Appendix K

Communication Tower Study

Wind Power GeoPlanner™

Communication Tower Study

Tatanka Wind Project

Prepared on Behalf of
Tatanka Ridge
Wind, LLC

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A CommScope Company

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1. Introduction

This Communication Tower Study was performed for the Tatanka Wind Project in Deuel County, South Dakota to identify the tower structures as well as FCC-licensed communication antennas that exist in the project area. This information is useful in the planning stages of the wind energy facilities to identify turbine setbacks and to prevent disruption to the services provided by the tenants on the towers. This data can be used in support of the wind energy facilities communications needs in addition to avoiding any potential impact to the current communications services provided in the region.

2. Summary of Results

The communication towers and antennas in the study area were derived from a variety of sources including the FCC's Antenna Structure Registration (ASR) database, Universal Licensing System (ULS), national and regional tower owner databases, and the local planning and zoning boards. The data[1] was imported into GIS software and the structures mapped in the wind energy area of interest. Each tower location is identified with a unique ID number associated with detailed structure and contact information provided in a spreadsheet attachment.

Four tower structures and fifteen communication antennas were identified within the Tatanka Wind Project area using the data sources described in our methodology above. All four of the structures found were registered with the FCC and they contain nine of the fifteen communication antennas. The remaining antennas may be located on a variety of structure types such as guyed towers, monopoles, silos, rooftops or portable structures. The specific type of structure would normally need to be determined by an on-site visit.

Detailed information about the tower structures and communication antennas is provided in Table 1 and Table 2 including location coordinates, structure height above ground level, and owner-operator name[2].

A discussion of turbine setback distances is provided in section three.

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

[2] Please note that this report analyzes all known operators on the towers from data sources available to Comsearch. Unidentified operators may exist on the towers due to unlicensed or federal government systems, mobile phone operators with proprietary locations, erroneous data on the FCC license, and other factors beyond our control.

Tower ID	ASR Number	Owner	Structure Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)	Distance to Closest Turbine (km)
Tower001	1213429	CCATT LLC	92.4	44.61688889	-96.71425000	0.69
Tower002	1041435	South Dakota, State of	91.4	44.59444444	-96.64750000	1.40
Tower003	1306309	Alpha 3E Corporation	129.2	44.59347222	-96.66433333	1.75
Tower004	1042181	Otter Tail Power Company	128	44.57361111	-96.66361111	2.54

Table 1: Summary of Tower Structures

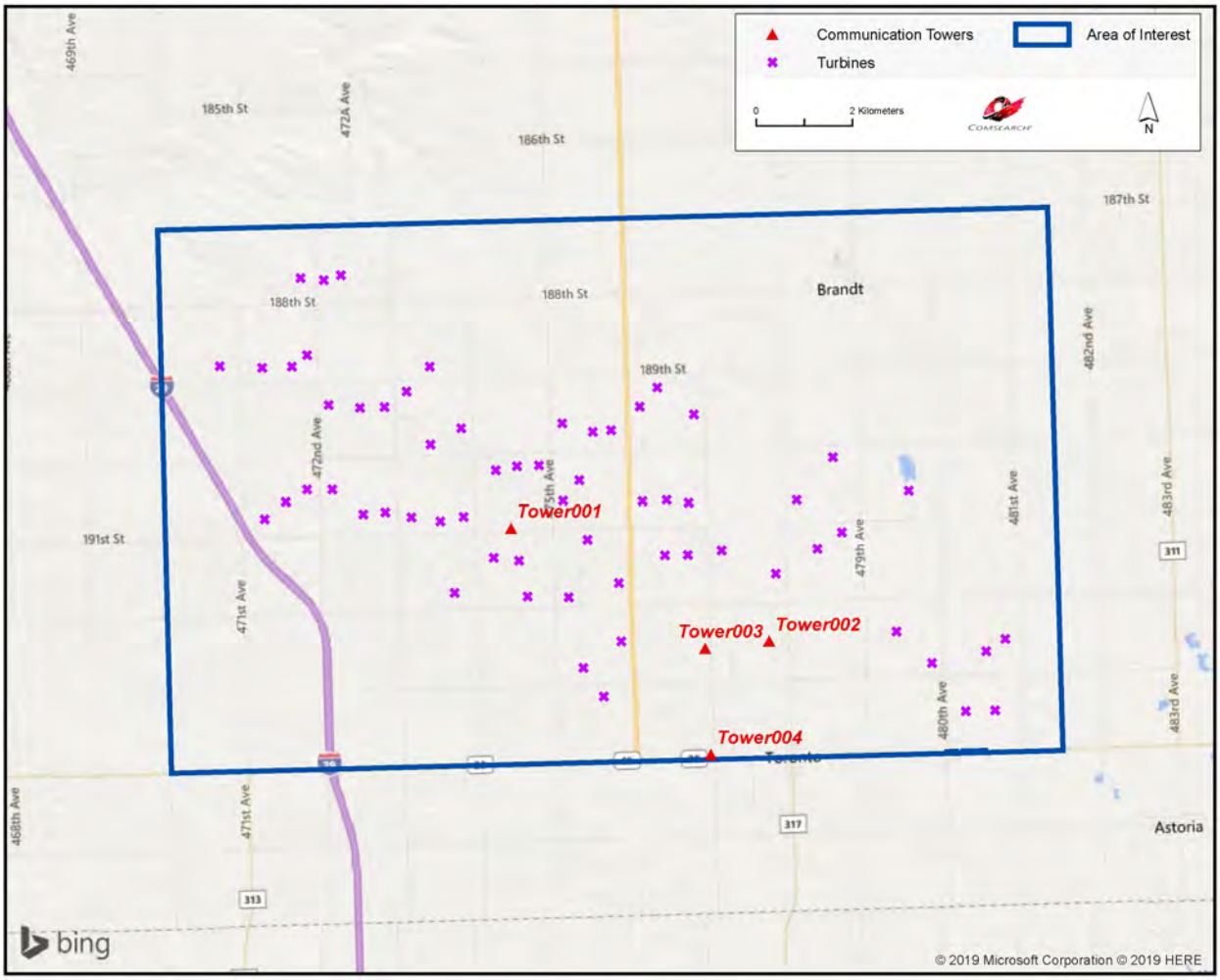

Figure 1: Towers within the Area of Interest

ID	Tower ID	Callsign	Service Type	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)	Distance to Closest Turbine (km)
1		WPCR283	Land Mobile	BROOKINGS DEUEL RURAL WATER SYSTEM INC	24	44.633306	-96.683667	0.32
2		WPEC289	Land Mobile	SIOUX FALLS TWO WAY RADIO SERVICE INC.	61	44.631083	-96.680056	0.69
3		WPEU910	Land Mobile	CLEAR LAKE VET CLINIC	61	44.631083	-96.680056	0.69
4		WQEQ405	Land Mobile	EIDE, STACY	55	44.631056	-96.680056	0.69
5	Tower001	KNKN384	Cellular	AT&T Mobility Spectrum LLC	47.7	44.616861	-96.714250	0.69
6		KDBX	FM	Alpha 3E Licensee, LLC	113.0	44.612222	-96.678056	0.33
7		RXONLY	Microwave	Alpha 3E Licensee, LLC	30.5	44.612194	-96.678056	0.33
8	Tower003	WNFB441	Land Mobile	BROOKINGS DEUEL RURAL WATER SYSTEM INC	30	44.604694	-96.683111	0.31
9	Tower003	WPWA690	Land Mobile	BIT/State Radio Communications Engineering	82.3	44.594444	-96.647500	1.40
10	Tower003	WPWF366	Land Mobile	BIT/State Radio Communications Engineering	82.3	44.594444	-96.647500	1.40
11	Tower003	KBI853	Land Mobile	BIT/State Radio Communications Engineering	91	44.594417	-96.647556	1.41
12	Tower003	KDBX	FM	Alpha 3E Licensee, LLC	120.0	44.593611	-96.663889	1.78
13	Tower004	WQCY464	Land Mobile	OTTER TAIL POWER COMPANY	61/76	44.573611	-96.663611	2.54
14	Tower004	WNPZ939	Land Mobile	OTTER TAIL POWER COMPANY	128	44.573583	-96.663944	2.51
15	Tower004	WHI615	Microwave	Otter Tail Power Company	94.49/ 103.63	44.573556	-96.663639	2.54

Table 2: Summary of Communication Antennas

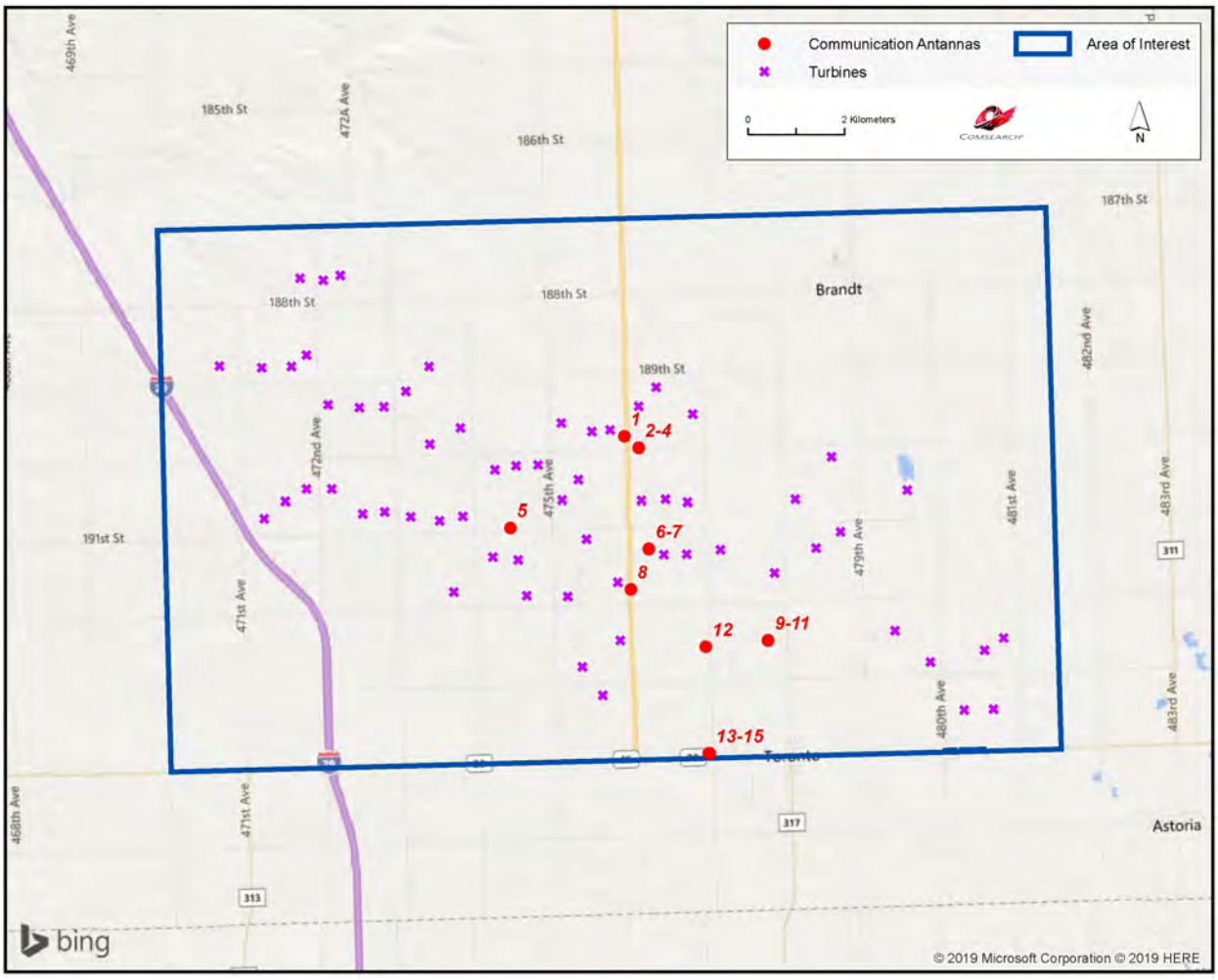

Figure 2: Communication Antennas within the Area of Interest

3. Discussion of Separation Distances

In planning the wind energy turbine locations, a conservative approach would dictate not locating any turbines in close proximity to existing tower structures to avoid any possible impact to the communications services provided by the structures. Reasonable distance between communication towers and wind turbine towers is a function of two things: (1) the physical turning radius of the wind turbine blades and (2) the characteristics of the communication systems on the communication tower.

Since wind turbine blades can rotate 360º, the first consideration of separation distance to other structures is clearance of the blades. If the blade radius is 50 meters, then a separation distance greater than 50 meters is necessary. From a practical standpoint, a setback distance greater than the maximum height of the turbine is necessary to insure a “fall” safety zone in the unlikely event of a turbine tower failure. Setback requirements for “fall” safety are typically specified by the local zoning ordinances.

The required separation distance based on the characteristics of the communication systems will vary depending on the type of communication antennas that are installed on the tower. For example, AM broadcast antennas should be separated by distances that allow for normal coverage which can extend up to 3 kilometers. For land mobile and mobile phone systems, setback distances are based on FCC interference emission limits from electrical devices in the land mobile and mobile phone frequency bands.

Finally, the tower structures identified could be a potential benefit in support of communications network needs for the wind energy facility. An example would be the implementation of a Supervisory Control and Data Acquisition (SCADA) system that monitors and provides communications access to the wind energy facility.

4. Conclusions

Our study identified four tower structures and fifteen communication antennas within the project area. They are used for microwave, cellular, FM and land mobile services in the area.

5. Contact Us

For questions or information regarding the Communication Tower Study, please contact:

Contact person: David Meyer
Title: Senior Manager
Company: Comsearch
Address: 19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone: 703-726-5656
Fax: 703-726-5595
Email: dmeyer@comsearch.com
Web site: www.comsearch.com