Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

October 9, 2018

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modification for Sprint DO Macro: 876341**
Sprint Site ID: CT03XC169
1969 Sarbrook Rd. Middletown, CT 06457
Latitude: 41° 30' 38.3"/ Longitude: -72° 35' 36.1"

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 150-foot level of the existing 150-foot monopole tower at 557 Rte. 82 Oakdale, CT. 06370. The tower is owned by Crown Castle. Regowset Ridge LLC own the property. Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 150-foot level of the tower. Sprint also intends to install twelve (12) RRHs, one (1) handrail kit, rotate one (1) mount, install equipment inside an existing cabinet, and replace six (6) coax cables with four (4) hybrid cables.

This facility was approved by the Connecticut Siting Council in early 2000 and an email was sent to the town building department on 10/09/2018 to ascertain the original zoning documents.
.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mayor Daniel Drew, Town of Middletown, Dean Lisitano, Building Official, Town of Middletown, as well as the property owner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Daniel Drew
245 Dekoven Dr. Middletown,
CT 06457

Dean Listano, Building Official
245 Dekoven Dr.
Middletown, CT 06457

Regoswet Ridge LLC.
88 High St.
Portland, CT 06480

SAYBROOK RD

Location	SAYBROOK RD	**Map-Lot**	49/ / 0008/ /
Acct#	R07182	**Owner**	REGOWSET RIDGE LLC
Municipality		**Assessment**	$62,010
Appraisal	$88,590	**PID**	828
Building Count	1	**Assessing Distr...**	

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$88,590	$88,590
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$62,010	$62,010

Parcel Addreses

Additional Addresses		
Address	**City, State Zip**	**Type**
SAYBROOK RD	MIDDLETOWN, CT 06457	Primary

Owner of Record

Owner	REGOWSET RIDGE LLC
Co-Owner	
Address	88 HIGH ST PORTLAND, CT 06480

Sale Price	$0
Certificate	
Book & Page	1753/ 973
Sale Date	04/17/2012
Instrument	29

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
REGOWSET RIDGE LLC	$0		1753/ 973	29	04/17/2012
MARINO SEBASTIAN G (EST) ETALS	$0		1753/ 970	29	04/17/2012
MARINO SEBASTIAN G (EST) ETALS	$0		1753/ 967	29	04/17/2012
MARINO SEBASTIAN G (EST) (2/4 INT)	$0		1753/ 964	29	04/17/2012
MARINO SEBASTIAN G (EST) (3/4 INT) &	$0		1753/ 961	29	04/17/2012

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Floor 1	
Interior Floor 2	
Heat Fuel	
Heat Type	
Bedrooms	
Full Baths	
Half Baths	
Extra Fixtures	
Total Rooms	
Bath Remodel	
Kitchen Remodel	
Extra Kitchens	
Fireplaces	
Extra Openings	
Gas Fireplace	
Int vs Ext	
A/C Type	
A/C %	
Fin Bsmt Area	
Bsmt Garage	

Building Photo

(http://images.vgsi.com/photos/MiddletownCTPhotos//\00\03\33/62.jpg)

Building Layout

Building

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code	300
Description	Industrial Vacant
Zone	I-1
Neighborhood	3075
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	8.25
Assessed Value	$62,010
Appraised Value	$88,590

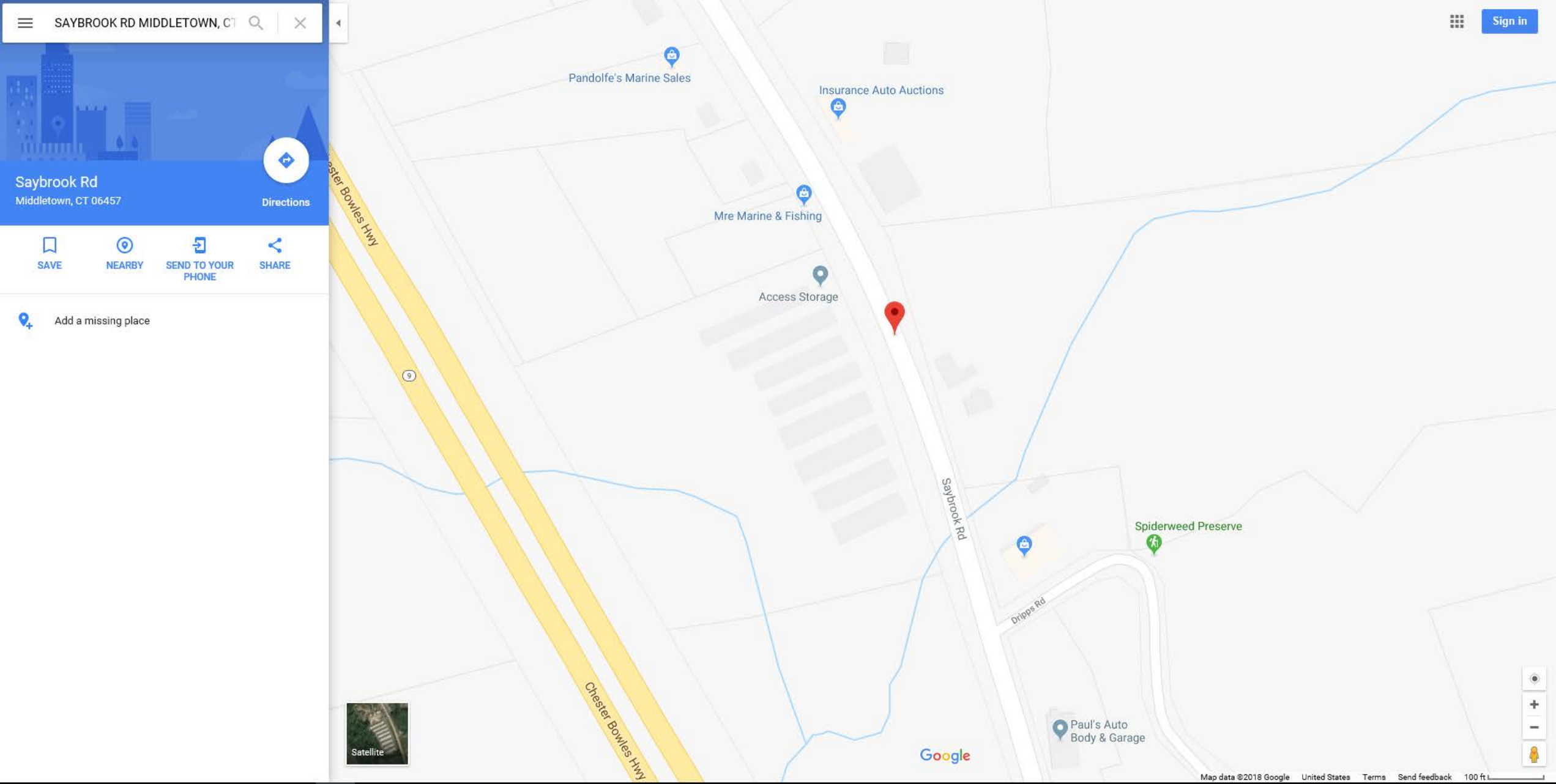
Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$88,590	$88,590
2016	$0	$132,400	$132,400
2015	$0	$132,400	$132,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$62,010	$62,010
2016	$0	$92,680	$92,680
2015	$0	$92,680	$92,680


SAYBROOK RD MIDDLETOWN, CT
Saybrook Rd
Middletown, CT 06457
Directions
SAVE
NEARBY
SEND TO YOUR PHONE
SHARE
Add a missing place
Pandolfe's Marine Sales
Insurance Auto Auctions
Mre Marine & Fishing
Access Storage
Chester Bowles Hwy
Saybrook Rd
Spiderweed Preserve
Dripps Rd
Paul's Auto Body & Garage
Satellite
Google
Sign in
Map data ©2018 Google
United States
Terms
Send feedback
100 ft

Sprint

CROWN CASTLE

PROJECT:	DO MACRO UPGRADE
SITE NAME:	MIDDLETOWN 2 - MARINO PROPERTY
SITE CASCADE:	CT03XC169
SITE NUMBER:	876341
SITE ADDRESS:	1969 SARBROOK ROAD MIDDLETOWN, CT 06457
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
CROWN ATLANTIC COMPANY LLC
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
(704) 405-6555

LATITUDE (NAD83):
41° 30' 38.3" N
41.510639

LONGITUDE (NAD83):
-72° 35' 36.1" W
-72.593361

COUNTY:
MIDDLESEX

ZONING JURISDICTION:
CONNECTICUT SITTING COUNCIL

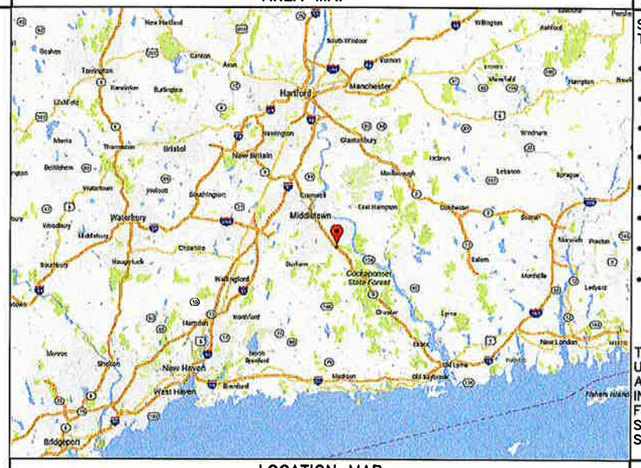
ZONING DISTRICT:
R-60

POWER COMPANY:
CONNECTICUT LINE & POWER
(800) 286-2000

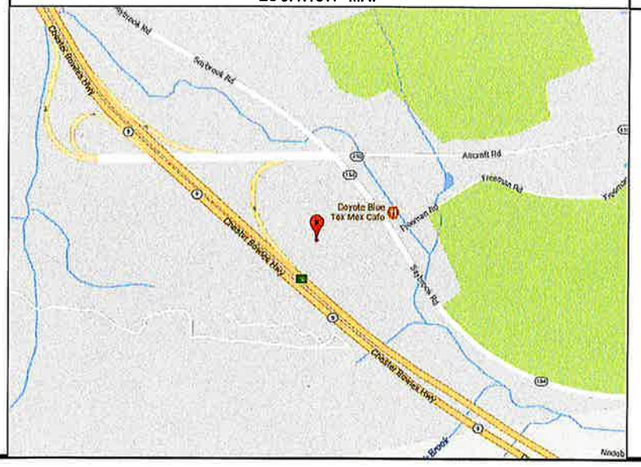
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WIATROSKI
(201) 236-9228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET
- REMOVE (6) PANEL ANTENNAS
- ROTATE MOUNT
- INSTALL HANDRAIL KIT ON MOUNT
- INSTALL (6) PANEL ANTENNAS (3 800/1900, 3 2500)
- INSTALL (12) RRHs ON TOWER (6 800, 3 1900, 3 2500)
- REMOVE (6) COAX
- INSTALL (4) HYBRID CABLES

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH STRUCTURE AND MOUNT.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. LOCAL BUILDING CODE
7. CITY/COUNTY ORDINANCES

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

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	2
SP-1	SPRINT SPECIFICATIONS	2
SP-2	SPRINT SPECIFICATIONS	2
SP-3	SPRINT SPECIFICATIONS	2
A-1	SITE PLAN	2
A-2	TOWER ELEVATION & CABLE PLAN	2
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	2
A-4	EQUIPMENT & MOUNTING DETAILS	2
A-5	CIVIL DETAILS	2
A-6	PLUMBING DIAGRAM	2
E-1	ELECTRICAL & GROUNDING DETAILS	2
E-2	ELECTRICAL & GROUNDING DETAILS	2

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:
MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:
CT03XC169

SITE ADDRESS:
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT 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.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 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.

1.9 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 RED 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.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 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.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 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.

3.2 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.

3.3 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.

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

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER 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.

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

TOWER OWNER NOTIFICATION
ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
SEP 10 2018
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:
MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:
CT03XC169

SITE ADDRESS:
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. 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.

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

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

1. 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.
2. 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.

D. 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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER CURRENT VERSION OF SPRINT'S TS-0200 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS 'CLOUDS' IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. 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.
2. 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.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24002
SEP 10 2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:

MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:

CT03XC169

SITE ADDRESS:

1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED
PROFESSIONAL ENGINEER
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:

MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:

CT03XC169

SITE ADDRESS:

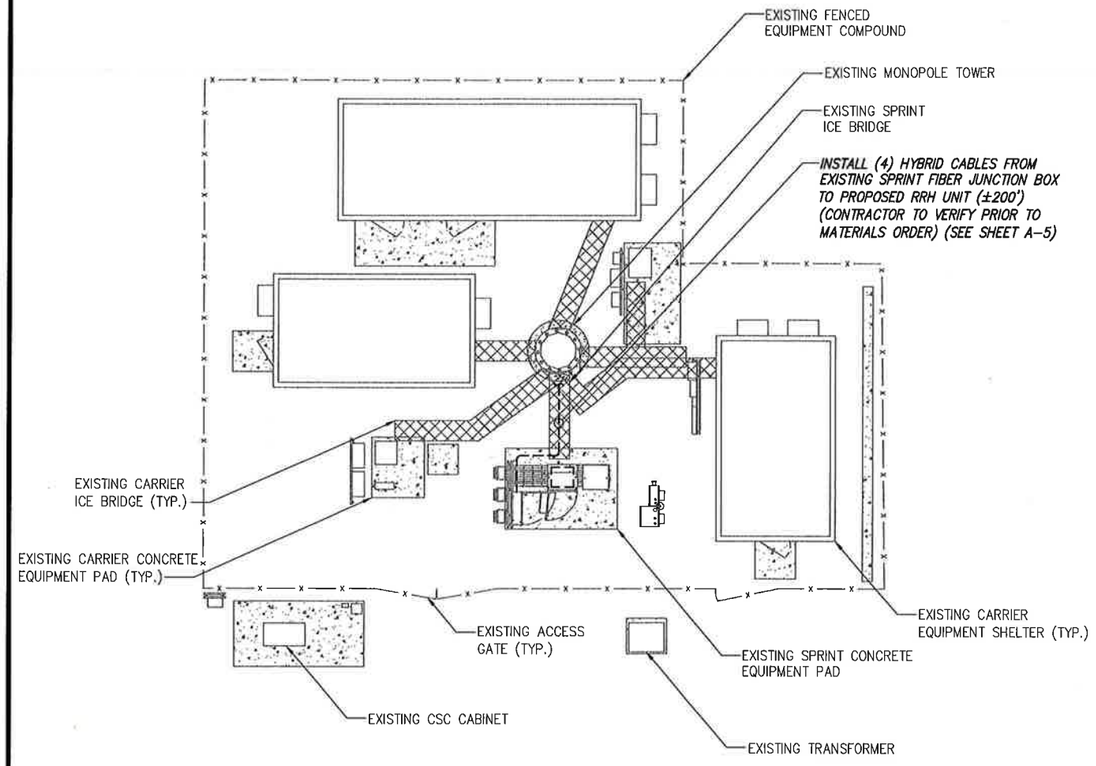
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

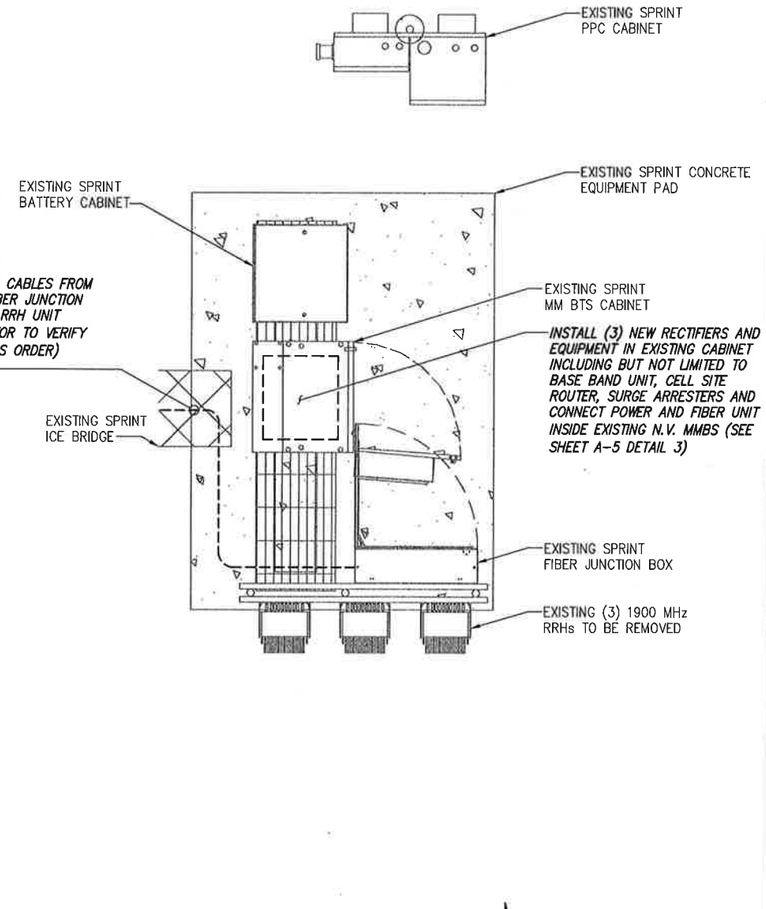
SP-3



INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

2.5' 0 2.5' 5' 10'
(IN FEET)
SCALE: 22"x34" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



NOTE:
NO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS TO EXCEED 6 FEET PER SP-2 SECTION 26 200 ITEM E.

N

1' 0 1' 2' 4'
(IN FEET)
SCALE: 22"x34" SHEET 1" = 2'-0"
SCALE: 11"x17" SHEET 1" = 4'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

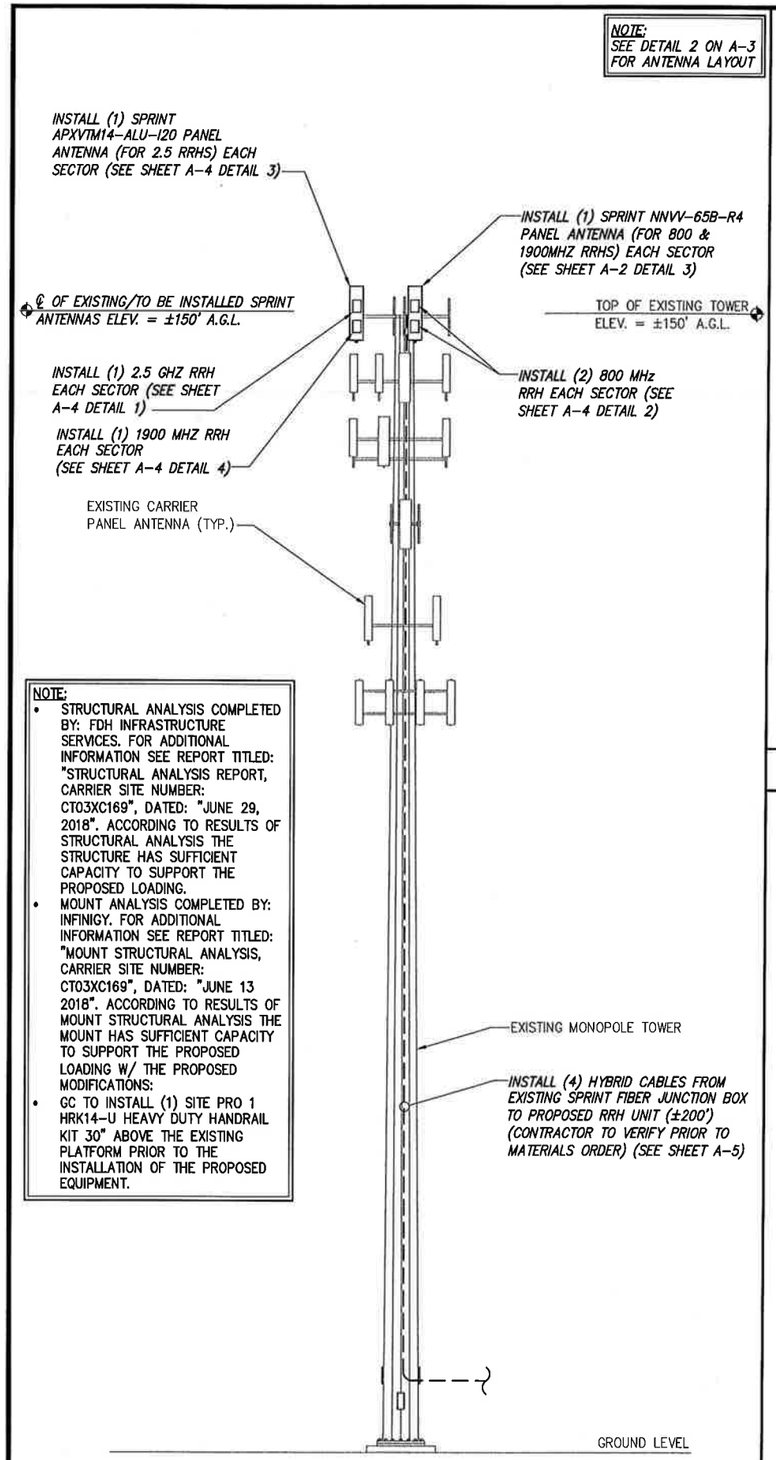
SITE NAME:
MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:
CT03XC169

SITE ADDRESS:
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

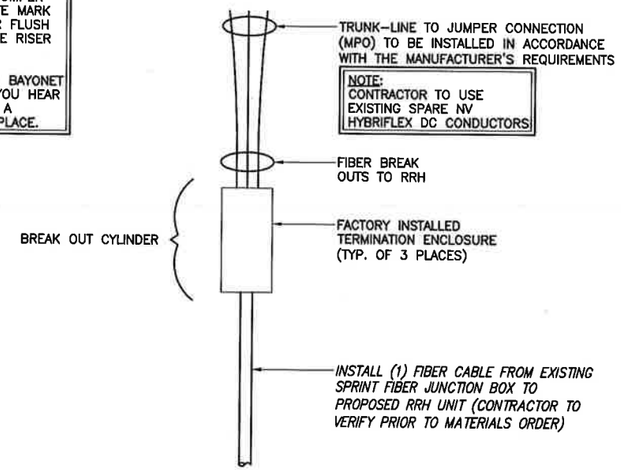


NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY: FDH INFRASTRUCTURE SERVICES. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT03XC169", DATED: "JUNE 29, 2018". ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY: INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "MOUNT STRUCTURAL ANALYSIS, CARRIER SITE NUMBER: CT03XC169", DATED: "JUNE 13 2018". ACCORDING TO RESULTS OF MOUNT STRUCTURAL ANALYSIS THE MOUNT HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING W/ THE PROPOSED MODIFICATIONS:
- GC TO INSTALL (1) SITE PRO 1 HRK14-U HEAVY DUTY HANDRAIL KIT 30" ABOVE THE EXISTING PLATFORM PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT.

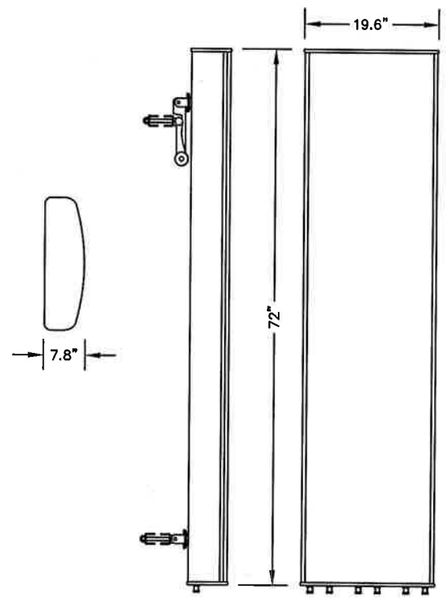
TOWER ELEVATION | NO SCALE | 1

NOTE:
CONTRACTOR TO LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.

CONTRACTOR TO ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND TO ENSURE A PROPER CONNECTION IS IN PLACE.



HYBRID BREAKOUT DETAIL | NO SCALE | 2



ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.In(mm):	72"x19.6"x7.8"
WEIGHT:	77.4 lbs
CONNECTORS:	(8) 4.3-10 DIN FEMALE

800/1900 ANTENNA | NO SCALE | 3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
SEP 10 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

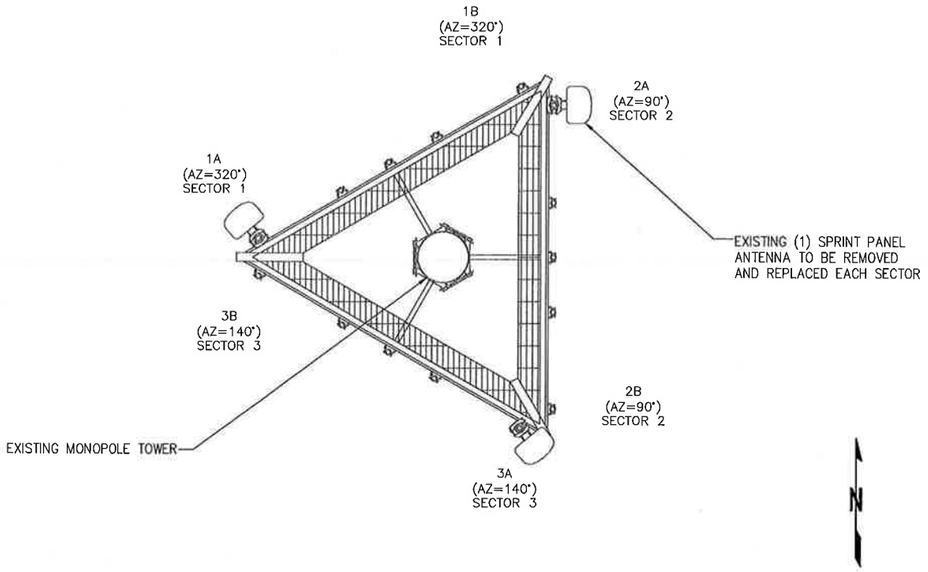
SITE NAME:
MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:
CT03XC169

SITE ADDRESS:
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

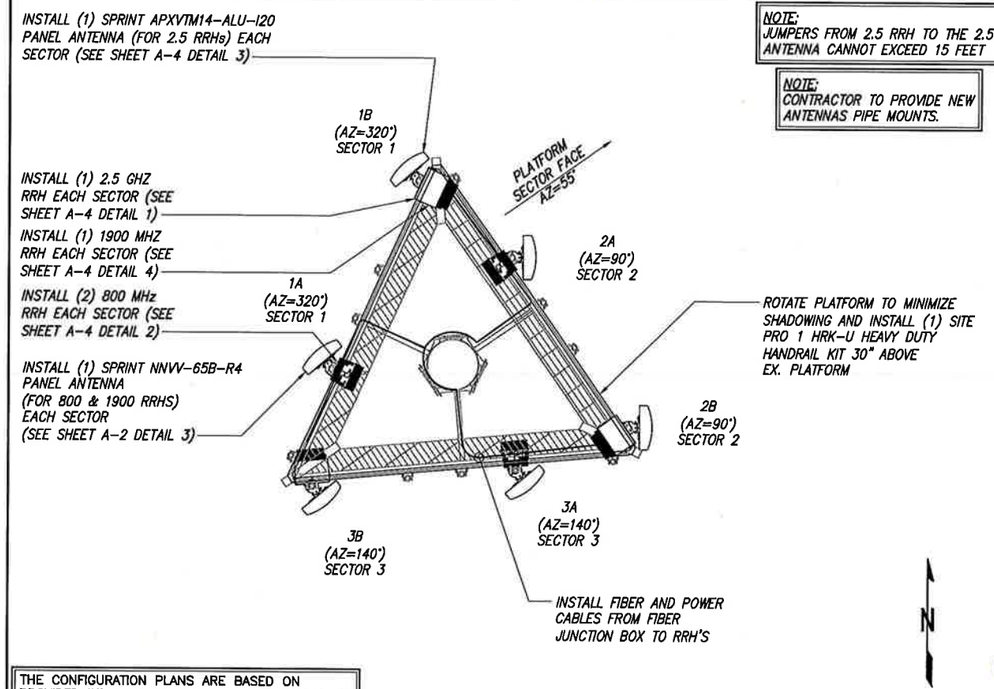
SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



EXISTING ANTENNA LAYOUT

NO SCALE | 1



THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

FINAL ANTENNA & RRH LAYOUT

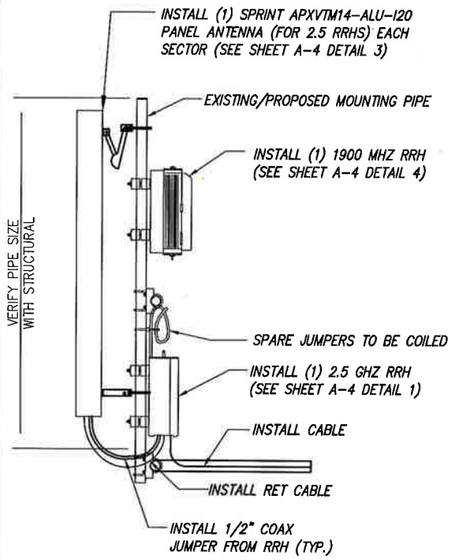
NO SCALE | 2

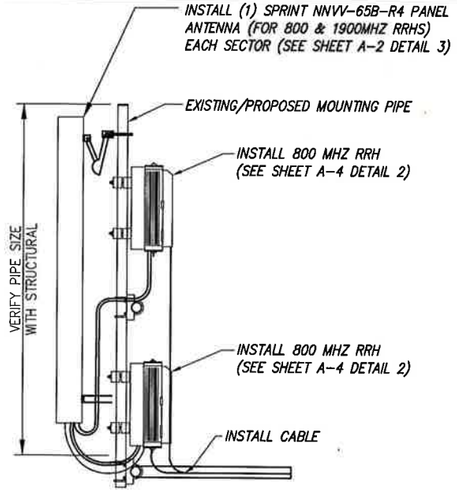
NOTES:

1. ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.
2. VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.
3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. IF NECESSARY, 2.5G ANTENNA CAN BE PLACED AT FAR EDGE OF HORIZONTAL ANTENNA MOUNT MEMBER FOR CLEAR LINE OF SITE OR EVEN ON ANOTHER SECTOR FOR CLEAR LINE OF SITE.
4. 2.5G ANTENNA MUST BE AT LEAST 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.
5. IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.
6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
7. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
8. GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
9. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA-ALIGNMENT-TOOL/

NOTES

NO SCALE | 3





NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
3. DO NO EXCEED BEND RADIUS.

NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

NOTE:
SPARE DC CABLES ARE COILED UP ON NV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

NOTE:
THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRH MOUNTING DETAILS

TYPICAL ANTENNA & RRH MOUNTING DETAILS

NO SCALE | 4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
PROFESSIONAL ENGINEER
LICENSED
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:

MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:

CT03XC169

SITE ADDRESS:

1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:

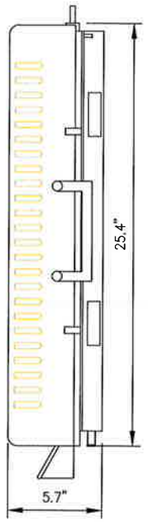
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

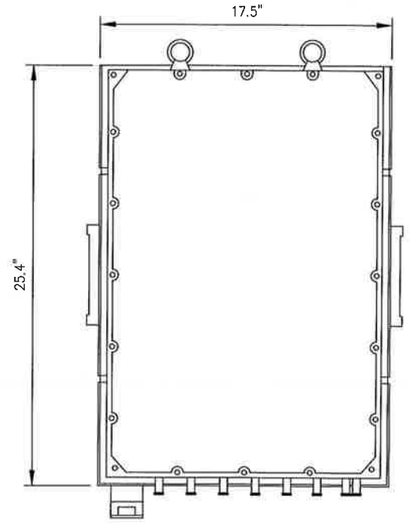
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

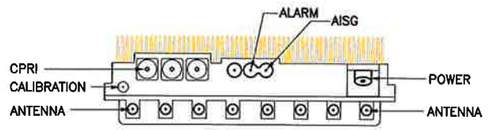
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

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

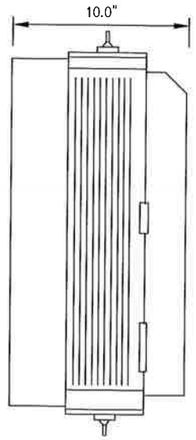
2.5 RRH'S | NO SCALE | 1

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

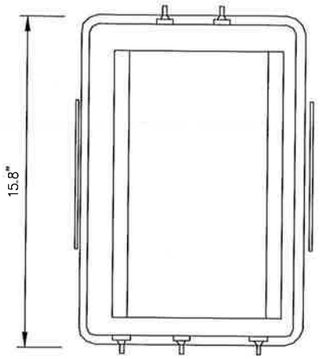
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

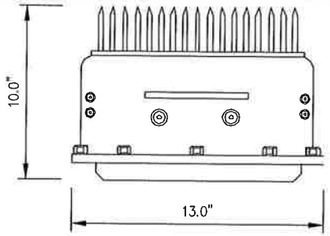
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW

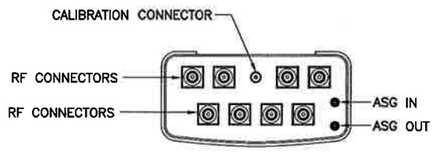


PLAN VIEW

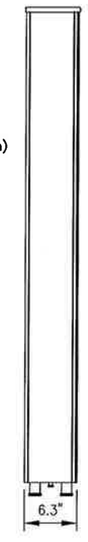
800 MHz RRH | NO SCALE | 2

ANTENNA RFS APXVTM14-ALU-I20

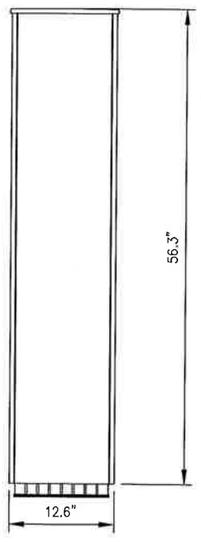
RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mlm):	56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	56.2 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW



SIDE VIEW

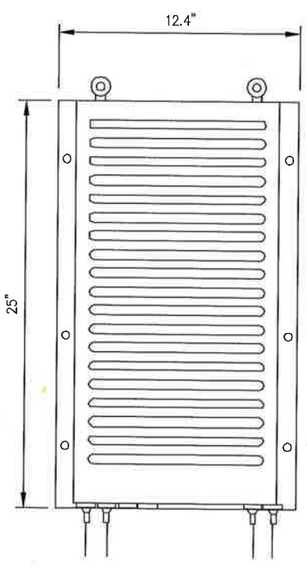


FRONT VIEW

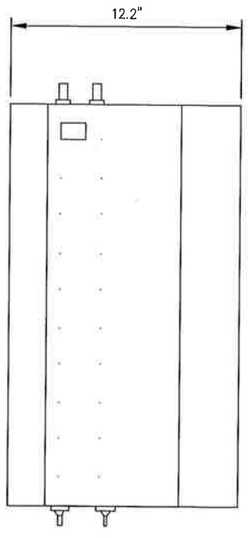
2.5 ANTENNA | NO SCALE | 3

RRH: ALCATEL LUCENT 1900 MHz

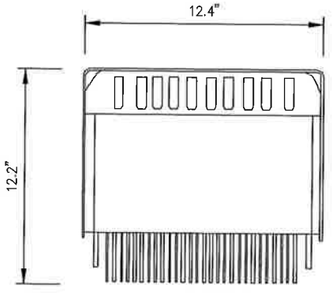
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 MHz RRH | NO SCALE | 4

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 27077
LICENSED PROFESSIONAL ENGINEER
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:
MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:
CT03XC169

SITE ADDRESS:
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

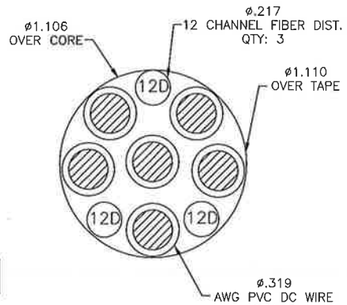
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

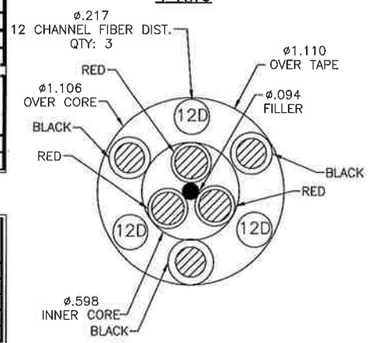
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

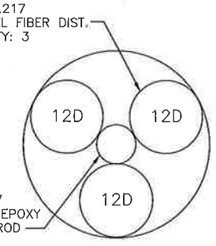
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

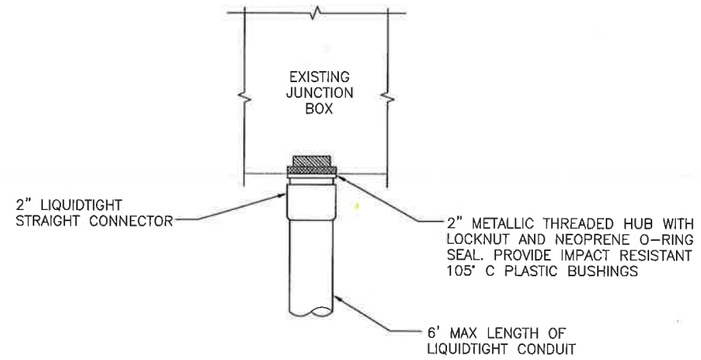


8 & 6 AWG

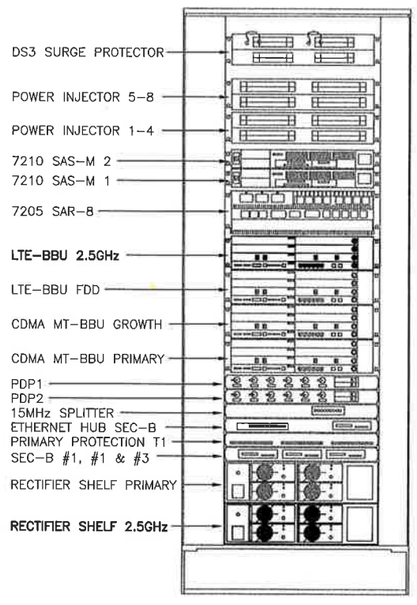


FIBER ONLY

2.5 CABLE CROSS SECTION DATA | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2



CABINET LAYOUT | NO SCALE | 3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
USER 1.0 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVEW	11/15/17	ETC	A

SITE NAME:
MIDDLETOWN 2 - MARINO PROPERTY

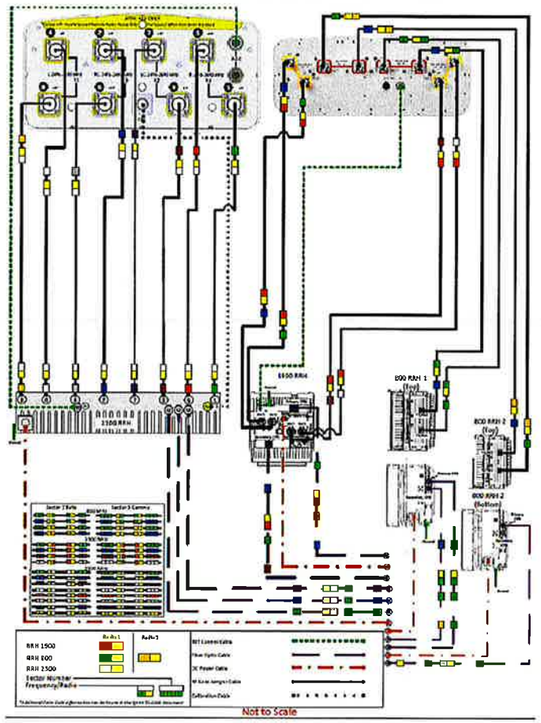
SITE CASCADE:
CT03XC169

SITE ADDRESS:
1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



Not to Scale

Prepared By	Creation Date	Revision Number	Nokia-A Tri-Band Fiber Connections	Sprint
Mark Elliott	February 13, 2016	R-1	(Nokia-A Two-800, One-1900, & One-2500 RRH)	
Approved By	Approval Date			
RAN Hardware & Antenna Teams	February 23, 2017			

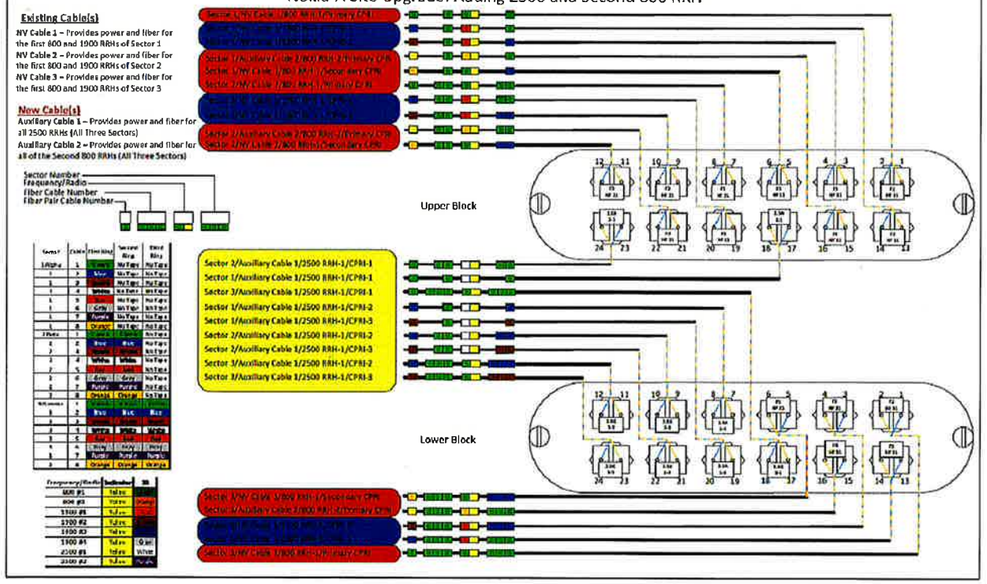
Nokia-A Site Upgrade: Adding 2500 and Second 800 RRH

Existing Cable(s)

NV Cable 1 – Provides power and fiber for the first 800 and 1900 RRHs of Sector 1
NV Cable 2 – Provides power and fiber for the first 800 and 1900 RRHs of Sector 2
NV Cable 3 – Provides power and fiber for the first 800 and 1900 RRHs of Sector 3

New Cable(s)

Auxiliary Cable 1 – Provides power and fiber for all 2500 RRHs (All Three Sectors)
Auxiliary Cable 2 – Provides power and fiber for all of the Second 800 RRHs (All Three Sectors)



PLUMBING DIAGRAM | NO SCALE | 1

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:

MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:

CT03XC169

SITE ADDRESS:

1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/ODU MAKE AND MODEL
1	COMMSCOPE	NNVV-65B-R4	150'	320°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	RFS	APXVTM14-ALU-I20	150'	320°	(1) ALU 2.5GHZ RRH8X20-25
2	COMMSCOPE	NNVV-65B-R4	150'	90°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	RFS	APXVTM14-ALU-I20	150'	90°	(1) ALU 2.5GHZ RRH8X20-25
3	COMMSCOPE	NNVV-65B-R4	150'	140°	(2) ALU 800MHZ 2x50-800 (1) ALU 1900MHZ 4X45W
	RFS	APXVTM14-ALU-I20	150'	140°	(1) ALU 2.5GHZ RRH8X20-25

FEEDER CABLES

MANUFACTURER	MODEL	LENGTH	QTY
RFS	HB114-11-0813U4-M5J	200'±	(3)
RFS	HB114-13U3M12-200F	200'±	(1)

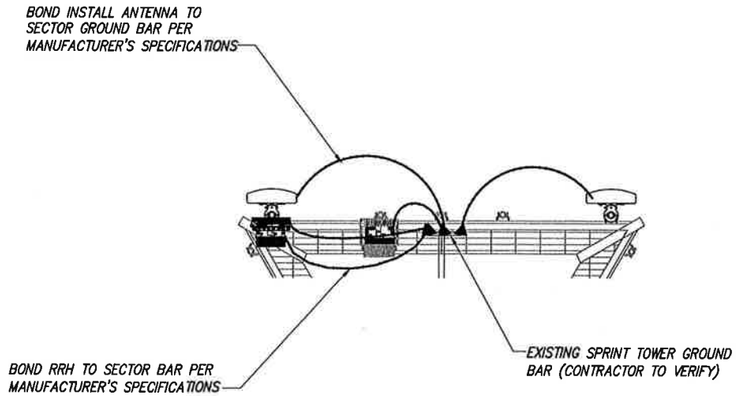
LEGEND
EXISTING
PROPOSED

NOTES:
1. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS THE MOST CURRENT DATA AT TIME OF CONSTRUCTION.
2. CONTRACTOR TO CONFIRM CABLE LENGTHS PRIOR TO CONSTRUCTION.

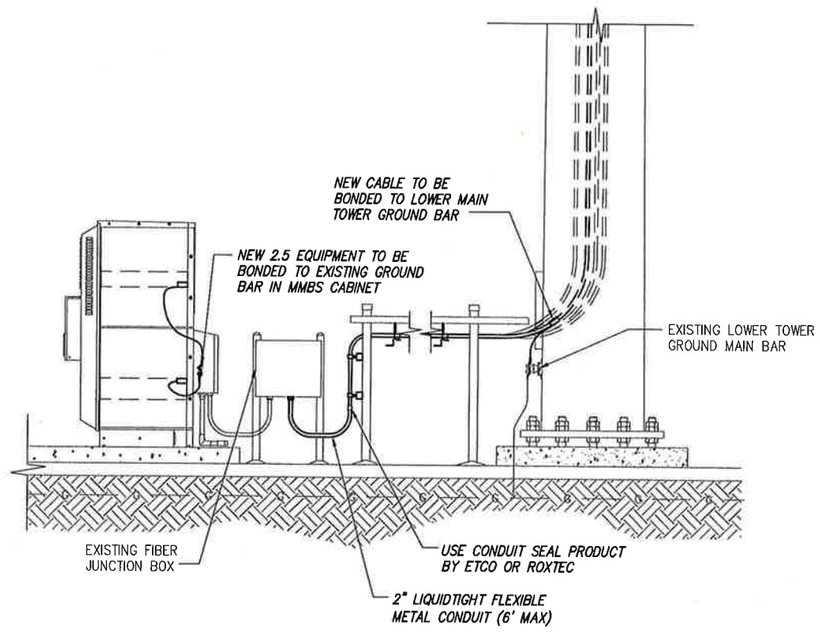
ANTENNA/CABLE SCHEDULE — NO SCALE — 1

LEGEND:

- G — EXISTING GROUND RING
- ■ CADWELD CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION
- ⊗ GROUND ROD
- ● CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN — NO SCALE — 2



TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) — NO SCALE — 3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT — JOHN S. STEVENS — LICENSED PROFESSIONAL ENGINEER
SEP 10 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MIMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:

MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:

CT03XC169

SITE ADDRESS:

1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:

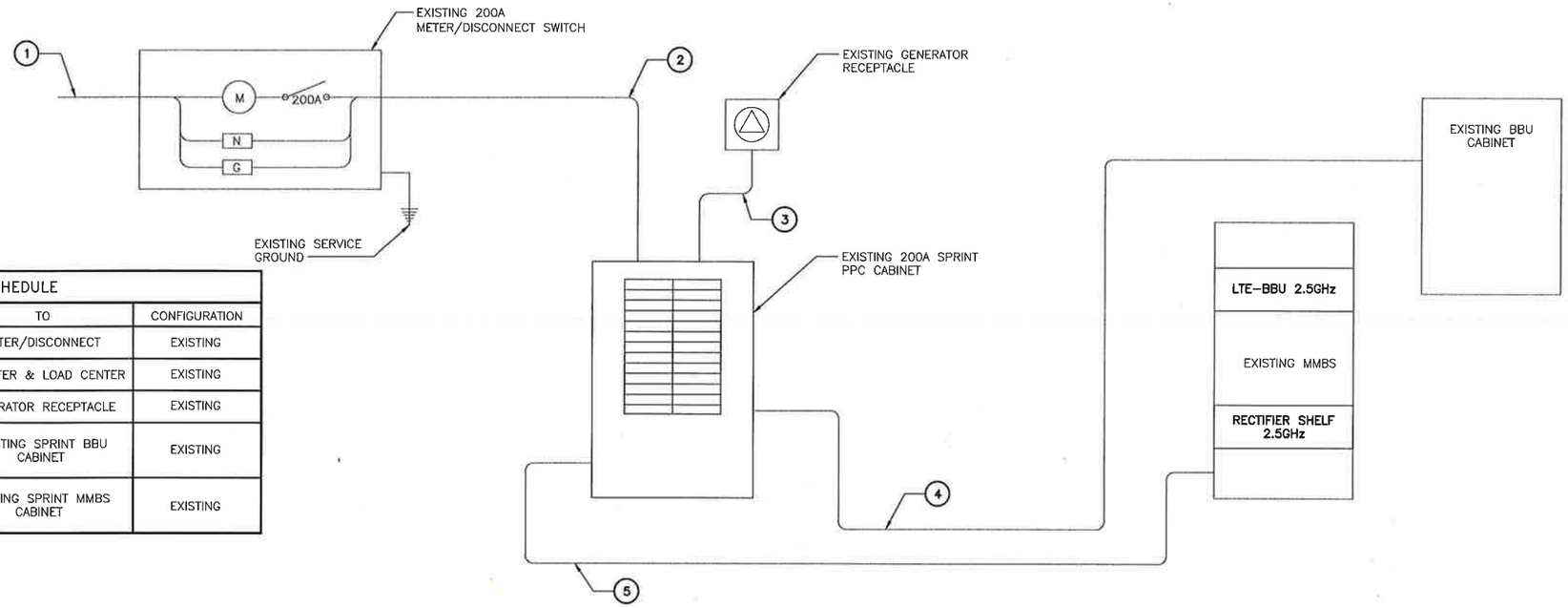
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-1

NOTES

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



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

ELECTRICAL ONE-LINE DIAGRAM | NO SCALE | 1

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

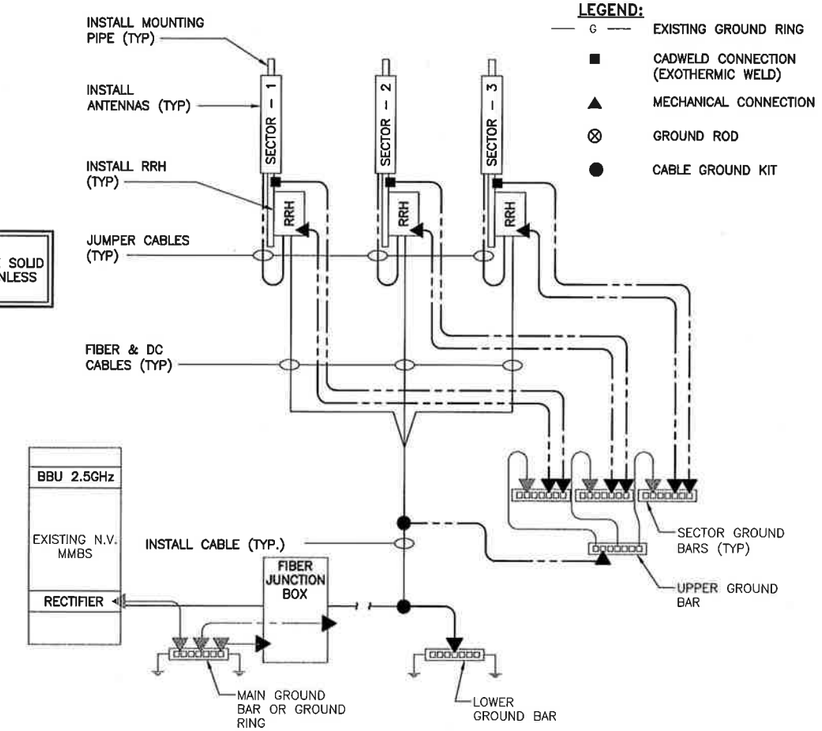
PANEL SCHEDULE

CKT NO.	CKT BKR AMPS	CKT BKR POLES	DESCRIPTION	LOAD (WATTS) L1	LOAD (WATTS) L2	LCL	L2	L1	DESCRIPTION	CKT BKR POLES	CKT BKR AMPS	CKT NO.
1			SPRINT BTS	6000			TBD		TBD	2	60	7
2	100	2			6000			TBD				8
3							TBD		TBD	2	60	9
4								TBD				10
5	20	1	TBD	TBD			180		TBD	1	20	11
6	10	1	TBD		TBD							12
PHASE TOTALS (WATTS)				TBD*	TBD*		TBD*	TBD*				
PHASE BALANCE				TBD*	TBD*							
TOTAL CONNECTED (WATTS)				TBD*	TBD*							
TOTAL AMPS PER PHASE (AMPS)				TBD*	TBD*							
TOTAL LOAD (AMPS)				TBD*								

NOTE:
INSUFFICIENT FIELD DATA TO SHOW SITE-SPECIFIC INFORMATION

PANEL SCHEDULE | NO SCALE | 2

NOTE:
USE #6 AWG BARE SOLID TINNED COPPER UNLESS NOTED OTHERWISE



GROUNDING RISER DIAGRAM | NO SCALE | 3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 20702
LICENSED PROFESSIONAL ENGINEER
SEP 10 2018

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	09/07/18	ETC	2
MMO REDESIGN	07/13/18	ETC	1
ISSUED FOR CONSTRUCTION	01/08/18	ETC	0
ISSUED FOR REVIEW	11/15/17	ETC	A

SITE NAME:

MIDDLETOWN 2 - MARINO PROPERTY

SITE CASCADE:

CT03XC169

SITE ADDRESS:

1969 SAYBROOK ROAD
MIDDLETOWN, CT 06457

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

From: McKay, Kristian
To: "dean.lisitano@MiddletownCT.gov"
Subject: Original Zoning Docs.
Date: Tuesday, October 9, 2018 11:22:00 AM
Attachments: original building.pdf

Hello Mr. Lisitano,

I work for Crown Castle and have an inquiry regarding the original zoning documents for a tower and I am hoping your office can provide more information.

We are applying for CSC Zoning Approval for Sprint to modify their antennas and new requirements ask that we procure original zoning documents from the jurisdiction, if possible. However, if these documents are not available, please let me know.

The tower is located at off Saybrook Rd I believe the exact location is 1967 or 1987 Saybrook Rd and according to lease documents it would have been constructed sometime around March 2000. Regoswet Ridge LLC currently owns the property. I have attached the original BP in hopes it will help ascertain the documents.

If you have any questions, please don't hesitate to call or e-mail me.

Thank you,

Kristian McKay
Real Estate Specialist – East Area
T: (704) 405-6612 | M: (704) 713-5728 | F: (724) 416-6496

CROWN CASTLE
3530 Toringdon Way, Suite 300, Charlotte, NC 28277
Crowncastle.com

BUILDING DEPARTMENT
344-3416
MIDDLETOWN, CT 06457

BUILDING PERMIT

AMOUNT PAID

THIS PERMIT NOT VALID UNLE PROPERLY RECEIPTED BY CASH

VALIDATION

DATE February 16, 2000 PERMIT NO. 25287

APPLICANT Springwich Cellular Partnership ADDRESS 500 Enterprise Dr. (No. & Street) Ct. 06067-3900 (CONTR'S LICENS

PERMIT TO Antennas & Shelter (TYPE OF IMPROVEMENT) (___) NO. STORY Cellular Installation (PROPOSED USE) NUMBER OF DWELLING UNITS

AT (LOCATION) 1957 Saybrook Road (NO.) (STREET) ZONING DISTRICT

BETWEEN (CROSS STREET) AND (CROSS STREET)

SUBDIVISION LOT BLOCK LOT SIZE

BUILDING IS TO BE 11.3 FT. WIDE BY 23 FT. LONG BY 10.5 FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUC

TO TYPE USE GROUP BASEMENT WALLS OR FOUNDATION (TYPE)

REMARKS: ANTENNAS & SHELTER.

AREA OR VOLUME (CUBIC/SQUARE FEET) ESTIMATED COST $ 50,000.00 PERMIT FEE $ 513.0

OWNER Sebastian Marino
ADDRESS 1957 Saybrook Road, Middletown, Ct. 06457

BUILDING DEPT. BY

FORM NO. BOCA - BP 1984

BUILDING DEPARTMENT
344-3416
MIDDLETOWN, CT 06457

BUILDING PERMIT

JOB WEATHER CARD

DATE _____ 19____ PERMIT NO. 25287

APPLICANT [illegible] ADDRESS [illegible] (CONTR'S LICENS

PERMIT TO Antenna & Shelter (TYPE OF IMPROVEMENT) (___) NO. STORY Cellular Installation (PROPOSED USE) NUMBER OF DWELLING UNITS _____

AT (LOCATION) 1961 Saybrook Road (NO.) (STREET) ZONING DISTRICT _____

BETWEEN _____ (CROSS STREET) AND _____ (CROSS STREET)

SUBDIVISION _____ LOT _____ BLOCK _____ LOT SIZE _____

BUILDING IS TO BE 11.3 FT. WIDE BY 20 FT. LONG BY 10.2 FT. IN HEIGHT AND SHALL CONFORM IN CONSTRU

TO TYPE _____ USE GROUP _____ BASEMENT WALLS OR FOUNDATION _____ (TYPE)

REMARKS: _____

AREA OR VOLUME _____ (CUBIC/SQUARE FEET) ESTIMATED COST $ _____ PERMIT FEE $ _____

OWNER Sebastian Marino

ADDRESS 1961 Saybrook Road, Middletown, CT 06457

BUILDING DEPT. BY [signature]

THIS PERMIT CONVEYS NO RIGHT TO OCCUPY ANY STREET, ALLEY OR SIDEWALK OR ANY PART THEREOF, EITHER TEMPORARILY PERMANENTLY. ENCROACHMENTS ON PUBLIC PROPERTY, NOT SPECIFICALLY PERMITTED UNDER THE BUILDING CODE, MUST B PROVED BY THE JURISDICTION. STREET OR ALLEY GRADES AS WELL AS DEPTH AND LOCATION OF PUBLIC SEWERS MAY BE OBT FROM THE DEPARTMENT OF PUBLIC WORKS. THE ISSUANCE OF THIS PERMIT DOES NOT RELEASE THE APPLICANT FROM THE CONDI OF ANY APPLICABLE SUBDIVISION RESTRICTIONS.

MINIMUM OF THREE CALLED INSPECTIONS REQUIRED FOR ALL CONSTRUCTION WORK:
1. FOUNDATIONS OR FOOTINGS.
2. PRIOR TO COVERING STRUCTURAL MEMBERS (READY FOR LATH OR FINISH COVERING).
3. FINAL INSPECTION BEFORE OCCUPANCY.

APPROVED PLANS MUST BE RETAINED ON JOB AND THIS CARD KEPT POSTED UNTIL FINAL INSPECTION HAS BEEN MADE. WHERE A CERTIFICATE OF OCCUPANCY IS REQUIRED, SUCH BUILDING SHALL NOT BE OCCUPIED UNTIL FINAL INSPECTION HAS BEEN MADE.

WHERE APPLICABLE SEPARA PERMITS ARE REQUIRED F ELECTRICAL, PLUMBING AI MECHANICAL INSTALLATIONS

POST THIS CARD SO IT IS VISIBLE FROM STREET

BUILDING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVAL
1	1	1
2	2	2
3	HEATING INSPECTING APPROVALS	REFRIGERATION INSPECTION APPRO
	1	1
OTHER _____	2	2

WORK SHALL NOT PROCEED UNTIL THE INSPECTOR HAS APPROVED THE VARIOUS STAGES OF CONSTRUCTION.

PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION WORK IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE.

INSPECTIONS INDICATED ON TH CAN BE ARRANGED FOR BY TEL OR WRITTEN NOTIFICATION.

FORM NO. BOCA - BP 1994

Date: **June 13, 2018**

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Patricia Pelon
Crown Castle
3 Corporate Dr., St 101
Clifton Park, NY 12065

Subject:	**Mount Structural Analysis**	
Carrier Designation:	***Sprint PCS Change-Out***	
	Carrier Site Number:	CT03XC169
	Carrier Site Name:	CT03XC169
Crown Castle Designation:	**Crown Castle BU Number:**	876341
	Crown Castle Site Name:	Middletown 2-Marino Property
	Crown Castle JDE Job Number:	505814
	Crown Castle Application Number:	441314, Rev. 0
Engineering Frim Designation:	**Infinigy Report Designation:**	600-002
Site Data:	**245 DeKoven Drive, Middletown, Middlesex County, CT 06457** **Latitude 41°30'38.30" Longitude -72°35'36.10"**	
Structure Information:	**Tower Height & Type:**	**150 Foot Monopole**
	Mount Elevation:	**150 ft**
	Mount Type:	**14 Foot Platform**

Dear Patricia Pelon,

Infinigy Engineering, PLLC is pleased to submit this **"Mount Structural Analysis Report"** to determine the structural integrity of Sprint's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

Based upon our analysis, we have determined the adequacy of the antenna mounting system that will support the existing and proposed loading to be:

Platform	**Sufficient**

***Sufficient upon completion of the changes listed in the 'Recommendation' section of this report.**

This analysis has been performed in accordance with the 2016 Connecticut State Building Code and 2012 IBC and the Infinigy Engineering, PLLC wind speed requirement of a 98 mph nominal 3-second gust wind speed as required for use in the TIA-222-G Standard per Exception#5 of Section 1609.1 Exposure Category B and Risk Category II were used in this analysis.

We at Infinigy Engineering, PLLC 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.

Mount structural analysis prepared by: Dmitriy Albul, P.E.

Respectfully Submitted by:

Joseph R. Johnston

Joe Johnston, P.E.
VP Structural Engineering / Principal

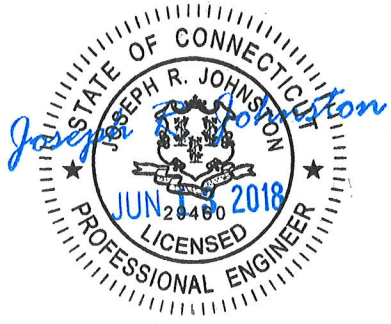


TABLE OF CONTENTS

1) INTRODUCTION

The mount consists of a 14 Foot Platform at the 150 ft elevation**.** The existing and proposed antenna loading was obtained from the Application provided by CCI, Application Number 441314, Revision 0.

2) ANALYSIS CRITERIA

The structural analysis was performed in accordance with the requirements of TIA 222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second wind gust wind speed of 98 mph with no ice, 50 mph with 0.75 inch escalated ice thickness, Exposure Category B and Topographic Category 1. In addition, the 14 Foot Sector Frame been analyzed for a load combination consisting of a 500-pound man live load using a 3-second wind gustwind speed of 30 mph.

Table 1 - Proposed Equipment Loading Information

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Proposed Mount Type	Note
150.0	150.0	3	Commscope	NNVV-65B-R4	-	1
		3	RFS/Celwave	APXVTM14-ALU-I20		
		3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		6	Alcatel Lucent	RRH2x50-800		
		3	Alcatel Lucent	TD-RRH8x20-25		

Table 2 - Existing and Reserved Antenna and Cable Information

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Existing Mount Type	Note
150.0	150.0	6	Decibel	DB980H90E-M w/ Mount Pipe	Platform	2,3
104.0	104.0	1	Alcatel Lucent	KS24019-L112A	Side Arm	1

Notes:
1) Existing Equipment to Remain
2) Existing Equipment to be Removed
3) Existing Mount to Remain

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Sprint Application	441314	CCI Sites
Construction Drawings	Photos	876341	CCI Sites

3.1) Analysis Method

RISA-3D (Version 16.0.3), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool 3.0.2, a tool internally developed by Infinigy, was used to calculate member loading for various load cases. Selected output from the analysis is included in Appendix B.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) Steel grades have been assumed as follows:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A53 (GR B-35)
Pipe	ASTM A53 (GR B-35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 4 - Mount Component Stresses vs. Capacity (Platform)

Notes	Component	Mount Centerline (ft)	% Capacity	Pass / Fail
1,2	Arm	145.0	39.9	Pass
	Face Horizontal		95.0	Pass
	Mount Pipe		57.3	Pass
	Bracing		62.8	Pass

Structure Rating (max from all components) =	95.0%

Notes:
1) See additional documentation in "Appendix C - Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

4.1) Recommendations

Install (1) Site Pro 1 HRK14-U Heavy Duty Handrail Kit 30” above the existing platform prior to the installation of the proposed equipment.

Date: **June 29, 2018**

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

FDH Infrastructure Services, LLC
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
(919) 755-1012

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC169
	Carrier Site Name:	CT03XC169
Crown Castle Designation:	**Crown Castle BU Number:**	876341
	Crown Castle Site Name:	MIDDLETOWN 2 - MARINO PROPERTY
	Crown Castle JDE Job Number:	505814
	Crown Castle Work Order Number:	1593880
	Crown Castle Order Number:	441314 Rev. 0
Engineering Firm Designation:	**FDH-IS Project Number:**	18STBE1400
Site Data:	**245 DeKoven Drive, Middletown, Middlesex County, CT**	
	Latitude *41° 30' 38.3"*, Longitude *-72° 35' 36.1"*	
	150 Foot - Monopole Tower	

Dear Marianne Dunst,

FDH Infrastructure Services, LLC 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 1210215, in accordance with order 441314, revision 0.

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.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

We at *FDH Infrastructure Services, LLC* 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.

Respectfully submitted by:

David Kliethermes, EI
Project Engineer I

Reviewed by:

Dennis Abel, PE
Director of New Product Development
CT PE License No. 23247

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED
PROFESSIONAL ENGINEER
06-29-2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Paul J. Ford and Company in March of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1.

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
150.0	152.5	1	site pro	Site Pro Handrail Kit for 14'-6" Face [P/N: HRK14-HD]	3 1	1-1/4 7/8	-
	150.0	3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ			
		6	alcatel lucent	RRH2X50-800			
		3	alcatel lucent	TD-RRH8X20-25			
		3	commscope	NNVV-65B-R4			
		3	rfs/celwave	APXVTM14-ALU-I20			

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
150.0	151.0	6	decibel	DB980H90E-M	6	1-5/8	3
	150.0	1	-	Platform Mount [LP 1201-1]	-	-	1
141.0	145.0	1	lucent	KS24019-L112A	-	-	1
	142.0	3	alcatel lucent	RRH2X60-AWS BAND 4	1	1-5/8	2
		3	alcatel lucent	RRH2X60-PCS			
		6	andrew	HBXX-6517DS-A2M			
		3	antel	BXA-70063-6CF-EDIN-0			
		1	rfs/celwave	DB-T1-6Z-8AB-0Z			
		6	rfs/celwave	APL868013-42T0	12 1	1-5/8 1/2	1
		6	rfs/celwave	FD9R6004/2C-3L			
	141.0	1	-	Platform Mount [LP 1201-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
132.0	134.0	1	raycap	DC6-48-60-18-8F	12 1 2 1	1-5/8 3/8 3/4 Conduit	1
	133.0	3	cci antennas	OPA-65R-LCUU-H6			
		3	ericsson	RRUS 11			
		6	powerwave tech	7770.00			
		3	powerwave tech	LGP21401			
	132.0	3	ericsson	RRUS 12 B2			
		1	-	Miscellaneous [NA 510-1]			
		1	-	Platform Mount [LP 1201-1]			
	129.0	3	powerwave tech	LGP21401			
	128.0	3	ericsson	RRUS A2 B2			
111.0	111.0	4	ems wireless	RR65-18-02DP	8	1-5/8	1
		4	remec	S20057A1			
		2	-	T-Arm Mount [TA 601-1]			
104.0	104.0	1	lucent	KS24019-L112A	1	1/2	1
		1	-	Side Arm Mount [50701-1]			
88.0	95.0	2	sinclair	SC479-HF1LDF	2 1	7/8 1/2	2
		1	bird tech group	428E-83I-01-T			
	88.0	2	-	Side Arm Mount [SO 306-1]			
82.0	92.0	1	rfi antennas	BA80-41-DIN	1	7/8	2
	82.0	1	-	Side Arm Mount [SO 306-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment; Considered in this Analysis
3) 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)
150.0	150.0	1	-	14' Low Profile Platform	-	-
		12	decibel	DB980H90		
130.0	130.0	1	-	14' Low Profile Platform	-	-
		12	decibel	DB980H90		
110.0	110.0	1	-	14' Low Profile Platform	-	-
		12	decibel	DB980H90		
100.0	100.0	1	-	GPS Antenna w/ Mount	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clough, Harbour & Associates LLP	1532967	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford and Company	1613596	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Paul J. Ford and Company	1614554	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	IETS Engineering Services	1595639	CCISITES
4-POST-MODIFICATION INSPECTION	IETS Engineering Services	2504220	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Engineering, Inc.	5069317	CCISITES
4-POST-MODIFICATION INSPECTION	FDH Engineering, Inc.	5311239	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	5570674	CCISITES
4-POST-MODIFICATION INSPECTION	B+T Group	5810606	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

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) The existing base plate grout was not considered in this analysis.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP23x22x0.25	Pole	6.0%	Pass
145 - 140	Pole	TP24x23x0.25	Pole	12.7%	Pass
140 - 135	Pole	TP25x24x0.25	Pole	21.3%	Pass
135 - 130	Pole	TP26x25x0.25	Pole	31.1%	Pass
130 - 125	Pole	TP27.001x26x0.25	Pole	41.5%	Pass
125 - 120	Pole	TP28.001x27.001x0.25	Pole	50.9%	Pass
120 - 115	Pole	TP29.001x28.001x0.25	Pole	59.7%	Pass
115 - 111.75	Pole	TP30.401x29.001x0.25	Pole	65.0%	Pass
111.75 - 106.75	Pole	TP30.151x29.151x0.3125	Pole	55.6%	Pass
106.75 - 101.75	Pole	TP31.151x30.151x0.3125	Pole	61.3%	Pass
101.75 - 96.75	Pole	TP32.152x31.151x0.3125	Pole	66.7%	Pass
96.75 - 91.75	Pole	TP33.152x32.152x0.3125	Pole	71.7%	Pass
91.75 - 89.5	Pole	TP33.602x33.152x0.3125	Pole	73.8%	Pass
89.5 - 89.25	Pole + Reinf.	TP33.652x33.602x0.5	Reinf. 3 Tension Rupture	63.2%	Pass
89.25 - 84.25	Pole + Reinf.	TP34.652x33.652x0.4938	Reinf. 3 Tension Rupture	67.3%	Pass
84.25 - 79.25	Pole + Reinf.	TP35.653x34.652x0.4875	Reinf. 3 Tension Rupture	71.2%	Pass
79.25 - 74.5	Pole + Reinf.	TP37.553x35.653x0.4813	Reinf. 3 Tension Rupture	74.5%	Pass
74.5 - 68.75	Pole	TP37.128x35.978x0.375	Pole	69.1%	Pass
68.75 - 67.42	Pole	TP37.394x37.128x0.375	Pole	69.9%	Pass
67.42 - 67.17	Pole	TP37.444x37.394x0.375	Pole	70.0%	Pass
67.17 - 62.17	Pole	TP38.444x37.444x0.375	Pole	72.7%	Pass
62.17 - 57.58	Pole	TP39.362x38.444x0.375	Pole	75.0%	Pass
57.58 - 57.33	Pole + Reinf.	TP39.412x39.362x0.7	Reinf. 2 Tension Rupture	58.8%	Pass
57.33 - 56.42	Pole + Reinf.	TP39.594x39.412x0.7	Reinf. 2 Tension Rupture	59.2%	Pass
56.42 - 56.17	Pole + Reinf.	TP39.644x39.594x0.5875	Reinf. 2 Tension Rupture	70.9%	Pass
56.17 - 51.17	Pole + Reinf.	TP40.644x39.644x0.575	Reinf. 2 Tension Rupture	73.0%	Pass
51.17 - 46.17	Pole + Reinf.	TP41.645x40.644x0.575	Reinf. 2 Tension Rupture	75.0%	Pass
46.17 - 41.17	Pole + Reinf.	TP42.645x41.645x0.5625	Reinf. 2 Tension Rupture	76.9%	Pass
41.17 - 38	Pole + Reinf.	TP44.379x42.645x0.5625	Reinf. 2 Tension Rupture	78.1%	Pass
38 - 31.5	Pole	TP43.829x42.529x0.4375	Pole	71.9%	Pass
31.5 - 30	Pole	TP44.129x43.829x0.4375	Pole	72.3%	Pass
30 - 29.75	Pole + Reinf.	TP44.179x44.129x0.6875	Reinf. 1 Tension Rupture	66.7%	Pass
29.75 - 24.75	Pole + Reinf.	TP45.179x44.179x0.6875	Reinf. 1 Tension Rupture	68.0%	Pass
24.75 - 19.75	Pole + Reinf.	TP46.179x45.179x0.6875	Reinf. 1 Tension Rupture	69.2%	Pass
19.75 - 14.75	Pole + Reinf.	TP47.18x46.179x0.675	Reinf. 1 Tension Rupture	70.3%	Pass
14.75 - 9.75	Pole + Reinf.	TP48.18x47.18x0.675	Reinf. 1 Tension Rupture	71.4%	Pass
9.75 - 4.75	Pole + Reinf.	TP49.18x48.18x0.6625	Reinf. 1 Tension Rupture	72.4%	Pass
4.75 - 0	Pole + Reinf.	TP50.13x49.18x0.6625	Reinf. 1 Tension Rupture	73.3%	Pass
				Summary	
			Pole	75.0%	Pass
			Reinforcement	78.1%	Pass
			Overall	**78.1%**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0.0	63.7	Pass
1	Base Plate		37.1	Pass
1	Base Foundation		51.9	Pass
1	Base Foundation Soil Interaction		46.6	Pass
1	Base Transfer Stiffener		96.1	Pass

Structure Rating (max from all components) =	96.1%

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

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT03XC169

Middletown 2 - Marino Property
1969 Saybrook Road
Middletown, CT 06457

September 19, 2018

EBI Project Number: 6218006236

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	10.98 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

September 19, 2018

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

Emissions Analysis for Site: **CT03XC169 – Middletown 2 - Marino Property**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **1969 Saybrook Road, Middletown, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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 population 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 population 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.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. 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 SPRINT Wireless antenna facility located at **1969 Saybrook Road, Middletown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. 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 equipment was calculated using the following assumptions:

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) 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.

7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed panel antennas are **150 feet** above ground level (AGL) for **Sector A**, **150 feet** above ground level (AGL) for **Sector B** and **150 feet** above ground level (AGL) for Sector C.

10) 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 calculations were done with respect to uncontrolled / general population threshold limits.

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**150 feet**	Height (AGL):	**150 feet**	Height (AGL):	**150 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.58 %**	Antenna B1 MPE%	**1.58 %**	Antenna C1 MPE%	**1.58 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**150 feet**	Height (AGL):	**150 feet**	Height (AGL):	**150 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**1.08 %**	Antenna B2 MPE%	**1.08 %**	Antenna C2 MPE%	**1.08 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.66 %**
AT&T	4.69 %
MetroPCS	0.51 %
Voicestream / T-Mobile	0.62 %
Verizon Wireless	2.50 %
Site Total MPE %:	**10.98 %**

SPRINT Sector A Total:	2.66 %
SPRINT Sector B Total:	2.66 %
SPRINT Sector C Total:	2.66 %
Site Total:	10.98 %

SPRINT _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	150	0.65	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	150	3.27	850 MHz	567	0.58%
Sprint 1900 MHz (PCS) CDMA	5	511.82	150	4.44	1900 MHz (PCS)	1000	0.44%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	150	4.44	1900 MHz (PCS)	1000	0.44%
Sprint 2500 MHz (BRS) LTE	8	778.09	150	10.79	2500 MHz (BRS)	1000	1.08%
						Total:	**2.66%**

Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	2.66 %
Sector B:	2.66 %
Sector C:	2.66 %
SPRINT Maximum MPE % (per sector):	2.66 %
Site Total:	10.98 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.98 %** of the allowable FCC established general population 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.

October 12,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773429266405**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	D.JONES	**Delivery location:**	245 DEKOVEN DR. MIDDLETOWN, CT 06457
Service type:	FedEx Standard Overnight	**Delivery date:**	Oct 10, 2018 13:42
Special Handling:	Deliver Weekday		

Shipping Information:

Tracking number:	773429266405	**Ship date:**	Oct 9, 2018
		Weight:	1.0 lbs/0.5 kg

Recipient:
Daniel Drew
Office of the Mayor
245 Dekoven Dr.
MIDDLETOWN, CT 06457 US

Shipper:
Kristian McKay
3530 Toringdon Way
STE 300
CHARLOTTE, NC 28277 US

Reference 1766.6680

Thank you for choosing FedEx.

October 12,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773429278578**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	S.PETTEGIL	**Delivery location:**	245 DEKOVEN DR. MIDDLETOWN, CT 06457
Service type:	FedEx Standard Overnight	**Delivery date:**	Oct 10, 2018 13:43
Special Handling:	Deliver Weekday		

Shipping Information:

Tracking number:	773429278578	**Ship date:**	Oct 9, 2018
		Weight:	1.0 lbs/0.5 kg

Recipient:
Dean Listano
Building Department
245 Dekoven Dr.
MIDDLETOWN, CT 06457 US

Shipper:
Kristian McKay
3530 Toringdon Way
STE 300
CHARLOTTE, NC 28277 US

Reference 1766.6680

Thank you for choosing FedEx.

October 12,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773429299142**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Residence
Signed for by:	Signature not required	**Delivery location:**	88 HIGH ST PORTLAND, CT 06480
Service type:	FedEx Standard Overnight	**Delivery date:**	Oct 10, 2018 12:37
Special Handling:	Deliver Weekday Residential Delivery		

NO SIGNATURE REQUIRED
Proof-of-delivery details appear below; however, no signature is available for this FedEx Express shipment because a signature was not required.

Shipping Information:

Tracking number:	773429299142	**Ship date:**	Oct 9, 2018
		Weight:	1.0 lbs/0.5 kg

Recipient:
Lawrence W. Marino
Regoswet Ridge LLC
88 High St.
PORTLAND, CT 06480 US

Shipper:
Kristian McKay
3530 Toringdon Way
STE 300
CHARLOTTE, NC 28277 US

Reference 1766.6680

Thank you for choosing FedEx.