



RADIOCOMMUNICATION SYSTEM IMPACT STUDY

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Overview

Natural Forces (the Proponent) is proposing to develop a wind energy project in West Hants, NS, consisting of up to 28 wind turbines. This project is called the Benjamins Mill Wind Project (the Project), and it will produce up to 150 MW of renewable energy. The purpose of this report is to determine any potential impacts the Project may have on nearby radiocommunication and radar systems infrastructure.

Background

This study was conducted using the Radio Advisory Board of Canada and CanWEA (RABC-CanWEA) “Technical Information and Coordination Between Wind Turbines and Radiocommunication and Radar Systems” (2020). Wind turbines have the capacity to have a negative effect on neighbouring radiocommunication and radar systems through interference. By conducting this study early on in the development of the Project, these impacts can be better understood and appropriately mitigated.

The RABC-CanWEA guidelines (2020) provide the recommended consultation areas for each type of tower. The consultation zone is the area within which a project Proponent must consult with the radiocommunication service provider to ensure appropriate mitigation of any potential interference impacts. In addition to consultation zones around each tower, these guidelines also provide information on point-to-point (PTP) communication towers, which require more complex consultation zones along the PTP link according to the distance between towers and the Fresnel zone.

The location of the radiocommunication towers near the Project site can be determined by using Innovation, Science, and Economic Development’s (ISED, previously Industry Canada) Spectrum Direct tool, which provides the geographic coordinates of all radiocommunication and radar systems in the country. This download tool provides all of the information that is relevant to and necessary for conducting this interference study.

The following are the steps recommended by the RABC-CanWEA guidelines:

1. The wind project proponent develops a map showing the location of the proposed wind farm, to the extent that this information is available at that time. The proponent obtains and provides preliminary information for the proposed project, including project area coordinates, representative machine and proposed number of wind turbines.
2. The proponent sends notices of consultation with the proposed wind farm location and preliminary project information to all mandatory contacts operating non-disclosed systems. These mandatory contact agencies will respond in a timely fashion, no more than 21 days after initial contact.
3. The proponent determines whether any of the consultation zones for disclosed systems overlap/intersect the proposed project area, as described by these guidelines.
4. In the event that the guidelines or mandatory consultation contacts indicate that a given installation is located within a consultation zone, the proponent contacts the applicable authority/owner of the disclosed or non-disclosed systems to determine if,

in fact, further investigation is warranted. The owners of disclosed or non-disclosed systems will respond to the proponent in a timely fashion, no more than 60 days from when the proponent first contacts the owners of respective disclosed or non-disclosed systems.

5. The proponent and applicable authority/owner of the disclosed or non-disclosed systems undertake the necessary studies and identify mitigation measures to resolve the issue to the satisfaction of both parties. The wind project proponent develops a map showing the location of the proposed wind farm and all the wind turbines within it. (RABC-CanWEA 2020).

In this study, Natural Forces followed these recommended steps. The methodology that was employed can be found detailed below, along with the findings of this internal study.

Methodology

The following steps were conducted for the radiocommunication system impact analysis:

1. Once the preliminary turbine locations were determined, all relevant federal agencies (Navigation Canada, Transport Canada, Department of National Defense, Environment and Climate Change Canada, the Royal Canadian Mounted Police, and the Canadian Coast Guard) were contacted to consult on the proposed turbine locations to ensure that minimal interference would result from the Project.
2. The location of all nearby radiocommunication and radar systems were downloaded from the ISED website. This was done by inputting the geographic coordinates for the centre of the proposed Project site and selecting a frequency range of 1-1000000 MHz to cover all possibilities in the area. The resulting list is attached in Appendix A.
3. The various radiocommunication systems that could be near the Project were selected, along with the fields necessary for the analysis (tower ID, frequency, channel type, height above ground level, latitude/longitude, station location, in-service date, and licensee name).
4. The latitude/longitude points were used to spatially display the locations.
5. The PTP towers were paired by matching the towers' Licensee Name and frequency. Once displayed spatially, these towers were connected using polylines. The consultation zone radius was determined using the equation provided by RABC-CanWEA (equation can be seen below in the Findings section). Once the size of the consultation zone was calculated, it was mapped.
6. For all of the other tower types (non-PTP), the appropriate consultation zone was created according to the RABC-CanWEA guidelines.
7. Once all of these consultation zones were mapped, they were mapped with the preliminary turbine locations to determine whether any of the towers were sited within any of the consultation zones.

Inputs

Figure 1 shows the location of the Project and Figure 2 shows the boundaries of the Project site with the preliminary turbine locations. The characteristics of the wind turbine models under

consideration can be found in Table 1. For the purposes of this analysis, a rotor diameter of 160 m was used in the PTP links calculation.

TABLE 1: CHARACTERISTICS OF PROPOSED TURBINE MODELS.

Characteristic	Range based on several proposed turbine models
Hub height	100-131 m
Rotor Diameter	138-170 m
Ground to blade tip height	170-200 m

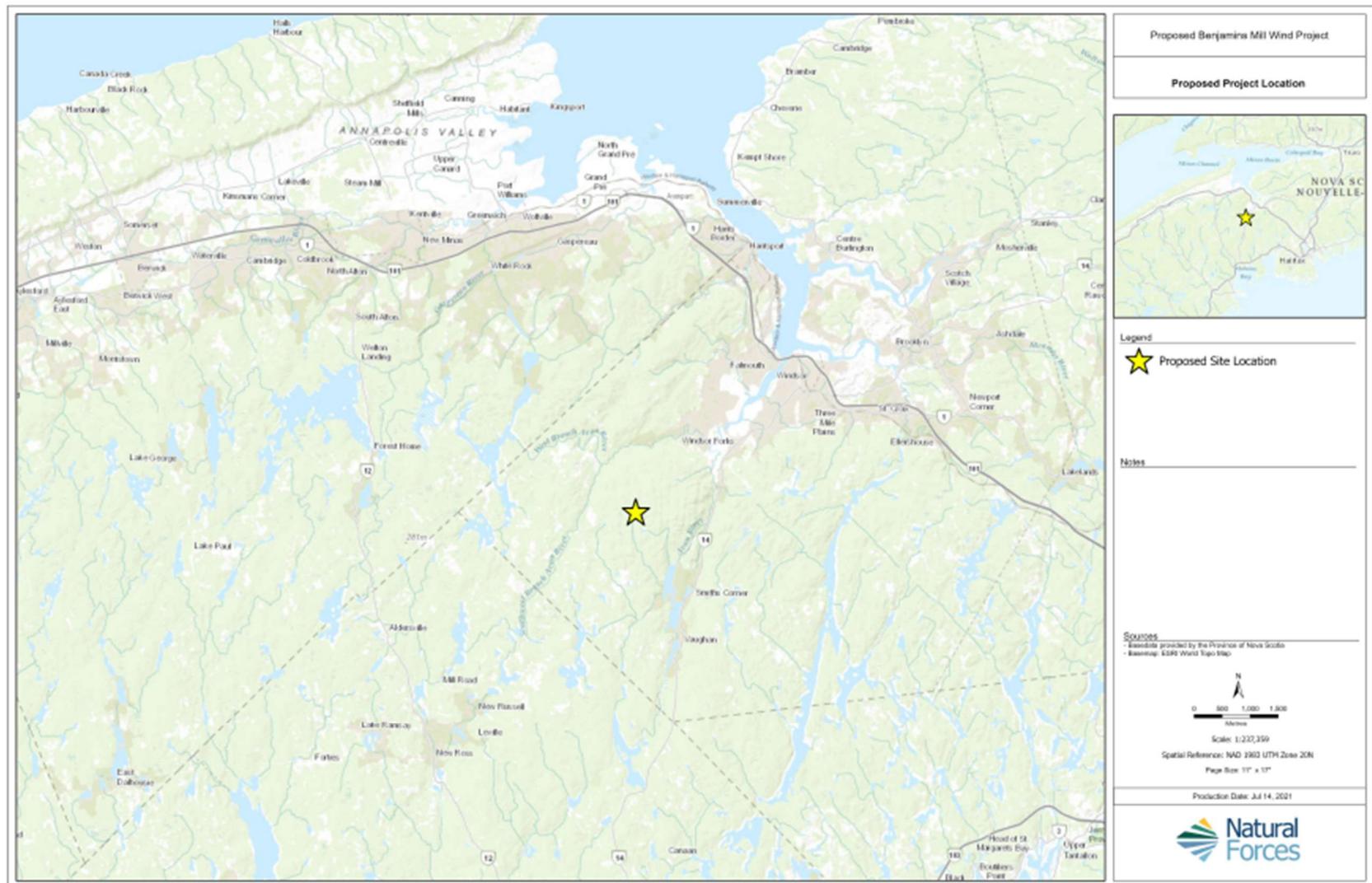


FIGURE 1: PROJECT LOCATION



FIGURE 2: PRELIMINARY PROJECT LAYOUT AND PROJECT BOUNDARIES

Findings and Analysis

Consultation with Federal Agencies

Following the RABC/CanWEA guidelines (2020), the necessary federal agencies were consulted for the Project. All of the contacts have provided the necessary approvals, which are listed in Table 2. The formal approval letters from NavCan and the Department of National Defence are attached in Appendix B. The completed Transport Canada assessment form requiring day and night marking/lighting protection is attached in Appendix C.

TABLE 2: SUMMARY OF FEDERAL AGENCIES CONSULTED AND STATUS OF APPROVAL.

Agency	Approval Required	Status
Transport Canada	Aeronautical Assessment Approval	Approved February 2021
Navigation Canada	Land Use Approval	Approved June 2021
Department of National Defence	Letter of Non-Objection	Approved October 2021
Royal Canadian Mounted Police	Letter of Non-Objection	Approved February 2021
Canadian Coast Guard	Radiocommunication Layout Authorization	Approved January 2021
Environment Canada	Radiocommunication Layout Authorization	Approved March 2021

Point-to-Point Systems

According to the RABC/CanWEA guidelines (2020), the consultation zone for both the transmit and receive locations is 1 km. For the link between PTP towers, the consultation zone was calculated using the following equation:

$$L_c = R + 52\sqrt{\frac{D}{F}}$$

Where:

Lc = diameter of the consultation zone (m)

R = rotor diameter of wind turbine (m)

D = distance between transmit and receive towers (km)

F = frequency of communications between transmit and receive towers (GHz).

For this Project, 160 m was used for R to reflect the most likely rotor diameter to be used for the Project. The consultation zone radius was calculated and applied to the PTP tower links based on the information from the ISED database. The links that crossed or came near the Project were noted and mapped with the preliminary turbine locations, as can be seen in Figure 3 and 4.

Table 3 shows the calculated radii of the consultation zones for these PTP links.

TABLE 3: PTP LINKS NEAR THE PROJECT SITE AND THEIR CONSULTATION ZONE RADII

Station Location	Owner	Frequency (GHz)	Path Length	Consultation Zone Radius
Hemlock Hill	Nova Scotia Power	7.130	~14.5 km	~117.0 m
South Canoe Lake	Nova Scotia Power	7.130		
Hemlock Hill	Nova Scotia Power	7.325	~22.6 km	~126.2 m
Newtonville	Nova Scotia Power	7.325		
Hemlock Hill	Nova Scotia Power	9.342	~12.0 km	~109.4 m
Mill Section	Nova Scotia Power	9.342		

Wind turbines that are outside the consultation zones are not expected to negatively impact the Project. Since no turbines are sited within these consultation zones, no interference is anticipated and no additional consultation is required.

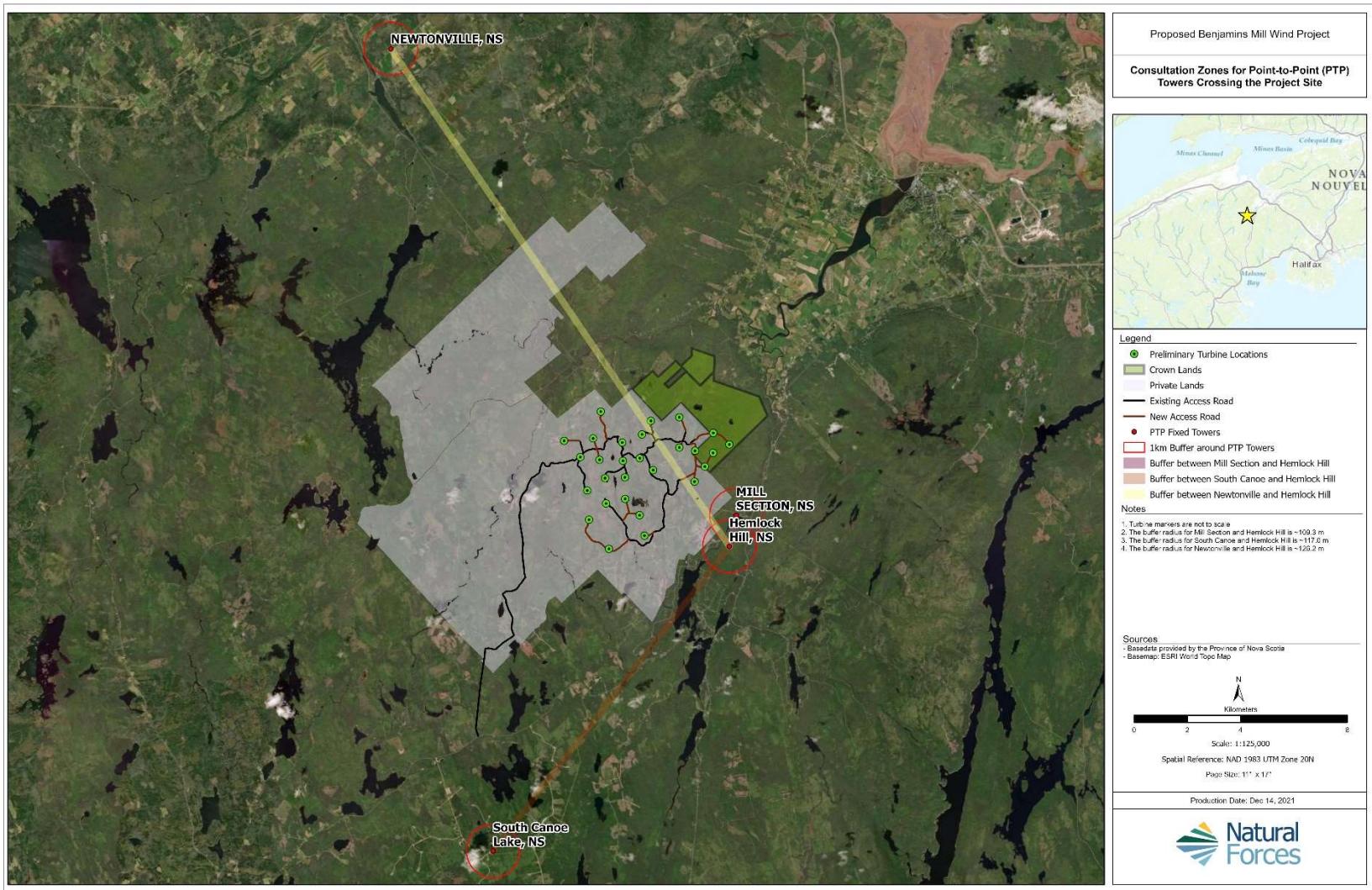


FIGURE 3: PTP LINKS AND CONSULTATION ZONES



FIGURE 4: CLOSER LOOK AT THE PTP LINKS AND CONSULTATION ZONES

Broadcast and Land Mobile Towers Cellular Towers

The RABC/CanWEA guidelines (2020) recommend 1 km consultation zone around land mobile towers, and a 2 km consultation zone around broadcast towers. The closest broadcast and land mobile towers to the Project site can be seen in Figure 55.

Wind turbines that are outside the consultation zones are not expected to negatively impact the Project. Since no turbines are sited within these consultation zones, no interference is anticipated and no additional consultation is required.

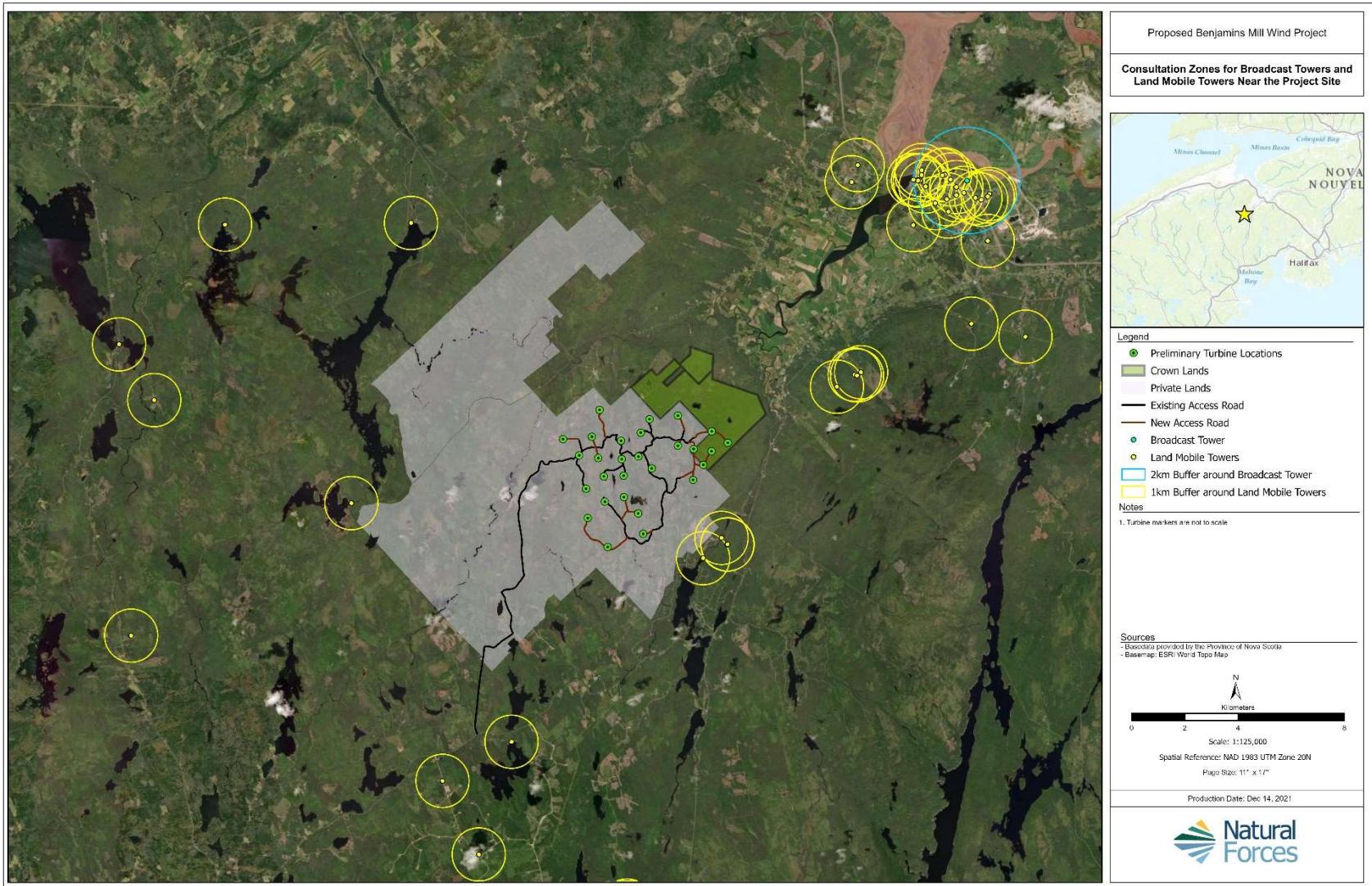


FIGURE 5: BROADCAST AND LAND MOBILE TOWER CONSULTATION ZONES

Closure

The findings of this study indicate that little to no interference will result from the proposed Project. This analysis was done in consultation with the RABC/CanWEA guidelines on electromagnetic interference. Additionally, all of the federal agencies contacted have confirmed that the Project is expected to have no negative impacts on these radiocommunication and radar systems. These findings will be regularly consulted throughout the development and construction of the Project to continually ensure that the Project does not have any negative impacts on radiocommunication and radar systems.

References

- Innovation, Science, and Economic Development (ISED) Canada. (2021, September 02). Spectrum Management System - Geographical Search. From Government of Canada: <https://sms-sgs.ic.gc.ca/frequencySearch/searchByGeographicArea?execution=e1s1>
- Radio Advisory Board of Canada (RABC) and Canadian Wind Energy Association (CanWEA). (2020). *Technical Information and Coordination Process Between Wind Turbines and Radiocommunication Radar Systems*. RABC and CanWEA.

Appendix A: List of all nearby radiocommunication and radar systems

Fixed (Point-to-Point) Towers

Tower ID	Channel Type	Frequency [MHz]	Channel	Station location	Latitude (WGS84)	Longitude (WGS84)	Authorization number	Licensee name
FT-NSP6	RX_RES : null	934.2	E9	HEMLOCK HILL, NS	44.87111111	-64.225	010877171-001	NOVA SCOTIA POWER INC
FT-NSP7	TX_RES : null	934.2	E9	MILL SECTION, NS	44.88166667	-64.22194444	010877171-001	NOVA SCOTIA POWER INC
FT-NSP6	RX_RES : null	7130	C1	South Canoe Lake, NS	44.76702778	-64.33475	010100971-001	NOVA SCOTIA POWER INC
FT-NSP5	RX_RES : null	7150	C3	Newtonville, NS	45.03722222	-64.38972222	010070436-001	NOVA SCOTIA POWER INC

Broadcast Towers

Tower ID	Channel Type	Frequency [MHz]	Channel	Height above ground level [m]	Station location	Latitude (WGS84)	Longitude (WGS84)	In-service date	Licensee name
BT-MBS1	TX_RES	1.45	1450	51.72413793	Windsor	44.99527778	-64.11361111	2011-07-14T00:00:00-04:00	Maritime Broadcasting System Limited

Land Mobile Towers

Tower ID	Channel Type	Frequency [MHz]	Channel	Height above ground level	Station Location	Latitude (WGS84)	Longitude (WGS84)	In Service Date	Licensee Name
LM-NSP2	TX_RES : null	157.47		43.5	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	RX_RES : null	157.47	0	2	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	TX_RES : null	158.25		2	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	RX_RES : null	158.25	0	43.5	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	TX_RES : null	164.76		43.5	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	RX_RES : null	164.76	0	2	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	TX_RES : null	168.9	0	43.5	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-NSP2	RX_RES : null	168.9	0	2	South Canoe, George Bishop Rd, NS	44.76507222	-64.34106667	2018-06-04T00:00:04:00	NOVA SCOTIA POWER
LM-OFF1	TX_RES : null	454.65	E372	15	2312 NEW RUSSEL ROAD, NEW ROSS, NS	44.78972222	-64.35888889	2014-09-12T00:00:04:00	OXFORD FROZEN FOODS
LM-OFF1	RX_RES : null	454.65	E372	0	SOUTH CANOE WIND FARM, NEW ROSS, NS [Sets: 7]	44.78972222	-64.35888889	2014-09-12T00:00:04:00	OXFORD FROZEN FOODS
LM-OFF1	TX_RES : null	454.65	E372	0	2312 NEW RUSSEL ROAD, NEW ROSS, NS	44.78972222	-64.35888889	2014-09-12T00:00:04:00	OXFORD FROZEN FOODS
LM-OFF1	RX_RES : null	459.65	E372'	0	2312 NEW RUSSEL ROAD, NEW ROSS, NS	44.78972222	-64.35888889	2014-09-12T00:00:04:00	OXFORD FROZEN FOODS
LM-OFF1	TX_RES : null	459.65	E372'	15	2312 NEW RUSSEL ROAD, NEW ROSS, NS	44.78972222	-64.35888889	2014-09-12T00:00:04:00	OXFORD FROZEN FOODS
LM-OFF1	RX_RES : null	459.65	E372'	0	SOUTH CANOE WIND FARM, NEW ROSS, NS [Sets: 7]	44.78972222	-64.35888889	2014-09-12T00:00:04:00	OXFORD FROZEN FOODS
LM-NSP3	TX_RES : null	158.97	A375'	9	SOUTH CANOE LAKE, N.S.	44.80333333	-64.32638889	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-NSP3	RX_RES : null	158.97	A375'	9	SOUTH CANOE LAKE, N.S.	44.80333333	-64.32638889	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-NRFC1	TX_RES : null	152.33		100	Aldersville, NS	44.83694444	-64.50805556	2021-05-31T00:00:04:00	NEW ROSS FIRE COMMISSION
LM-NRFC1	RX_RES : null	157.905	0	100	Aldersville, NS	44.83694444	-64.50805556	2021-05-31T00:00:04:00	NEW ROSS FIRE COMMISSION
LM-NRFC1	TX_RES : null	770.19375	AB96	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	770.19375	AB96	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	770.44375	AB116	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	770.44375	AB116	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	770.69375	AB136	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	770.69375	AB136	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	770.94375	AB156	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	770.94375	AB156	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	800.19375	AB96'	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	800.19375	AB96'	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	800.19375	AB96'	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	800.44375	AB116'	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	800.44375	AB116'	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	800.69375	AB136'	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	800.69375	AB136'	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	800.94375	AB156'	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	800.94375	AB156'	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	RX_RES : null	800.94375	AB156'	115	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NRFC1	TX_RES : null	800.94375	AB156'	2	ALDERSVILLE, NS	44.83694444	-64.50805556	2019-03-29T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-NSP4	TX_RES : null	158.97	A375'	3	FALLS LAKE DAM, N.S.	44.86638889	-64.23666667	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-NSP4	RX_RES : null	158.97	A375'	3	FALLS LAKE DAM, N.S.	44.86638889	-64.23666667	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-MDWH1	TX_RES : null	152.63	B697	2	West Hants NS	44.87111111	-64.22527778	2016-05-31T00:00:04:00	MUNICIPALITY OF DISTRICT OF WEST HANTS
LM-MDWH1	RX_RES : null	152.63	B697	114	Windsor NS, 76 Morrison Dr.	44.87111111	-64.22527778	2016-05-31T00:00:04:00	MUNICIPALITY OF DISTRICT OF WEST HANTS
LM-MDWH1	TX_RES : null	158.205	B697'	2	West Hants NS	44.87111111	-64.22527778	2016-05-31T00:00:04:00	MUNICIPALITY OF DISTRICT OF WEST HANTS
LM-MDWH1	RX_RES : null	158.205	B697'	114	Windsor NS, 76 Morrison Dr.	44.87111111	-64.22527778	2016-05-31T00:00:04:00	MUNICIPALITY OF DISTRICT OF WEST HANTS
LM-NSP5	TX_RES : null	151.7		2	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP5	RX_RES : null	153.74	0	114.3	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP5	TX_RES : null	153.74	0	2	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP5	RX_RES : null	157.575	0	2	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP5	TX_RES : null	157.575	0	114.3	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP5	RX_RES : null	160.125	0	114.3	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP5	TX_RES : null	160.125	0	2	HEMLOCK HILL, NS	44.87111111	-64.22511111	2020-08-28T00:00:04:00	NOVA SCOTIA POWER
LM-NSP6	TX_RES : null	158.97	A375'	6	AVON#2 HYDRO, N.S.	44.87333333	-64.22805556	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-NSP6	RX_RES : null	158.97	A375'	6	AVON#2 HYDRO, N.S.	44.87333333	-64.22805556	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-NSP7	TX_RES : null	158.97	A375'	3	DEAN CHAPTER LAKE, N.S.	44.88305556	-64.40444444	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-NSP7	RX_RES : null	158.97	A375'	3	DEAN CHAPTER LAKE, N.S.	44.88305556	-64.40444444	2011-01-05T00:00:05:00	NOVA SCOTIA POWER
LM-MCK1	TX_RES : null	143.625	0	0	KENTVILLE EMO KINGS CO. N.S.	44.91666667	-64.49916667	1989-10-10T00:00:04:00	MUNICIPALITY OF THE COUNTY OF KINGS accts payable Theresa Mahoney
LM-MCK1	RX_RES : null	148.885		0	KENTVILLE EMO KINGS CO. N.S.	44.91666667	-64.49916667	1989-10-10T00:00:04:00	MUNICIPALITY OF THE COUNTY OF KINGS accts payable Theresa Mahoney
LM-NSL1	TX_RES : null	451.0875	E87	0	WINDSOR, NS, MOUNT MARTOCK [Sets: 20]	44.925	-64.17416667	2012-10-30T00:00:04:00	NOVA SKI LIMITED
LM-NSL1	RX_RES : null	456.0875	E87'	0	WINDSOR, NS, MOUNT MARTOCK [Sets: 20]	44.925	-64.17416667	2012-10-30T00:00:04:00	NOVA SKI LIMITED
LM-MBPP1	TX_RES : null	407.7875	A68	14	ST. CROIX, NS, SALMON HOLE DAM	44.92611111	-64.03583333	1998-05-26T00:00:04:00	MINAS BASIN PULP AND POWER CO. LTD.
LM-MBPP1	RX_RES : null	407.7875	A68	14	ST. CROIX, NS, SALMON HOLE DAM	44.92611111	-64.03583333	1998-05-26T00:00:04:00	MINAS BASIN PULP AND POWER CO. LTD.
LM-MBPP1	TX_RES : null	407.7875	A68	13	ST. CROIX, NS, SALMON HOLE DAM	44.92611111	-64.03583333	1998-05-26T00:00:04:00	MINAS BASIN PULP AND POWER CO. LTD.
LM-MBPP1	RX_RES : null	407.7875	A68	13	ST. CROIX, NS, SALMON HOLE DAM	44.92611111	-64.03583333	1998-05-26T00:00:04:00	MINAS BASIN PULP AND POWER CO. LTD.
LM-MBPP1	TX_RES : null	407.7875	A68	13	ST. CROIX, NS, SALMON HOLE DAM	44.92611111	-64.03583333	1998-05-26T00:00:04:00	MINAS BASIN PULP AND POWER CO. LTD.
LM-MBPP1	RX_RES : null	407.7875	A68	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	MINAS BASIN PULP AND POWER CO. LTD.
LM-DOI1	TX_RES : null	773.18125	AB335	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	773.18125	AB335	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	TX_RES : null	773.43125	AB355	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	773.43125	AB355	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	TX_RES : null	773.68125	AB375	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	773.68125	AB375	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	TX_RES : null	803.18125	AB335'	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	803.18125	AB335'	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	TX_RES : null	803.43125	AB355'	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	803.43125	AB355'	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	TX_RES : null	803.68125	AB375'	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	803.68125	AB375'	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	TX_RES : null	803.93125	AB395'	99	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office
LM-DOI1	RX_RES : null	803.93125	AB395'	0	MARTOCK, NS	44.92888889	-64.16472222	2017-08-23T00:00:04:00	NS Dept. of Internal Services Public Safety & Field Comm. Office

Appendix B: Formal Approvals from NavCan and DND

June 17, 2021

Your file
Benjamins Mill Wind Energy Project
Our file
21-0255

Mr. Brenden Blotnick
Natural Forces Wind Inc.
1801 Hollis Street, Suite 1205
Halifax, NS
B3J 3N4

RE: Wind Farm: Wind Turbine(s) - Benjamins Mill, NS
(See attached document(s))

Mr. Blotnick,

NAV CANADA has evaluated the captioned proposal and has no objection to the project as submitted. Our assessment does not constitute an approval and/or permit from other agencies.

The nature and magnitude of electronic interference to NAV CANADA ground-based navigation aids, including RADAR, due to wind turbines depends on the location, configuration, number, and size of turbines; all turbines must be considered together for analysis. The interference of wind turbines to certain navigation aids is cumulative and while initial turbines may be approved, continued development may not always be possible.

In the interest of aviation safety, it is incumbent on NAV CANADA to maintain up-to-date aeronautical publications and issue NOTAM as required. To assist us in that end, we ask that you notify us at least 10 business days prior to the start of construction. This notification requirement can be satisfactorily met by returning a completed, signed copy of the attached form and an Excel copy of the attached spreadsheet by email at landuse@navcanada.ca or fax at 613-248-4094. In the event that you should decide not to proceed with this project or if the structure is dismantled, please advise us accordingly so that we may formally close the file.

If you have any questions, contact the Land Use Department by email at landuse@navcanada.ca.

NAV CANADA's land use evaluation is based on information known as of the date of this letter and is valid for a period of 18 months, subject to any legislative changes impacting land use submissions. Our assessment is limited to the impact of the proposed physical structure on the air navigation system and installations; it neither constitutes nor replaces any approvals or permits required by Transport Canada, other Federal Government departments, Provincial or Municipal land use authorities or any other agency from which approval is required. Innovation, Science and Economic Development Canada addresses any spectrum management issues that may arise from your proposal and consults with NAV CANADA engineering as deemed necessary.

This document contains information proprietary to NAV CANADA. Any disclosure or use of this information or any reproduction of this document for other than the specific purpose for which it is intended is expressly prohibited except as NAV CANADA may otherwise agree in writing.

Regards,

**Land Use Office
NAV CANADA**

cc ATL - Atlantic Region, Transport Canada



National Défense
Defence nationale

1 Canadian Air Division HQ
PO BOX 17000 STN Forces
Winnipeg, MB R3J 3Y5

Date of Electronic Signature

Ms. Meg Morris
Development Manager
Natural Forces
1801 Hollis Street, Suite 1205
Halifax NS, B3J 3N4

LETTER OF PROJECT NON-OBJECTION NATURAL FORCES

Dear Meg Morris,

Thank you for your patience on this matter and for considering DND radar, airport facilities, and radio-communication systems in your project development process. We have completed the detailed analysis of your proposed site, referenced in NAVCAN Land Use file# 21-0255, the Benjamins Mill Wind Energy Project. The results of the detailed analysis and subsequent technical and operational impact assessments have confirmed there is likely to be minimal or no interference with DND radar, flight operations, and radio-communication systems. Therefore, as a result of these findings we have no objections with your project as submitted. If however, the layout were to change/move, please re-submit that proposal for another assessment.

The concurrence for this site is valid for 24 months from date of this correspondence. If the project should be cancelled or delayed during this timeframe please advise the point of contact. It should be noted that each submission is assessed on a case by case basis and as such, concurrence on this submission in no way constitutes a concurrence for similar projects in the same area, nor does it indicate that similar concurrence might be offered in another region. The issuance of this Letter of Non-Objection shall not constitute a waiver or alienation of any existing or future legal rights of the DND/CAF nor shall it be construed to create any exemptions, indemnification, approvals, rights, acceptances in favour of Natural Forces.

DND/CF expressly reserves its rights to take legal action or seek remedy for any and all liability, loss, harm, degradation of services or equipment, litigation costs, damages, judgements or expenses that arise from the adverse effects, whether incidental, indirect or causal, of the referenced NAVCAN Land Use file# 21-0255, the Benjamins Mill Wind Energy Project upon the DND/CAF radars, equipment and its provision of Air Traffic Services.

Canada

At present DND is working with Transport Canada to make obstruction lighting compliance with Night Vision Goggles (NVG) mandatory. At present DND cannot stipulate that proponents of wind turbine farms utilize NVG compliant lighting. However, as you can imagine, the safety of our aircrews is a top priority, and as such, we ask that you consider lighting your turbines with NVG compliant lighting so that they are visible to pilots during NVG operations.

I trust that you will find this satisfactory. If you have any technical questions or concerns regarding any aspect of this investigation, please contact the undersigned.

Kind regards.

D.M. Blakely
Lieutenant-Colonel
Senior Staff Officer Aerospace
Capabilities and Readiness

Appendix C: Completed Assessment Form from Transport Canada

Transport
CanadaTransports
Canada

AERONAUTICAL ASSESSMENT FORM

for obstacle notice and assessment

Transport Canada number

TC # 2021-016

Applicant number

Owner (company name)

Natural Forces Wind Inc

City Halifax	Province/Territory Nova Scotia	Postal code (A1A 1A1) B3J 3N4
Telephone number (999-999-9999) 902-422-9663	Email Address bblotnicky@naturalforces.ca	

Applicant (company name)

Natural Forces Wind Inc

City Halifax	Province/State Nova Scotia	Postal code (A1A 1A1) B3J 3N4
Telephone number (999-999-9999) 902-422-9663	Email Address bblotnicky@naturalforces.ca	

Geographic Coordinates NAD83 NAD27 WGS84 N Latitude deg **44** min **53** sec **37.8**
 For extensive structures submit geographical coordinates separately (e.g. windturbines, transmission lines, building corners). W Longitude deg **64** min **16** sec **30.36**

HEIGHTS	Feet	Metres	Structure alone	Structure with an addition
A Ground Elevation (AMSL)	856	261		
B Height of an addition to a structure				
C Total structure height including B (AGL)	673	205		
Overall height (A plus C) (AMSL)	1,529	466		

Is the location on lands affected by **Airport Zoning Regulations (AZRs)**? Yes NoWhere the object is on lands affected by **AZRs**, a legal survey attesting conformance is required.

Nearest Aerodrome Stanley Airport	Have you contacted the aerodrome? <input type="radio"/> Yes <input checked="" type="radio"/> No
---------------------------------------------	----------------------------------------------------------------------------------------------------

Description of Project (or attached)
Thirty three large scale wind turbine generators with 135 m hub height and 140 m rotor diameter. At this stage, 12 of the 33 turbines are planned. Therefore, Natural Forces is seeking Transport Canada approval of all 33 possible sites.

Notice of <input checked="" type="checkbox"/> New Structure <input type="radio"/> Change to existing structure	Duration <input type="radio"/> Permanent <input checked="" type="radio"/> Temporary
Proposed Construction Date: From (yyyy-mm-dd): 2022-04-30	To (yyyy-mm-dd): 2052-04-30
Applicant Name Brenden Blotnicky	Telephone (999-999-9999) 902-880-3445 Date (yyyy-mm-dd) 2021-01-15

TRANSPORT CANADA ASSESSMENT (Transport Canada use only)

Marking and lighting required (as per Standard 621)

Night Protection Day Protection Temporary Lighting No protection required

ATS-20-21-00050660
Please note that Transport Canada does not approve the locations, we determine the day and night protection requirements only. I am unable to determine which turbines need day and night protection until such a time as you know which locations you wish to use for installation.

Completion of this form does not constitute authorization for construction nor replace other approvals or permits.

Transport Canada Civil Aviation Inspector Name Denise Murphy	Date (yyyy-mm-dd) 2021-02-26
------------------------------------------------------------------------	----------------------------------------

Note 1: This assessment expires 18 months from the date of assessment unless extended, revised, or terminated by the issuing office.

Note 2: If there is a change to the intended installation, a new submittal is required.

26-0427E (1812-09)