State of Florida
Telecommunications Site Review
Upgrade Version

CityScape Consultants, Inc.
7050 West Palmetto Park Road #15-652
Boca Raton, FL 33433
Tel: 877-438-2851 · Fax:877.220-4593

October 14, 2014

Mr. Scott Stoudenmire, Deputy Director
Department of Sustainable Development
City of Coconut Creek
4800 West Copans Road
Coconut Creek, Florida 33063

RE: Sprint #MI60XC004-A "Coconut Creek Government Center"
4800 West Copans Road

Dear Mr. Stoudenmire,

At your request, on behalf of the City of Coconut Creek, Florida ("City"), CityScape Consultants, Inc. ("CityScape"), in its capacity as telecommunications consultant for the City, has considered the merits of an application submitted by SprintPCS Wireless ("Applicant") to make certain modifications and adjustments to their wireless system on an existing one hundred twenty-five (125) foot monopole-type support structure; see *figure 1* and *Exhibit A*. The site is owned by the City of Coconut Creek and located at 4800 West Copans Road in Coconut Creek, Florida; see *figure 2*

Sprint is one of three proposed modifications to occur on the City-owned tower. Previously, Verizon Wireless submitted modifications for upgrades to swap antennas and they are currently in the process of making those changes. T-Mobile will follow with proposed additions to the tower to become the third collocation at the site.

The Applicant previously upgraded their system using an interim system which intended to remove some antennas and feed lines to have a more efficient type of wireless service. Since the interim installation, some equipment was removed but not as much as originally planned. Sprint proposes to keep three (3) existing 3G (third generation) antennas, fifteen (15) RRU's (remote radio units), three (3) 800 MHz SMR filters and three (3) combiners. With the proposed addition of three (3) new antennas and 3 new RRU's; the final antenna configuration will consist of six (6) antennas (two (2) per sector), eighteen (18) RRU's, three (3) 800 MHz filters and three (3) combiners; see *figure 3*.

The new equipment will upgrade Sprint's existing service to 4G (fourth generation) technology commonly referred to as LTE (Long Term Evolution) and AWS (Advanced Wireless Services) which will operate in the 2200 to 2500 MHz frequency range. The Applicant's proposed final installation will operate in the 1720 to 2500 MHz spectrum and should not be an interference concern to the City's public safety operations. The Applicant has previously submitted a statement of compliance with all Federal Communications Commission (FCC) standards regarding human exposure to RF energy and rules regarding interference with other telecommunications services; copy attached as *figure 4*.

The subject tower has required multiple structural analyses recently. The tower was constructed by Mastec and designed using the ANSI/EIA/TIA-222-F standards. All recent structurals were performed using the current building codes of ANSI/EIA/TIA-222-G and the changes in computations in standards can cause results to vary significantly. A structural was completed by Sprint for its 4G upgrades, which included the City's existing Public Safety equipment, the existing Verizon equipment and the Sprint upgrades. The results indicated the new tower stress would exceed the allowable standards for Broward County. Sprint then provided a copy of an updated structural (dated July 25,

2014) including the Sprint upgrades and the proposed addition of two potential new collocations (AT&T and T-Mobile); however this structural did not include the proposed Verizon antenna swap out. Because Sprint's modifications were more extensive than Verizon's proposed modifications, CityScape coordinated with both Sprint and T-Mobile to update the structural to properly reflect the current and correct proposed equipment changes by all carriers, including the City's equipment. In the meantime, Verizon had preceded and presented a revised and corrected structural which contained the existing equipment on the tower and Verizon's proposed antenna exchange. This new Modification Analysis Report, dated September 2, 2014, provided a new and corrected base structural for both Sprint and T-Mobile to use.

A new Rigorous Structural Analysis Report (Revised), dated October 14, 2014, was then completed and indicates the structure and foundation will sufficiently support the existing and proposed modifications by both Sprint, as well as the proposed T-Mobile collocation. The new tower rating will be 98.9% out of a maximum allowed of 105%; see *figure 5*. AT&T has previously provided interest in becoming the fourth personal wireless provider to locate at the facility, and thus any proposed future modifications or additions will require a new analysis and likely modifications and upgrades to the tower.

CityScape has visited the site on numerous occasions and has determined all necessary requirements for the proposed modifications can be accommodated within the existing property limits. The site has been designed and constructed by professionals with expertise in telecommunications site design and the construction drawings submitted on behalf of the Applicant confirms a continuation of that practice of the expertise in the discipline of maximizing the use of telecommunications facilities. This practice corresponds with the desires of the City of Coconut Creek.

CityScape confirms the application is qualified under the federal Middle Class Tax Relief and Job Creation Act of 2012. To qualify, the Applicant cannot increase the height or girth of the tower by 10% or 20 feet, whichever is greater, nor increase the ground compound size. All proposed ground modifications will occur within the Applicant's existing leased space; see *figure 6*. Based on the Applicant's submittal and discussions with the Applicant, CityScape recommends the application be approved with the following conditions:

1. All feed lines shall be installed inside the monopole shaft; and,
2. All feed line access ports shall be sealed in a manner to prevent access by birds and other wildlife.

Respectfully submitted**,**

Richard L. Edwards
FCC Licensed
PCIA Certified
CityScape Consultants, Inc.

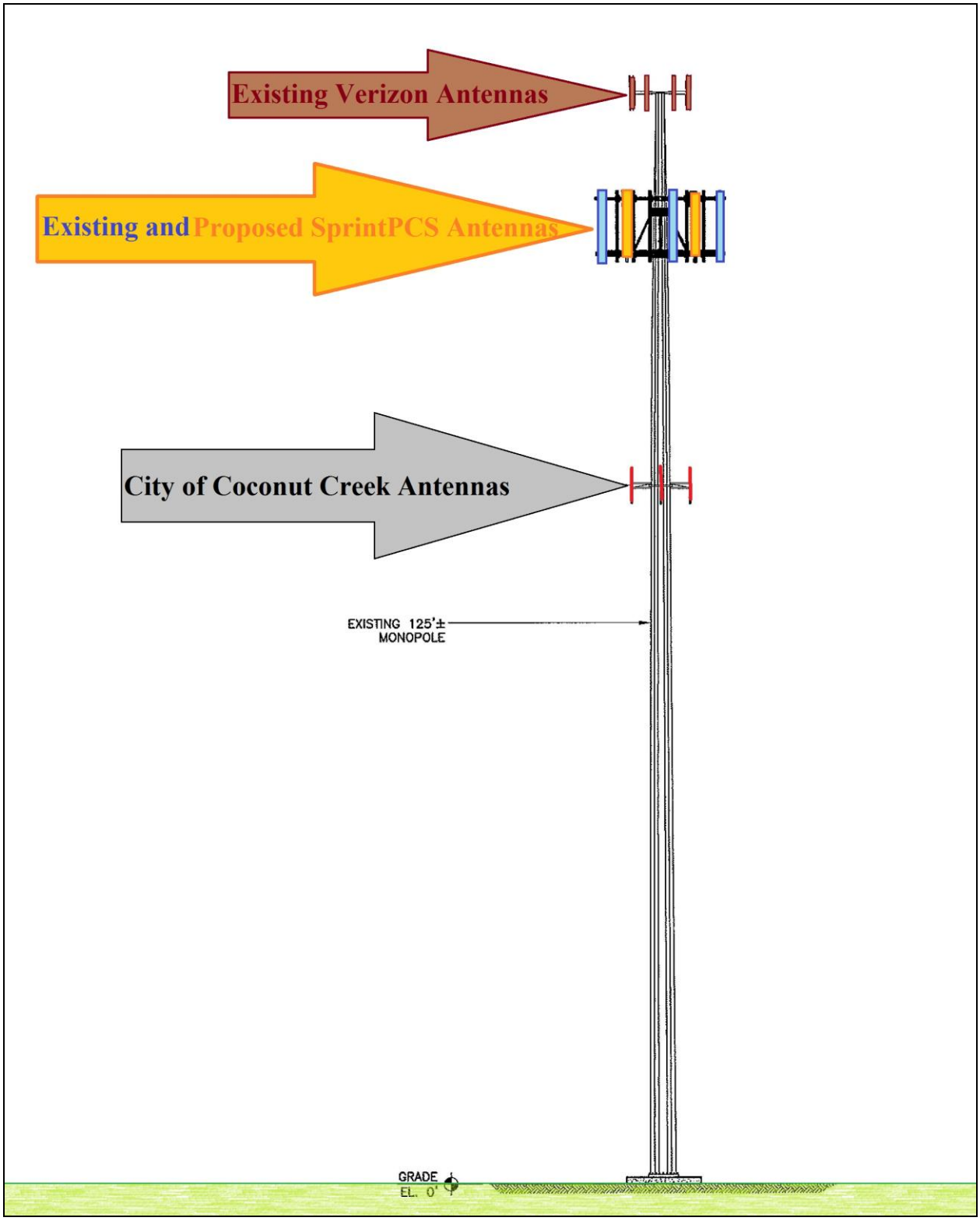


Figure 1. Tower Elevation

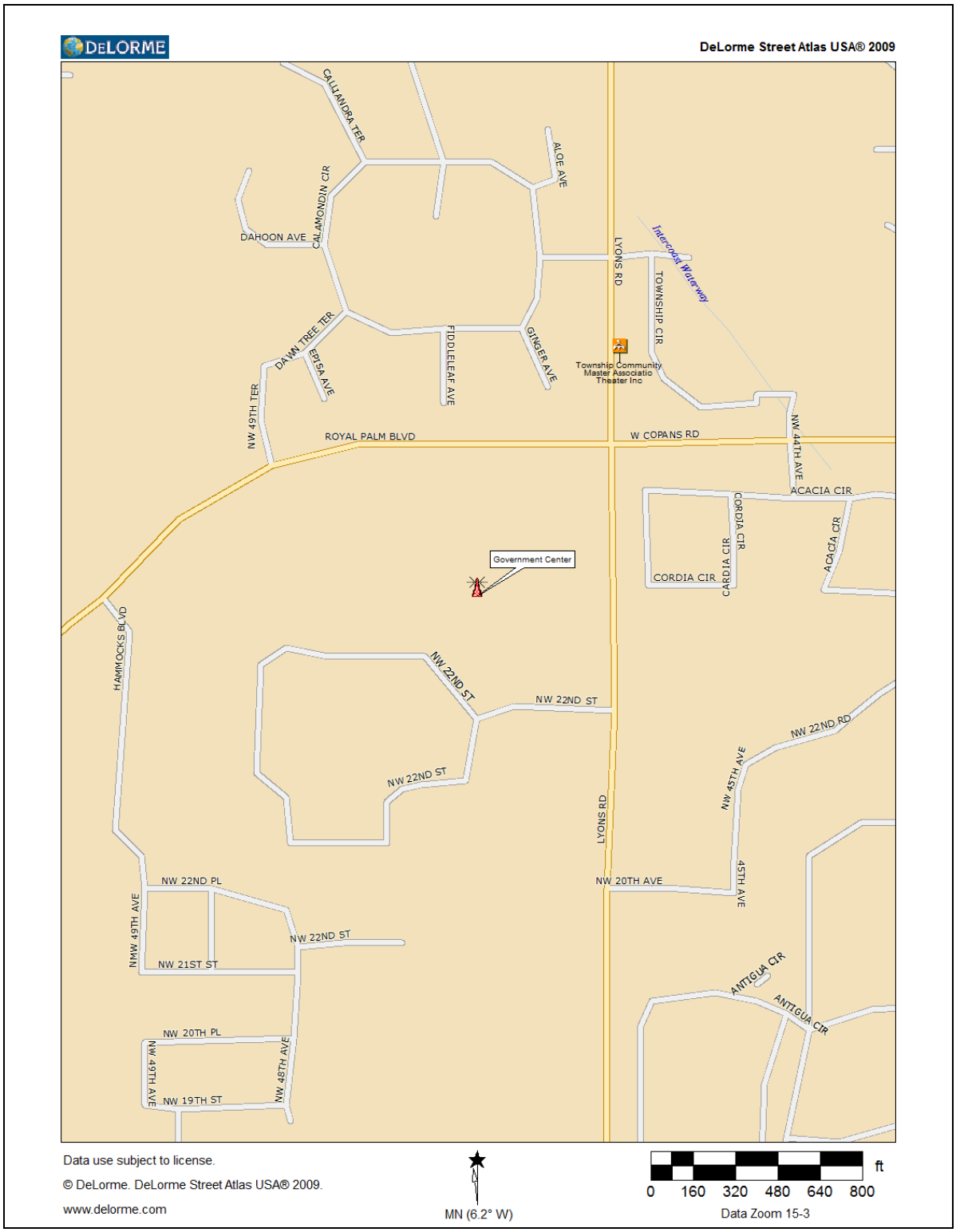


Figure 2. Site Location

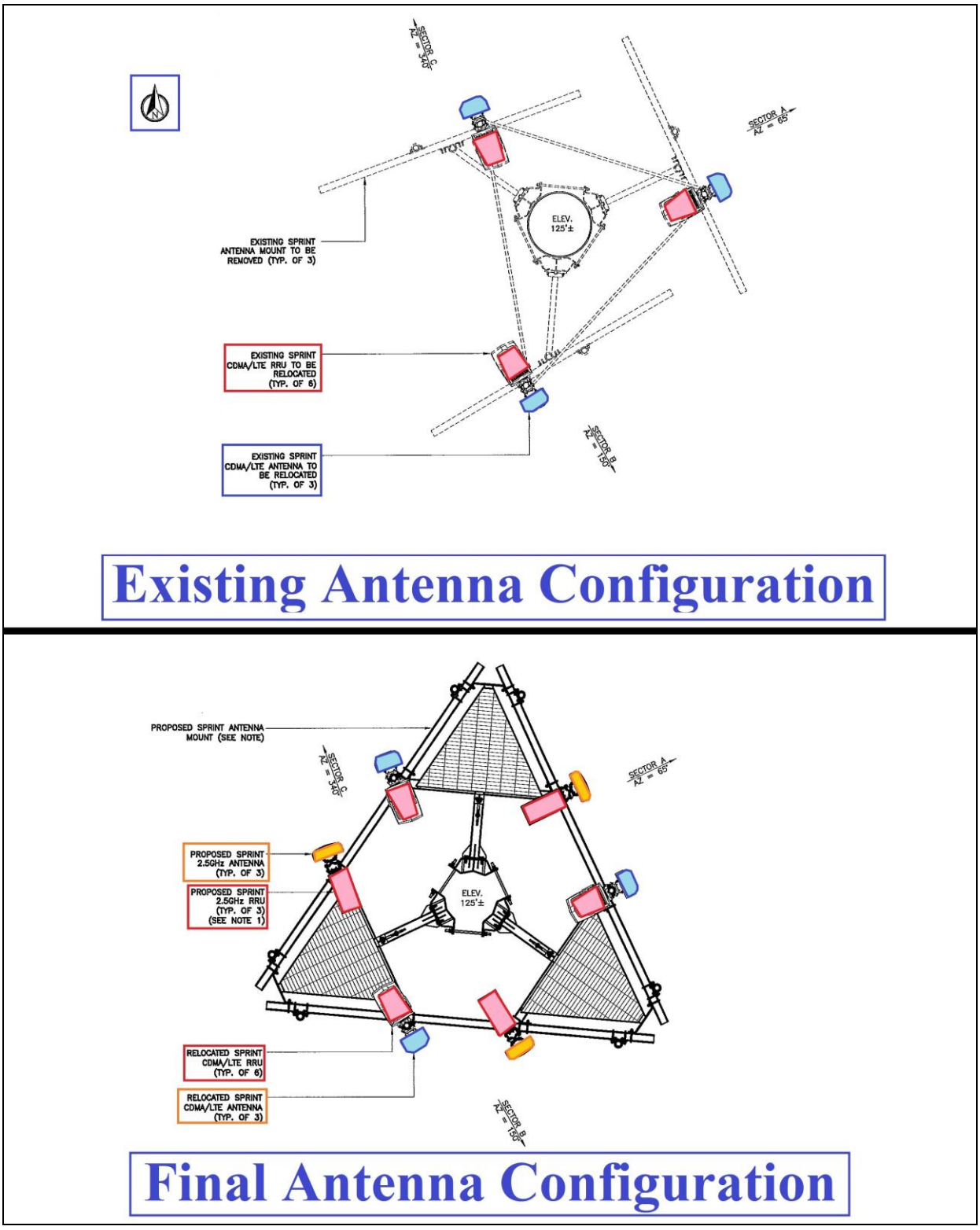
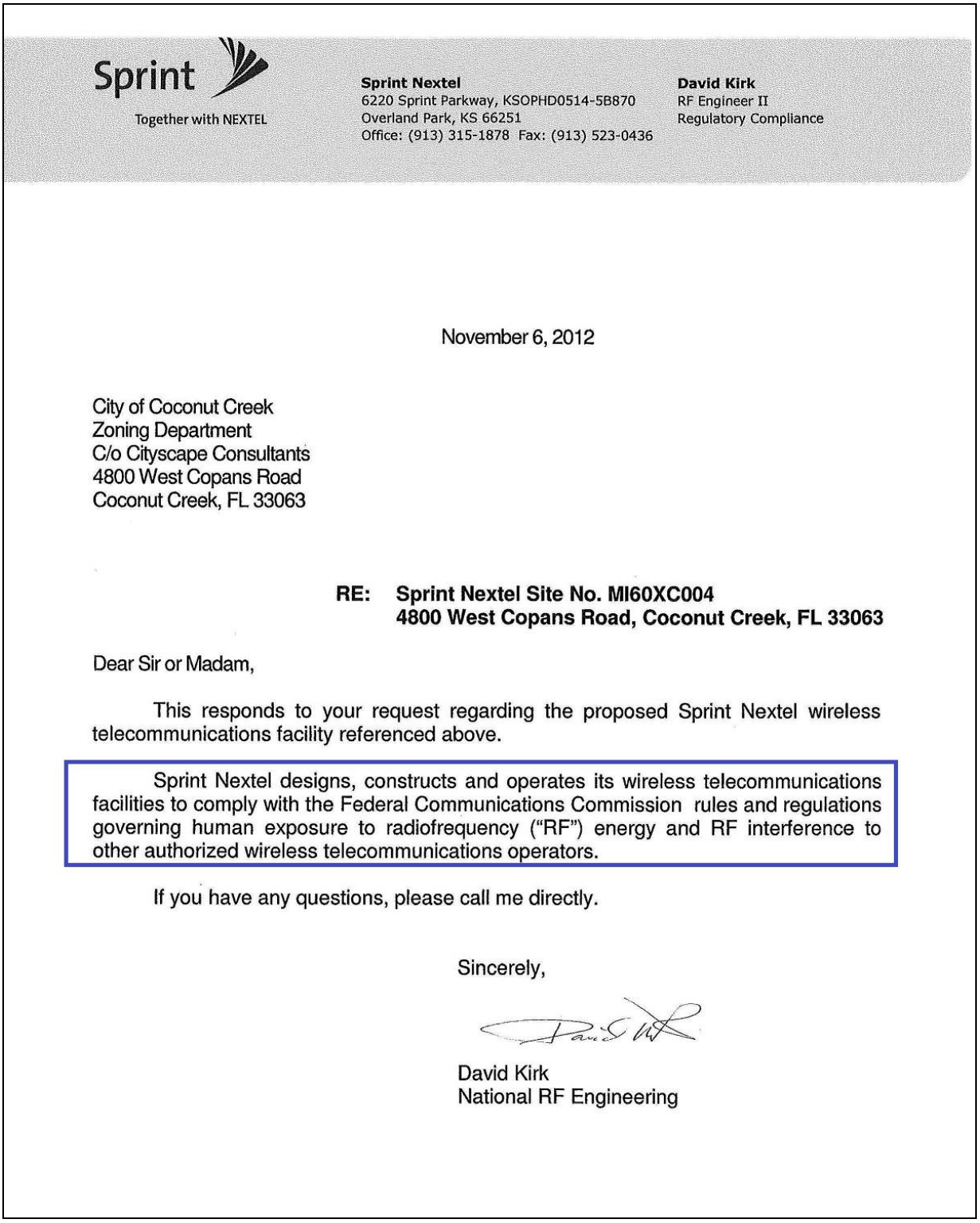


Figure 3. Antenna Configuration



Sprint
Together with NEXTEL

Sprint Nextel
6220 Sprint Parkway, KSOPHD0514-5B870
Overland Park, KS 66251
Office: (913) 315-1878 Fax: (913) 523-0436

David Kirk
RF Engineer II
Regulatory Compliance

November 6, 2012

City of Coconut Creek
Zoning Department
C/o Cityscape Consultants
4800 West Copans Road
Coconut Creek, FL 33063

RE: Sprint Nextel Site No. MI60XC004
4800 West Copans Road, Coconut Creek, FL 33063

Dear Sir or Madam,

This responds to your request regarding the proposed Sprint Nextel wireless telecommunications facility referenced above.

Sprint Nextel designs, constructs and operates its wireless telecommunications facilities to comply with the Federal Communications Commission rules and regulations governing human exposure to radiofrequency ("RF") energy and RF interference to other authorized wireless telecommunications operators.

If you have any questions, please call me directly.

Sincerely,

David Kirk
National RF Engineering

Figure 4. Compliance with FCC rules

T-Mobile

CALTROP Telecom

October 14, 2014

Mike Nisenbaum
T-Mobile USA
1300 Concord Terrace, Suite 200
Sunrise, FL 33323

CALTROP Corporation
3400 Lakeside Drive, Suite 525
Miramar, FL 33027
(954) 874-7870

Subject:	**Rigorous Structural Analysis Report (Revised)**
Carrier Designation:	**T-Mobile: FB2181A (Coconut Creek City Hall)**
CALTROP Project Number:	**140-770.27**
Site Information:	**4800 W Copans Road** **Coconut Creek, Broward County, FL 33063** **Latitude 26.258169°N, Longitude 80.187400°W** **125' Monopole Tower**

Dear Mr. Nisenbaum:

CALTROP Corporation (CALTROP) is pleased to submit this revised Rigorous Structural Analysis Report to determine if the subject tower is able to support certain proposed additional loads.

It is our understanding that T-Mobile USA (T-Mobile) desires to install new telecommunication equipment on the subject tower. This analysis was based on the supporting information listed in Table 3.0. Our services were performed in accordance with the terms and conditions of the existing field services agreement between CALTROP and T-Mobile. This report summarizes the results of our findings.

The purpose of this analysis is to determine the suitability of the aforementioned tower to support the loading indicated in Table 2.2. This analysis has been performed in accordance with the TIA-222-G standard, based upon a nominal 3-second gust reference wind speed of 132 mph with no ice. Based on our analysis, subject to the assumptions noted, it is our opinion that the tower superstructure and foundation system **can adequately resist** the proposed Sprint equipment deployment without modification

Tower: Pass at 98.9%, Foundation: Pass at%98.9

This report has been prepared for the purpose of providing a structural evaluation of the subject telecommunications tower for the loading conditions indicated. It is intended for the exclusive use of T-Mobile. The information, assumptions, and recommendations contained in this report should not be used by others for any purpose without express written authorization from CALTROP. We appreciate the opportunity to provide our professional services to you and look forward to continuing our relationship. If we can be of any further assistance, please do not hesitate to call.

Sincerely,

CALTROP CORPORATION

Dully M. Amaya, E.I.
Staff Engineer
Registered, Florida 100800943

Michael A. Phillips, P.E.
Principal Engineer
Registered, Florida 68312

MICHAEL A. PHILLIPS LICENSE No. 68312 STATE OF FLORIDA PROFESSIONAL ENGINEER
October 13, 2014

CALTROP Corporation
3400 Lakeside Drive, Suite 525
Miramar, Florida 33027

www.caltrop.com
P: 954.874.7870
F: 954.874.7868

Figure 5. Structural Statement

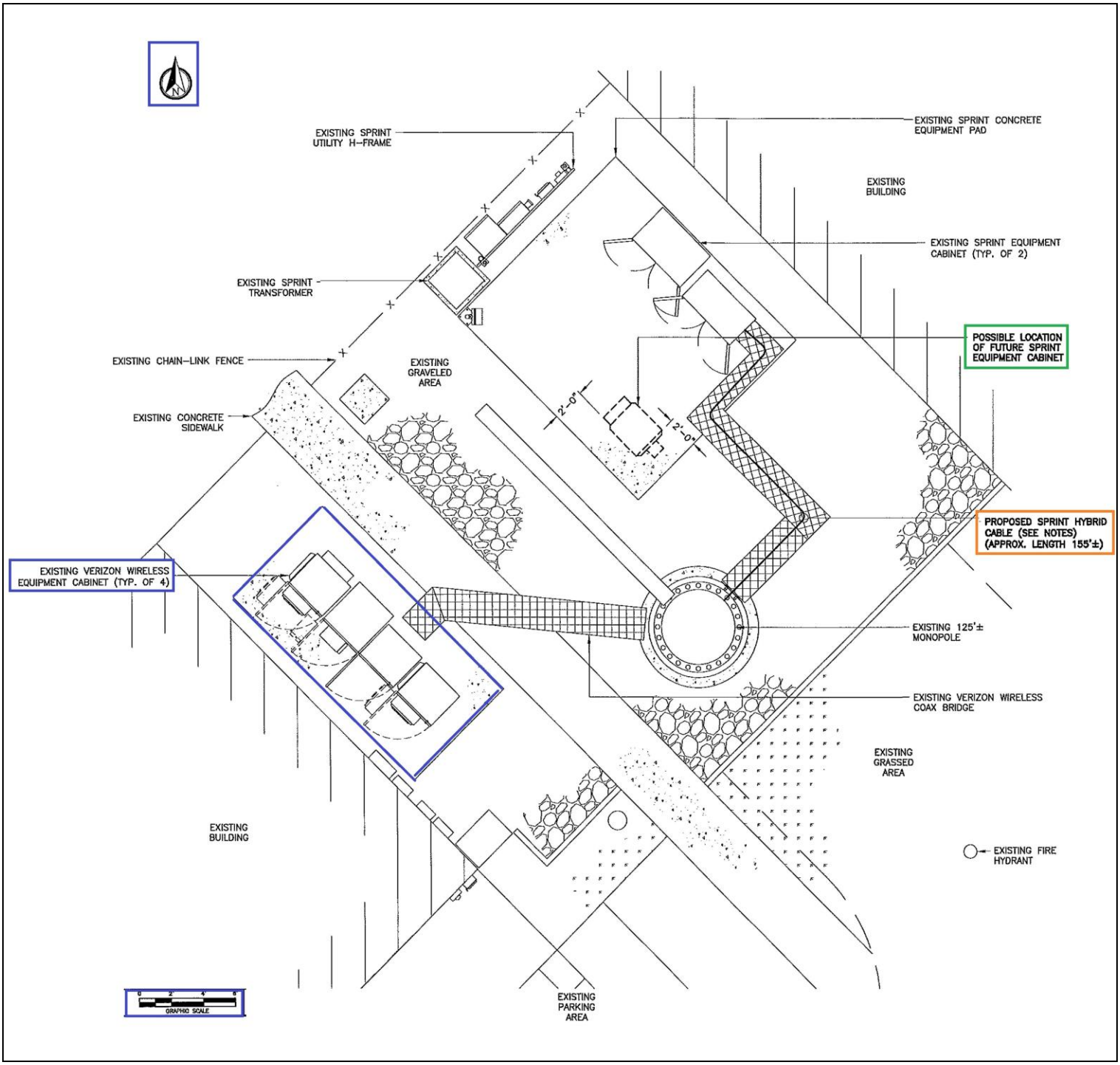


Figure 6. Ground Compound

Exhibit A. Subject Facility