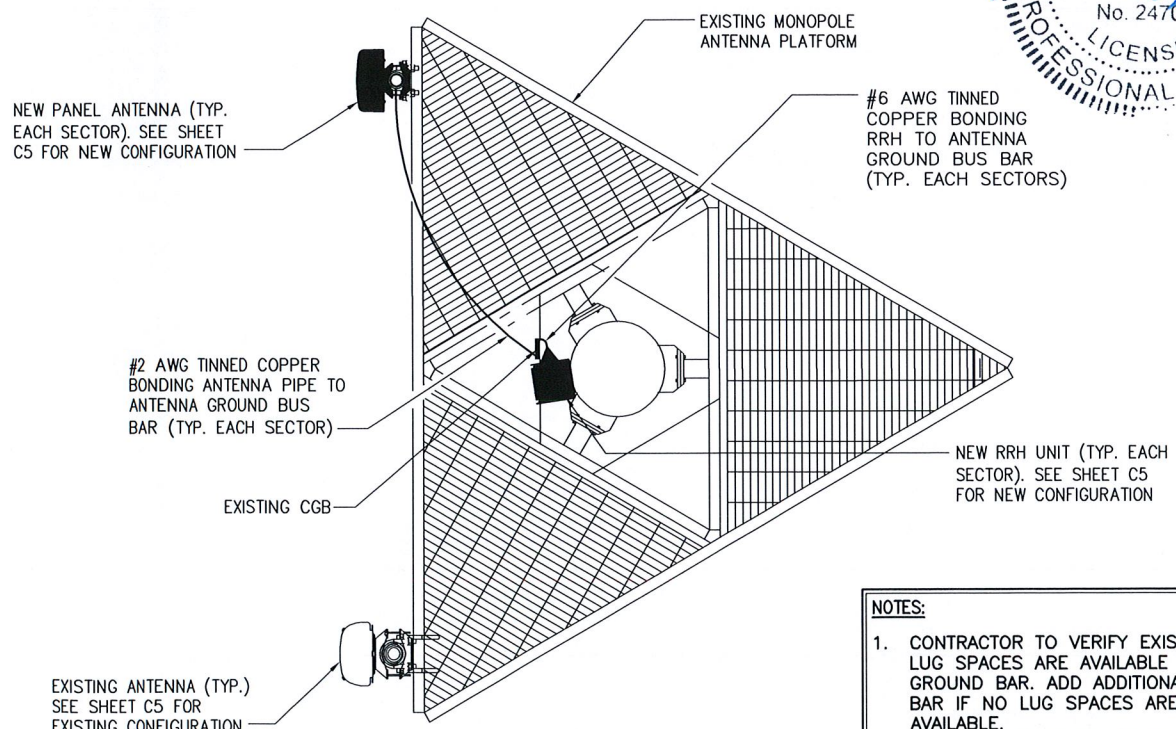
- ALL DOWN CONDUCTORS AND GROUND RING CONDUCTOR SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNO. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONDUCTOR SHALL BE A MINIMUM DEPTH BELOW GRADE OF 30 INCHES OR TO THE LEDGE. MINIMUM BEND RADIUS SHALL BE 8 INCHES. CONDUCTOR SHALL BE AT LEAST 24 INCHES FROM ANY FOUNDATION, UNO.
- WHERE MECHANICAL CONDUCTOR CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
- 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.
- 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.
- FOLLOWING COMPLETION OF WORK, CONDUCT GROUND TEST. SUBMIT WRITTEN TEST TO CONSTRUCTION MANAGER AND PROJECT MANAGER.
- ALL GROUNDING WORK SHALL COMPLY WITH CARRIER(S) STANDARDS.
- 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.
- 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).
- UNLESS NOTED OTHERWISE, ALL GROUNDING CONNECTIONS SHALL BE MADE BY AN EXOTHERMIC WELD.
- RESISTANCE TO EARTH TESTING IS REQUIRED PER SPRINT STANDARDS ON ALL NEW SITES.



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



- NOTES:**
- CONTRACTOR TO VERIFY EXISTING LUG SPACES ARE AVAILABLE ON GROUND BAR. ADD ADDITIONAL BUS BAR IF NO LUG SPACES ARE AVAILABLE.
 - ANTENNA GROUNDING CONNECTIONS SHOWN ARE NOT EXACT TO THIS SITE. FOR EXACT ANTENNA LAYOUT REFER TO SHEET C5.

4 TYPICAL ANTENNA GROUNDING PLAN
NOT TO SCALE

A/E Consultant:

infinity engineering
11 Herbert Drive
Latham, NY 12110
(516) 690-0790

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS			
4	FINAL CO'S	EKM	7/30/12
3	REVISED PER COMMENTS	EKM	5/22/12
2	REVISED PER COMMENTS	EKM	5/8/12
1	REVISED PER COMMENTS	EKM	4/16/12
0	ISSUED FOR REVIEW	EKM	3/27/12
No.	Submittal / Revision	App'd	Date
Drawn:	M.B.	Date:	3/27/12
Designed:	EKM	Date:	3/27/12
Checked:	A.D.	Date:	3/27/12
Project Number	286-028		
Project Title	CT03XC048 BEACON HILL		
Client:	850 WEST MAIN STREET BRANFORD, CT 06405		
Implementation Team:			
Drawing Scale:	AS NOTED		
Date:	7/30/12		
Drawing Title	GROUNDING PLAN AND DETAILS		
Drawing Number	E3		



Date: May 24, 2012

Marianne Dunst
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277



FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com

Subject: Structural Analysis Report

Carrier Designation: *Sprint PCS Co-Locate*
Carrier Site Number: CT03XC048

Crown Castle Designation:
Crown Castle BU Number: 876322
Crown Castle Site Name: TARTAGLIA PROPERTY
Crown Castle JDE Job Number: 187291
Crown Castle Work Order Number: 494818
Crown Castle Application Number: 150257 Rev. 1

Engineering Firm Designation: **FDH Engineering, Inc. Project Number:** 12-05559E S2

Site Data: **850 West Main Street, BRANFORD, New Haven County, CT**
Latitude 41° 16' 40.188", Longitude -72° 50' 12.696"
130 Foot - Monopole Tower

Dear Marianne Dunst,

FDH Engineering, Inc. is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 465387, in accordance with application 150257, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
 Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 Connecticut Building Code based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at FDH Engineering, Inc. appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis submitted by:

Daniel Chang, EI
Project Engineer

Reviewed By:

Christopher M Murphy, PE
President
CT PE License No. 25842



TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Antenna and Cable Information

Table 2 - Existing and Reserved Antenna and Cable Information

Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 5 – Section Capacity (Summary)

Table 6 - Tower Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 130 ft. Monopole tower designed by SUMMIT in July of 1998. The tower was extended per modifications by Global Signal in December 2006. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
118.0	120.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	3	1 1/4	1
		9	rfs celwave	ACU-A20-N			
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe			
116.0	116.0	3	alcatel lucent	1900MHz RRH (65MHz)	---	---	1
		3	alcatel lucent	800MHZ RRH			
		1	crown mounts	Side Arm Mount [SO 103-3]			

Notes:

1) Proposed Equipment

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128.0	130.0	3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	---	---	2
		3	rfs celwave	ATMAA1412D-1A20			
		3	rfs celwave	ATMPP1412D-1CWA			
	128.0	1	crown mounts	Platform Mount [LP 305-1]	6	1 5/8	1
118.0	124.0	2	andrew	VHLP2-11	3	1/2	1
		1	dragonwave	A-ANT-23G-2-C			
	122.0	6	decibel	DB980H90E-M w/ Mount Pipe	6	1 5/8	3
	120.0	3	argus technologies	LLPX310R w/ Mount Pipe	6	5/16	1
		3	samsung telecommunications	FDD_R6_RRH			
118.0	1	crown mounts	Platform Mount [LP 712-1]	--	---		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
110.0	114.0	1	kathrein	OG-860/1920/GPS-A	---	---	1
	111	6	rfs celwave	APL868013-42T0 w/ Mount Pipe	---	---	2
		3	rfs celwave	APX75-866512-CT2 w/ Mount Pipe			
		6	rfs celwave	FD9R6004/1C-3L			
	3	rymsa wireless	MG D3-800Tx w/ Mount Pipe				
110.0	1	crown mounts	Platform Mount [LP 712-1]	12 1	1 5/8 1/2	1	
50.0	52.0	1	kathrein	OG-860/1920/GPS-A	1	5/16	1
	50.0	1	crown mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) Existing Equipment to be Removed; Not Considered in this Analysis.

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120	120	12	Decibel	DB980H	---	---
110	110	12	Generic	Panel Antenna (CaAa=3.9 ft ²)		
100	100	12	Generic	Panel Antenna (CaAa=3.9 ft ²)		
85	85	2	Generic	Whip Antenna		
50	50	1	Generic	GPS Antenna		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Goodkind & O'Dea, Inc. (June 23, 1998)	1614542	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals (February 7, 2007)	1956410	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford and Company (June 26, 1998)	1613605	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Paul J. Ford and Company (June 26, 1998)	1529811	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Global Signal Services LLC (December 1, 2006)	2483868	CCISITES

3.1) Analysis Method

tnxTower (version 6.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. FDH Engineering, Inc. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	130 - 120.5	Pole	TP18.5x18.5x0.375	1	-2.00	597.73	11.4	Pass
L2	120.5 - 120	Pole	TP22x18.5x0.375	2	-2.00	597.73	11.4	Pass
L3	120 - 77	Pole	TP29.742x22x0.25	3	-8.95	1205.97	75.7	Pass
L4	77 - 37.75	Pole	TP36.308x28.5668x0.3125	4	-14.78	1840.62	93.4	Pass
L5	37.75 - 0	Pole	TP42.48x34.8729x0.375	5	-23.68	2643.11	95.8	Pass
							Summary	
						Pole (L5)	95.8	Fail
						Rating =	95.8	Fail

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	120	18.3	Pass
1	Flange Plate	120	11.9	Pass
1	Anchor Rods	0	59.4	Pass
1	Base Plate	0	69.9	Pass
1	Base Foundation	0	42.9	Pass
1	Base Foundation Soil Interaction	0	47.6	Pass

Structure Rating (max from all components) =	95.8%
---	--------------

Notes:

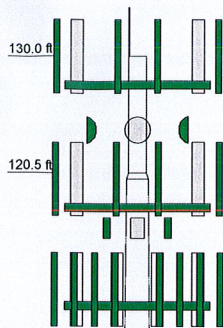
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

- 1) Coax should be installed as seen in Appendix B.

APPENDIX A
TNXTOWER OUTPUT

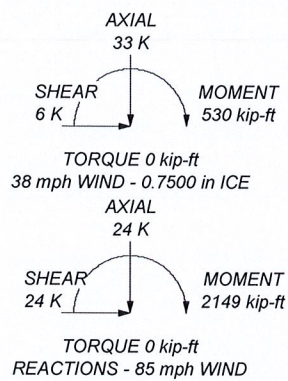
Section	1	2	3	4	5
Length (ft)	9.50	0.50	43.00	43.00	42.25
Number of Sides	1	1	12	12	12
Thickness (in)	0.3750	0.3750	0.2500	0.3125	0.3750
Socket Length (ft)			3.75	4.50	34.8729
Top Dia (in)	18.5000	18.5000	22.0000	28.5668	42.4800
Bot Dia (in)	18.5000	22.0000	29.7420	36.3080	
Grade			A53-B-35	A572-65	
Weight (K)	0.7	0.6	3.0	4.7	6.6



77.0 ft

37.8 ft

0.0 ft



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	130	APXVSP18-C-A20 w/ Mount Pipe	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	Platform Mount [LP 712-1]	118
APXV18-209014-C w/ Mount Pipe	128	Empty Mount Pipe	118
ATMAA1412D-1A20	128	Empty Mount Pipe	118
ATMPP1412D-1CWA	128	Empty Mount Pipe	118
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	VHLP2-11	118
APXV18-209014-C w/ Mount Pipe	128	A-ANT-23G-2-C	118
ATMAA1412D-1A20	128	VHLP2-11	118
ATMPP1412D-1CWA	128	800MHZ RRH	116
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	128	alcatel lucent 1900MHz RRH (65MHz)	116
APXV18-209014-C w/ Mount Pipe	128	800MHZ RRH	116
ATMAA1412D-1A20	128	Side Arm Mount [SO 103-3]	116
ATMPP1412D-1CWA	128	(2) Empty Mount Pipe	116
Platform Mount [LP 305-1]	128	(2) Empty Mount Pipe	116
Empty Mount Pipe	128	alcatel lucent 1900MHz RRH (65MHz)	116
Empty Mount Pipe	128	800MHZ RRH	116
Empty Mount Pipe	128	alcatel lucent 1900MHz RRH (65MHz)	116
LLPX310R w/ Mount Pipe	118	(2) FD9R6004/1C-3L	110
FDD_R6_RRH	118	MG D3-800Tx w/ Mount Pipe	110
800 EXTERNAL NOTCH FILTER	118	(2) APL868013-42T0 w/ Mount Pipe	110
(3) ACU-A20-N	118	APX75-866512-CT2 w/ Mount Pipe	110
APXVSP18-C-A20 w/ Mount Pipe	118	(2) FD9R6004/1C-3L	110
LLPX310R w/ Mount Pipe	118	MG D3-800Tx w/ Mount Pipe	110
FDD_R6_RRH	118	(2) APL868013-42T0 w/ Mount Pipe	110
800 EXTERNAL NOTCH FILTER	118	APX75-866512-CT2 w/ Mount Pipe	110
(3) ACU-A20-N	118	(2) FD9R6004/1C-3L	110
APXVSP18-C-A20 w/ Mount Pipe	118	MG D3-800Tx w/ Mount Pipe	110
LLPX310R w/ Mount Pipe	118	Platform Mount [LP 712-1]	110
FDD_R6_RRH	118	OG-860/1920/GPS-A	110
800 EXTERNAL NOTCH FILTER	118	(2) APL868013-42T0 w/ Mount Pipe	110
(3) ACU-A20-N	118	APX75-866512-CT2 w/ Mount Pipe	110
		Side Arm Mount [SO 701-1]	50
		OG-860/1920/GPS-A	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 95.8%

<p>Tower Analysis</p>	FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031		Job: Tartaglia Property BU#876322 Project: 12-05559E S2	
	Client: Crown Castle	Drawn by: Daniel Chang	App'd:	
	Code: TIA/EIA-222-F	Date: 05/24/12	Scale: NTS	
	Path:	Dwg No. E-1		

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 1 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 85 mph.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	130.00-120.50	9.50	0.00	Round	18.5000	18.5000	0.3750		A53-B-35 (35 ksi)
L2	120.50-120.00	0.50	0.00	Round	18.5000	22.0000	0.3750		A53-B-35 (35 ksi)
L3	120.00-77.00	43.00	3.75	12	22.0000	29.7420	0.2500	1.0000	A572-65 (65 ksi)
L4	77.00-37.75	43.00	4.50	12	28.5668	36.3080	0.3125	1.2500	A572-65 (65 ksi)
L5	37.75-0.00	42.25		12	34.8729	42.4800	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	18.5000	21.3530	877.5217	6.4162	9.2500	94.8672	1752.6528	10.6701	0.0000	0
	18.5000	21.3530	877.5217	6.4162	9.2500	94.8672	1752.6528	10.6701	0.0000	0
L2	18.5000	21.3530	877.5217	6.4162	9.2500	94.8672	1752.6528	10.6701	0.0000	0
	22.0000	25.4764	1490.3634	7.6552	11.0000	135.4876	2976.6666	12.7306	0.0000	0
L3	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	30.7912	23.7411	2635.6911	10.5581	15.4064	171.0782	5340.6247	11.6846	7.3009	29.203
L4	30.2735	28.4309	2896.9880	10.1150	14.7976	195.7740	5870.0831	13.9928	6.8184	21.819
	37.5888	36.2205	5990.1331	12.8864	18.8075	318.4963	12137.6337	17.8266	8.8930	28.458
L5	36.9419	41.6562	6327.7629	12.3502	18.0642	350.2940	12821.7632	20.5019	8.3409	22.242
	43.9785	50.8418	11504.6684	15.0736	22.0046	522.8292	23311.5772	25.0228	10.3796	27.679

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 2 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1 130.00-120.50				1	1	1		
L2 120.50-120.00				1	1	1		
L3 120.00-77.00				1	1	1		
L4 77.00-37.75				1	1	1		
L5 37.75-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		$C_A A_1$	Weight
				ft			ft ² /ft	plf
LDF7-50A(1-5/8")	C	No	Inside Pole	128.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
7983A(1/2")	C	No	Inside Pole	118.00 - 0.00	3	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
						2" Ice	0.00	0.08
						4" Ice	0.00	0.08
9207(5/16")	C	No	Inside Pole	118.00 - 0.00	6	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60
						2" Ice	0.00	0.60
						4" Ice	0.00	0.60
HB114-1-0813U4-M5J(1 1/4")	C	No	CaAa (Out Of Face)	118.00 - 0.00	1	No Ice	0.15	1.20
						1/2" Ice	0.25	2.45
						1" Ice	0.35	4.30
						2" Ice	0.55	9.85
						4" Ice	0.95	28.27
HB114-1-0813U4-M5J(1 1/4")	C	No	Inside Pole	118.00 - 0.00	2	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
						2" Ice	0.00	1.20
						4" Ice	0.00	1.20
LDF4-50A(1/2")	C	No	Inside Pole	110.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
LDF7-50A(1-5/8")	C	No	Inside Pole	110.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
860 10000(5/16)	C	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 3 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		$C_d A_d$ ft ² /ft	Weight plf
Safety Line 3/8	C	No	Inside Pole	130.00 - 0.00	1	No Ice	0.00	0.22
						1/2" Ice	0.00	0.22
						1" Ice	0.00	0.22
						2" Ice	0.00	0.22
						4" Ice	0.00	0.22

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_d A_d$ In Face ft ²	$C_d A_d$ Out Face ft ²	Weight K
L1	130.00-120.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L2	120.50-120.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	120.00-77.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.314	0.86
L4	77.00-37.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.044	0.89
L5	37.75-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.813	0.85

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	$C_d A_d$ In Face ft ²	$C_d A_d$ Out Face ft ²	Weight K
L1	130.00-120.50	A	0.880	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L2	120.50-120.00	A	0.876	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	120.00-77.00	A	0.854	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	13.320	0.96
L4	77.00-37.75	A	0.801	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.752	0.99
L5	37.75-0.00	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.862	0.94

Feed Line Center of Pressure

Job	Tartaglia Property BU#876322	Page	4 of 17
Project	12-05559E S2	Date	16:29:50 05/24/12
Client	Crown Castle	Designed by	Daniel Chang

Section	Elevation	CP _X	CP _Z	CP _X Ice	CP _Z Ice
	ft	in	in	in	in
L1	130.00-120.50	0.0000	0.0000	0.0000	0.0000
L2	120.50-120.00	0.0000	0.0000	0.0000	0.0000
L3	120.00-77.00	-0.1798	0.1038	-0.3350	0.1934
L4	77.00-37.75	-0.1894	0.1093	-0.3604	0.2081
L5	37.75-0.00	-0.1910	0.1103	-0.3589	0.2072

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
Lightning Rod	C	From Leg	0.00	0.0000	130.00	No Ice	0.25	0.25	0.03
			0.00			1/2" Ice	0.66	0.66	0.03
			2.00			1" Ice	0.97	0.97	0.04
						2" Ice	1.49	1.49	0.06
						4" Ice	2.68	2.68	0.14
*** APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	7.47	3.49	0.06
			0.00			1/2" Ice	7.99	4.26	0.11
			2.00			1" Ice	8.52	4.96	0.16
						2" Ice	9.59	6.40	0.30
						4" Ice	11.87	9.49	0.68
APXV18-209014-C w/ Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	3.72	3.31	0.04
			0.00			1/2" Ice	4.13	4.02	0.07
			2.00			1" Ice	4.56	4.68	0.11
						2" Ice	5.51	6.07	0.21
						4" Ice	7.55	9.05	0.52
ATMAA1412D-1A20	A	From Leg	4.00	0.0000	128.00	No Ice	1.17	0.47	0.01
			0.00			1/2" Ice	1.31	0.57	0.02
			2.00			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
ATMPP1412D-1CWA	A	From Leg	4.00	0.0000	128.00	No Ice	1.17	0.42	0.01
			0.00			1/2" Ice	1.32	0.53	0.02
			2.00			1" Ice	1.48	0.65	0.03
						2" Ice	1.82	0.92	0.05
						4" Ice	2.61	1.57	0.13
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	7.47	3.49	0.06
			0.00			1/2" Ice	7.99	4.26	0.11
			2.00			1" Ice	8.52	4.96	0.16
						2" Ice	9.59	6.40	0.30
						4" Ice	11.87	9.49	0.68
APXV18-209014-C w/ Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	3.72	3.31	0.04
			0.00			1/2" Ice	4.13	4.02	0.07
			2.00			1" Ice	4.56	4.68	0.11
						2" Ice	5.51	6.07	0.21
						4" Ice	7.55	9.05	0.52
ATMAA1412D-1A20	B	From Leg	4.00	0.0000	128.00	No Ice	1.17	0.47	0.01
			0.00			1/2" Ice	1.31	0.57	0.02
			2.00			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 5 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A ₁ Front	C _A A ₁ Side	Weight
			Horz	Lateral					
ATMPP1412D-1CWA	B	From Leg	4.00	0.0000	128.00	No Ice	1.17	0.42	0.01
			0.00			1/2" Ice	1.32	0.53	0.02
			2.00			1" Ice	1.48	0.65	0.03
						2" Ice	1.82	0.92	0.05
APX16DWV-16DWV-S-E-A 20 w/ Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	7.47	3.49	0.06
			0.00			1/2" Ice	7.99	4.26	0.11
			2.00			1" Ice	8.52	4.96	0.16
						2" Ice	9.59	6.40	0.30
APXV18-209014-C w/ Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	11.87	9.49	0.68
			0.00			1/2" Ice	3.72	3.31	0.04
			2.00			1" Ice	4.13	4.02	0.07
						2" Ice	4.56	4.68	0.11
ATMAA1412D-1A20	C	From Leg	4.00	0.0000	128.00	No Ice	5.51	6.07	0.21
			0.00			1" Ice	7.55	9.05	0.52
			2.00			2" Ice	1.17	0.47	0.01
						1/2" Ice	1.31	0.57	0.02
ATMPP1412D-1CWA	C	From Leg	4.00	0.0000	128.00	No Ice	1.47	0.69	0.03
			0.00			1" Ice	1.81	0.95	0.06
			2.00			2" Ice	2.58	1.57	0.14
						4" Ice	1.17	0.42	0.01
Platform Mount [LP 305-1]	C	None	4.00	0.0000	128.00	No Ice	18.01	18.01	1.12
			0.00			1/2" Ice	23.33	23.33	1.35
			2.00			1" Ice	28.65	28.65	1.58
						2" Ice	39.29	39.29	2.05
Empty Mount Pipe	A	From Leg	4.00	0.0000	128.00	No Ice	60.57	60.57	2.97
			0.00			1" Ice	1.00	1.00	0.01
			2.00			1/2" Ice	1.39	1.39	0.02
						1" Ice	1.70	1.70	0.03
Empty Mount Pipe	B	From Leg	4.00	0.0000	128.00	No Ice	2.35	2.35	0.06
			0.00			2" Ice	3.78	3.78	0.18
			2.00			4" Ice	1.00	1.00	0.01
						1/2" Ice	1.39	1.39	0.02
Empty Mount Pipe	C	From Leg	4.00	0.0000	128.00	No Ice	1.70	1.70	0.03
			0.00			1" Ice	2.35	2.35	0.06
			2.00			2" Ice	3.78	3.78	0.18
						4" Ice	1.00	1.00	0.01
LLPX310R w/ Mount Pipe	A	From Leg	4.00	0.0000	118.00	No Ice	1.39	1.39	0.02
			0.00			1/2" Ice	1.70	1.70	0.03
			2.00			1" Ice	2.35	2.35	0.06
						2" Ice	3.78	3.78	0.18
FDD_R6_RRH	A	From Leg	4.00	0.0000	118.00	No Ice	8.70	8.13	0.54
			0.00			1" Ice	1.79	0.78	0.03
			2.00			1/2" Ice	1.97	0.92	0.04
						1" Ice	2.16	1.07	0.06
800 EXTERNAL NOTCH	A	From Leg	4.00	0.0000	118.00	No Ice	2.57	1.39	0.09
						2" Ice	3.49	2.14	0.20
						4" Ice	0.77	0.37	0.01
						No Ice			

Job	Tartaglia Property BU#876322	Page	6 of 17
Project	12-05559E S2	Date	16:29:50 05/24/12
Client	Crown Castle	Designed by	Daniel Chang

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A ₁ Front	C _A A ₁ Side	Weight
			Horz Lateral	Vert					
FILTER			0.00			1/2" Ice	0.89	0.46	0.02
			2.00			1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
						4" Ice	1.97	1.34	0.11
(3) ACU-A20-N	A	From Leg	4.00	0.0000	118.00	No Ice	0.08	0.14	0.00
			0.00			1/2" Ice	0.12	0.19	0.00
			2.00			1" Ice	0.17	0.25	0.00
						2" Ice	0.30	0.40	0.01
						4" Ice	0.67	0.80	0.04
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	118.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			2.00			1" Ice	9.77	9.02	0.22
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
LLPX310R w/ Mount Pipe	B	From Leg	4.00	0.0000	118.00	No Ice	5.07	2.98	0.05
			0.00			1/2" Ice	5.48	3.53	0.08
			2.00			1" Ice	5.91	4.09	0.13
						2" Ice	6.79	5.31	0.23
						4" Ice	8.70	8.13	0.54
FDD_R6_RRH	B	From Leg	4.00	0.0000	118.00	No Ice	1.79	0.78	0.03
			0.00			1/2" Ice	1.97	0.92	0.04
			2.00			1" Ice	2.16	1.07	0.06
						2" Ice	2.57	1.39	0.09
						4" Ice	3.49	2.14	0.20
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.0000	118.00	No Ice	0.77	0.37	0.01
			0.00			1/2" Ice	0.89	0.46	0.02
			2.00			1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
						4" Ice	1.97	1.34	0.11
(3) ACU-A20-N	B	From Leg	4.00	0.0000	118.00	No Ice	0.08	0.14	0.00
			0.00			1/2" Ice	0.12	0.19	0.00
			2.00			1" Ice	0.17	0.25	0.00
						2" Ice	0.30	0.40	0.01
						4" Ice	0.67	0.80	0.04
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	118.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			2.00			1" Ice	9.77	9.02	0.22
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
LLPX310R w/ Mount Pipe	C	From Leg	4.00	0.0000	118.00	No Ice	5.07	2.98	0.05
			0.00			1/2" Ice	5.48	3.53	0.08
			2.00			1" Ice	5.91	4.09	0.13
						2" Ice	6.79	5.31	0.23
						4" Ice	8.70	8.13	0.54
FDD_R6_RRH	C	From Leg	4.00	0.0000	118.00	No Ice	1.79	0.78	0.03
			0.00			1/2" Ice	1.97	0.92	0.04
			2.00			1" Ice	2.16	1.07	0.06
						2" Ice	2.57	1.39	0.09
						4" Ice	3.49	2.14	0.20
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.0000	118.00	No Ice	0.77	0.37	0.01
			0.00			1/2" Ice	0.89	0.46	0.02
			2.00			1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
						4" Ice	1.97	1.34	0.11
(3) ACU-A20-N	C	From Leg	4.00	0.0000	118.00	No Ice	0.08	0.14	0.00
			0.00			1/2" Ice	0.12	0.19	0.00
			2.00			1" Ice	0.17	0.25	0.00

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 7 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight K	
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	118.00	2" Ice	0.30	0.40	0.01
						4" Ice	0.67	0.80	0.04
						No Ice	8.50	6.95	0.08
						1/2" Ice	9.15	8.13	0.15
						1" Ice	9.77	9.02	0.22
						2" Ice	11.03	10.84	0.41
Platform Mount [LP 712-1]	C	None		0.0000	118.00	4" Ice	13.68	14.85	0.91
						No Ice	24.53	24.53	1.34
						1/2" Ice	29.94	29.94	1.65
						1" Ice	35.35	35.35	1.96
						2" Ice	46.17	46.17	2.58
						4" Ice	67.81	67.81	3.82
Empty Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice	1.00	1.00	0.01
						1/2" Ice	1.39	1.39	0.02
						1" Ice	1.70	1.70	0.03
						2" Ice	2.35	2.35	0.06
						4" Ice	3.78	3.78	0.18
						No Ice	1.00	1.00	0.01
Empty Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice	1.00	1.00	0.01
						1/2" Ice	1.39	1.39	0.02
						1" Ice	1.70	1.70	0.03
						2" Ice	2.35	2.35	0.06
						4" Ice	3.78	3.78	0.18
						No Ice	1.00	1.00	0.01
Empty Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	118.00	No Ice	1.00	1.00	0.01
						1/2" Ice	1.39	1.39	0.02
						1" Ice	1.70	1.70	0.03
						2" Ice	2.35	2.35	0.06
						4" Ice	3.78	3.78	0.18
						No Ice	1.00	1.00	0.01

alcatel lucent 1900MHz RRH (65MHz)	A	From Leg	2.00 0.00 0.00	0.0000	116.00	No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
						1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
						4" Ice	4.85	4.93	0.35
						No Ice	2.49	2.07	0.05
800MHZ RRH	A	From Leg	2.00 0.00 0.00	0.0000	116.00	1/2" Ice	2.71	2.27	0.07
						1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
						No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
alcatel lucent 1900MHz RRH (65MHz)	B	From Leg	2.00 0.00 0.00	0.0000	116.00	1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
						4" Ice	4.85	4.93	0.35
						No Ice	2.49	2.07	0.05
						1/2" Ice	2.71	2.27	0.07
						1" Ice	2.93	2.48	0.10
800MHZ RRH	B	From Leg	2.00 0.00 0.00	0.0000	116.00	2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
						No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
						1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
alcatel lucent 1900MHz RRH (65MHz)	C	From Leg	2.00 0.00 0.00	0.0000	116.00	4" Ice	4.85	4.93	0.35
						No Ice	2.49	2.07	0.05
						1/2" Ice	2.71	2.27	0.07
						1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
800MHZ RRH	C	From Leg	2.00 0.00 0.00	0.0000	116.00	No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
						1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
						4" Ice	4.85	4.93	0.35
						No Ice	2.49	2.07	0.05
800MHZ RRH	C	From Leg	2.00 0.00 0.00	0.0000	116.00	1/2" Ice	2.71	2.27	0.07
						1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
						No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08

inxTower

FDH Engineering, Inc.
 6521 Meridian Drive
 Raleigh, NC 27616
 Phone: (919) 755-1012
 FAX: (919) 755-1031

Job	Tartaglia Property BU#876322	Page	8 of 17
Project	12-05559E S2	Date	16:29:50 05/24/12
Client	Crown Castle	Designed by	Daniel Chang

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight K
Side Arm Mount [SO 103-3]	C	None		0.0000	116.00	4" Ice 4.46 No Ice 9.50 1/2" Ice 11.80 1" Ice 14.10 2" Ice 18.70 4" Ice 27.90	3.93 9.50 11.80 14.10 18.70 27.90	0.32 0.22 0.32 0.41 0.60 0.97
(2) Empty Mount Pipe	A	From Leg	2.00 0.00 0.00	0.0000	116.00	No Ice 0.87 1/2" Ice 1.11 1" Ice 1.36 2" Ice 1.90 4" Ice 3.23	0.87 1.11 1.36 1.90 3.23	0.02 0.02 0.03 0.06 0.16
(2) Empty Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	116.00	No Ice 0.87 1/2" Ice 1.11 1" Ice 1.36 2" Ice 1.90 4" Ice 3.23	0.87 1.11 1.36 1.90 3.23	0.02 0.02 0.03 0.06 0.16
(2) Empty Mount Pipe	C	From Leg	2.00 0.00 0.00	0.0000	116.00	No Ice 0.87 1/2" Ice 1.11 1" Ice 1.36 2" Ice 1.90 4" Ice 3.23	0.87 1.11 1.36 1.90 3.23	0.02 0.02 0.03 0.06 0.16

OG-860/1920/GPS-A	A	From Leg	4.00 0.00 4.00	0.0000	110.00	No Ice 0.33 1/2" Ice 0.43 1" Ice 0.55 2" Ice 0.80 4" Ice 1.41	0.40 0.51 0.63 0.89 1.52	0.00 0.01 0.01 0.02 0.08
(2) APL868013-42T0 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 3.10 1/2" Ice 3.48 1" Ice 3.88 2" Ice 4.76 4" Ice 6.66	4.92 5.60 6.28 7.71 10.83	0.02 0.06 0.11 0.22 0.54
APX75-866512-CT2 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 6.43 1/2" Ice 6.92 1" Ice 7.41 2" Ice 8.43 4" Ice 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.08 0.14 0.27 0.64
(2) FD9R6004/1C-3L	A	From Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 0.37 1/2" Ice 0.45 1" Ice 0.54 2" Ice 0.75 4" Ice 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.00 0.01 0.02 0.06
MG D3-800Tx w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 3.57 1/2" Ice 3.98 1" Ice 4.39 2" Ice 5.33 4" Ice 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
(2) APL868013-42T0 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 3.10 1/2" Ice 3.48 1" Ice 3.88 2" Ice 4.76 4" Ice 6.66	4.92 5.60 6.28 7.71 10.83	0.02 0.06 0.11 0.22 0.54
APX75-866512-CT2 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	110.00	No Ice 6.43 1/2" Ice 6.92 1" Ice 7.41 2" Ice 8.43 4" Ice 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.08 0.14 0.27 0.64

inxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 9 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz Lateral	Vert					
(2) FD9R6004/1C-3L	B	From Leg	4.00	0.0000	110.00	No Ice	0.37	0.08	0.00
			0.00			1/2" Ice	0.45	0.14	0.00
			1.00			1" Ice	0.54	0.20	0.01
						2" Ice	0.75	0.34	0.02
						4" Ice	1.28	0.74	0.06
MG D3-800Tx w/ Mount Pipe	B	From Leg	4.00	0.0000	110.00	No Ice	3.57	3.42	0.03
			0.00			1/2" Ice	3.98	4.12	0.07
			1.00			1" Ice	4.39	4.78	0.11
						2" Ice	5.33	6.16	0.21
						4" Ice	7.34	9.18	0.52
(2) APL868013-42T0 w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	3.10	4.92	0.02
			0.00			1/2" Ice	3.48	5.60	0.06
			1.00			1" Ice	3.88	6.28	0.11
						2" Ice	4.76	7.71	0.22
						4" Ice	6.66	10.83	0.54
APX75-866512-CT2 w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	6.43	3.89	0.04
			0.00			1/2" Ice	6.92	4.59	0.08
			1.00			1" Ice	7.41	5.25	0.14
						2" Ice	8.43	6.63	0.27
						4" Ice	10.58	9.77	0.64
(2) FD9R6004/1C-3L	C	From Leg	4.00	0.0000	110.00	No Ice	0.37	0.08	0.00
			0.00			1/2" Ice	0.45	0.14	0.00
			1.00			1" Ice	0.54	0.20	0.01
						2" Ice	0.75	0.34	0.02
						4" Ice	1.28	0.74	0.06
MG D3-800Tx w/ Mount Pipe	C	From Leg	4.00	0.0000	110.00	No Ice	3.57	3.42	0.03
			0.00			1/2" Ice	3.98	4.12	0.07
			1.00			1" Ice	4.39	4.78	0.11
						2" Ice	5.33	6.16	0.21
						4" Ice	7.34	9.18	0.52
Platform Mount [LP 712-1]	C	None		0.0000	110.00	No Ice	24.53	24.53	1.34
						1/2" Ice	29.94	29.94	1.65
						1" Ice	35.35	35.35	1.96
						2" Ice	46.17	46.17	2.58
						4" Ice	67.81	67.81	3.82

OG-860/1920/GPS-A	A	From Leg	4.00	0.0000	50.00	No Ice	0.33	0.40	0.00
			0.00			1/2" Ice	0.43	0.51	0.01
			2.00			1" Ice	0.55	0.63	0.01
						2" Ice	0.80	0.89	0.02
						4" Ice	1.41	1.52	0.08
Side Arm Mount [SO 701-1]	A	From Leg	0.00	0.0000	50.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18

Dishes

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 10 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
VHLP2-11	A	Paraboloid w/o Radome	From Leg	3.00	0.0000		118.00	2.17	No Ice	3.72	0.03
				0.00					1/2" Ice	4.01	0.05
				6.00					1" Ice	4.30	0.07
									2" Ice	4.88	0.11
									4" Ice	6.04	0.19
A-ANT-23G-2-C	B	Paraboloid w/o Radome	From Leg	3.00	0.0000		118.00	2.17	No Ice	3.72	0.03
				0.00					1/2" Ice	4.01	0.05
				6.00					1" Ice	4.30	0.07
									2" Ice	4.88	0.11
									4" Ice	6.04	0.19
VHLP2-11	C	Paraboloid w/o Radome	From Leg	3.00	0.0000		118.00	2.17	No Ice	3.72	0.03
				0.00					1/2" Ice	4.01	0.05
				6.00					1" Ice	4.30	0.07
									2" Ice	4.88	0.11
									4" Ice	6.04	0.19

Load Combinations

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

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 11 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Comb. No.	Description
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	130 - 120.5	Pole	Max Tension	2	0.00	-0.00	-0.00
			Max. Compression	14	-3.69	0.03	-0.01
			Max. Mx	11	-2.02	26.49	0.46
			Max. My	2	-2.00	0.02	26.82
			Max. Vy	11	-3.50	26.49	0.46
			Max. Vx	2	-3.60	0.02	26.82
L2	120.5 - 120	Pole	Max. Torque	7			-0.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-3.74	0.03	-0.01
			Max. Mx	11	-2.06	28.25	0.53
			Max. My	2	-2.04	0.02	28.62
			Max. Vy	11	-3.53	28.25	0.53
L3	120 - 77	Pole	Max. Vx	2	-3.63	0.02	28.62
			Max. Torque	7			-0.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-15.95	0.16	-0.05
			Max. Mx	11	-8.96	525.71	5.87
			Max. My	2	-8.95	0.07	529.91
L4	77 - 37.75	Pole	Max. Vy	11	-15.78	525.71	5.87
			Max. Vx	2	-15.88	0.07	529.91
			Max. Torque	5			0.08
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.88	0.33	0.02
			Max. Mx	11	-14.79	1211.93	11.19
L5	37.75 - 0	Pole	Max. My	2	-14.78	0.12	1219.68
			Max. Vy	11	-19.86	1211.93	11.19
			Max. Vx	2	-19.92	0.12	1219.68
			Max. Torque	10			-0.22
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.87	0.53	-0.10
			Max. Mx	11	-23.68	2137.10	16.78
			Max. My	2	-23.68	0.19	2147.48
			Max. Vy	11	-23.93	2137.10	16.78
			Max. Vx	2	-23.99	0.19	2147.48
			Max. Torque	9			-0.24

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	32.87	0.00	-0.00
	Max. H _x	11	23.70	23.91	0.13
	Max. H _z	2	23.70	0.00	23.97
	Max. M _x	2	2147.48	0.00	23.97
	Max. M _z	5	2136.71	-23.91	0.13
	Max. Torsion	3	0.24	-12.07	20.61

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 12 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Vert	2	23.70	0.00	23.97
	Min. H _x	5	23.70	-23.91	0.13
	Min. H _z	8	23.70	0.00	-23.92
	Min. M _x	8	-2140.44	0.00	-23.92
	Min. M _z	11	-2137.10	23.91	0.13
	Min. Torsion	9	-0.24	11.84	-20.74

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	23.70	-0.00	0.00	-0.00	0.19	0.00
Dead+Wind 0 deg - No Ice	23.70	-0.00	-23.97	-2147.48	0.19	-0.21
Dead+Wind 30 deg - No Ice	23.70	12.07	-20.61	-1840.56	-1082.84	-0.24
Dead+Wind 60 deg - No Ice	23.70	20.74	-11.96	-1070.32	-1855.39	-0.22
Dead+Wind 90 deg - No Ice	23.70	23.91	-0.13	-16.78	-2136.71	-0.14
Dead+Wind 120 deg - No Ice	23.70	20.79	11.99	1073.83	-1861.49	-0.01
Dead+Wind 150 deg - No Ice	23.70	11.84	20.74	1857.34	-1053.77	0.12
Dead+Wind 180 deg - No Ice	23.70	-0.00	23.92	2140.44	0.19	0.21
Dead+Wind 210 deg - No Ice	23.70	-11.84	20.74	1857.34	1054.15	0.24
Dead+Wind 240 deg - No Ice	23.70	-20.79	11.99	1073.83	1861.87	0.22
Dead+Wind 270 deg - No Ice	23.70	-23.91	-0.13	-16.78	2137.10	0.14
Dead+Wind 300 deg - No Ice	23.70	-20.74	-11.96	-1070.32	1855.78	0.01
Dead+Wind 330 deg - No Ice	23.70	-12.07	-20.61	-1840.56	1083.22	-0.12
Dead+Ice+Temp	32.87	-0.00	0.00	0.10	0.53	0.00
Dead+Wind 0 deg+Ice+Temp	32.87	0.00	-5.61	-529.13	0.57	-0.09
Dead+Wind 30 deg+Ice+Temp	32.87	2.82	-4.83	-453.82	-266.24	-0.09
Dead+Wind 60 deg+Ice+Temp	32.87	4.86	-2.80	-263.72	-456.93	-0.07
Dead+Wind 90 deg+Ice+Temp	32.87	5.60	-0.03	-3.72	-526.38	-0.03
Dead+Wind 120 deg+Ice+Temp	32.87	4.87	2.81	264.74	-458.33	0.02
Dead+Wind 150 deg+Ice+Temp	32.87	2.77	4.85	457.86	-259.61	0.06
Dead+Wind 180 deg+Ice+Temp	32.87	0.00	5.60	527.73	0.57	0.09
Dead+Wind 210 deg+Ice+Temp	32.87	-2.77	4.85	457.86	260.74	0.09
Dead+Wind 240 deg+Ice+Temp	32.87	-4.87	2.81	264.74	459.46	0.07
Dead+Wind 270 deg+Ice+Temp	32.87	-5.60	-0.03	-3.72	527.52	0.03
Dead+Wind 300 deg+Ice+Temp	32.87	-4.86	-2.80	-263.72	458.06	-0.02
Dead+Wind 330 deg+Ice+Temp	32.87	-2.82	-4.83	-453.82	267.37	-0.06
Dead+Wind 0 deg - Service	23.70	0.00	-8.29	-744.11	0.19	-0.07
Dead+Wind 30 deg - Service	23.70	4.18	-7.13	-637.81	-375.11	-0.08
Dead+Wind 60 deg - Service	23.70	7.18	-4.14	-370.90	-642.83	-0.08
Dead+Wind 90 deg - Service	23.70	8.27	-0.05	-5.82	-740.19	-0.05
Dead+Wind 120 deg - Service	23.70	7.19	4.15	372.12	-644.95	-0.00
Dead+Wind 150 deg - Service	23.70	4.10	7.18	643.62	-365.03	0.04
Dead+Wind 180 deg - Service	23.70	0.00	8.27	741.65	0.19	0.07
Dead+Wind 210 deg - Service	23.70	-4.10	7.18	643.62	365.42	0.08
Dead+Wind 240 deg - Service	23.70	-7.19	4.15	372.12	645.34	0.08
Dead+Wind 270 deg - Service	23.70	-8.27	-0.05	-5.82	740.58	0.05
Dead+Wind 300 deg - Service	23.70	-7.18	-4.14	-370.90	643.22	0.00
Dead+Wind 330 deg - Service	23.70	-4.18	-7.13	-637.81	375.50	-0.04

Solution Summary

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 13 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-23.70	0.00	0.00	23.70	0.00	0.000%
2	0.00	-23.70	-23.97	0.00	23.70	23.97	0.005%
3	12.07	-23.70	-20.61	-12.07	23.70	20.61	0.000%
4	20.74	-23.70	-11.96	-20.74	23.70	11.96	0.000%
5	23.91	-23.70	-0.13	-23.91	23.70	0.13	0.002%
6	20.79	-23.70	11.99	-20.79	23.70	-11.99	0.000%
7	11.84	-23.70	20.74	-11.84	23.70	-20.74	0.000%
8	0.00	-23.70	23.92	0.00	23.70	-23.92	0.005%
9	-11.84	-23.70	20.74	11.84	23.70	-20.74	0.000%
10	-20.79	-23.70	11.99	20.79	23.70	-11.99	0.000%
11	-23.91	-23.70	-0.13	23.91	23.70	0.13	0.002%
12	-20.74	-23.70	-11.96	20.74	23.70	11.96	0.000%
13	-12.07	-23.70	-20.61	12.07	23.70	20.61	0.000%
14	0.00	-32.87	0.00	0.00	32.87	-0.00	0.000%
15	0.00	-32.87	-5.61	-0.00	32.87	5.61	0.001%
16	2.82	-32.87	-4.83	-2.82	32.87	4.83	0.000%
17	4.86	-32.87	-2.80	-4.86	32.87	2.80	0.000%
18	5.60	-32.87	-0.03	-5.60	32.87	0.03	0.001%
19	4.87	-32.87	2.81	-4.87	32.87	-2.81	0.000%
20	2.77	-32.87	4.85	-2.77	32.87	-4.85	0.000%
21	0.00	-32.87	5.60	-0.00	32.87	-5.60	0.001%
22	-2.77	-32.87	4.85	2.77	32.87	-4.85	0.000%
23	-4.87	-32.87	2.81	4.87	32.87	-2.81	0.000%
24	-5.60	-32.87	-0.03	5.60	32.87	0.03	0.001%
25	-4.86	-32.87	-2.80	4.86	32.87	2.80	0.000%
26	-2.82	-32.87	-4.83	2.82	32.87	4.83	0.000%
27	0.00	-23.70	-8.29	-0.00	23.70	8.29	0.006%
28	4.18	-23.70	-7.13	-4.18	23.70	7.13	0.000%
29	7.18	-23.70	-4.14	-7.18	23.70	4.14	0.001%
30	8.27	-23.70	-0.05	-8.27	23.70	0.05	0.006%
31	7.19	-23.70	4.15	-7.19	23.70	-4.15	0.001%
32	4.10	-23.70	7.18	-4.10	23.70	-7.18	0.000%
33	0.00	-23.70	8.28	-0.00	23.70	-8.27	0.006%
34	-4.10	-23.70	7.18	4.10	23.70	-7.18	0.001%
35	-7.19	-23.70	4.15	7.19	23.70	-4.15	0.001%
36	-8.27	-23.70	-0.05	8.27	23.70	0.05	0.006%
37	-7.18	-23.70	-4.14	7.18	23.70	4.14	0.001%
38	-4.18	-23.70	-7.13	4.18	23.70	7.13	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.0000001	0.0000001
2	Yes	15	0.00005452	0.00008377
3	Yes	20	0.0000001	0.00010690
4	Yes	20	0.0000001	0.00010720
5	Yes	16	0.0000001	0.00007688
6	Yes	20	0.0000001	0.00010790
7	Yes	20	0.0000001	0.00010500
8	Yes	15	0.00005455	0.00008363
9	Yes	20	0.0000001	0.00010543
10	Yes	20	0.0000001	0.00010774
11	Yes	16	0.0000001	0.00007690
12	Yes	20	0.0000001	0.00010703
13	Yes	20	0.0000001	0.00010730

Job	Tartaglia Property BU#876322	Page	14 of 17
Project	12-05559E S2	Date	16:29:50 05/24/12
Client	Crown Castle	Designed by	Daniel Chang

14	Yes	6	0.00000001	0.00000001
15	Yes	16	0.00000001	0.00010458
16	Yes	17	0.00000001	0.00008944
17	Yes	17	0.00000001	0.00008983
18	Yes	16	0.00000001	0.00010392
19	Yes	17	0.00000001	0.00009034
20	Yes	17	0.00000001	0.00008831
21	Yes	16	0.00000001	0.00010426
22	Yes	17	0.00000001	0.00008911
23	Yes	17	0.00000001	0.00009036
24	Yes	16	0.00000001	0.00010417
25	Yes	17	0.00000001	0.00008984
26	Yes	17	0.00000001	0.00009022
27	Yes	14	0.00012670	0.00009079
28	Yes	17	0.00000001	0.00007988
29	Yes	17	0.00000001	0.00008086
30	Yes	14	0.00012669	0.00009274
31	Yes	17	0.00000001	0.00008118
32	Yes	17	0.00000001	0.00007845
33	Yes	14	0.00012670	0.00009048
34	Yes	17	0.00000001	0.00007935
35	Yes	17	0.00000001	0.00008087
36	Yes	14	0.00012669	0.00009280
37	Yes	17	0.00000001	0.00008054
38	Yes	17	0.00000001	0.00008072

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 120.5	32.165	35	2.0420	0.0004
L2	120.5 - 120	28.110	35	2.0298	0.0004
L3	120 - 77	27.898	35	2.0289	0.0004
L4	80.75 - 37.75	12.828	35	1.5092	0.0003
L5	42.25 - 0	3.490	35	0.7573	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Lightning Rod	35	32.165	2.0420	0.0004	41763
128.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	35	31.310	2.0399	0.0004	41763
124.00	VHLP2-11	35	29.601	2.0351	0.0004	33161
118.00	LLPX310R w/ Mount Pipe	35	27.051	2.0232	0.0004	9983
116.00	alcatel lucent 1900MHz RRH (65MHz)	35	26.209	2.0144	0.0004	8443
110.00	OG-860/1920/GPS-A	35	23.721	1.9705	0.0004	6480
50.00	OG-860/1920/GPS-A	35	4.825	0.9060	0.0001	2507

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 15 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 120.5	92.575	2	5.8830	0.0018
L2	120.5 - 120	80.917	2	5.8480	0.0018
L3	120 - 77	80.306	2	5.8453	0.0018
L4	80.75 - 37.75	36.962	10	4.3501	0.0009
L5	42.25 - 0	10.065	10	2.1842	0.0004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Lightning Rod	2	92.575	5.8830	0.0018	14845
128.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	2	90.116	5.8769	0.0018	14845
124.00	VHLP2-11	2	85.203	5.8633	0.0018	11785
118.00	LLPX310R w/ Mount Pipe	2	77.870	5.8291	0.0018	3538
116.00	alcatel lucent 1900MHz RRH (65MHz)	2	75.450	5.8038	0.0017	2990
110.00	OG-860/1920/GPS-A	2	68.292	5.6775	0.0017	2291
50.00	OG-860/1920/GPS-A	10	13.913	2.6126	0.0004	873

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _n ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L1	130 - 120.5 (1)	TP18.5x18.5x0.375	9.50	0.00	0.0	21.000	21.3530	-2.00	448.41	0.004
L2	120.5 - 120 (2)	TP22x18.5x0.375	0.50	0.00	0.0	21.000	21.3530	-2.00	448.41	0.004
L3	120 - 77 (3)	TP29.742x22x0.25	43.00	0.00	0.0	39.000	23.1975	-8.95	904.70	0.010
L4	77 - 37.75 (4)	TP36.308x28.5668x0.3125	43.00	0.00	0.0	39.000	35.4053	-14.78	1380.81	0.011
L5	37.75 - 0 (5)	TP42.48x34.8729x0.375	42.25	0.00	0.0	39.000	50.8418	-23.68	1982.83	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx} F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
L1	130 - 120.5 (1)	TP18.5x18.5x0.375	26.85	3.397	23.100	0.147	0.00	0.000	23.100	0.000
L2	120.5 - 120 (2)	TP22x18.5x0.375	26.85	3.397	23.100	0.147	0.00	0.000	23.100	0.000
L3	120 - 77 (3)	TP29.742x22x0.25	530.15	38.957	39.000	0.999	0.00	0.000	39.000	0.000
L4	77 - 37.75 (4)	TP36.308x28.5668x0.3125	1220.23	48.126	39.000	1.234	0.00	0.000	39.000	0.000

tnxTower FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 16 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L5	37.75 - 0 (5)	TP42.48x34.8729x0.375	2149.34	49.332	39.000	1.265	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	130 - 120.5 (1)	TP18.5x18.5x0.375	3.60	0.169	14.000	0.024	0.00	0.000	14.000	0.000
L2	120.5 - 120 (2)	TP22x18.5x0.375	3.64	0.170	14.000	0.020	0.00	0.000	14.000	0.000
L3	120 - 77 (3)	TP29.742x22x0.25	15.88	0.685	26.000	0.053	0.08	0.003	26.000	0.000
L4	77 - 37.75 (4)	TP36.308x28.5668x0.3125	19.95	0.564	26.000	0.044	0.22	0.004	26.000	0.000
L5	37.75 - 0 (5)	TP42.48x34.8729x0.375	24.02	0.472	26.000	0.037	0.22	0.002	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_{vt} F_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 120.5 (1)	0.004	0.147	0.000	0.024	0.000	0.152	1.333	H1-3+VT ✓
L2	120.5 - 120 (2)	0.004	0.147	0.000	0.020	0.000	0.152	1.333	H1-3+VT ✓
L3	120 - 77 (3)	0.010	0.999	0.000	0.053	0.000	1.009	1.333	H1-3+VT ✓
L4	77 - 37.75 (4)	0.011	1.234	0.000	0.044	0.000	1.245	1.333	H1-3+VT ✓
L5	37.75 - 0 (5)	0.012	1.265	0.000	0.037	0.000	1.277	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF* P_{allow} K	% Capacity	Pass Fail
L1	130 - 120.5	Pole	TP18.5x18.5x0.375	1	-2.00	597.73	11.4	Pass
L2	120.5 - 120	Pole	TP22x18.5x0.375	2	-2.00	597.73	11.4	Pass
L3	120 - 77	Pole	TP29.742x22x0.25	3	-8.95	1205.97	75.7	Pass
L4	77 - 37.75	Pole	TP36.308x28.5668x0.3125	4	-14.78	1840.62	93.4	Pass
L5	37.75 - 0	Pole	TP42.48x34.8729x0.375	5	-23.68	2643.11	95.8	Pass
Summary								
Pole (L5)							95.8	Pass
RATING =							95.8	Pass

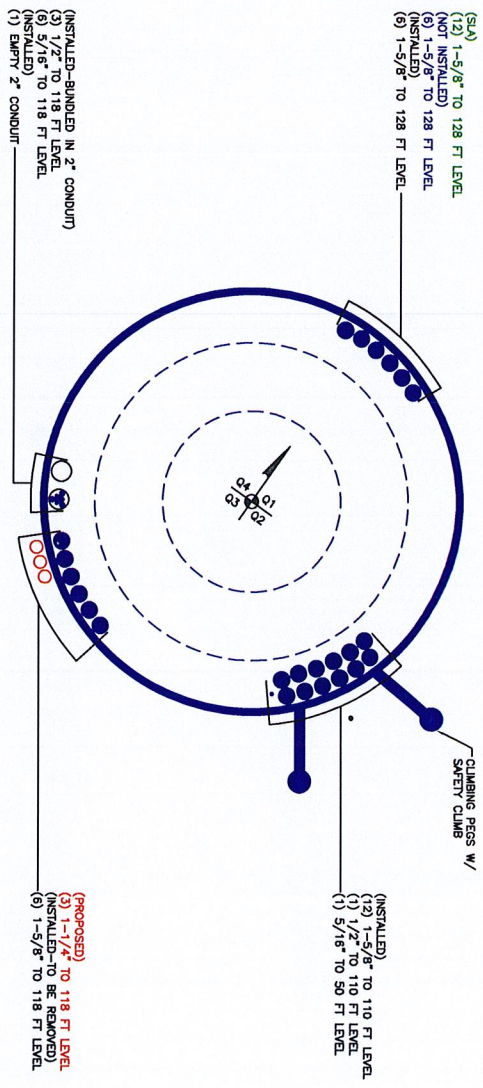
<i>tnxTower</i> FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job Tartaglia Property BU#876322	Page 17 of 17
	Project 12-05559E S2	Date 16:29:50 05/24/12
	Client Crown Castle	Designed by Daniel Chang

Program Version 6.0.4.0 - 1/27/2012 File://FDH-SERVER/Projects/2012 Projects/5 - May/12-05559E/Tartaglia Property, CT/S2 -RR SA SNV/Analysis/Tartaglia Property BU#876322.eri

APPENDIX B
BASE LEVEL DRAWING



CROWN REGION ADDRESS
USA



(INSTALLED-BUNDLED IN 2\"/>

(PROPOSED)
(3) 1-1/2\"/>

BUSINESS UNIT: 876322 TOWER ID: C_BASELEVEL

PORT INFORMATION			
ELEV.	SIZE	LOCATION	STATUS
3'-0"	.	30"	OCCUPIED
3'-0"	.	210"	OCCUPIED
8'-0"	.	120"	OCCUPIED
8'-0"	.	300"	EMPTY

BASE LEVEL DRAWING

DATE PLOTTED: 12/04/12 10:07 AM

- AM 12/06/08 APPLICATION ADDED PER WORK ORDER # 210641
- AMM 06/06/08 AS-BUILT INFORMATION ADDED PER WORK ORDER # 224301
- ADU 21/06/08 AS-BUILT INFORMATION ADDED PER WORK ORDER # 224301
- ACC 27/06/08 APPLICATION ADDED PER WORK ORDER # 281482
- PS 08/06/10 AS-BUILT INFORMATION ADDED PER WORK ORDER # 306518
- PS 17/06/10 UPDATED PER WORK ORDER # 356518
- MDP 31/03/11 AS-BUILT INFORMATION ADDED PER WORK ORDER # 366518
- RJK 17/04/12 UPDATED PER WORK ORDER # 487833
- ESG 11/04/12 UPDATED PER WORK ORDER # 464815

DRAWN BY: JPO
CHECKED BY: AM
DRAWING DATE: 10/10/07

SITE NUMBER:
SITE NAME:
SITE NAME:

TARTAGLIA PROPERTY
BUSINESS UNIT NUMBER: 876322

SITE ADDRESS: 880 WEST MAIN STREET
BRANFORD, CT 06460
NEW HAVEN COUNTY
USA

SHEET TITLE: BASE LEVEL
SHEET NUMBER:

A1-0

SCALE: 1" = 1'-0"

1

APPENDIX C
ADDITIONAL CALCULATIONS

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: _____
 Site Name: _____
 App #: _____

Anchor Rod Data

Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	55	in
Anchor Spacing:	6	in

Plate Data

W=Side:	55	in
Thick:	3.5	in
Grade:	50	ksi
Clip Distance:	4.94	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:	Fillet	**
Groove Depth:	0.375	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	24	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data

Diam:	42.48	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round

Stress Increase Factor

ASD ASIF:	1.333
-----------	-------

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	2149	ft-kips
Unfactored Axial, P:	24	kips
Unfactored Shear, V:	24	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension 115.7 Kips
 Allowable Tension: 195.0 Kips
 Anchor Rod Stress Ratio: 59.4% **Pass**

Base Plate Results

Base Plate Stress: 34.9 ksi
 Allowable PL Bending Stress: 50.0 ksi
 Base Plate Stress Ratio: 69.9% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	35.30
Max PL Length:	35.30

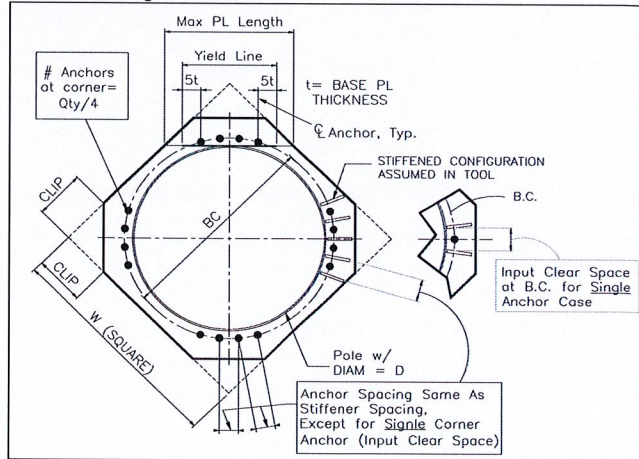
N/A - Unstiffened

Stiffener Results

Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA R

Site Data

BU#: _____
 Site Name: _____
 App #: _____

Pole Manufacturer: **Other**

Bolt Data

Qty:	8			
Diameter (in.):	0.875	Bolt Fu:	120	
Bolt Material:	A325	Bolt Fy:	92	
N/A:	75	<-- Disregard	Bolt Fty:	44.00
N/A:	55	<-- Disregard		
Circle (in.):	24			

Plate Data

Diam:	26.25	in
Thick, t:	1.25	in
Grade (Fy):	50	ksi
Strength, Fu:	65	ksi
Single-Rod B-eff:	7.26	in

Stiffener Data (Welding at Both Sides)

Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.25	in
Width:	3	in
Height:	8	in
Thick:	0.5	in
Notch:	0.375	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data

Diam:	18.5	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF: 1.333

Reactions

Moment:	26.85	ft-kips
Axial:	2	kips
Shear:	3.64	kips
Elevation:	120	feet

If No stiffeners, Criteria: **AISC ASD** <-- Only Applicable to Unstiff

Flange Bolt Results

Bolt Tension Capacity, **B**: 35.27 kips
 Max Bolt directly applied T: 6.46 Kips
 Min. PL "tc" for **B** cap. **w/o Pry**: 1.161 in
 Min PL "treq" for actual **T w/ Pry**: 0.363 in
 Min PL "t1" for actual **T w/o Pry**: 0.497 in
 T allowable w/o Prying: 35.27 kips
 Prying Force, Q: 0.00 kips
 Total Bolt Tension=T+Q: 6.46 kips
 Non-Prying Bolt Stress Ratio, T/B: 18.3% **Pass**

Exterior Flange Plate Results

Flexural Check
 Compression Side Plate Stress: 6.0 ksi
 Allowable Plate Stress: 50.0 ksi
 Compression Plate Stress Ratio: 11.9% **Pass**

No Prying

Tension Side Stress Ratio, (treq/t)^2: 8.4% **Pass**

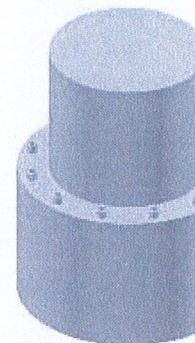
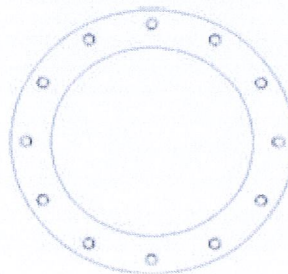
n/a

Stiffener Results

Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, fb/Fb+(fv/Fv)^2: n/a
 Plate Tension+Shear, ft/Ft+(fv/Fv)^2: n/a
 Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

 * CAISSON - Pier Foundations Analysis and Design - Copyright Power Line Systems, Inc. 1993-2010 *

Project Title:
 Project Notes:

Calculation Method: Full 8CD

***** I N P U T D A T A

Pier Properties

Diameter (ft)	Distance of Top of Pier above Ground (ft)	Concrete Strength (ksi)	Steel Yield Strength (ksi)
7.00	0.50	3.00	60.00

Soil Properties

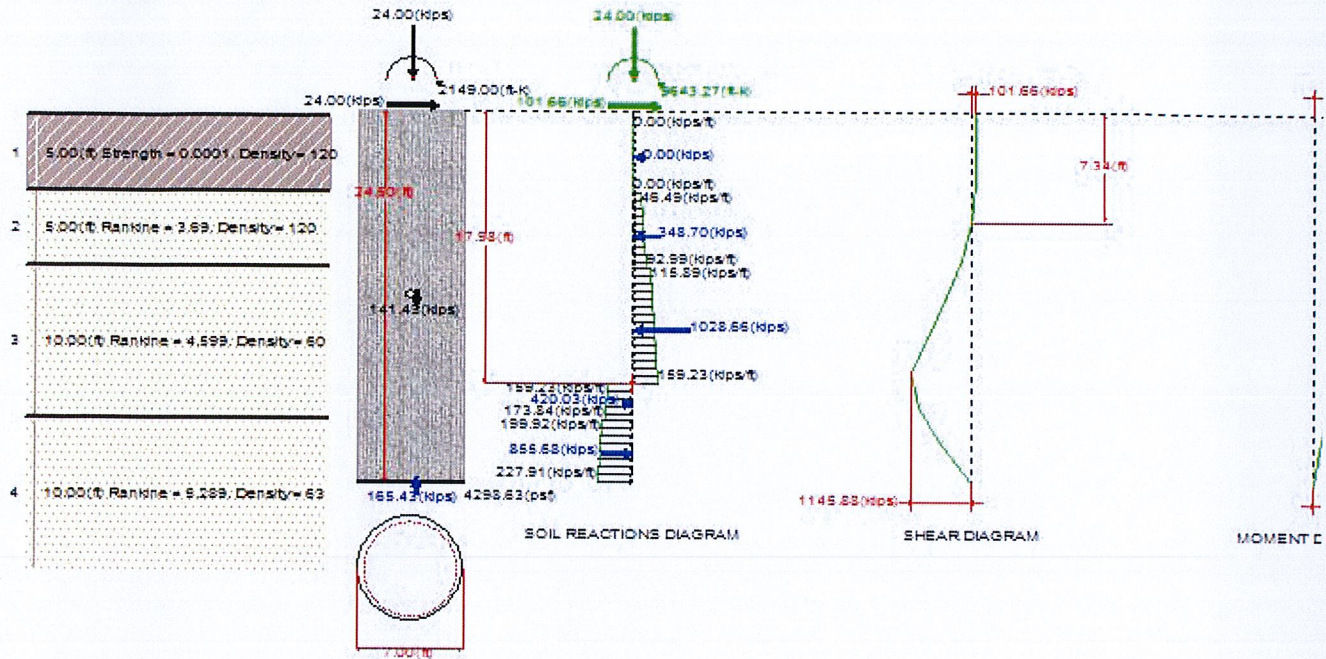
Layer	Type	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	KP	PHI (deg)
1	Clay	5.00	0.00	120.0	0.0		
2	Sand	5.00	5.00	120.0		3.690	35.00
3	Sand	10.00	10.00	60.0		4.599	40.00
4	Sand	10.00	20.00	63.0		5.289	43.00

Design (Factored) Loads at Top of Pier

Moment (ft-k)	Axial Load (kips)	Shear Load (kips)	Additional Safety Factor Against Soil Failure
2149.0	24.0	24.00	4.20

Capacity = 2.00/4.20 = 47.6%

***** R E S U L T S



Calculated Pier Properties

Length (ft)	Weight (kips)	Pressure Due To Axial Load (psf)	Pressure Due To Weight (psf)	Total End-Bearing Pressure (psf)
24.500	141.431	623.6	3675.0	4298.6

Ultimate Resisting Forces Along Pier

Type	Distance of Top of Layer to Top of Pier (ft)	Thickness (ft)	Density (lbs/ft^3)	CU (psf)	KP	Force (kips)	Arm (ft)
Clay	0.50	5.00	120.0	0.0		0.00	3.00
Sand	5.50	5.00	120.0		3.690	348.70	8.28
Sand	10.50	7.48	60.0		4.599	1028.66	14.44
Sand	17.98	2.52	60.0		4.599	-420.03	19.26
Sand	20.50	4.00	63.0		5.289	-855.68	22.54

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	101.7	9643.3	24.2	2296.0
2.45	101.7	9892.3	24.2	2355.3
4.90	101.7	10141.4	24.2	2414.6
7.35	-0.3	10301.1	-0.1	2452.6
9.80	-184.2	10086.5	-43.9	2401.5
12.25	-458.7	9320.8	-109.2	2219.2
14.70	-784.9	7804.4	-186.9	1858.2
17.15	-1145.9	5446.3	-272.8	1296.7
19.60	-1009.8	2588.5	-240.4	616.3
22.05	-537.4	666.9	-127.9	158.8
24.50	-0.0	0.0	-0.0	0.0

Reinforcement and Capacity

Total Reinforcement Percent	Reinforcement Area (in^2)	Usable Axial Capacity (kips)	Usable Moment Capacity (ft-k)
0.32	17.73	24.0	2797.1

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data		
BU#:		
Site Name:		
App #: #####		

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties	
Concrete:	
Pier Diameter =	7.0 ft
Concrete Area =	5541.8 in ²
Reinforcement:	
Clear Cover to Tie =	4.00 in
Horiz. Tie Bar Size =	5
Vert. Cage Diameter =	6.11 ft
Vert. Cage Diameter =	73.34 in
Vertical Bar Size =	11
Bar Diameter =	1.41 in
Bar Area =	1.56 in ²
Number of Bars =	32
As Total =	49.92 in ²
A s/ Aconc, Rho:	0.0090 0.90%

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	2452.6	ft-kips (* Note)
Max. Service Shaft P:	24	kips
Max Axial Force Type:	Comp.	

(* Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	Shaft Factored Loads	
1.30	Mu:	3188.38 ft-kips
1.30	Pu:	31.2 kips

Material Properties	
Concrete Comp. strength, f _c =	3000 psi
Reinforcement yield strength, F _y =	60 ksi
Reinforcing Modulus of Elasticity, E =	29000 ksi
Reinforcement yield strain =	0.00207
Limiting compressive strain =	0.003
ACI 318 Code	
Select Analysis ACI Code =	2002
Seismic Properties	
Seismic Design Category =	B
Seismic Risk =	Low

Solve (Run)	<-- Press Upon Completing All Input
-------------	-------------------------------------

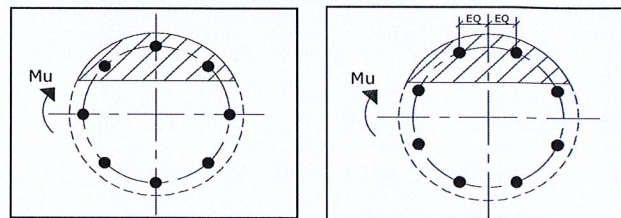
ACI 10.5, ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
 (3)*(Sqrt(f_c)/F_y: 0.0027
 200 / F_y: 0.0033
 IBC 1810.1.2: None SDC A or B
 Governing: 0.0033 **0.33%**

ACI 10.8 and 10.9
Min As for Columns, Comp. Controlled, Shafts:
 Min As: 0.0050 **0.50%**

Minimum Rho Check:
 Actual Req'd Min. Rho: 0.33% Flexural
 Provided Rho: 0.90% **OK**

Results:

Governing Orientation Case: **2**



Case 1 Case 2

Dist. From Edge to Neutral Axis: **16.78** in
 Extreme Steel Strain, ε_t: **0.0110**
ε_t > 0.0050, Tension Controlled
 Reduction Factor, φ: **0.900**

	<-- Comment Box
--	-----------------

Ref. Shaft Max Axial Capacities, φ Max(P _n or T _n):		
Max Pu = (φ=0.65) P _n :		
P _n per ACI 318 (10-2)	8839.70	kips
at Mu=(φ=0.65)M _n =	5309.39	ft-kips
Max Tu, (φ=0.9) T _n =	2695.68	kips
at Mu=φ=(0.90)M _n =	0.00	ft-kips

Output Note: Negative Pu=Tension
 For Axial Compression, φ P_n = Pu: 31.20 kips
 Drilled Shaft Moment Capacity, φM_n: **7432.61** ft-kips
 Drilled Shaft Superimposed Mu: **3188.38** ft-kips

(Mu/φM_n, Drilled Shaft Flexure CSR):	42.90%
--	---------------

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS

Sprint Existing Facility

Site ID: CT03XC048

Beacon Hill
850 West Main Street
Branford, CT 06405

August 21, 2012

August 21, 2012

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Emissions Values for Site **CT03XC048 – Beacon Hill**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 850 West Main Street, Branford, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is approximately 567 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS band is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 850 West Main Street, Branford, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

- 1) 3 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
- 2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
- 3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 5) The antenna used in this modeling is the RFS APXVSP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

- 6) The antenna mounting height centerline of the proposed antennas is **120.3 feet** above ground level (AGL)
- 7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sprint facility are **22.852% (7.617% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **49.462%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government



Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803