

EM-SPRINT-023-130405

14 Canton Springs Road

Canton



RECEIVED
JUL 10 2014

1 Robbins Road
Westford, MA 01886

July 9, 2014

State of Connecticut
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

CONNECTICUT
SITING COUNCIL

RE: Notification of Construction Completion on telecommunication facilities

To whom it may concern:

Alcatel Lucent hereby acknowledges that the list of attached sites have completed construction per the approval granted on the specified date. Please advise if further information is needed..

Very truly yours,

Martha Powers

Martha Powers
Lead Development Manager
Alcatel-Lucent
Sprint Vision Project
1 Robbins Road
Westford, MA 01886

Cc: FST, Siterra

EM/TS #	Address	Town	Sprint ID	Decision Date
EM-SPRINT-062-130912	1065 Wintergreen Avenue	Hamden	CT03XC003	10/15/2013
EM-SPRINT-NEXTEL-060-130118	10 Tanner Marsh Road	Guilford	CT03XC022	2/14/2013
EM-SPRINT-004-130822	181 Montevideo Road	Avon	CT03XC053	9/6/2013
EM-SPRINT-NEXTEL-155-130214A	1358 New Britain Ave.	West Hartford	CT03XC057	3/1/2013
EM-SPRINT-NEXTEL-164-130201	440 Hayden Station Road	Windsor	CT03XC065	3/8/2013
EM-SPRINT-NEXTEL-132-130201	59 McGuire Road	South Windsor	CT03XC066	3/1/2013
EM-SPRINT-NEXTEL-054-130201	299 Paxton Way	Glastonbury	CT03XC081	3/1/2013
EM-SPRINT-NEXTEL-094-130214E	36 Prospect Street	Newington	CT03XC084	3/1/2013
EM-SPRINT-110-130725	10 Sparks Street	Plainville	CT03XC086	8/8/2013
EM-SPRINT-007-130314	260 Beckley Road	Kensington	CT03XC088	4/5/2013
EM-SPRINT-NEXTEL-155-130201	570 New Park Avenue	West Hartford	CT03XC091	3/1/2013
EM-SPRINT-NEXTEL-106-130201	430 Middlesex Turnpike	Old Saybrook	CT03XC102	3/1/2013
EM-SPRINT-NEXTEL-105-130201	30 Short Hills Road	Old Lyme	CT03XC104	3/1/2013
EM-SPRINT-NEXTEL-152-130201	41 Manitock Hill Road	Waterford	CT03XC105	3/1/2013
EM-SPRINT-NEXTEL-045-130201	93 Roxbury Road	East Lyme	CT03XC110	3/1/2013
EM-SPRINT-152-130114	45R Fargo Road	Waterford	CT03XC112	2/14/2013
EM-SPRINT-NEXTEL-027-130201	48 Cow Hill Road	Clinton	CT03XC156	3/1/2013
EM-SPRINT-NEXTEL-082-130201	238 Meridan Road	Middlefield	CT03XC160	3/8/2013
EM-SPRINT-047-130109	160 Plantation Road	East Windsor	CT03XC202	2/7/2013
EM-SPRINT-NEXTEL-077-130214	53 Slater Street	Manchester	CT03XC211	3/1/2013
EM-SPRINT-142-130109	497 Old Post Road	Tolland	CT03XC212	2/7/2013
EM-SPRINT-NEXTEL-042-130222	94 East High Street	East Hampton	CT03XC335	3/8/2013
EM-SPRINT-057-121226	Butternut Hollow Road	Greenwich	CT03XC343	1/11/2013
EM-SPRINT-158-130213	515 Boston Post Road	Westport	CT03XC355	3/1/2013
EM-SPRINT-046-130402	206 Everett Road	Easton	CT03XC362	4/19/2013
EM-SPRINT-085-130322	474 MAIN STREET	MONROE	CT03XC365	4/5/2013
EM-SPRINT-086-131011	57 Cook Drive	Montville	CT03XC365	10/25/2013
EM-SPRINT-118-130322	76 EAST RIDGE	RIDGEFIELD	CT03XC370	4/5/2013
EM-SPRINT-097-131230	20 Barnabas Road	Newtown	CT03XC383	1/21/2014
EM-SPRINT-051-130207	3965 Congress Street	Fairfield	CT03XC385	3/1/2013
EM-SPRINT-NEXTEL-094-130214A	123 Costello Road	Newington	CT23XC555	3/1/2013
EM-SPRINT-119-131008	699 Old Main Street	Rocky Hill	CT23XC556	10/25/2013
EM-SPRINT-077-131008	60 Adams Street	Manchester	CT23XC557	10/25/2013
EM-SPRINT-NEXTEL-080-130123	462 West Main Street	Meriden	CT25XC840	2/14/2013
EM-SPRINT-096-130920	18 Hilltop View Lane	New Milford	CT33XC095	10/4/2013
EM-SPRINT-157-130213	237 Godfrey Road	Weston	CT33XC522	3/1/2013
EM-SPRINT-018-131008	20 Vale Road	Brookfield	CT33XC525	10/25/2013
EM-SPRINT-077-130528	595 Keeney Street	Manchester	CT33XC538	6/14/2013
EM-SPRINT-NEXTEL-129-130214	400 Main Street	Somers	CT33XC554	3/1/2013
EM-SPRINT-047-130322	15 CHAMBERLAIN	BROADBROOK	CT33XC565	4/5/2013
EM-SPRINT-004-130502	277 Huckleberry Road	Avon	CT33XC589	5/17/2013

EM-SPRINT-143-130604	218 Wheeler Road	Torrington	CT33XC592	6/28/2013
EM-SPRINT-140-130724	583 Chapel Street	Thomaston	CT33XC603	8/8/2013
EM-SPRINT-103-130920	Charles Marshall Drive	Norwalk	CT33XC802	10/4/2013
EM-SPRINT-NEXTEL-064-130214	439-455 Homestead Ave.	Hartford	CT43XC805	3/1/2013
EM-SPRINT-064-130311	99 Meadow Street	Hartford	CT43XC806	4/5/2013
EM-SPRINT-083-131127	290 Preston Ave.	Middletown	CT43XC816	12/16/2013
EM-SPRINT-128-130920	530 Bushy Hill Road	Simsbury	CT43XC825	10/4/2013
EM-SPRINT-164-130405A	340 Bloomfield Avenue	Windsor	CT43XC826	4/19/2013
EM-SPRINT-077-130109	239 Middle Turnpike	Manchester	CT43XC827	2/13/2013
EM-SPRINT-165-130118	2-4 Volunteer Drive	Windsor Locks	CT43XC828	2/14/2013
EM-SPRINT-NEXTEL-139-130214	44 Fyler Place	Suffield	CT43XC829	3/8/2013
EM-SPRINT-111-130712	171 Town Hill Road	Plymouth	CT54XC712	7/26/2013
EM-SPRINT-009-130322	38 Spring Hill Road	Bethel	CT54XC749	4/5/2013
EM-SPRINT-154-131011	315 Spencer Plains Road	Westbrook	CT54XC758	10/25/2013
EM-SPRINT-023-130405	14 Canton Springs Road	Canton	CT54XC760	4/19/2013
EM-SPRINT-104-130606	153 Old Salem Road	Norwich	CT54XC775	6/28/2013
EM-SPRINT-164-130405B	99 Day Hill Road	Windsor	CT54XC787	4/19/2013
EM-SPRINT-132-130920	300 Governor's Highway	South Windsor	CT60XC014	10/4/2013
EM-SPRINT-094-130108	605 Willard Avenue	Newington	CT60XC018	1/25/2013
EM-SPRINT-146-130506	197 South Street	Vernon	CT60XC935	5/24/2013
EM-SPRINT-146-130311	777 Talcottville Road	Vernon	CT70XC147	4/5/2013
EM-SPRINT-126-130531	62 Birdseye Road	Shelton	CT73XC004	6/21/2013



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

www.ct.gov/csc

April 19, 2013

Patricia Masterson
Site Acquisition Manager
Goodman Networks
Two Willow Street, Suite 101
Southborough, MA 01745

RE: **EM-SPRINT-023-130405** – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 14 Canton Springs Road, Canton, Connecticut.

Dear Ms. Masterson:

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

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated April 3, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding

the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

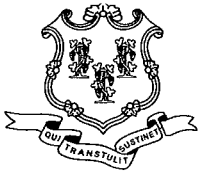
Very truly yours,



Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Richard J. Barlow, First Selectman, Town of Canton
Neil Pade, Town Planner, Town of Canton



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

www.ct.gov/csc

April 8, 2013

The Honorable Richard J. Barlow
First Selectman
Town of Canton
P. O. Box 168
Collinsville, CT 06022-0168

RE: **EM-SPRINT-023-130405** – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 14 Canton Springs Road, Canton, Connecticut.

Dear First Selectman Barlow:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by April 22, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/cm

c: Neil Pade, Town Planner, Town of Canton

EM-SPRINT-023-130405



Networks
Delivered.

April 3, 2013

Linda Roberts
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Linda Roberts, Executive Director

ORIGINAL

RECEIVED
APR - 5 2013

CONNECTICUT
SITING COUNCIL

Re: Notice of Exempt Modification – Antenna Swap
14 Canton Springs Road, Canton, CT 06019–Sprint ID CT54XC760

Dear Ms. Roberts:

Sprint Spectrum is planning to consolidate multiple network technologies into one seamless network with the goal of increasing efficiency and enhancing network coverage, call quality and data speeds for customers across Connecticut. Pursuant §16-50j-73 to of the Regulations of Connecticut State Agencies (RCSA), please accept this letter and attachments as notification of Sprint's intent to make exempt modifications, under RCSA §16-50j-72(b)(2), to its existing telecommunications facility at 14 Canton Springs Road, Canton Connecticut. In accordance with RCSA §16-50j-73, a copy of this letter was sent to Richard Barlow, First Selectman, Town of Canton.

Sprint currently maintains six (6) antennas at 90 feet on the existing 140 foot monopole at the address referenced above. Sprint intends to replace its existing six (6) CDMA antennas with three (3) Multimodal antennas at their same height of 90 feet. Sprint will be replacing its existing six (6) lines of coaxial cable with three (3) smaller lines of Hybriflex cable and installing six (6) RRH's. Sprint will also be swapping two (2) existing ground cabinets with two (2) new cabinets and adding one (1) cabinet and one (1) fiber junction box. This work will result in a net reduction of antennas from six (6) to three (3) and will not increase the height of the tower or the size of the compound. Please find included with this letter compound, elevation and overhead drawings which depict Sprint's proposed modifications.

Sprint's planned modifications fall squarely within the activities permitted in RCSA §16-50j-72(b)(2) in that:

1. The proposed modifications will not increase the existing tower height;
2. The proposed modifications will not extend the boundaries of the site by any dimension;

3. The proposed modifications will not increase the noise levels at the existing facility by six (6) decibels or more;
4. The proposed modifications will not increase the total radio frequency electromagnetic radiation power density to or above the standards adopted by the Federal Communications Commission. Please find included with this letter a Radio Frequency Emissions Analysis Report.

Also included with this letter is a Structural Assessment confirming that the foundation and tower are sufficient to support Sprint's proposed modifications.

For the foregoing reasons, Sprint respectfully requests that its proposed modifications to the existing tower located at the address referenced above constitute an exempt modification under RSCA §16-50j-72(b)(2).

Please do not hesitate to contact me should you have any questions. Thank you for your consideration.

Respectfully,



Patricia Masterson
Site Acquisition Manager
Goodman Networks, *an authorized representative of Sprint Nextel*
Two Willow Street, Suite 101
Southborough, MA 01745
Office: (972) 421-5903
Mobile: (214) 534-7276
Fax: (972) 421-5909

Attachments

cc: Richard Barlow, First Selectman, Town of Canton

Structural Analysis Report

140-ft Existing EEI Monopole

*Proposed Sprint
Antenna Upgrade*

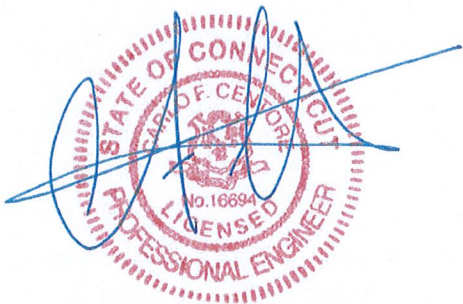
Sprint Site Ref: CT54XC760

Verizon Site Ref: Canton

*14 Canton Springs Road
Canton, CT*

Centek Project No. 13027

*~~Date: February 20, 2013~~
Rev. 1 ~ February 26, 2013*



Prepared for:
Sprint Nextel
8 Airline Drive, Suite 105
Albany, NY 12205

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I n t r o d u c t i o n

The purpose of this report is to summarize the results of the non-linear, P- Δ structural analysis of the antenna upgrade proposed by Sprint on the existing Verizon owned monopole (tower) located in Canton, CT.

The host tower is a 140-ft tall, four-section, eighteen sided, tapered monopole, originally designed and manufactured by EEI job no; 4960, dated May 13, 1999. The tower geometry, structure member sizes and foundation system information were obtained from a previous structural report prepared by Centek Engineering job no. 12044.CO8 dated September 26, 2012. Antenna and appurtenance information were obtained from the aforementioned structural report and a Verizon Wireless tower site leasing form.

The tower consists of four (4) tapered vertical sections consisting of A572-65 pole sections. The vertical tower sections are slip joint connected. The diameter of the pole (flat-flat) is 18.00-in at the top and 51.00-in at the base.

Sprint proposes the installation of three (3) panel antennas, six (6) Remote Radio Units (RRU's) and one (1) handrail kit mounted to the existing low profile platform. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

A n t e n n a a n d A p p u r t e n a n c e S u m m a r y

The existing, proposed and future loads considered in this analysis consist of the following:

- TOWN (Existing):
Antennas: One (1) 20-ft x 2" dia. Omni-directional whip antenna mounted on a 4-ft side arm with an elevation of 138-ft above exiting grade.
Coax Cables: Two (2) 7/8" \varnothing coax cables running on the inside of the existing monopole.
- AT&T (Existing):
Antennas: Six (6) CSS DUO1417-8686 panel antennas, three (3) Kathrein 800-10121 panel antennas, one (1) KMW AM-X-CD-14-65-00T-RET panel antenna, one (1) Powerwave P65-17-XLH-RR panel antenna, one (1) Andrew SBNH-1D6565C panel antenna, six (6) Ericsson RRUS-11, one (1) Raycap DC6-48-60-18-8F surge arrestor, six (6) Cleargain 1900/800 TMA's, three (3) CSS combiners, three (3) Kathrein 782-10250 combiners, three (3) Kathrein Smart Bias-T and one (1) Andrew ABT-DFDM-ADBH Bias-T mounted on a 13-ft platform w/ handrails with a RAD center elevation of 130-ft above exiting grade.
Coax Cables: Twelve (12) 7/8" \varnothing coax cables running on the inside of the existing monopole. One (1) fiber cable and two (2) dc control cables running within the interior of the existing monopole.

- VERIZON (RESERVED):
Antennas: Six (6) Antel LPA-80063-6CF panel antennas, six (6) Antel BXA-70063-6CF panel antennas, six (6) LPA-171063-12CF panel antennas, six (6) RRH's, one (1) RFS DB-T1-6Z-8AB-0Z main distribution box and one (1) GPS antenna mounted to a 13-ft platform w/ handrails with a RAD center elevation of 120-ft above grade.
Coax Cables: Twelve (12) 1-5/8" Ø and one (1) 1/2" Ø coax cables running on the inside of the existing tower. Six (6) 1-5/8" Ø coax cables and one (1) 1-5/8" Ø fiber cable banded to the exterior of the existing tower.
- NEXTEL (Existing):
Antennas: Twelve (12) Andrew DB844H90E-XY panel antennas and two (2) LMU's mounted on a 13-ft platform w/ handrails with a RAD center elevation of 112-ft above exiting grade.
Coax Cables: Twelve (12) 1-1/4" Ø and two (2) 1/2" Ø coax cables running on the inside of the existing monopole.
- T-MOBILE (Existing):
Antennas: Four (4) EMS RR90-17-02DP panel antennas mounted on a 14-ft low profile platform with a RAD center elevation of 100-ft above exiting grade.
Coax Cables: Eight (8) 1-5/8" Ø coax cables running on the inside of the existing monopole.
- METROPCS (Existing):
Antennas: Three (3) RFS APXV18-206517S panel antennas flush mounted with a RAD center elevation of 83-ft above exiting grade.
Coax Cables: Six (6) 1-5/8" Ø coax cables running on the inside of the existing monopole.

- SPRINT (Existing – To Remain for Interim Configuration):
Antennas: Four (4) Andrew DB980F90T2E-M and two (2) Andrew DB978F30T2E-M panel antennas mounted on a 14-ft low profile platform with a RAD center elevation of 90-ft above exiting grade.
Coax Cables: Six (6) 1-1/4" \varnothing coax cables running on the inside of the existing monopole.
- **SPRINT (PROPOSED – INTERIM CONFIGURATION):**
Antennas: One (1) RFS APXVSP18-C-A20 panel antenna, one (1) RFS APXV9ERR18-C-A20 panel antenna, one (1) Powerwave P40-16-XLPP-RR-A panel antenna, three (3) 1900MHz 4X40W RRH's, three (3) 800MHz 2X50W RRH's and one (1) Andrew MTC3314HK hand rail kit mounted on a 14-ft low profile platform with a RAD center elevation of 90-ft above exiting grade.
Coax Cables: Three (3) 1-1/4" \varnothing Hybriflex cables banded to the exterior of the existing monopole.
- SPRINT (Existing – To Be Removed for Final Configuration):
Antennas: Four (4) Andrew DB980F90T2E-M and two (2) Andrew DB978F30T2E-M panel antennas mounted on a 14-ft low profile platform with a RAD center elevation of 90-ft above exiting grade.
Coax Cables: Six (6) 1-1/4" \varnothing coax cables running on the inside of the existing monopole.
- **SPRINT (PROPOSED – FINAL CONFIGURATION):**
Antennas: One (1) RFS APXVSP18-C-A20 panel antenna, one (1) RFS APXV9ERR18-C-A20 panel antenna, one (1) Powerwave P40-16-XLPP-RR-A panel antenna, three (3) 1900MHz 4X40W RRH's, three (3) 800MHz 2X50W RRH's and one (1) Andrew MTC3314HK hand rail kit mounted on a 14-ft low profile platform with a RAD center elevation of 90-ft above exiting grade.
Coax Cables: Three (3) 1-1/4" \varnothing Hybriflex cables banded to the exterior of the existing monopole.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents or reinforcement drawings.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All existing coax cables to be installed as indicated in this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled RISATower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower shaft, and the model assumes that the shaft members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (fastest mile) with no ice and a 75% reduction of wind force with ½ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix K of the CSBC¹ and the wind speed data available in the TIA/EIA-222-F-96 Standard. The higher of the two wind speeds is utilized in preparation on the tower analysis. **The controlling antenna configuration was determined to be the interim configuration. All calculations were performed using this configuration.**

¹ The 2005 Connecticut State Building Code as amended by the 2009 CT State Supplement. (CSBC)

T o w e r L o a d i n g

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice on the tower structure and its components.

Basic Wind Speed:	Hartford; v = 80 mph (fastest mile)	[Section 16 of TIA/EIA-222-F-96]
	Canton; v = 95 mph (3 second gust) equivalent to v = 77.5 mph (fastest mile)	[Appendix K of the 2005 CT Building Code Supplement]
	<i>TIA/EIA-222-F wind speed controls.</i>	
Load Cases:	<u>Load Case 1</u> ; 80 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	[Section 2.3.16 of TIA/EIA-222-F-96]
	<u>Load Case 2</u> ; 69 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 69 mph wind speed velocity represents 75% of the wind pressure generated by the 80 mph wind speed..	[Section 2.3.16 of TIA/EIA-222-F-96]
	<u>Load Case 3</u> ; Seismic – not checked	[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software RISATower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

- Calculated stresses were found to be within allowable limits. In Load Case 1, per RISATower "Section Capacity Table", this tower was found to be at **75.8%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Pole Shaft (L3)	40.26'-79.83'	75.8%	PASS

Foundation and Anchors

The existing foundation consists of a 6.5-ft \varnothing x 4.5-ft long reinforced concrete pier on a 24.0-ft square x 3-ft thick reinforce concrete pad. The sub-grade conditions used in the analysis of the existing foundation were obtained from the aforementioned structural analysis report prepared by Centek Engineering. The base of the tower is connected to the foundation by means of (20) 2.25" \varnothing , ASTM A615-75 anchor bolts embedded approximately 5-ft into the concrete foundation structure.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower base reactions developed from the governing Load Case 1 were used in the verification of the foundation and its anchors:

Location	Vector	Proposed Reactions
Base	Shear	32 kips
	Compression	41 kips
	Moment	3165 kip-ft

- The foundation was found to be within allowable limits.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS) ⁽¹⁾	Proposed Loading (FS) ⁽¹⁾	Result
Reinforced Concrete Pad and Pier	OTM ⁽²⁾	2.0	2.23	PASS

Note 1: FS denotes Factor of Safety.

Note 2: OTM denotes Overturning Moment

- The anchor bolts and base plate were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Combined Axial and Bending	66.0%	PASS
Base Plate	Bending	78.1%	PASS

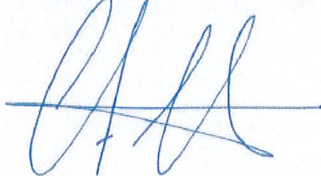
Conclusion

This analysis shows that the subject tower is adequate to support the proposed modified antenna configurations. The final antenna configuration proposed by Sprint differs from the interim configuration. The final configuration will experience less loading due to the removal of existing antennas and coax cables. Therefore, the subject tower **is adequate** to support both the proposed interim and final antenna configurations.

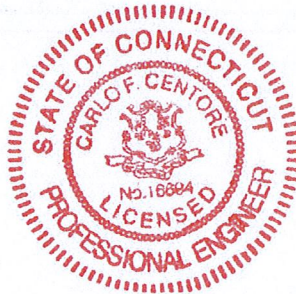
The analysis is based, in part, on the information provided to this office by Sprint. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Carlo F. Centore, PE
Principal ~ Structural Engineer



Prepared by:



Harry M. Rocheville Jr.
Civil Engineer



EBC Consulting

environmental | engineering | due diligence

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

Sprint Existing Facility

Site ID: CT54XC760

Avon - Verizon
14 Canton Springs Road
Canton, CT 06019

November 12, 2012

November 12, 2012

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

Re: Emissions Values for Site: **CT54XC760 – Avon - Verizon**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 14 Canton Springs Road, Canton, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 14 Canton Springs Road, Canton, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

- 1) 2 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
- 2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
- 3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 5) The antenna used in this modeling is the APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

- 6) The antenna mounting height centerline of the proposed antennas is **90 feet** above ground level (AGL)
- 7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Site ID	CT5AXG760 - Avon - Verizon
Site Address	14 Canton Springs Road, Canton, CT, 06019
Site Type	Monopole

Sector 1																	
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	Antenna analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APX5PP18-CA20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	90	84	1/2"	0.5	0	1386.9474	70.66549	7.06655%
1a	RFS	APX5PP18-CA20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	90	84	1/2"	0.5	0	389.56892	19.86906	3.50424%
Sector total Power Density Value:													10.571%				

Sector 2																	
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	Antenna analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APX5PP18-CA20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	90	84	1/2"	0.5	0	1386.9474	70.66549	7.06655%
2a	RFS	APX5PP18-CA20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	90	84	1/2"	0.5	0	389.56892	19.86906	3.50424%
Sector total Power Density Value:													10.571%				

Sector 3																	
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	Antenna analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APX5PP18-CA20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	90	84	1/2"	0.5	0	1386.9474	70.66549	7.06655%
3a	RFS	APX5PP18-CA20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	90	84	1/2"	0.5	0	389.56892	19.86906	3.50424%
Sector total Power Density Value:													10.571%				

Site Composite MPE %	
Carrier	MPE %
Sprint	31.712%
AT&T	3.475%
T-Mobile	25.280%
Pocket	9.880%
Canton FD	0.656%
Nexcel	4.710%
T-Mobile	3.480%
Total Site MPE %	79.182%

Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **31.712%** (**10.571% from each sector**) of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **79.182%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

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



Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

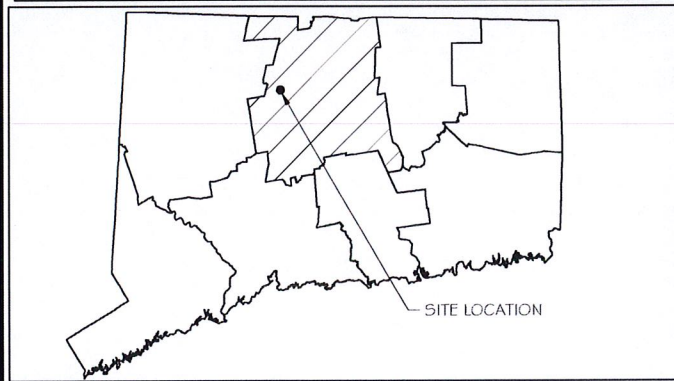
VICINITY MAP



AERIAL VIEW OF SITE



GENERAL LOCATION



DRIVING DIRECTIONS:

I-91 N TO 691 W TO I-84 W TO RT. 8N TO EXIT 44. AT THE END OF THE EXIT TURN RIGHT ON TO RT. 202E. MERGE WITH RT. 44, TRAVEL ABOUT 1.5 MILES UNTIL YOU SEE THE STORE "ELM ART" ON THE RIGHT. TURN RIGHT ON TO CANTON GREEN RD. JUST AFTER THE STORE (THERE WILL BE A WHITE GAZEBO ON THE LEFT.) AFTER THE STOP SIGN CONTINUE STRAIGHT ON TO CANTON SPRINGS RD. TURN LEFT BEFORE THE CANTON FIRE CO. THE SITE WILL BE STRAIGHT AHEAD.

CODE COMPLIANCE

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

- INTERNATIONAL BUILDING CODE 2009
- ACCESSIBILITY CODE IBC 2009, CHAPTER 11 & ICC/ANSI A117.1-2003
- 2008 NATIONAL ELECTRIC CODE
- FIRE/LIFE SAFETY CODE-IFC 2009
- ENERGY CODE IECC 2009

PROJECT NOTES

- THIS IS AN UNMANNED TELECOMMUNICATIONS FACILITY CONSISTING OF BTS EQUIPMENT AND ANTENNAS.
- SIGNALS FROM THE ANTENNA SHALL NOT INTERFERE WITH ANY EXISTING COMMUNICATION SITES. ALL ITEMS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED.
- THE PROPOSED ANTENNAS ARE ATTACHED TO EITHER BUILDING OR ANTENNA FRAME OR TO BOTH.
- THE PROPOSED WORK WILL HAVE NO EFFECT ON STRUCTURAL STABILITY. ALL WORK SHALL BE PERFORMED IN STRICT ADHERENCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS.
- REFERENCE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES FOR GENERAL REQUIREMENTS.
- THIS IS AN UNMANNED FACILITY- NO SOLID WASTE. THE SITE WILL CREATE NO TRASH, THUS REQUIRES NO DUMPSTER.
- EQUIPMENT IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS THEREFORE NOT REQUIRED.
- OWNER & 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 SERVING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

PROJECT DESCRIPTION

APPLICANT PROPOSED TO INSTALL ANTENNAS AND WEATHERPROOF EQUIPMENT CABINETS FOR AN UNMANNED PERSONAL COMMUNICATIONS SYSTEM WIRELESS CALL SITE AT AN EXISTING TELECOMMUNICATIONS FACILITY. PROPOSED FACILITY IS NOT STAFFED AND IS VISITED ONCE A MONTH FOR MAINTENANCE PURPOSES ONLY; THEREFORE, SANITARY, SEWER, GAS, POTABLE WATER AND PLUMBING ARE NOT REQUIRED.

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT
CALL BEFORE YOU DIG 811 OR 1-800-922-4455

CONNECTICUT PUBLIC ACT 87-71 REQUIRES MIN. 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE.

DO NOT SCALE DRAWINGS:
 CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

APPROVALS

CONSTRUCTION PROJECT MANAGER: _____

SITE ACQUISITION: _____

SPRINT REPRESENTATIVE: _____

RF ENGINEER: _____

LANDLORD/ OWNER: _____

CONSTRUCTION DRAWINGS

AVON - VERIZON
CT54XC760

14 CANTON SPRINGS ROAD
 CANTON, CONNECTICUT 06019
 HARTFORD COUNTY

MONOPOLE

SHEET INDEX

GENERAL:		STRUCTURAL:	
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SITE:		F-3	GROUNDING DETAILS & NOTES
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PROJECT INFORMATION

APPLICANT ID:	TELEPHONE COMPANY:
SITE NAME: AVON - VERIZON	AT&T
SITE #: CT54XC760	PH.: (210) 821-4105
PROPERTY LANDLORD:	HOSPITAL:
CANTON VOLUNTEER FIRE CO., INC.	263 FARMINGTON AVE.
14 CANTON SPRINGS ROAD	FARMINGTON, CT 06030
CANTON, CT 06019	PH.: (800) 679-2000
PH.: (860) 693-8120	FIRE HOUSE:
SITE MANAGEMENT:	CANTON VOLUNTEER FIRE CO., INC.
VERIZON WIRELESS	14 CANTON SPRINGS ROAD
SITE NAME: CANTON	CANTON, CT 06019
SITE ADDRESS:	PH.: (860) 693-8120
14 CANTON SPRINGS ROAD	APPLICANT:
CANTON, CT 06019	SPRINT
HARTFORD COUNTY	6391 SPRINT PARKWAY
SITE DATA:	OVERLAND PARK, KS 66251
LATITUDE: 41°-49'-22.37" N (41.8228°)	PLANS PREPARED BY:
LONGITUDE: 72°-53'-42.77" W (-72.8952°)	RAMAKER & ASSOCIATES, INC.
GROUND ELEVATION: 367 FT AMSL	1120 DALLAS STREET
POWER COMPANY:	SAUK CITY, WI 53583
CONNECTICUT LIGHT & POWER	CONTACT: KEITH BOHNSACK, P.E., PROJECT MANAGER
PH.: (800) 286-2000	PH.: (608) 643-4100
	FAX: (608) 643-7999

6391 Sprint Parkway
 Overland Park, KS 66251

1120 Dallas Street, Sauk City, WI 53583
 Phone: 608-643-4100 Fax: 608-643-7999
 www.Ramaker.com

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 MMBTS LAUNCH
 NORTHERN CT MARKET

Certification & Seal:
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

James R. Skowronski
 Signature: _____ Date: 4/03/2013

MARK	DATE	DESCRIPTION
C	4/03/13	PRELIMINARY PERMIT CDS
B	10/30/12	FINAL PRELIMINARY CDS
A	10/05/12	90% CD REVIEW
ISSUE PHASE	PRELIM PERMIT	DATE ISSUED 04/03/2013

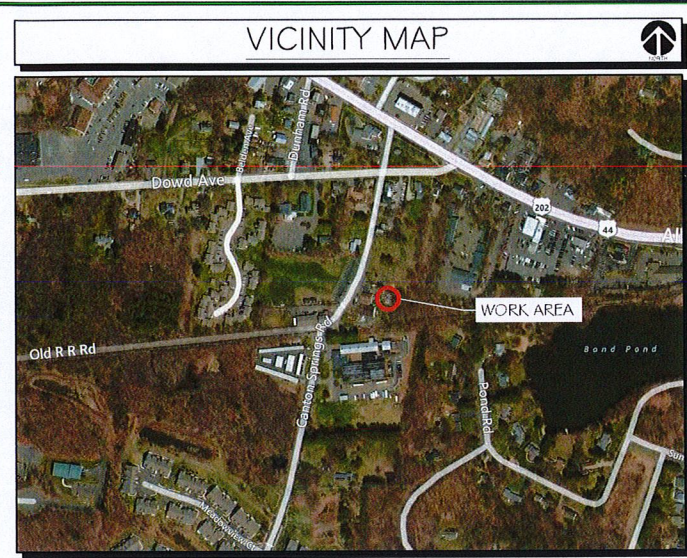
AVON - VERIZON
 SITE #: CT54XC760

PROJECT INFORMATION:
 14 CANTON SPRINGS ROAD
 CANTON, CONNECTICUT 06019
 HARTFORD COUNTY

SHEET TITLE: TITLE SHEET

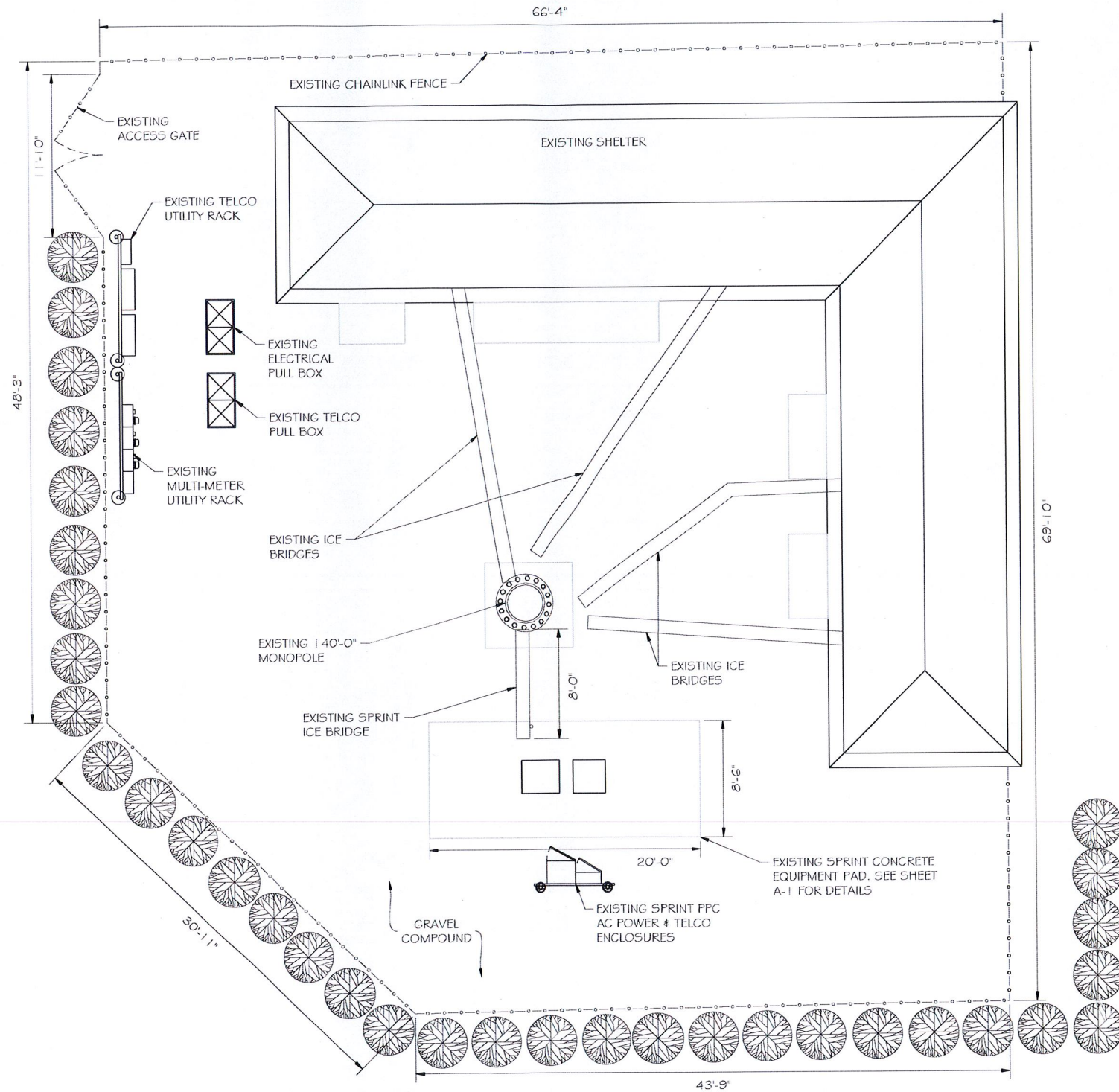
SCALE: NONE

PROJECT NUMBER	23026
SHEET NUMBER	T-1



GENERAL NOTES:

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS, AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY, OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY, OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THE FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
8. TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIATIA 222-G REQUIREMENTS.
9. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
10. CONTRACTOR SHALL MAKE A UTILITY 'ONE-CALL' TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
11. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
12. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.
13. RAMAKER & ASSOCIATES HAS NOT PERFORMED A STRUCTURAL ANALYSIS FOR THIS PROJECT. PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY SPRINT'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES, AND OTHER APPURTENANCES.
14. PROPERTY LINE INFORMATION WAS PREPARED USING DEEDS, TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
15. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
16. THE PROPOSED FACILITY WILL CAUSE ONLY A "DE MINIMIS" INCREASE IN STORMWATER RUNOFF; THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
17. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
18. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
19. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.



SITE PLAN
 SCALE: 1" = 10'



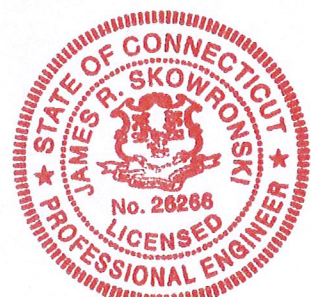
Sprint
 6391 Sprint Parkway
 Overland Park, KS 66251

Alcatel-Lucent

RAMAKER & ASSOCIATES, INC.
 1120 Dallas Street, Sauk City, WI 53583
 Phone: 608-643-4100 Fax: 608-643-7999
 www.Ramaker.com

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Certification & Seal:
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



Signature: *James R. Skowronski* Date: 4/03/2013

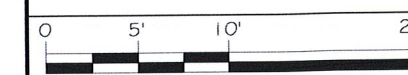
MARK	DATE	DESCRIPTION
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A	10/08/12	90% CD REVIEW

ISSUE PHASE	DATE ISSUED
PRELIM PERMIT	04/03/2013

**AVON - VERIZON
 SITE #: CT54XC760**

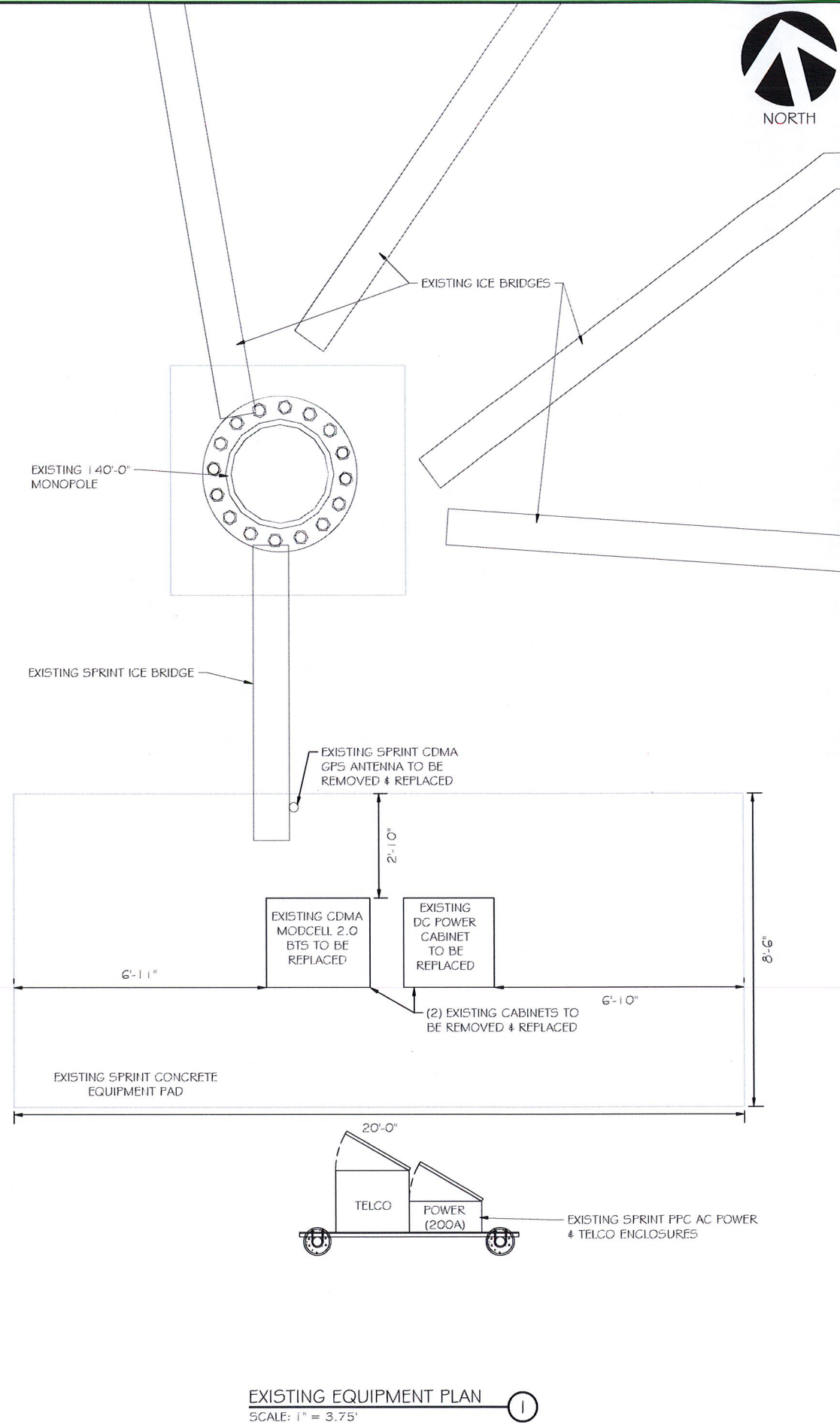
PROJECT INFORMATION:
 14 CANTON SPRINGS ROAD
 CANTON, CONNECTICUT 06019
 HARTFORD COUNTY

OVERALL SITE PLAN

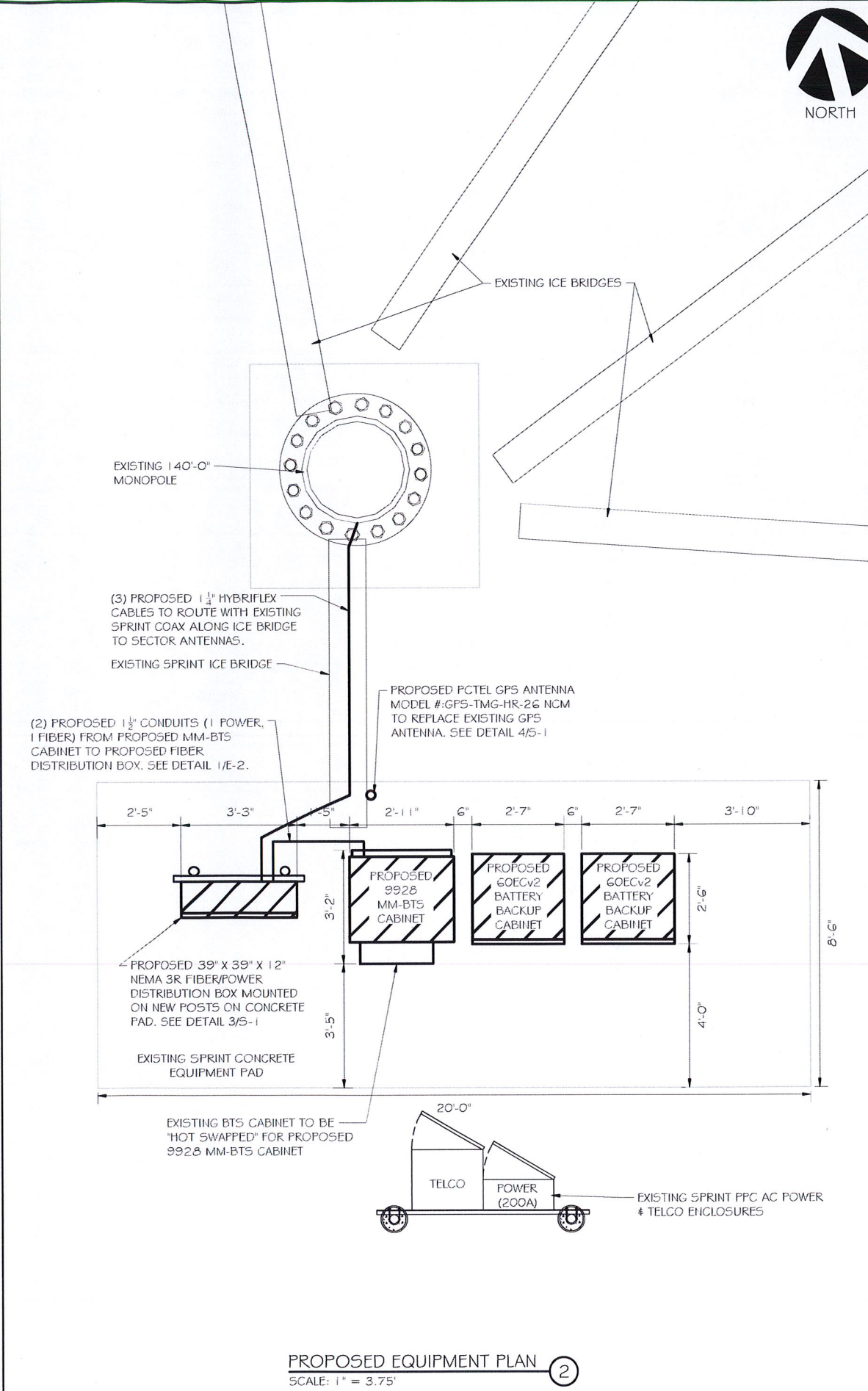


PROJECT NUMBER	23026
SHEET NUMBER	C-1

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EXISTING EQUIPMENT PLAN (1)
 SCALE: 1" = 3.75'



PROPOSED EQUIPMENT PLAN (2)
 SCALE: 1" = 3.75'



6391 Sprint Parkway
 Overland Park, KS 66251



1120 Dallas Street, Sauk City, WI 53583
 Phone: 608-643-4100 Fax: 608-643-7999
 www.Ramaker.com

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Certification & Seal:
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



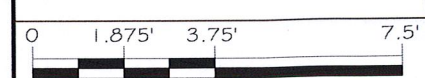
Signature: *James R. Skowronski* Date: 4/03/2013

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**AVON - VERIZON
 SITE #: CT54XC760**

PROJECT INFORMATION:
 14 CANTON SPRINGS ROAD
 CANTON, CONNECTICUT 06019
 HARTFORD COUNTY

EQUIPMENT PLAN



PROJECT NUMBER	23026
SHEET NUMBER	A-1

NOTES:

I. SCOPE

- A. THIS SECTION COVERS THE SPECIFICATIONS FOR ANTENNA AND COAXIAL CABLE INSTALLATION OF: ANTENNAS, COAXIAL, CONNECTIONS, AND ICE BRIDGE.
- B. REFERENCE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES FOR GENERAL REQUIREMENTS.

II. ANTENNAS:

- A. ANTENNAS SHALL BE PLUMB AND INSTALLED SO THAT THE ENTIRE WHIP EXTENDS ABOVE VERTICAL PIPE MOUNT. DIRECTIONAL ANTENNAS SHALL BE ORIENTED TO PROPER AZIMUTH, PROVIDED ON THE RF SPECIFICATION SHEET. NOTE: THE ANTENNA MAY BE ORIENTED USING THE REFLECTOR AS THE REFERENCE, ADJUSTING ITS AZIMUTH 180 DEGREES FROM MAXIMUM ANTENNA RADIATION.
- B. MICROWAVE ANTENNAS (DISHES) SHALL BE ASSEMBLED PER MANUFACTURER'S DRAWINGS. STIFF ARMS AND RADOMES SHALL BE INSTALLED WITH POLARIZATION PROVIDED BY RF SPECIFICATION SHEET. IF PATH IS NOT READY TO ALIGN, DISH SHOULD BE POINTED TOWARD CALCULATED AZIMUTH, OR DIRECTION OF FIELD STAKE DENOTING OPPOSITE END. 2 STIFF ARMS SHALL BE PROVIDED FOR MICROWAVE DISHES 6'-0" IN DIAMETER OR GREATER.
- C. A TRANSIT SHALL BE USED TO PROPERLY ALIGN CELLULAR AND MICROWAVE ANTENNAS.

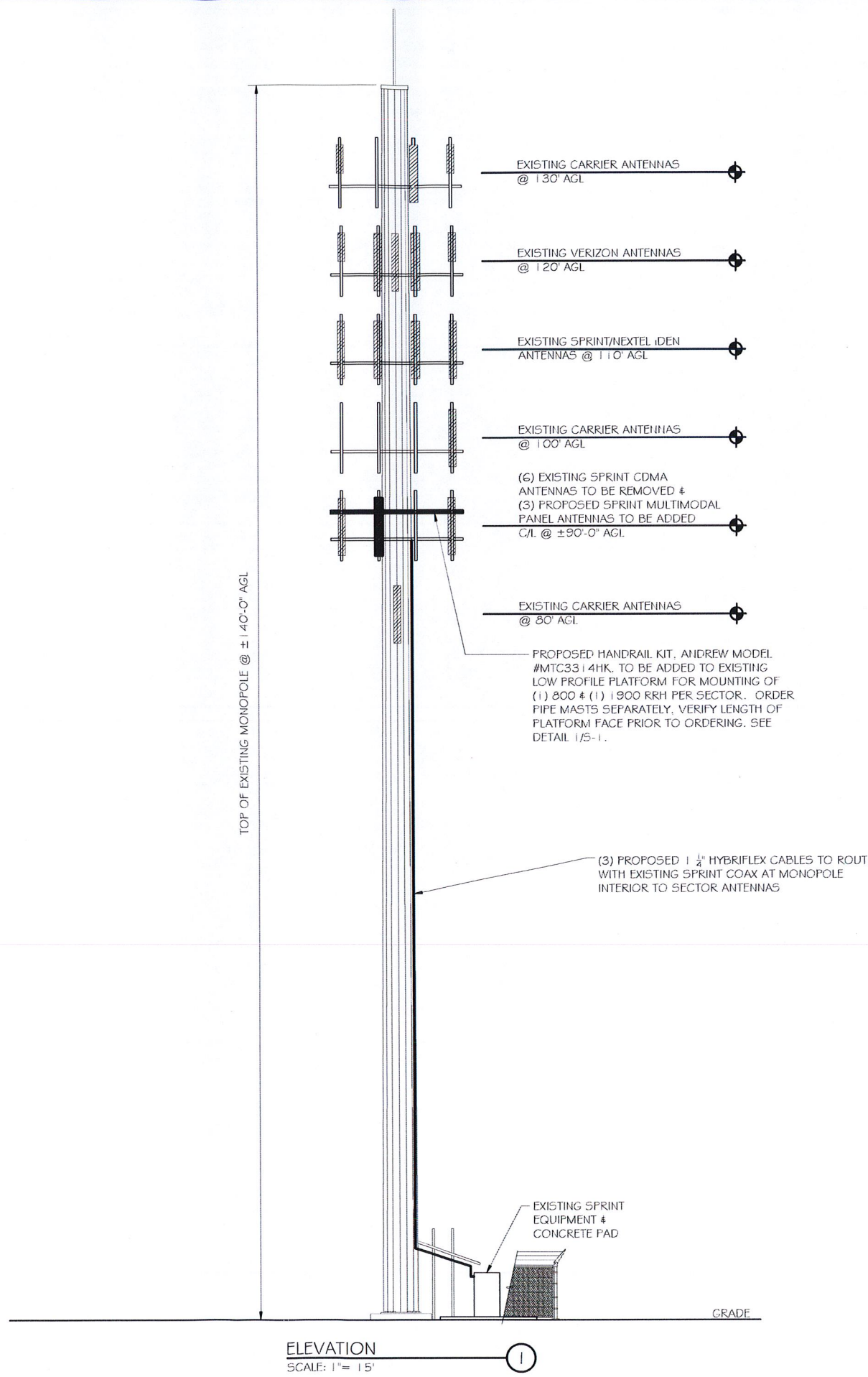
III. COAXIAL CABLE:

- A. COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP-IN HANGERS. SNAP-IN HANGERS SHOULD BE USED EVERY 3 FEET THE ENTIRE HEIGHT OF THE TOWER. ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS WITH BUTTERFLY CLAMPS SHALL BE USED ELSEWHERE, I.E. SIDEARMS, PLATFORMS, AND MICROWAVE MOUNTS.
- B. COAXIAL CABLE SHALL ALSO BE SUPPORTED WITH HOISTING GRIPS, INSTALLED AT MAXIMUM INTERVALS OF 200 FEET. HOISTING GRIPS SHALL BE ATTACHED WITH SHACKLES, BOLTED IN THE 7/8" HOLE OF WAVEGUIDE LADDER.
- C. ALL JUMPERS USED BETWEEN COAXIAL CABLE AND ANTENNA SHALL BE SUPPORTED WITHIN 18 INCHES OF ANTENNA, USING BUTTERFLY CLAMPS WITH ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS AROUND PIPES. CELLULAR ANTENNAS TYPICALLY USE 6' JUMPERS; MICROWAVE DISHES USE 3' JUMPERS.
- D. COAXIAL CABLE SHALL BE NEATLY BENT WHEN REQUIRED, USING A MINIMUM BENDING RADIUS OF 10 TIMES THE DIAMETER OF THE COAXIAL CABLE. DRIP LOOPS SHOULD BEGIN AT THE ICE BRIDGE. THE END IN THE COAXIAL CABLE SHOULD BE AT A LOWER HEIGHT THAN THE ENTRY PORT.
- E. COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP-IN HANGERS ON THE WAVEGUIDE LADDER UNDER ICE BRIDGE. COAXIAL CABLE SHOULD BE NEATLY CUT 1/8" INSIDE BUILDING AND TERMINATED AT THE QUARTER WAVE SHORTS.
- F. CONNECTORS WILL NORMALLY BE PROVIDED FIRST OFF REEL FROM FACTORY. CONNECTORS TERMINATED IN BUILDING SHALL BE NEATLY INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- G. COAXIAL CABLES SHOULD BE LABELED WITH TAGS INSIDE THE BUILDING.
- H. USE 2" WIDE COLORED TAPE TO INDICATE SECTORS. CONTRACTOR TO USE SECTOR COLOR CODING AS INDICATED IN THESE DRAWINGS OR AS PROVIDED BY SPRINT.

- I. ALL EXCEPTIONS NEED TO BE VERIFIED WITH THE PROJECT MANAGER.

IV. CONNECTORS:

- A. ALL CONNECTIONS AND GROUNDING KITS SHALL BE WEATHERPROOFED USING COLD SHRINK OR ANDREW APPROVED WEATHER STRIPPING. NOTE: NO PORTION OF CONNECTOR SHALL BE EXPOSED TO THE ELEMENTS.
- B. COAXIAL CABLE SHALL BE GROUNDED USING GROUNDING KITS AT THE TOP (BELOW THE BEND), BOTTOM (ABOVE THE BEND ON TOWER GROUND BAR), AND ON BUILDING GROUND BAR BEFORE ENTRY INTO WAVEGUIDE PORTS. 4" CABLE BOOTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- C. GROUNDING KITS SHALL BE NEATLY INSTALLED SO THAT THE JUMPER RUNS IN THE SAME DIRECTION AS THE COAXIAL AND GROUND BAR. JUMPER WIRE SHOULD RUN IN A DIRECT PATH TO THE GROUND BAR/TOWER LADDER, BUT HAVE ADEQUATE SLACK FOR EXPANSION, CONTRACTION, AND REPAIR. NON-OXIDE GREASE SHOULD BE APPLIED BETWEEN LUG AND BARTOWER.
- D. TOWER GROUND BAR SHALL BE INSTALLED ON THE ANGLE BEHIND THE FIRST DIAGONAL WAVEGUIDE LADDER RUNG, ABOVE 8'-6". GROUND BAR SHALL BE ISOLATED FROM ANGLE USING NEWTON BUSHINGS PROVIDED.



TOP OF EXISTING MONOPOLE @ ± 140'-0" AGL

ELEVATION
SCALE: 1" = 15'

1



6391 Sprint Parkway
Overland Park, KS 66251



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NORTHERN CT MARKET**

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



James R. Skowronski 4/03/2013
Signature Date

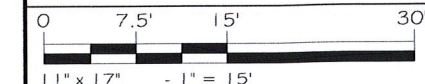
MARK	DATE	DESCRIPTION
C	4/03/13	PRELIMINARY PERMIT CDS
B	10/30/12	FINAL PRELIMINARY CDS
A	10/05/12	90% CD REVIEW

ISSUE PHASE	DATE ISSUED
PRELIM PERMIT	04/03/2013

PROJECT TITLE:
**AVON - VERIZON
SITE #: CT54XC760**

PROJECT INFORMATION:
14 CANTON SPRINGS ROAD
CANTON, CONNECTICUT 06019
HARTFORD COUNTY

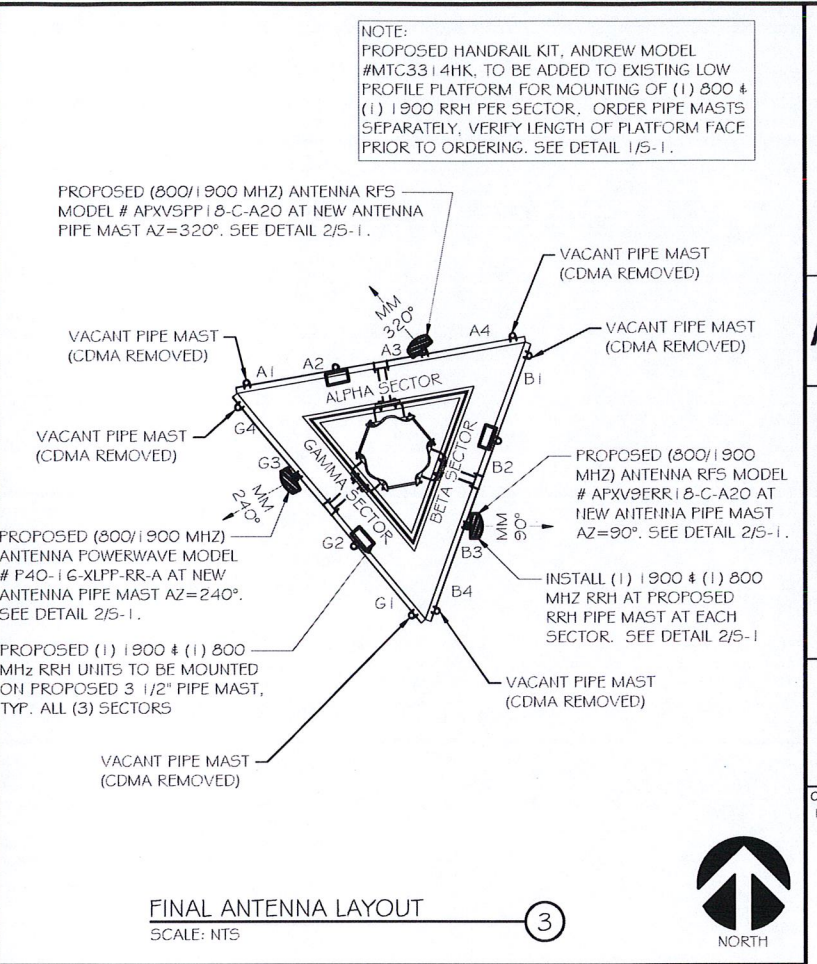
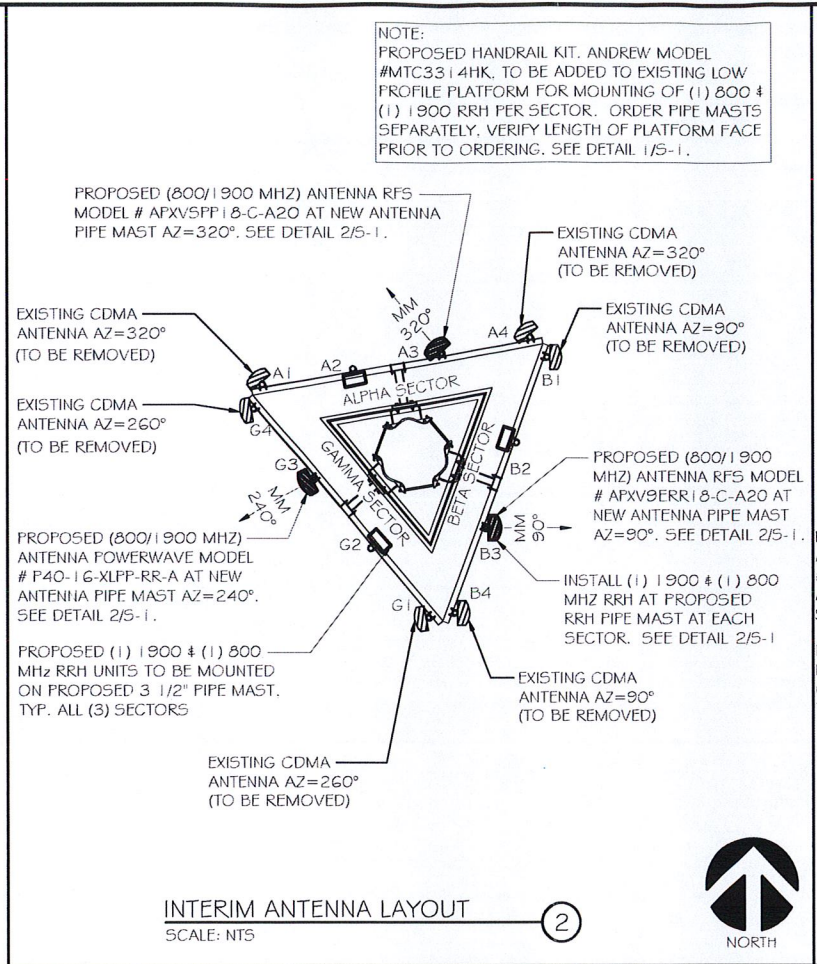
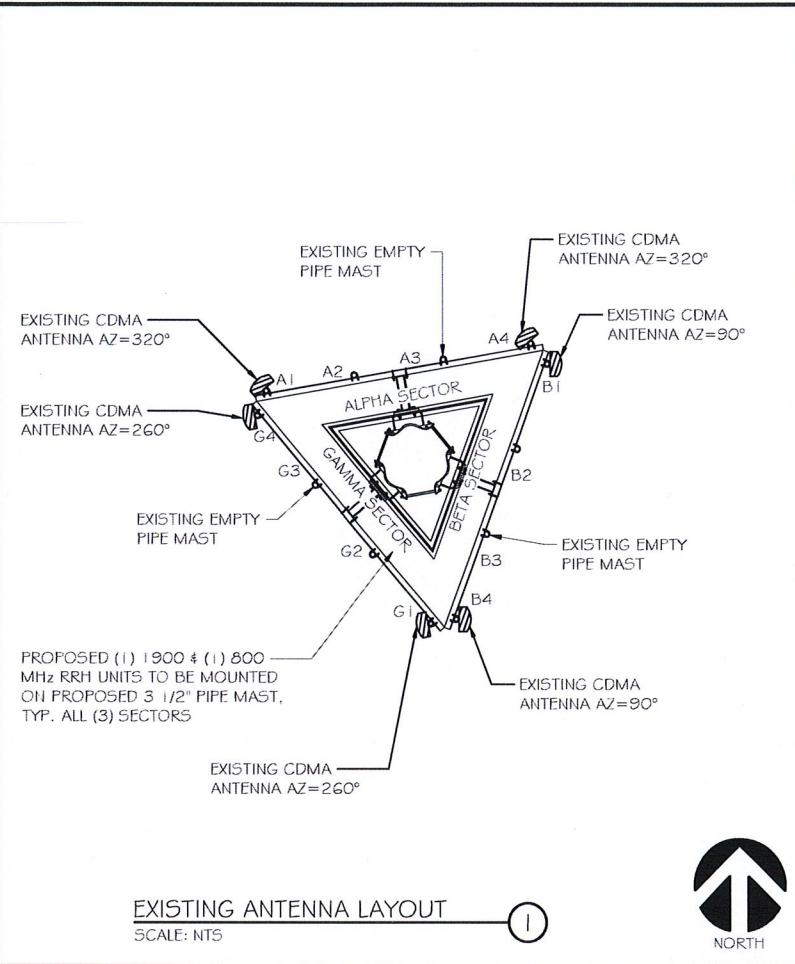
SHEET TITLE:
**SITE ELEVATION
& NOTES**



1 1/4" x 17" - 1" = 15'
2 1/2" x 34" - 1" = 7.5'

PROJECT NUMBER	23026
SHEET NUMBER	A-2

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 NORTHERN CT MARKET**

Certification & Seal:
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

Signature: *James R. Skowronski* Date: 4/03/2013

ANTENNA AND COAXIAL CABLE SCHEDULE

SECTOR	POS.	AZIMUTH	ANTENNA CENTERLINE	ANTENNA STATUS	TECH.	ANTENNA MAKE/ MODEL	MECH. DOWNTILT (°)	ELEC. DOWNTILT (°)	RRHs	CABLE SIZE	CABLE LENGTH
ALPHA	A-1	320°	90'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	EX. TO BE REMOVED	-
	A-2	-	-	-	RRHs	-	-	-	(1) 1900, (1) 800	-	-
	A-3	320°	90'-0"	PROPOSED	MULTIMODAL	RFS/APXV5PP18-C-A20	1900(0), 800(0)	1900(0), 800(0)	-	(1) 1/4" HYBRIFLEX RFS MODEL #: HB114-1-08U4-M5J	±125'-0"
	A-4	320°	90'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	EX. TO BE REMOVED	-
BETA	B-1	90°	90'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	EX. TO BE REMOVED	-
	B-2	-	-	-	RRHs	-	-	-	(1) 1900, (1) 800	-	-
	B-3	90°	90'-0"	PROPOSED	MULTIMODAL	RFS/APXV9ERR18-C-A20	1900(0), 800(0)	1900(-2), 800(0)	-	(1) 1/4" HYBRIFLEX RFS MODEL #: HB114-1-08U4-M5J	±125'-0"
	B-4	90°	90'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	EX. TO BE REMOVED	-
GAMMA	G-1	260°	90'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	EX. TO BE REMOVED	-
	G-2	-	-	-	RRHs	-	-	-	(1) 1900, (1) 800	-	-
	G-3	240°	90'-0"	PROPOSED	MULTIMODAL	POWERWAVE/P40-1G-XLFP-RR-A	1900(0), 800(0)	1900(0), 800(0)	-	(1) 1/4" HYBRIFLEX RFS MODEL #: HB114-1-08U4-M5J	±125'-0"
	G-4	260°	90'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	EX. TO BE REMOVED	-

MARK	DATE	DESCRIPTION
C	4/03/13	PRELIMINARY PERMIT CDS
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PROJECT TITLE:
**AVON - VERIZON
 SITE #: CT54XC760**

PROJECT INFORMATION:
 14 CANTON SPRINGS ROAD
 CANTON, CONNECTICUT 06019
 HARTFORD COUNTY

SHEET TITLE:
**ANTENNA DETAILS
 & COAX SCHEDULE**

SCALE: NONE

PROJECT NUMBER: 23026
 SHEET NUMBER: A-3

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