



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

October 2, 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: 876391**  
**Sprint Site ID: CT33XC571**  
**14 Thompson Hill Rd. Columbia, Connecticut 06237**  
**Latitude: 41° 43' 3.44''/ Longitude: 72° 17' 59.09''**

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 181-foot level of the existing 180-foot monopole tower at 14 Thompson Hill Rd. Columbia, CT. 06237. The tower is owned by Crown Castle. Joshua & Eileen Lanati own the property. Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 181-foot level of the tower. Sprint also intends to install nine (9) RRHs, one (1) handrail kit, replace one (1) existing antenna mount with one (1) low profile platform, and replace six (6) lines of coax with four (4) hybrid cables.

**This facility was approved by the Town of Columbia Planning and Zoning Commission on November 16, 1999. This approval was given with conditions that were met.**

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 First Selectman Steven M. Everett, Town of Columbia, Jason Nowosad, Building Official, Town of Columbia, 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.

**The Foundation for a Wireless World.**

CrownCastle.com

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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](mailto: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 Steven M. Everett  
323 Route 87  
Columbia, CT 06237

Jason Nowosad, Building Official  
323 Route 87  
Columbia, CT 06237

Joshua & Eileen Lanati  
14 Thompson Hill Rd.  
Columbia, CT 06237



Satellite

### 14 THOMPSON HILL RD

**Location** 14 THOMPSON HILL RD

**Mblu** 011/ / 069/ /

**Acct#** 00054300

**Owner** LANATI JOSHUA & EILEEN

**Assessment** \$250,400

**Appraisal** \$502,300

**PID** 543

**Building Count** 1

**Current Value**

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$127,400	\$374,900	\$502,300

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$89,200	\$161,200	\$250,400

**Owner of Record**

**Owner** LANATI JOSHUA & EILEEN  
**Co-Owner**  
**Address** 14 THOMPSON HILL RD  
 COLUMBIA, CT 06237

**Sale Price** \$155,000  
**Certificate**  
**Book & Page** 0197/0163  
**Sale Date** 04/14/2011  
**Instrument** 28

**Ownership History**

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
LANATI JOSHUA & EILEEN	\$155,000		0197/0163	28	04/14/2011
DEOJAY THOMAS R ESTATE OF	\$0		0122/0722	25	09/23/2010
DEOJAY THOMAS R	\$0		0122/0722		10/25/1999
DEOJAY THOMAS R & WILLIE JO	\$0		0059/0018		05/18/1982

**Building Information**

**Building 1 : Section 1**

**Year Built:** 1955  
**Living Area:** 1,677  
**Replacement Cost:** \$190,432  
**Building Percent Good:** 66  
**Replacement Cost Less Depreciation:** \$125,700

**Building Photo**

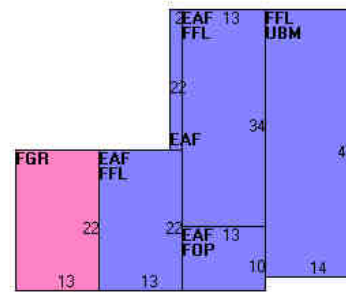
**Building Attributes**

Field	Description
Style	Conventional
Model	Residential
Grade:	Average +20
Stories:	1 1/2 Stories
Occupancy	1
Exterior Wall 1	Stucco/Masonry
Exterior Wall 2	Wood Shingle
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Pine/Soft Wood
Interior Flr 2	
Heat Fuel	Electric
Heat Type:	Electr Basebrd
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Average
Kitchen Style:	Average
Whirlpool	
Fireplace(s)	1
Fndtn. Level	



(http://images.vgsi.com/photos2/ColumbiaCTPhotos/\00\00\75\76.jpg)

**Building Layout**



Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
FFL	First Floor Living	1,316	1,316
EAF	Attic, Expansion, Finished	902	361
FGR	Garage, Framed	286	0
FOP	Porch, Open, Finished	130	0
UBM	Basement, Unfinished	588	0
		3,222	1,677

**Extra Features**

Extra Features	Legend
No Data for Extra Features	

**Land**

**Land Use**

<b>Use Code</b>	1010
<b>Description</b>	Single Fam
<b>Zone</b>	RA
<b>Neighborhood</b>	12

**Land Line Valuation**

<b>Size (Acres)</b>	29.4
<b>Frontage</b>	0
<b>Depth</b>	0
<b>Assessed Value</b>	\$161,200

**Alt Land Appr** No  
**Category**

**Appraised Value** \$374,900

**Outbuildings**

<b>Outbuildings</b>						<b>Legend</b>
<b>Code</b>	<b>Description</b>	<b>Sub Code</b>	<b>Sub Description</b>	<b>Size</b>	<b>Value</b>	<b>Bldg #</b>
BRN3	Barn 1 St. w Loft			540 S.F.	\$1,300	1
SHD1	Shed Frame			64 S.F.	\$400	1

**Valuation History**

<b>Appraisal</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2017	\$127,400	\$374,900	\$502,300
2016	\$127,400	\$374,900	\$502,300
2015	\$123,000	\$374,900	\$497,900

<b>Assessment</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2017	\$89,200	\$161,200	\$250,400
2016	\$89,200	\$161,200	\$250,400
2015	\$86,100	\$160,330	\$246,430

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**SPECIAL CONSTRUCTION NOTE:**  
 SPRINT WORK IS CONTINGENT ON THE FOLLOWING:  
 \* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS.  
 \* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT.  
 \* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.



**PROJECT:** DO MACRO UPGRADE (800 3G/4G & 2.5)  
**SITE NAME:** COLUMBIA/DEOJAY  
**SITE CASCADE:** CT33XC571  
**MARKET:** NE  
**SITE ADDRESS:** 14 THOMPSON HILL RD  
 COLUMBIA, CT 06237  
**SITE TYPE:** MONOPOLE



**NOTE:**  
 OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

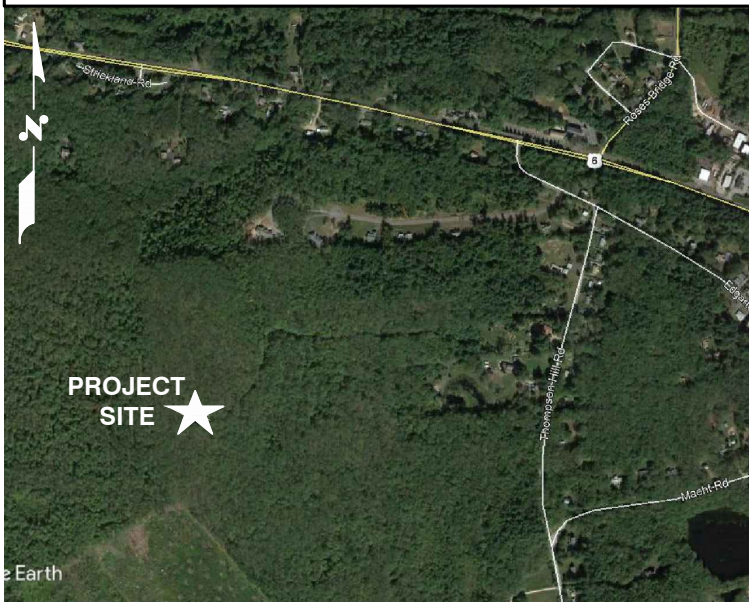
**STRUCTURAL NOTE:**  
 PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY AW SOLUTIONS INCORPORATED DATED MAY 31, 2018 AND MOUNT ANALYSIS BY HUDSON DESIGN GROUP DATED 07/16/18 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.



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

**CROWN CASTLE SITE #: 876391**  
**CROWN CASTLE SITE NAME: COLUMBIA/ DEOJAY**

**VICINITY MAP**  
 N.T.S.



**PROJECT INFORMATION**

**SITE INFORMATION:**  
 SPRINT EQUIPMENT MODIFICATIONS REQUIRED TO SUPPORT MODERNIZATION OF AN EXISTING WIRELESS COMMUNICATIONS FACILITY AND UTILIZATION OF FCC BROADBAND SPECTRUM LICENSE FOR DO\_MACRO UPGRADE, INCLUDING INSTALLATION OF:  
 GROUND-LEVEL RAN EQUIPMENT, CONSISTING OF:  
 \* NO CHANGES  
 TOWER EQUIPMENT, INCLUDING INSTALLATION OF:  
 \* (6) PANEL ANTENNAS (TO REPLACE (6) EXISTING ANTENNAS)  
 \* (9) REMOTE RADIO HEADS (RRH), (3) RELOCATED TO TOWER TOP FROM GROUND LEVEL  
 \* (4) HYBRID CABLES (REMOVAL OF (6) COAX LINES)  
 \* (1) NEW LOW PROFILE PLTFORM TO REPLACE EXISTING ANTENNA MOUNT  
 \* (1) NEW HANDRAIL KIT

LATITUDE: N 41° 43' 3.44"  
 LONGITUDE: W 72° 17' 59.09"  
 GROUND ELEVATION 635'± AMSL (PER GOOGLE EARTH)  
 STRUCTURE HEIGHT 180'± AGL (TYPE: MONOPOLE)  
 ZONING JURISDICTION COLUMBIA

**APPLICANT:**  
 SPRINT  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495

**PROPERTY OWNER:**  
 UNKNOWN

**TOWER OWNER:**  
 CROWN CASTLE  
 12 GILL STREET  
 SUITE 5800  
 WOBURN, MA 01801

**SPRINT CONSTRUCTION MANAGER:** MIKE DURKIN  
 PHONE: 401-363-9923  
 michael.durkin@sprint.com

**CROWN CASTLE PROJECT MANAGER:** WILL STONE  
 PHONE: 518-373-3543  
 william.stone@crowncastle.com

**SPRINT MARKET MANAGER:** RONALD HIBBARD  
 PHONE: 774-269-8812  
 ronald.hibbard@sprint.com

**DRAWING INDEX**

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
SP-1	OUTLINE SPECIFICATIONS	2
SP-2	OUTLINE SPECIFICATIONS	2
SP-3	OUTLINE SPECIFICATIONS	2
A-1	COMPOUND PLAN & EQUIPMENT PLAN	2
A-2	ANTENNA PLANS & ELEVATION	2
A-3	EQUIPMENT DETAILS	2
S-1	MOUNTING DETAILS	2
RF-1	RF DATA SHEET	2
RF-2	WIRING DIAGRAMS	2
G-1	ONE LINE DIAGRAM, GROUNDING DETAILS & NOTES	2

**SPECIAL ZONING NOTE**

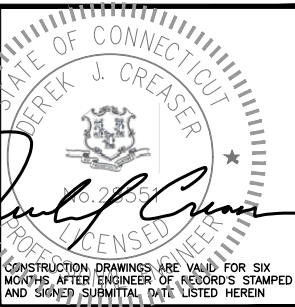
BASED ON INFORMATION PROVIDED BY SPRINT REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, ADMINISTRATIVE REVIEW).

**GENERAL NOTES**

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:  
 - ADA COMPLIANCE NOT REQUIRED.  
 - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.  
 - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
- CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.
- NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. BUILDING CODE: INTERNATIONAL BUILDING CODE 2012 WITH 2016 CT STATE BUILDING CODE AMENDMENTS  
 ELECTRICAL CODE: NFPA 70 2014 - NATIONAL ELECTRIC CODE  
 STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

**APPROVALS**

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE



CHECKED BY: BB

APPROVED BY: DJC

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
2	09/07/18	CONSTRUCTION FINAL	GA
1	07/17/18	CONSTRUCTION REVISED	GA
0	01/25/18	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:  
 CT33XC571  
 SITE NAME:  
 COLUMBIA/DEOJAY  
 CROWN BU NUMBER:  
 876391  
 SITE ADDRESS:  
 14 THOMPSON HILL RD  
 COLUMBIA, CT 06237  
 TOLLAND COUNTY

SHEET TITLE  
 TITLE SHEET  
 (MIMO REDESIGN)

SHEET NUMBER  
 T-1





CONTINUED FROM SP-1:

SECTION 01 400 – SUBMITTALS, TESTS, AND INSPECTIONS

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.
C. 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.

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 SPRINT TS-0200 (CURRENT VERSION) 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.
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.
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

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: 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.
1. 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.
2. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
3. 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)
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
E. 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.
F. 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 01 500 – PROJECT REPORTING

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. SHELTER 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 RADI).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADI).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADI).
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.

SECTION 07 500 – ROOF CUTTING, PATCHING AND REPAIR

SUMMARY:

THIS SECTION SPECIFIES CUTTING AND PATCHING EXISTING ROOFING SYSTEMS WHERE CONDUIT OR CABLES EXIT THE BUILDING ONTO THE ROOF OR BUILDING-MOUNTED ANTENNAS, AND AS REQUIRED FOR WATERTIGHT PERFORMANCE. ROOFTOP ENTRY OPENINGS IN MEMBRANE ROOFTOPS SHALL BE CONSTRUCTED TO COMPLY WITH LANDLORD, ANY EXISTING WARRANTY, AND LOCAL JURISDICTIONAL STANDARDS.

1.4 SUBMITTALS:

A. PRE-CONSTRUCTION ROOF PHOTOS: COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.

B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)

C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

SECTION 09 900 – PAINTING

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS.

CONTINUE SHEET SP-3



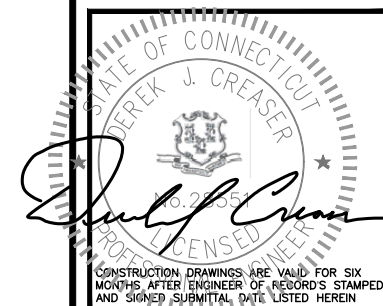
1 INTERNATIONAL BLVD, SUITE 800 MAHWAH, NJ 07495 TEL: (800) 357-7641



CROWN CASTLE 12 GILL STREET, SUITE 5800 WOBURN, MA 01801



45 BEECHWOOD DRIVE N. ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586



CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

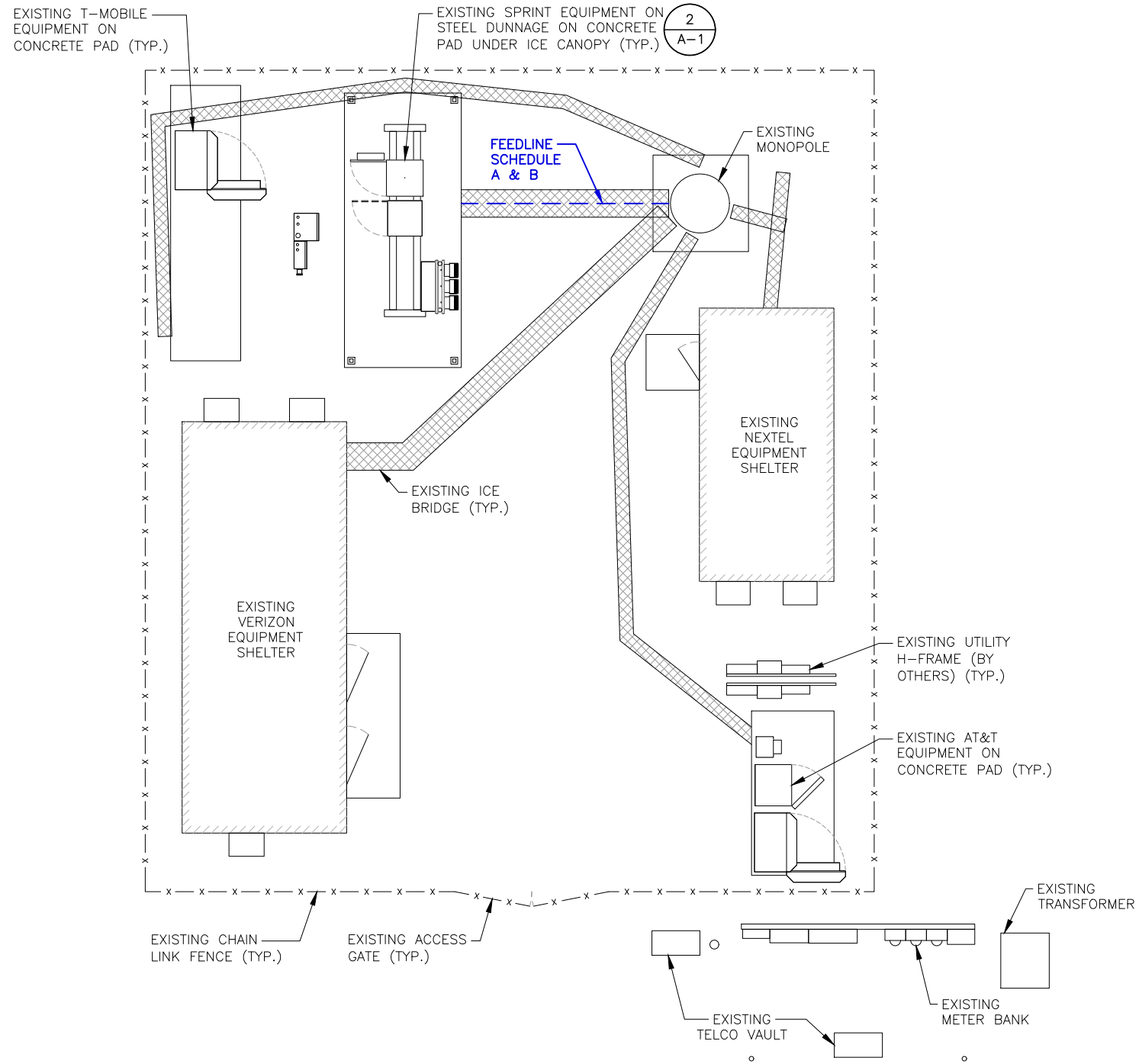
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SITE NUMBER: CT33XC571
SITE NAME: COLUMBIA/DEOJAY
CROWN BU NUMBER: 876391
SITE ADDRESS: 14 THOMPSON HILL RD COLUMBIA, CT 06237 TOLLAND COUNTY

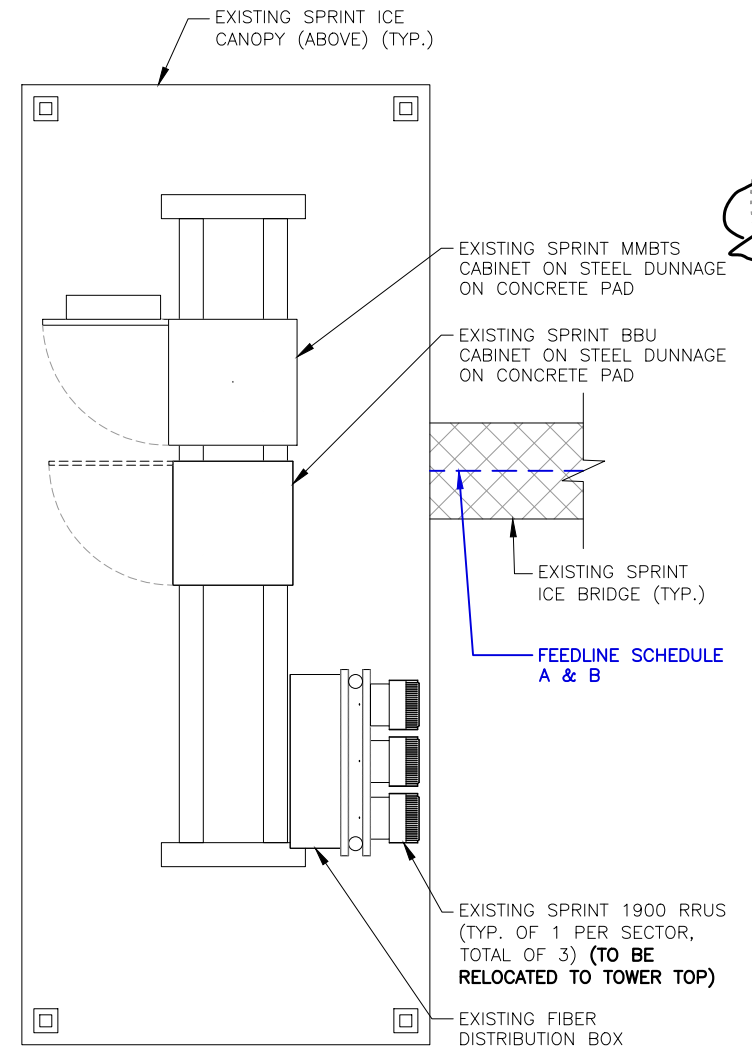
SHEET TITLE: OUTLINE SPECIFICATIONS (MIMO REDESIGN)

SHEET NUMBER: SP-2





**COMPOUND PLAN**  
 22x34 SCALE: 3/16"=1'-0"  
 11x17 SCALE: 3/32"=1'-0"  
 13'57" NORTH TRUE  
 13'57" NORTH MAGNETIC  
 1 A-1  
 0 2'-8" 5'-4" 10'-8" 16'-0"



**EQUIPMENT PLAN**  
 22x34 SCALE: 1/2"=1'-0"  
 11x17 SCALE: 1/4"=1'-0"  
 13'57" NORTH TRUE  
 13'57" NORTH MAGNETIC  
 2 A-1  
 0 1'-0" 2'-0" 4'-0" 6'-0"

**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**STRUCTURAL NOTE:**  
 PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY AW SOLUTIONS INCORPORATED DATED 05/31/18 AND MOUNT ANALYSIS BY HUDSON DESIGN GROUP DATED 07/16/18 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

**Sprint**  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (800) 357-7641

**CROWN CASTLE**  
 CROWN CASTLE  
 12 GILL STREET, SUITE 5800  
 WOBURN, MA 01801

**HUDSON Design Group LLC**  
 45 BEECHWOOD DRIVE TEL: (978) 557-5553  
 N. ANDOVER, MA 01845 FAX: (978) 336-5586

STATE OF CONNECTICUT  
 DEREK J. CREASER  
 LICENSED PROFESSIONAL ENGINEER  
 No. 20555  
 CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB  
 APPROVED BY: DJC

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
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 876391  
 SITE ADDRESS:  
 14 THOMPSON HILL RD  
 COLUMBIA, CT 06237  
 TOLLAND COUNTY

SHEET TITLE  
 COMPOUND PLAN &  
 EQUIPMENT PLAN  
 (MIMO REDESIGN)

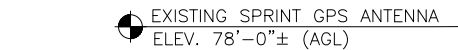
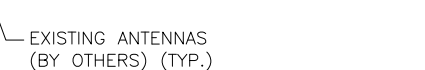
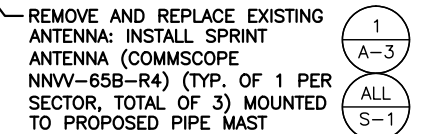
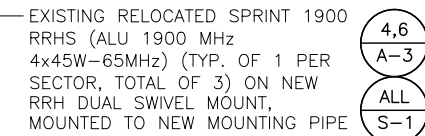
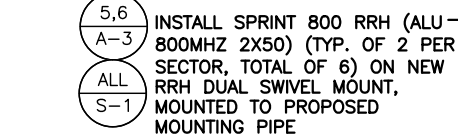
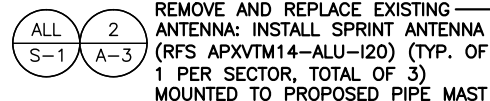
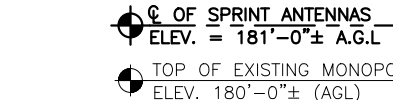
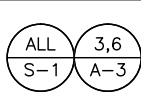
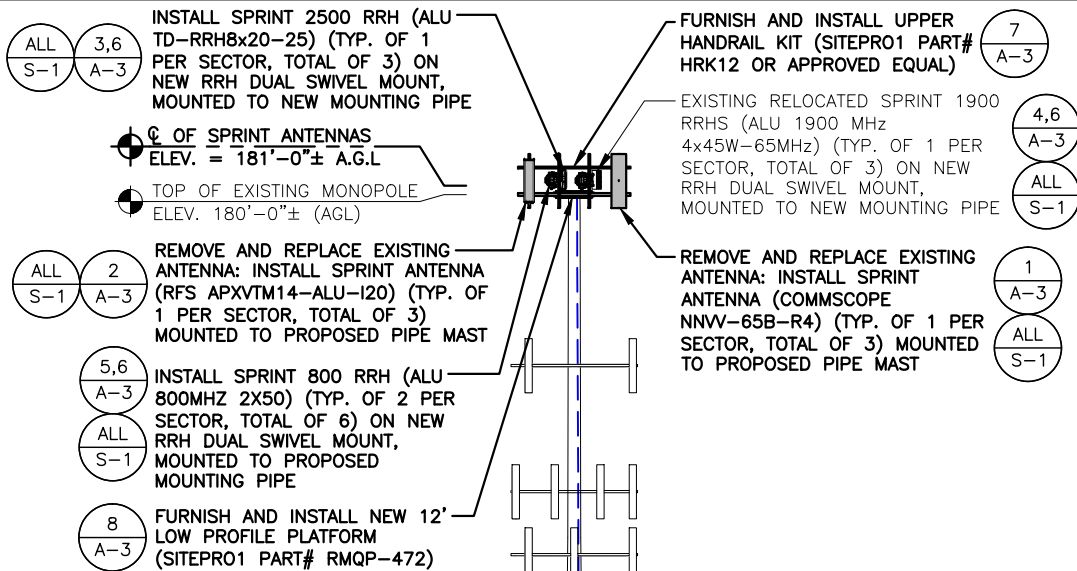
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**A-1**

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

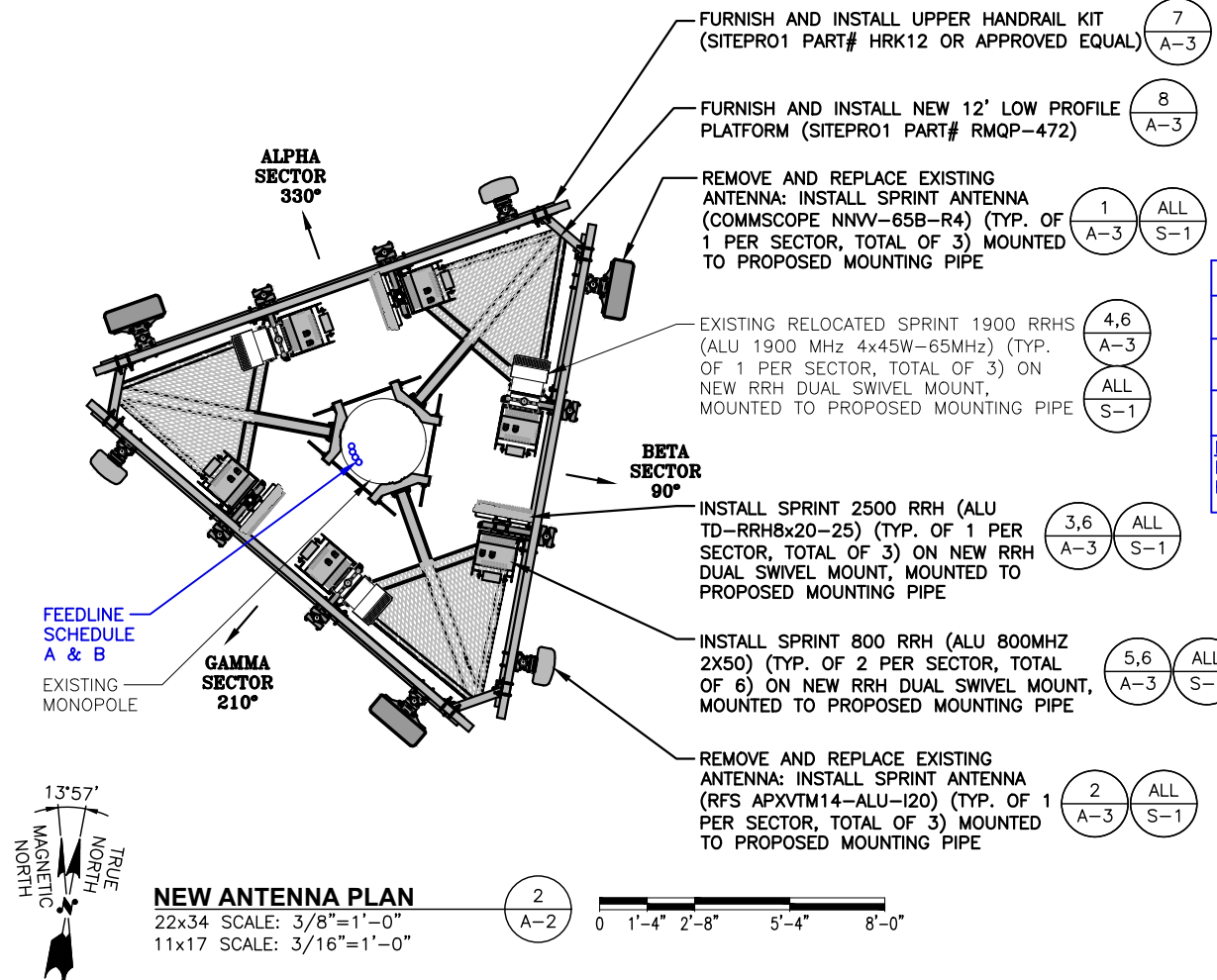
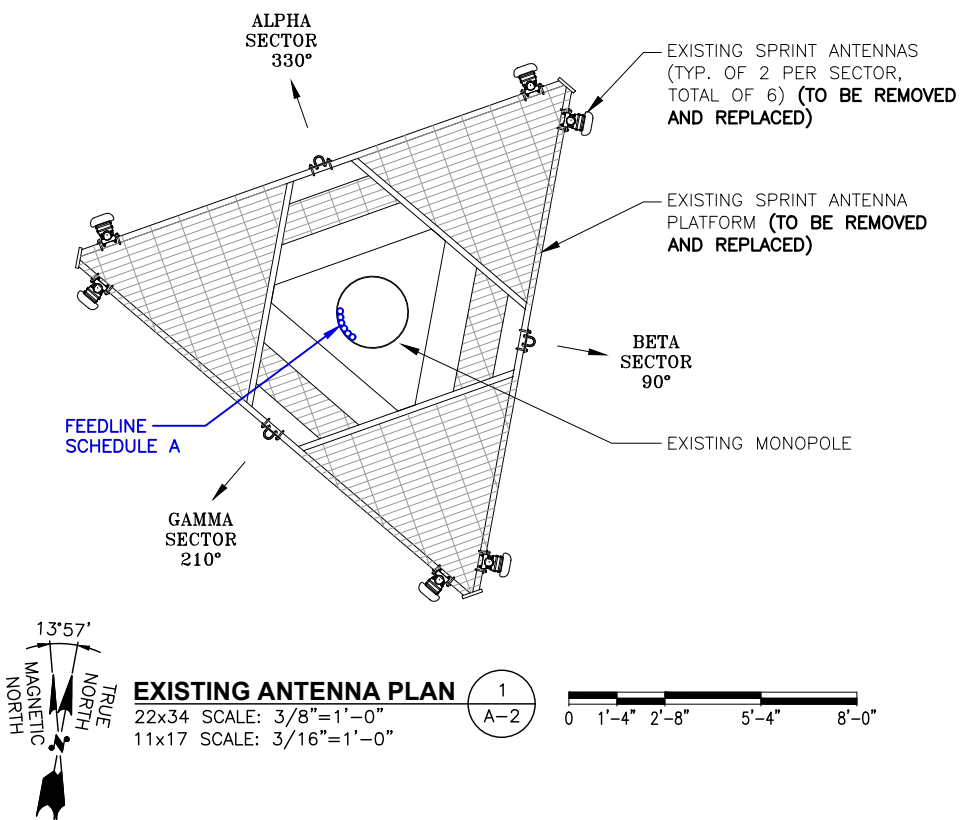
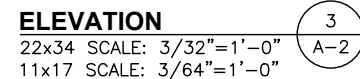
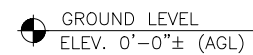
**STRUCTURAL NOTE:**  
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY AW SOLUTIONS INCORPORATED DATED 05/31/18 AND MOUNT ANALYSIS BY HUDSON DESIGN GROUP DATED 07/16/18 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

**STRUCTURAL NOTE:**  
DESIGN LIMITATIONS AND ASSUMPTIONS:  
1. EQUIPMENT AND LOCATIONS SHOULD NOT DEVIATE FROM THE CONSTRUCTION DRAWINGS WITHOUT WRITTEN APPROVAL OF THE ENGINEER.  
2. HDG IS NOT RESPONSIBLE FOR ANY MODIFICATIONS COMPLETED PRIOR TO AND HEREAFTER WHICH HDG WAS NOT INVOLVED.  
3. ALL STRUCTURAL MEMBERS AND THEIR CONNECTIONS ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES. CONTRACTOR IS TO PERFORM A PRE-INSPECTION TO CONFIRM.  
4. ALL ANTENNAS, COAX CABLES AND WAVEGUIDE CABLES ARE ASSUMED TO BE PROPERLY INSTALLED AND SUPPORTED AS PER THE MANUFACTURER'S REQUIREMENTS.  
5. ALL COMPONENTS SUPPORTING THE SPRINT EQUIPMENT ARE ASSUMED TO BE DESIGNED TO ALL APPLICABLE CODES AND DESIGNED FOR IDENTICAL TO OR GREATER THAN THE CURRENT LOADS.

**SCOPE NOTE:**  
PROPOSED DESIGN IS BASED OFF OF CROWN APPLICATION REV 0 DATED 05/07/18



**NOTE:**  
GROUND LEVEL EQUIPMENT NOT SHOWN FOR CLARITY



FEEDLINES			
FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION	LENGTH
A	EXISTING TO BE REMOVED: (6) 1-5/8" COAX	ROUTED WITHIN MONOPOLE	ALPHA: 230'± BETA: 230'± GAMMA: 230'±
B	PROPOSED (4) 1-1/4" HYBRID TRUNKS		

**NOTE:**  
EXISTING SPRINT EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS, RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

CHECKED BY: BB

APPROVED BY: DJC

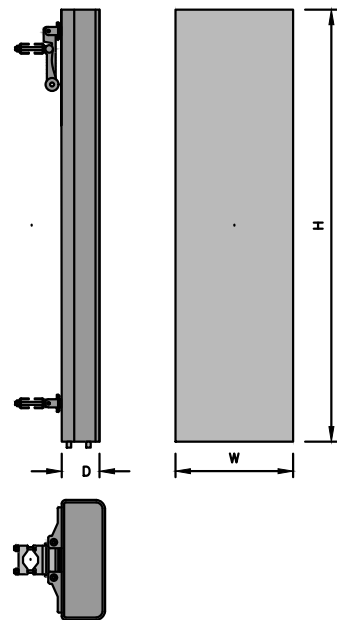
SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
2	09/07/18	CONSTRUCTION FINAL	GA
1	07/17/18	CONSTRUCTION REVISED	GA
0	01/25/18	ISSUED FOR CONSTRUCTION	SF

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SITE NAME: COLUMBIA/DEOJAY  
CROWN BU NUMBER: 876391  
SITE ADDRESS: 14 THOMPSON HILL RD COLUMBIA, CT 06237 TOLLAND COUNTY

SHEET TITLE  
ANTENNA PLANS & ELEVATION (MIMO REDESIGN)

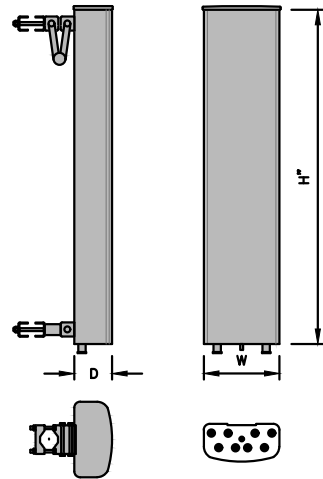
SHEET NUMBER  
**A-2**

800/1900 MHZ ANTENNA DIMENSIONS	
MODEL #	NNV-65B-R4
MANUF.	COMMSCOPE
HEIGHT	72.0"
WIDTH	19.6"
DEPTH	7.8"
WEIGHT	77.4 LBS



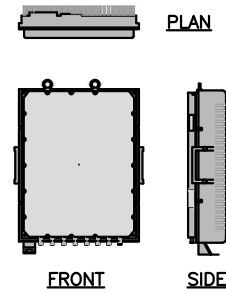
**800/1900MHz ANTENNA DETAIL** (1) A-3  
SCALE: N.T.S

2.5MHZ ANTENNA DIMENSIONS	
MODEL #	APXVTM14-ALU-120
MANUF.	RFS
HEIGHT	56.3"
WIDTH	12.6"
DEPTH	6.3"
WEIGHT	56.2 LBS



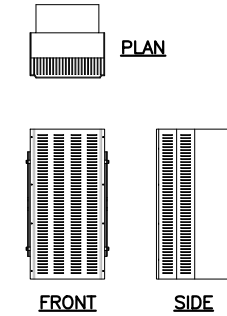
**2.5MHz ANTENNA DETAIL** (2) A-3  
SCALE: N.T.S

2.5MHZ RRH DIMENSIONS	
MODEL #	TD-RRH8X20-25
MANUF.	ALCATEL-LUCENT
LENGTH	26.1"
WIDTH	18.6"
DEPTH	6.7"
WEIGHT	70 LBS



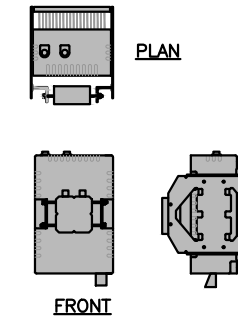
**2.5MHz RRH DETAIL** (3) A-3  
SCALE: N.T.S

1900MHZ RRH DIMENSIONS	
MODEL #	1900MHZ RRH 4X45W 65MHZ
MANUF.	ALCATEL-LUCENT
LENGTH	25"
WIDTH	11.1"
DEPTH	11.4"
WEIGHT	60 LBS

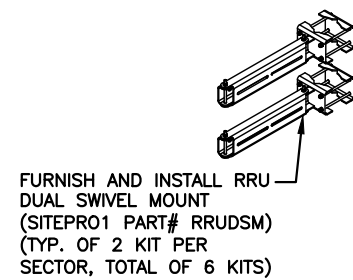


**1900 MHZ RRH DETAIL** (4) A-3  
SCALE: N.T.S

800MHZ RRH DIMENSIONS	
MODEL #	RRH-2X50-800
MANUF.	ALCATEL-LUCENT
LENGTH	19.7"
WIDTH	13"
DEPTH	10.8"
WEIGHT	53 LBS



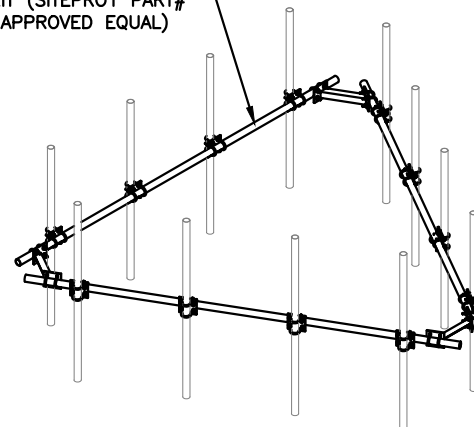
**800 MHZ RRH DETAIL** (5) A-3  
SCALE: N.T.S



FURNISH AND INSTALL RRU DUAL SWIVEL MOUNT (SITEPRO1 PART# RRUDSM) (TYP. OF 2 KIT PER SECTOR, TOTAL OF 6 KITS)

**RRU DUAL SWIVEL MOUNT DETAIL** (6) A-3  
SCALE: N.T.S

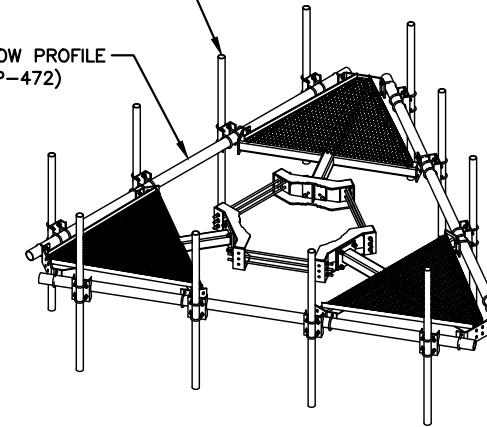
FURNISH AND INSTALL UPPER HANDRAIL KIT (SITEPRO1 PART# HRK12 OR APPROVED EQUAL)



**HANDRAIL KIT DETAIL** (7) A-3  
SCALE: N.T.S

FURNISH AND INSTALL NEW 2" STD (2-3/8" O.D.) X72" MOUNTING PIPE (TYP. OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED WITH LOW PROFILE PLATFORM KIT)

FURNISH AND INSTALL NEW 12' LOW PROFILE PLATFORM (SITEPRO1 PART# RMQP-472)



**LOW PROFILE PLATFORM KIT DETAIL** (8) A-3  
SCALE: N.T.S



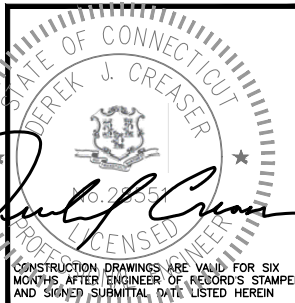
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641



CROWN CASTLE  
12 GILL STREET, SUITE 5800  
WOBURN, MA 01801



45 BEECHWOOD DRIVE TEL: (978) 557-5553  
N. ANDOVER, MA 01845 FAX: (978) 336-5886



CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS			
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0	01/25/18	ISSUED FOR CONSTRUCTION	SF

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COLUMBIA/DEOJAY  
CROWN BU NUMBER:  
876391  
SITE ADDRESS:  
14 THOMPSON HILL RD  
COLUMBIA, CT 06237  
TOLLAND COUNTY

SHEET TITLE  
EQUIPMENT DETAILS  
(MIMO REDESIGN)

SHEET NUMBER  
**A-3**

**STRUCTURAL NOTE:**

DESIGN LIMITATIONS AND ASSUMPTIONS:  
 1. EQUIPMENT AND LOCATIONS SHOULD NOT DEVIATE FROM THE CONSTRUCTION DRAWINGS WITHOUT WRITTEN APPROVAL OF THE ENGINEER.  
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**NOTE:**

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**STRUCTURAL NOTE:**

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS PROVIDED BY AW SOLUTIONS INCORPORATED DATED 05/31/18 AND MOUNT ANALYSIS BY HUDSON DESIGN GROUP DATED 07/16/18 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

**SCOPE NOTE:**

PROPOSED DESIGN IS BASED OFF OF CROWN APPLICATION REV 0 DATED 05/07/18

**MAJOR RF EQUIPMENT LIST**

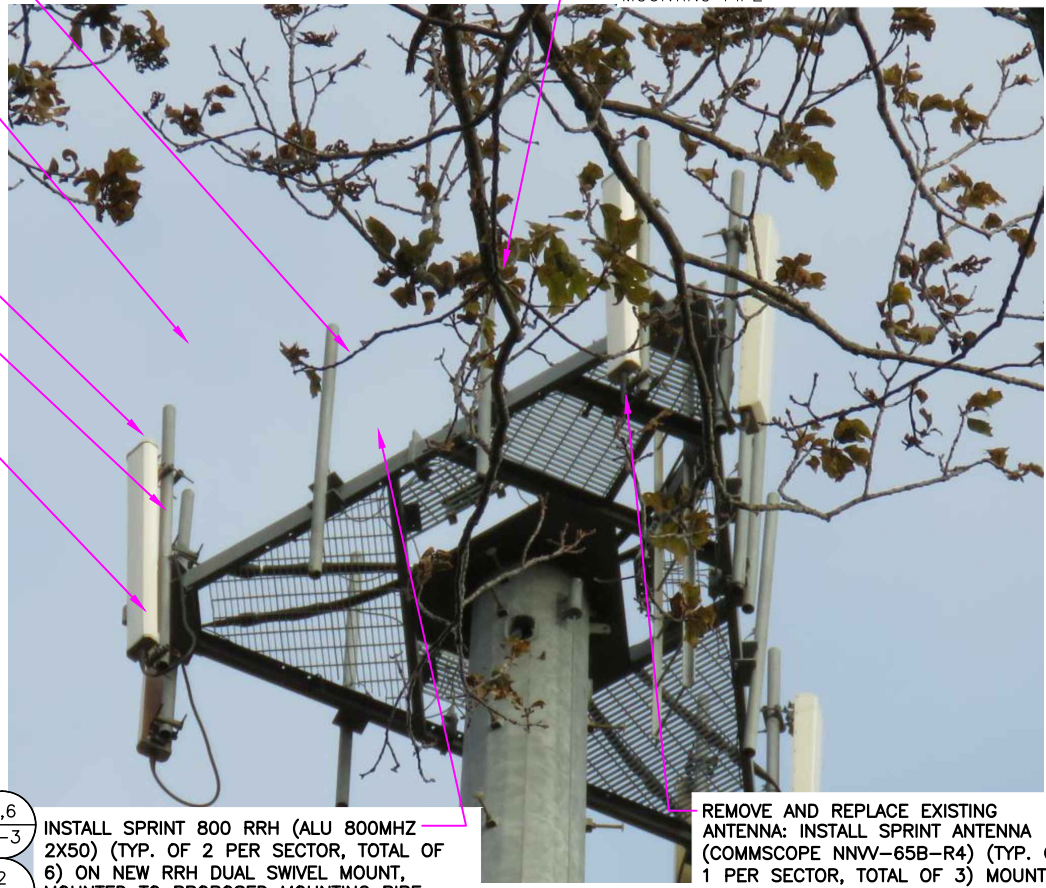
(GC SHALL FURNISH AND INSTALL ALL OTHER MATERIALS AND EQUIPMENT NOT SUPPLIED BY SPRINT)

DESCRIPTION	QUANTITY	MAKE/MODEL/MATERIAL	PROVIDED BY
MMBTS RAN UPGRADE (VARIOUS)			
PPC DIN-RAIL CIRCUIT BREAKER			
ANTENNA	3	COMMSCOPE NNVV-65B-R4	SPRINT
	3	RFS APXVTM14-ALU-I20	
RRU/GPS	6	ALCATEL-LUCENT 800MHZ RRH 2x50-800	SPRINT
	3	ALCATEL-LUCENT TD-RRH8x20-25	
	3	ALCATEL-LUCENT PCS 1900MHZ 4X45W-65MHz	
DIPLEXER			
HYBRID TRUNK	3	RFS HB114-1-0813U4-M5J	SPRINT
	1	RFS HB114-13U3M12-XXXF	
AC-POWER TRUNK			
DC-POWER TRUNK			
F/ENET TRUNK			
AC-POWER JB			
F/ENET JB			

**SPRINT-PROVIDED EQUIPMENT SCHEDULE**

SCALE: N.T.S.

3  
A-4



**ANTENNA & RRH MOUNT PHOTO DETAIL**

SCALE: N.T.S.

2  
A-4

- 2  
A-2    3,6  
A-3    INSTALL SPRINT 2500 RRH (ALU TD-RRH8x20-25) (TYP. OF 1 PER SECTOR, TOTAL OF 3) ON NEW RRH DUAL SWIVEL MOUNT, MOUNTED TO PROPOSED MOUNTING PIPE
- 7  
A-3    FURNISH AND INSTALL UPPER HANDRAIL KIT (SITEPRO1 PART# HRK12 OR APPROVED EQUAL)
- 2  
A-3    2  
A-2    REMOVE AND REPLACE EXISTING ANTENNA: INSTALL SPRINT ANTENNA (RFS APXVTM14-ALU-I20) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED MOUNTING PIPE
- 8  
A-3    FURNISH AND INSTALL NEW 12' LOW PROFILE PLATFORM (SITEPRO1 PART# RMQP-472)

EXISTING RELOCATED SPRINT 1900 RRHS (ALU 1900 MHz 4x45W-65MHz) (TYP. OF 1 PER SECTOR, TOTAL OF 3) ON NEW RRH DUAL SWIVEL MOUNT, MOUNTED TO PROPOSED MOUNTING PIPE

2  
A-2    4,6  
A-3

**Sprint**  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (800) 357-7641

**CROWN CASTLE**  
 CROWN CASTLE  
 12 GILL STREET, SUITE 5800  
 WOBURN, MA 01801

**HDG HUDSON Design Group LLC**  
 45 BEECHWOOD DRIVE  
 N. ANDOVER, MA 01845  
 TEL: (978) 557-5553  
 FAX: (978) 336-5586

STATE OF CONNECTICUT  
 DEREK J. CREASER  
 REGISTERED PROFESSIONAL ENGINEER  
 LICENSE NO. 20555  
 CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMP AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
2	09/07/18	CONSTRUCTION FINAL	GA
1	07/17/18	CONSTRUCTION REVISED	GA
0	01/25/18	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:  
 CT33XC571  
 SITE NAME:  
 COLUMBIA/DEOJAY  
 CROWN BU NUMBER:  
 876391  
 SITE ADDRESS:  
 14 THOMPSON HILL RD  
 COLUMBIA, CT 06237  
 TOLLAND COUNTY

SHEET TITLE  
 MOUNTING DETAILS  
 (MIMO REDESIGN)

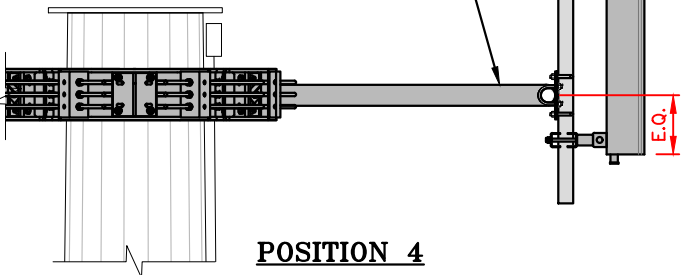
SHEET NUMBER  
**A-4**

2  
A-3    2  
A-2    REMOVE AND REPLACE EXISTING ANTENNA: INSTALL SPRINT ANTENNA (RFS APXVTM14-ALU-I20) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED MOUNTING PIPE

FURNISH AND INSTALL NEW 2" STD (2-3/8" O.D.) X72" MOUNTING PIPE (TYP. OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED WITH LOW PROFILE PLATFORM KIT)

7  
A-3    FURNISH AND INSTALL UPPER HANDRAIL KIT (SITEPRO1 PART# HRK12 OR APPROVED EQUAL)

8  
A-3    FURNISH AND INSTALL NEW 12' LOW PROFILE PLATFORM (SITEPRO1 PART# RMQP-472)



**POSITION 4**

7  
A-3    FURNISH AND INSTALL UPPER HANDRAIL KIT (SITEPRO1 PART# HRK12 OR APPROVED EQUAL)

2  
A-2    3,6  
A-3    INSTALL SPRINT 2500 RRH (ALU TD-RRH8x20-25) (TYP. OF 1 PER SECTOR, TOTAL OF 3) ON NEW RRH DUAL SWIVEL MOUNT, MOUNTED TO PROPOSED MOUNTING PIPE

5,6  
A-3    2  
A-2    INSTALL SPRINT 800 RRH (ALU 800MHZ 2X50) (TYP. OF 2 PER SECTOR, TOTAL OF 6) ON NEW RRH DUAL SWIVEL MOUNT, MOUNTED TO PROPOSED MOUNTING PIPE

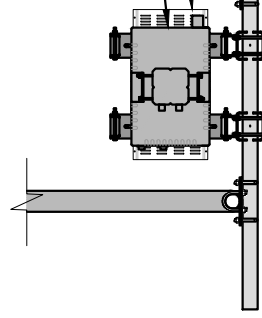
☉ OF SPRINT ANTENNAS  
 ELEV. = 181'-0"± A.G.L.

FURNISH AND INSTALL NEW 2" STD (2-3/8" O.D.) X72" MOUNTING PIPE (TYP. OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED WITH LOW PROFILE PLATFORM KIT)

**POSITION 3**

2  
A-2    4,6  
A-3    EXISTING RELOCATED SPRINT 1900 RRHS (ALU 1900 MHz 4x45W-65MHz) (TYP. OF 1 PER SECTOR, TOTAL OF 3) ON NEW RRH DUAL SWIVEL MOUNT, MOUNTED TO PROPOSED MOUNTING PIPE

5,6  
A-3    2  
A-2    INSTALL SPRINT 800 RRH (ALU 800MHZ 2X50) (TYP. OF 2 PER SECTOR, TOTAL OF 6) ON NEW RRH DUAL SWIVEL MOUNT, MOUNTED TO PROPOSED MOUNTING PIPE

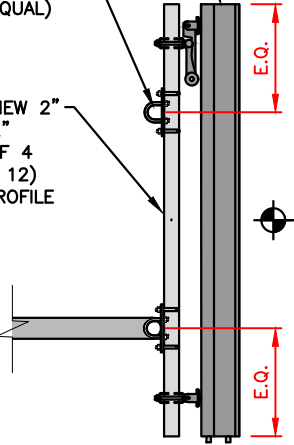


**POSITION 2**

1  
A-3    2  
A-2    REMOVE AND REPLACE EXISTING ANTENNA: INSTALL SPRINT ANTENNA (COMMSCOPE NNVV-65B-R4) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED MOUNTING PIPE

7  
A-3    FURNISH AND INSTALL UPPER HANDRAIL KIT (SITEPRO1 PART# HRK12 OR APPROVED EQUAL)

FURNISH AND INSTALL NEW 2" STD (2-3/8" O.D.) X72" MOUNTING PIPE (TYP. OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED WITH LOW PROFILE PLATFORM KIT)



**POSITION 1**

**PROPOSED ANTENNA & RRH MOUNTING ELEVATION**

22x34 SCALE: 3/4"=1'-0"  
 11x17 SCALE: 3/8"=1'-0"

1  
A-4





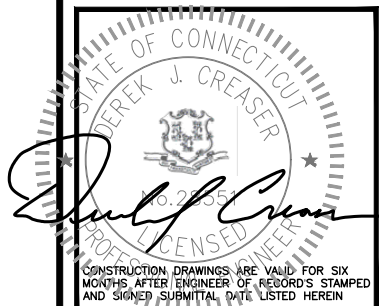
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641



CROWN CASTLE  
12 GILL STREET, SUITE 5800  
WOBURN, MA 01801



45 BEECHWOOD DRIVE TEL: (978) 557-5553  
N. ANDOVER, MA 01845 FAX: (978) 336-5886



CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

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SUBMITTALS

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CT33XC571  
SITE NAME:  
COLUMBIA/DEOJAY  
CROWN BU NUMBER:  
876391  
SITE ADDRESS:  
14 THOMPSON HILL RD  
COLUMBIA, CT 06237  
TOLLAND COUNTY

SHEET TITLE

RF DATA SHEET  
(MIMO REDESIGN)

SHEET NUMBER

RF-1

NOTE:

RFDS HAS NOT BEEN PROVIDED BY CROWN CASTLE,  
REFER TO CROWN APP REV #0 DATED 05/07/18.

NOTE:

SPRINT CM SHALL CONFIRM HYBRID CABLE LENGTH,  
COAX JUMPER LENGTH AND AISG CABLE LENGTH BEFORE  
PREPARING BOM. A&E RECOMMENDED HYBRID CABLE  
LENGTH BASED ON NV 2.5 EQUIPMENT AUDIT PLUS 20  
FEET FOR (2) 10-FOOT COILS AT EACH END OF THE  
FIBER TRUNK.

NOTE:

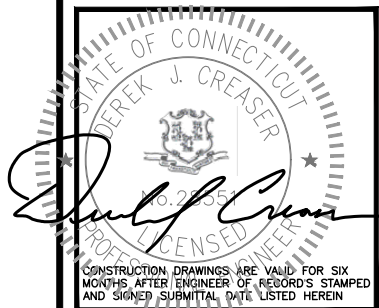
GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT  
THE LATEST RF DATA SHEET IS USED FOR EQUIPMENT  
INSTALLATION.

SPECIAL WORK NOTE:

JUMPERS (COAX/AISG) FROM THE 2.5 RRH TO THE 2.5  
ANTENNA CANNOT EXCEED 15'. NOTIFY SPRINT  
CONSTRUCTION MANAGER OF ANY DISCREPANCY.

RF DATA SHEET  
SCALE: N.T.S





CHECKED BY: BB

APPROVED BY: DJC

**SUBMITTALS**

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SHEET TITLE

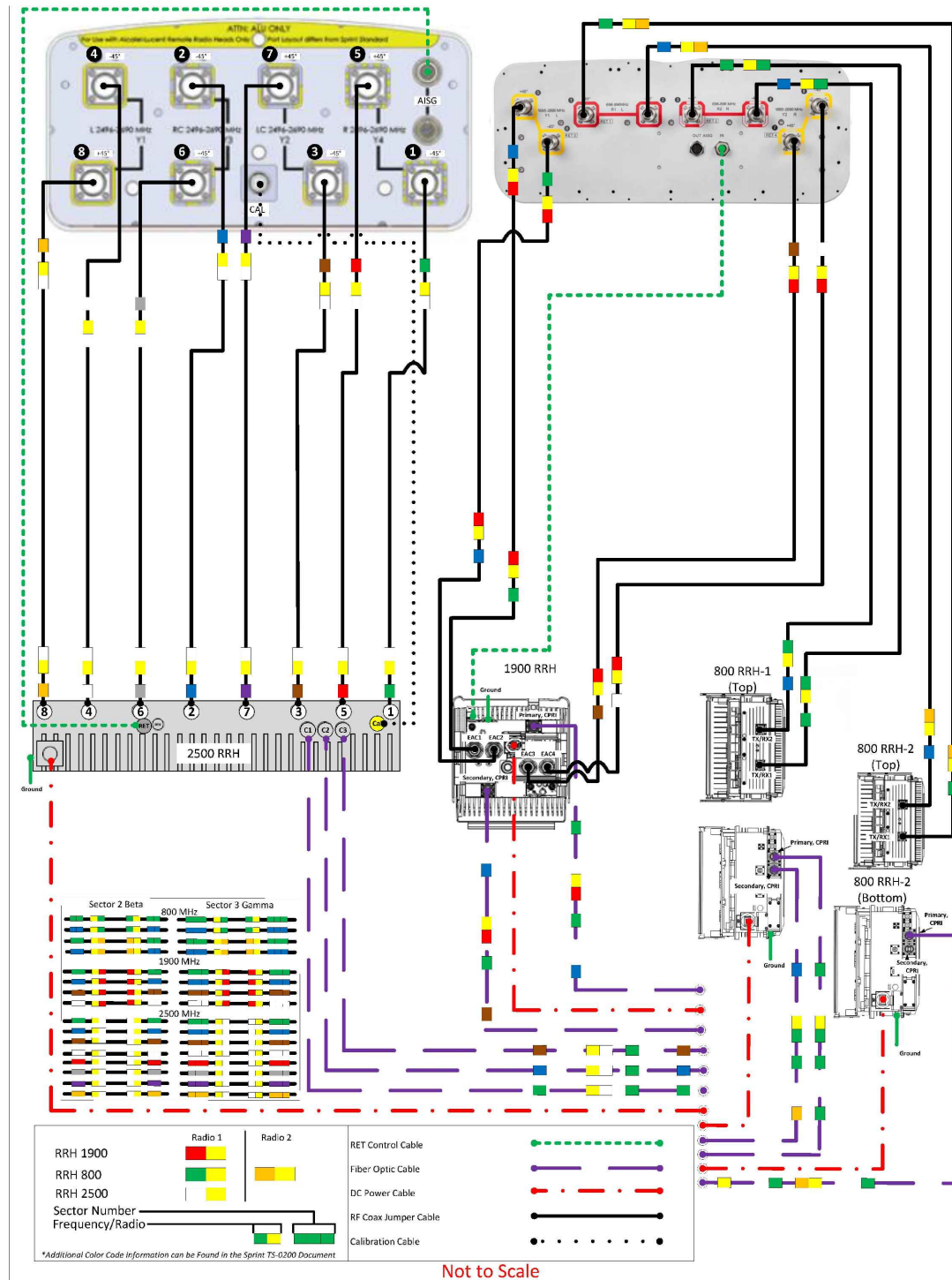
WIRING DIAGRAM  
(MIMO REDESIGN)

SHEET NUMBER

**RF-2**

Prepared By Mark Elliott	Revision Date March 13, 2018	Revision Number R1	<b>Sprint</b>
Approved By RAN Hardware & Antenna Teams	Approval Date Final-Macro Generated		

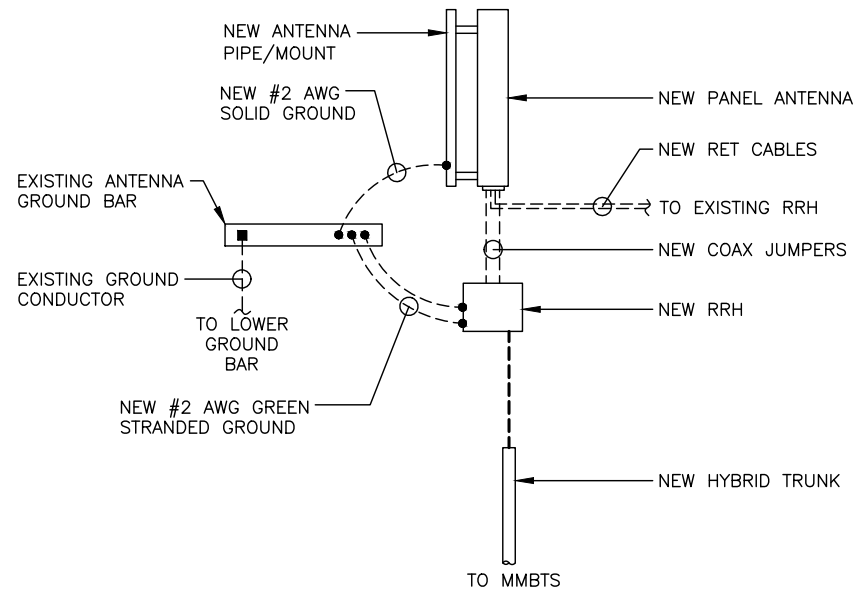
ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



**PLUMBING DIAGRAM**  
SCALE: N.T.S

1  
RF-2

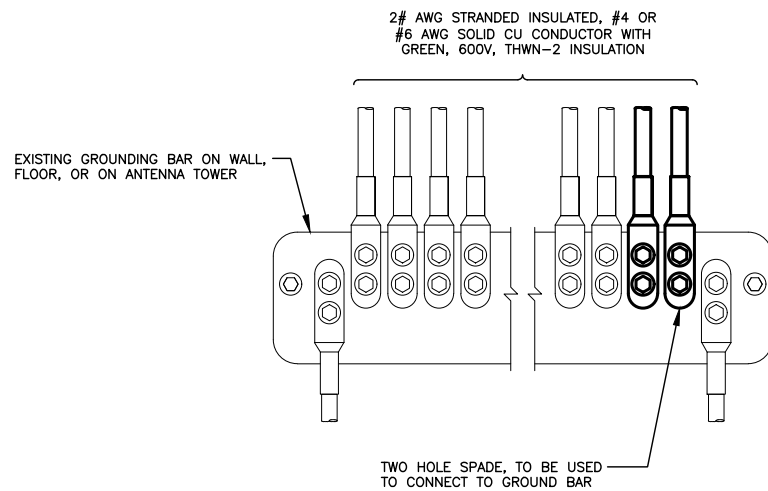




**EQUIPMENT GROUNDING SCHEMATIC**

SCALE: N.T.S

1  
G-1



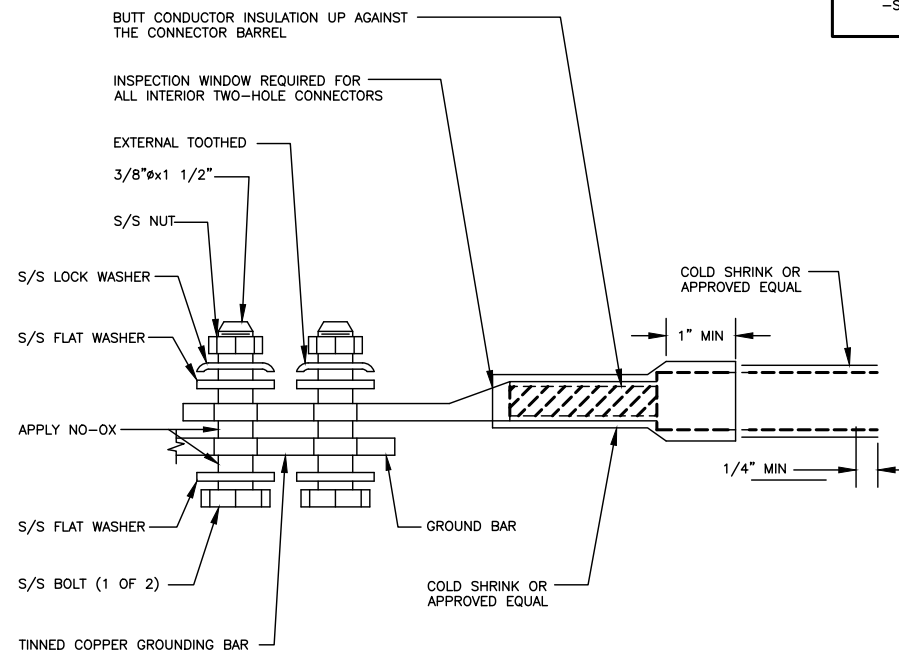
**NOTES**

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

**INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR**

SCALE: N.T.S

2  
G-1



**TWO HOLE LUG**

SCALE: N.T.S

3  
G-1

**PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:**

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250—GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):  
 -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED: 08-24-12 (OR CURRENT VERSION)  
 -SPRINT ENGINEERING LETTER EL-0504 DATED: 04-20-12 (OR CURRENT VERSION)



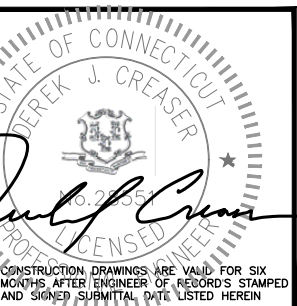
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 FAX: (978) 336-5586



CHECKED BY: BB

APPROVED BY: DJC

**SUBMITTALS**

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 CT33XC571  
 SITE NAME:  
 COLUMBIA/DEOJAY  
 CROWN BU NUMBER:  
 876391  
 SITE ADDRESS:  
 14 THOMPSON HILL RD  
 COLUMBIA, CT 06237  
 TOLLAND COUNTY

SHEET TITLE  
 ONE LINE DIAGRAM,  
 GROUNDING DETAILS  
 & NOTES  
 (MIMO REDESIGN)

SHEET NUMBER

G-1



## TOWN OF COLUMBIA

Planning & Zoning Commission  
P.O. Box 165  
Columbia, Connecticut 06237

Telephone: (860) 228-0440  
Fax: (860) 228-1952

CERTIFIED #:  
November 30, 1999

Sprint Spectrum L.P.  
9 Barnes Industrial Road  
Wallingford, CT 06492

Dear Sirs,

At a meeting held on November 16, 1999, the Columbia Planning and Zoning Commission took the following action:

approved the application of Sprint Spectrum for a telecommunications facility at 14 Thompson Hill Road, property of Thomas R. Deojay, RA2 zone, based on the submitted application, including plans entitled: "Sprint PCS, Columbia, 14 Thompson Hill Road, Columbia, Connecticut CT33XC571" prepared by Goodkind & O'Dea, Inc., 59 Elm Street, Suite 101, New Haven, Connecticut 06510, consisting of 10 sheets labeled T1, S1, and Z1-Z8, with all sheets revised to 9/14/99 except sheet S1 revised 11/8/99, with the following conditions:

1. The tower shall be structurally capable of supporting six users.
2. Prior to filing the final plan in the Land Records, a bond shall be posted to assure removal of the facility according to Section 52.7.15.5. The bond amount shall be proposed by the applicant and approved by the Town Engineer. Bond form shall be cash or letter of credit.
3. The Town Planner shall be contacted one week prior to the start of any work associated with this approval, including site development and tree removal. At the Planner's request, a preconstruction meeting with the Planner, developer and subcontractors shall be held prior to the start of work.
4. Any additional use of the site, including and not limited to additional antennas, cabinets, or other structures, and site work, requires additional permitting by the Commission.
5. The location of the tower and associated compound and the proposed driveway shall be staked out by a licensed surveyor prior to excavation or construction. The tower and compound fence shall be shown on an as-built survey at the A2 level of accuracy prior to commencement of use.
6. Clearcutting of timber shall be prohibited in a 100-foot ring around the lease area.
7. The text of this approval shall be placed on the final plan.

Sprint  
2 of 2

Technical Items

1. A signature block shall be placed on each sheet.
2. Plan sheets shall be numbered or otherwise indexed in the lower right corner.
3. Add to the sedimentation and erosion control notes on Z6:
  1. The Planner and Wetlands Agent may modify the erosion control requirements based on field conditions so as to minimize erosion and siltation on the site.
  2. Erosion controls shall be installed and inspected by the Planner prior to stump removal, grubbing, or other construction. The driveway shall be built per plan prior to development of the tower site.
  3. Prior to any work including tree removal, the Planner shall be provided with the name and phone number of a contact responsible for site work and erosion control who is on call 24 hours/day.

**IN ORDER FOR THE APPROVAL TO BECOME FINAL, THE ABOVE CONDITIONS MUST BE FULFILLED.**

Note that this action may be appealed for a fifteen day period following publication of notice of action in the Willimantic Chronicle. (Notice was published on or about November 22, 1999.) Do not hesitate to contact me at 228-0440 if you have any questions.

Sincerely,



Martha Fraenkel  
Land Use Planner/Zoning Official

MF/ds

cc: Tom Regan

encl: procedures

CERTIFIED MAIL # Z 039 122 992

"SUMMARY RULING"  
(APPROVAL WITH CONDITIONS)

As provided for in Connecticut General Statutes Section 22a-36 through 22a-45, as amended, and in Sections 5, 6.6b, 9.1 through 9.10 of the Inland Wetlands and Watercourse Regulations of the Town of Columbia, I move that the application No. AP9899-20 and described below be approved and a permit be granted with the conditions listed below in that the proposed activity does not have a significant impact on the wetlands or watercourses as defined in Section 2.20 in the Inland Wetlands Commission Regulations.

Applicant: Sprint PCS

Address: 9 Barnes Industrial  
Rd. Wallingford, CT 06492

Address of Activity: 14 Thompson Hill Rd

Property owned by: Thomas R. &  
Willie Jo Deojay

Maps Dated: 5/28/99

Application received on: 6/1/99

For the proposed activity: Upgrade existing gravel access drive by placing fill & 18" RCP - area of fill & disturbance in wetlands approximately 230 sq. ft.

Conditions:

1. The Inland Wetland Commission Agent is to be notified 48 hours before the commencement of any part of the activity approved above.
2. The granting of this permit does not relieve the applicant from obtaining additional permits and/or approvals required by other agencies, federal, state and local.
3. If an approval or permit is granted by another agency and contains conditions affecting the wetlands and/or watercourses and the area 75 feet from their flagged boundaries not addressed by this permit, the applicant must resubmit the application for further consideration by the Inland Wetlands Commission for a decision before work on the activity is to take place.

4. The duration of this permit is for five (5) years unless extended; by this Agency, and shall expire upon the completion of the activity approved herein or within one year of the start of the activity; whichever is sooner.
5. The applicant shall not assign or transfer this permit, or any part thereof, without the written permission of the Agency.
6. All activities for the prevention of soil erosion, such as silt fences and hay bales shall be under the direct supervision of the Inland Wetland Agent and if he deems it necessary, a certified engineer, who shall employ the best management practices, consistent with the terms and conditions of this permit, to control storm water discharges and to prevent erosion and sedimentation, to otherwise prevent pollution of wetlands or watercourses.
7. A copy of this motion and conditions listed, when approved by a majority vote of the IWC members present, shall constitute a permit for the activity described in the application and accompanying data when signed and dated by the Agent.
8. Diversion plan in place if work undertaken during streamflow. Plan to be approved by agent.
9. See additional conditions dated 7/6/99 attached.

Motion by: C. Robinson  
Seconded by: C. Sanborn  
Commission Action: Approved  
Date: 7/6/99



John. Valente, Agent

July 6, 1999

Additional conditions for Sprint PCS

Driveway Crossing

1. Engineer to meet with agent and contractor.
2. Engineer to flag crossing and set elevations.
3. All silt fence to be in place prior to any work within 100' of wetlands.
4. Engineer to be present during initial stage of culvert installation and provide as-built certifying correct implementation of plan.

Driveway Design Outside of the Upland Review Area

1. Design of driveway is to prevent concentrated flows.
2. Any flow pattern greater than 200' to be broken up by acceptable erosion and soil measures, leak offs, grade changes or culverting.
3. All disturbed areas to be mulched and seeded.
4. All excess fill material to be deposited greater than 100' from wetlands - graded, seeded and mulched.

Mitigation

1. Mitigation to be done under the direction of the soil scientist.
2. Soil scientist to provide report to Commission on implementation of plan.
3. Soil scientist to verify success of planting at the beginning and end of the following growing season and provide report to Commission.

CERTIFIED MAIL # Z 039 122 992

"SUMMARY RULING"  
(APPROVAL WITH CONDITIONS)

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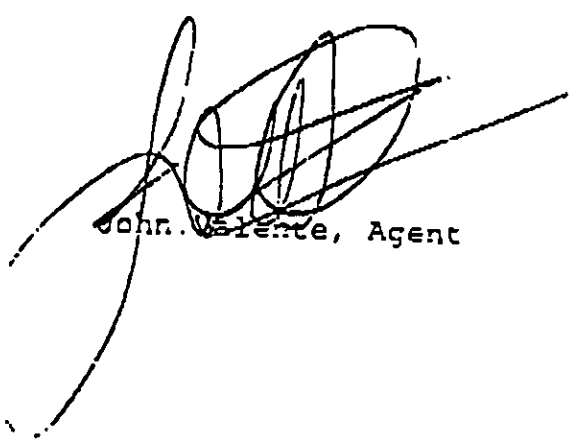
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1. The Inland Wetland Commission Agent is to be notified 48 hours before the commencement of any part of the activity approved above.
2. The granting of this permit does not relieve the applicant from obtaining additional permits and/or approvals required by other agencies, federal, state and local.
3. If an approval or permit is granted by another agency and contains conditions affecting the wetlands and/or watercourses and the area 75 feet from their flagged boundaries not addressed by this permit, the applicant must resubmit the application for further consideration by the Inland Wetlands Commission for a decision before work on the activity is to take place.

4. The duration of this permit is for five (5) years unless extended; by this Agency, and shall expire upon the completion of the activity approved herein or within one year of the start of the activity; whichever is sooner.
5. The applicant shall not assign or transfer this permit, or any part thereof, without the written permission of the Agency.
6. All activities for the prevention of soil erosion, such as silt fences and hay bales shall be under the direct supervision of the Inland Wetland Agent and if he deems it necessary, a certified engineer, who shall employ the best management practices, consistent with the terms and conditions of this permit, to control storm water discharges and to prevent erosion and sedimentation, to otherwise prevent pollution of wetlands or watercourses.
7. A copy of this motion and conditions listed, when approved by a majority vote of the IWC members present, shall constitute a permit for the activity described in the application and accompanying data when signed and dated by the Agent.
8. Diversion plan in place if work undertaken during streamflow. Plan to be approved by agent.
9. See additional conditions dated 7/6/99 attached.

Motion by: C. Robinson  
Seconded by: C. Sanborn  
Commission Action: Approved  
Date: 7/6/99



John. Vicente, Agent



July 6, 1999

Additional conditions for Sprint PCS

Driveway Crossing

1. Engineer to meet with agent and contractor.
2. Engineer to flag crossing and set elevations.
3. All silt fence to be in place prior to any work within 100' of wetlands.
4. Engineer to be present during initial stage of culvert installation and provide as-built certifying correct implementation of plan.

Driveway Design Outside of the Upland Review Area

1. Design of driveway is to prevent concentrated flows.
2. Any flow pattern greater than 200' to be broken up by acceptable erosion and soil measures, leak offs, grade changes or culverting.
3. All disturbed areas to be mulched and seeded.
4. All excess fill material to be deposited greater than 100' from wetlands - graded, seeded and mulched.

Mitigation

1. Mitigation to be done under the direction of the soil scientist.
2. Soil scientist to provide report to Commission on implementation of plan.
3. Soil scientist to verify success of planting at the beginning and end of the following growing season and provide report to Commission.



Date: **May 31, 2018**

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

AW Solutions  
300 Crown Oak Centre Drive  
Longwood, FL 32750  
(407) 260-0231

**Subject: Structural Analysis Report**

**Carrier Designation:** **Sprint PCS Co-Locate**  
**Carrier Site Number:** CT33XC571

**Crown Castle Designation:** **Crown Castle BU Number:** 876391  
**Crown Castle Site Name:** COLUMBIA / DEOJAY  
**Crown Castle JDE Job Number:** 501752  
**Crown Castle Work Order Number:** 1578131  
**Crown Castle Order Number:** 438436 Rev. 0

**Engineering Firm Designation:** **AW Solutions Project Number:** 876391

**Site Data:** **14 Thompson Hill Rd, COLUMBIA, Tolland County, CT**  
**Latitude 41° 43' 3.44", Longitude -72° 17' 59.09"**  
**180 Foot - Monopole Tower**

Ms. Dunst,

AW Solutions 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 1196673, in accordance with order 438436, 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:

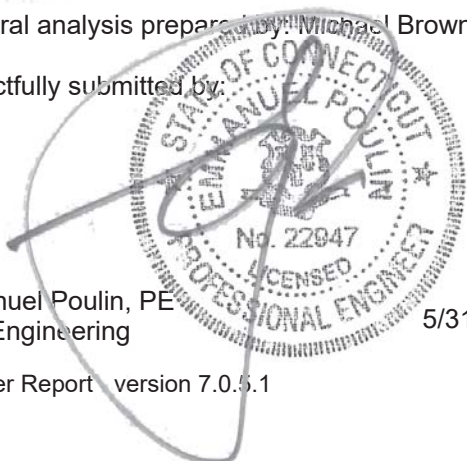
LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**  
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

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 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

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

Structural analysis prepared by: Michael Brown, EI / EP

Respectfully submitted by:



Emmanuel Poulin, PE  
VP of Engineering 5/31/18

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## 1) INTRODUCTION

This tower is a 180 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in November of 1999. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

## 2) ANALYSIS CRITERIA

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

**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
180.0	181.0	3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ	4	1-1/4	-
		6	alcatel lucent	RRH2X50-800			
		3	alcatel lucent	TD-RRH8X20-25			
		3	commscope	NNVV-65B-R4 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			
	180.0	1	site pro	HRK12			
		1	site pro	PRK 1245			

**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
180.0	181.0	2	decibel	950F65T2ZE-M w/ Mount Pipe	6	1-5/8	3
		4	decibel	DB980H90E-M w/ Mount Pipe			
	180.0	1	tower mounts	Platform Mount [LP 601-1]			
161.0	161.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	7	1-5/8	1
		3	ericsson	Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe			
		3	ericsson	KRY 112 144/2			
		3	ericsson	RRUS 11 B12			
		1	tower mounts	Platform Mount [LP 305-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
147.0	150.0	3	alcatel lucent	RRH2X60-AWS	1 14	1/2 1-5/8	1
		3	alcatel lucent	RRH2X60-PCS			
		6	andrew	HBXX-6517DS-A2M w/ Mount Pipe			
		6	andrew	LNX-6514DS-A1M w/ Mount Pipe			
		1	lucent	KS24019-L112A			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
	6	rfs celwave	FD9R6004/1C-3L				
	147.0	1	tower mounts	Platform Mount [LP 712-1]			
141.0	141.0	3	ericsson	RRUS 11	-	-	2
		1	tower mounts	Pipe Mount [PM 601-3]	-	-	1
140.0	140.0	3	kmw communications	EPBQ-654L8H6-L2 w/ Mount Pipe	1 2	3/8 7/16	2
		1	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 4478 B14			
		3	ericsson	RRUS 32			
		12	powerwave technologies	7020.00			
		2	raycap	DC6-48-60-18-8F			
		3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	1 2 12 1	3/8 7/16 1-5/8 2	1
		2	ericsson	RRUS 32 B2			
		3	powerwave technologies	1001983			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP 17201			
		6	powerwave technologies	LGP21901			
	1	tower mounts	Platform Mount [LP 303-1]				
83.0	84.0	2	kathrein	OG-860/1920/GPS-A	2	1-1/4	1
	83.0	2	tower mounts	Side Arm Mount [SO 701-1]			
		-	-	-			
78.0	79.0	1	kathrein	OG-860/1920/GPS-A	1	1/2	1
	78.0	1	tower mounts	Side Arm Mount [SO 701-1]			

- Notes:  
 1) Existing Equipment  
 2) Reserved Equipment  
 3) Equipment to be Removed

**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)
-						

**3) ANALYSIS PROCEDURE**

**Table 4 - Documents Provided**

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Goodkind & O'Dea, Inc	1613526	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI	1613632	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI	1614546	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.

**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.

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

**4) ANALYSIS RESULTS**

**Table 5 - Section Capacity (Summary)**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	180 - 131.75	Pole	TP31.39x21x0.25	1	-13.69	1686.69	66.5	Pass
L2	131.75 - 86.71	Pole	TP40.46x29.921x0.375	2	-24.37	3408.11	80.9	Pass
L3	86.71 - 43.16	Pole	TP48.96x38.5229x0.4375	3	-39.24	4767.07	84.0	Pass
L4	43.16 - 0	Pole	TP57.25x46.668x0.5	4	-61.69	6465.70	80.9	Pass
							Summary	
						Pole (L3)	84.0	Pass
						Rating =	84.0	Pass

**Table 6 - Tower Component Stresses vs. Capacity - LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	87.2	Pass
1	Base Plate	0	95.3	Pass
1	Base Foundation Structural	0	99.2	Pass
1	Base Foundation Soil Interaction	0	97.2	Pass

<b>Structure Rating (max from all components) =</b>	<b>99.2%</b>
---	--------------

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 load configuration. No modifications are required at this time.



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

SPRINT Existing Facility

Site ID: CT33XC571

Columbia/Deojay  
14 Thompson Hill Road  
Columbia, CT 06237

**September 25, 2018**

**EBI Project Number: 6218006241**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>8.53 %</b>





September 25, 2018

SPRINT

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

## Emissions Analysis for Site: **CT33XC571 – Columbia/Deojay**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **14 Thompson Hill Road, Columbia, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

General population/uncontrolled exposure limits apply to situations in which the general 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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 850 MHz Band is approximately  $567 \mu\text{W}/\text{cm}^2$ . The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **14 Thompson Hill Road, Columbia, 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 **181 feet** above ground level (AGL) for **Sector A**, **181 feet** above ground level (AGL) for **Sector B** and **181 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 #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
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):	<b>181 feet</b>	Height (AGL):	<b>181 feet</b>	Height (AGL):	<b>181 feet</b>
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%	<b>1.07 %</b>	Antenna B1 MPE%	<b>1.07 %</b>	Antenna C1 MPE%	<b>1.07 %</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
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):	<b>181 feet</b>	Height (AGL):	<b>181 feet</b>	Height (AGL):	<b>181 feet</b>
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%	<b>0.73 %</b>	Antenna B2 MPE%	<b>0.73 %</b>	Antenna C2 MPE%	<b>0.73 %</b>

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	<b>1.80 %</b>
AT&T	2.64 %
Verizon Wireless	2.61 %
T-Mobile	1.48 %
<b>Site Total MPE %:</b>	<b>8.53 %</b>

SPRINT Sector A Total:	1.80 %
SPRINT Sector B Total:	1.80 %
SPRINT Sector C Total:	1.80 %
<b>Site Total:</b>	<b>8.53 %</b>

SPRINT _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	181	0.44	850 MHz	567	0.08%
Sprint 850 MHz LTE	2	941.82	181	2.21	850 MHz	567	0.39%
Sprint 1900 MHz (PCS) CDMA	5	511.82	181	3.00	1900 MHz (PCS)	1000	0.30%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	181	3.00	1900 MHz (PCS)	1000	0.30%
Sprint 2500 MHz (BRS) LTE	8	778.09	181	7.31	2500 MHz (BRS)	1000	0.73%
						<b>Total:</b>	<b>1.80%</b>

## 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:	1.80 %
Sector B:	1.80 %
Sector C:	1.80 %
SPRINT Maximum MPE % (per sector):	1.80 %
Site Total:	8.53 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **8.53 %** 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.

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