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July 2, 2018

City of Hampton,
22 Lincoln Street
Hampton, VA 23669

Ref: *Site Name –Universal Wireless-Greenlawn– 159’ Proposed Monopole
ACGI# 18-2061
Jurisdiction: City of Hampton
Site Address: 700 Greenlawn Avenue
Hampton, VA 23661
Scope of Work: Engineering Specification Letter
Applicable Code:
2012 Virginia Uniform Statewide Building Code (IBC 2012) & ASCE 7-10, ANSI/TIA-222-G, Risk
Category II,
Wind Speed: IBC 2012 (115 mph ultimate wind speed), ANSI/TIA-222-G (Equivalent 89 mph
nominal wind speed), Exposure “C”*

This letter is provided in reference to the above mentioned site for the following specifications:

1. The purpose of this tower is to support telecommunication antenna equipment for cellular coverage of the affected area.
2. Above referenced tower to be designed to meet or exceed industry standards defined by ANSI/TIA-222-G, “Structural Standard for Antenna Supporting Structures and Antennas” (ANSI/TIA-222-G Standard).
3. The total height of tower is 159’ with highest appurtenance to 163’ (with 4’ lightning rod). All site location data to be re-verified by survey.
4. The tower must be designed to accommodate for a total of 3 anticipated carriers at different levels, with 12 anticipated panel antennas for each carrier.
5. The tower must be designed and certified by an Engineer to be structurally sound and as a minimum in conformance with the adopted Building code. This tower to be designed using the following minimum wind speed as defined by ANSI/TIA-222-G for City of Hampton, VA
 - i) 115 mph 3-second-gust ultimate wind speed with no ice.
 - ii) 30 mph 3-second-gust wind speed with 0.5” ice.The “3-second-gust wind speed refers to a wind measured at 33 ft. above the ground. Equations in ANSI/TIA-222-G Standard take into account that the wind speed escalates with the increasing height of the tower.
6. In our opinion the possibility of a tower collapse is very unlikely. The tower to be designed using extreme wind and ice conditions. The wind speeds specified by ANSI/TIA-222-G Standard are 50-years wind speeds. That is they have only a 2% statistical chance of occurring in any given year.
7. Although we cannot guarantee exactly how a tower would fall if it were to fail, the most likely mode of failure will be buckling failure of one of the tower sections (weakest section) due to excessive compression loading. The tower shall be designed so that the fall radius remains within 70% of the total tower height. Actual fall zone calculations shall be provided by tower manufacturer.

If you have any other questions or concerns regarding our recommendations, please contact us.

Sincerely,
Chiyu Zhang, PE
07/02/2018



Approved by:
Joji M. George, P.E
VA PE # 39380