DILLON CONSULTING

NATURAL FORCES DEVELOPMENTS LP

# Bats and Bat Habitat Appendix 2021-2022

## Westchester Wind Project

December 2022 – 22-4065

December 9, 2022

Natural Forces Developments LP
Westchester Wind Project
1801 Hollis Street, Suite 1205
Halifax, NS
B3J 3N4

Attention: Megan MacIsaac

***Bat and Bat Habitat Appendix: 2021-2022 Assessments for the for the Westchester Wind Project***

Dillon Consulting Limited (Dillon) is pleased to provide you with the final report for the bats and bat habitat assessment, for the studies conducted as part of the environmental assessment for the Westchester Wind Project.

We trust the following meets your present needs. If you have any questions or comments, please contact the undersigned at (902)-450-4000 ext. 5052 at your convenience.

Sincerely,

**DILLON CONSULTING LIMITED**

Kelly Regan, M.Sc.
Project Manager, Associate

KSR:jb
Enclosure

Our file: 22-4065

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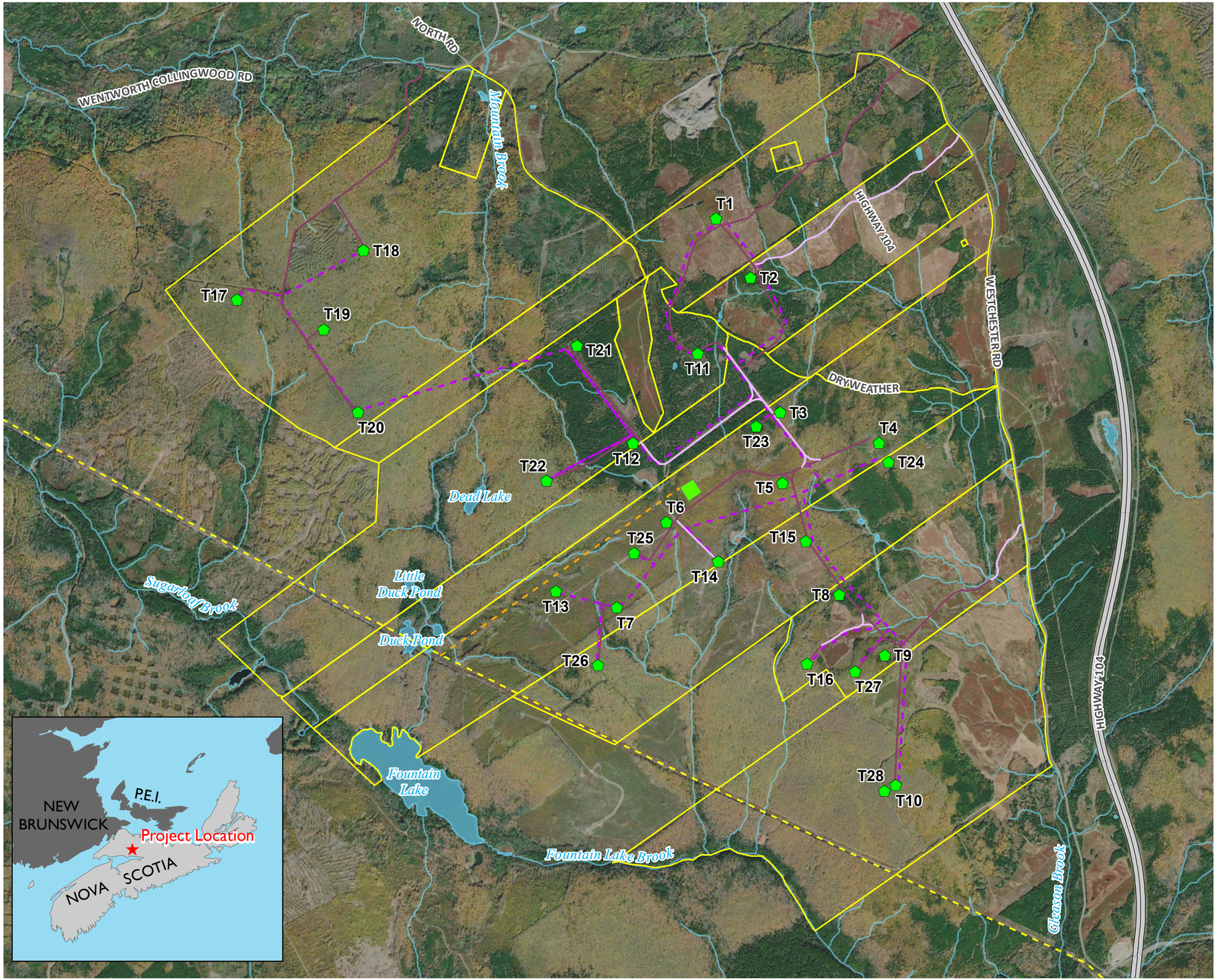
# *1.0* Introduction

Dillon Consulting (Dillon) was retained by Natural Forces Developments Limited Partnership (the Proponent) on behalf of the Westchester Wind Limited Partnership to complete natural environment surveys in support of the development of a Nova Scotia Environmental Assessment Registration Document (EARD) and associated Addendum for the Westchester Wind Project (the Project). The Project is being developed and will be owned and operated by the Westchester Wind Limited Partnership, a partnership between Natural Forces Developments Limited Partnership (referred to herein as the Proponent or Natural Forces) and Wskijnu'k Mtmo'taqnuow Agency Limited (the Agency), a corporate body wholly owned by the 13 Mi'kmaw bands in Nova Scotia. Natural Forces acts on behalf of the Westchester Wind Limited Partnership for many aspects of Project development.

The Project consists of up to 12 wind turbine generators (WTGs) capable of producing up to 50 MW of renewable energy that will be connected to the existing Nova Scotia Power transmission grid via an overhead transmission line, as well as a substation (**Figure 1**). The Project is located on a mixture of privately-owned blueberry fields, previously forested land and undeveloped forested land in Cumberland County near the communities of Westchester Station, Rose, and Londonderry. It is located in an area where bats and bat habitat are present and a key environmental concern associated with wind projects is the potential for effects to bats and bat habitat. Bats and bat habitat, including species at risk (SAR) and species of conservation concern (SoCC), are considered important features and valued environmental components (VECs) related to the proposed Project.

The proposed project is located in an area where bats and bat habitat are present. Bats and bat habitat are considered important features and valued environmental components (VECs) because they are valued in their relationship with other wildlife and wildlife habitat, including other biological and physical components addressed as VECs in this environmental assessment (EA). Natural environment surveys for the Project were conducted for VECs that were identified based on an understanding of the environmental features of the proposed project area, the nature of the Project, and the potential interactions that may occur between the proposed project and the environment/VECs.

Taking into consideration the objectives of the EARD, this report provides an effects assessment on bats and bat habitat, and includes: a brief overview of the proposed Project; a description of the scope and methodology used for the bats and bat habitat surveys; a summary of the survey results; and, an assessment of residual effects (including potential interactions and mitigation) of the proposed Project on bats and bat habitat.




Natural Forces

WESTCHESTER WIND PROJECT

## PROJECT LOCATION AND SITE LAYOUT

FIGURE 1

- Proposed Turbine Location
- Proposed Substation Location
- Property Lines
- Roads to be Upgraded
- Proposed Access Roads
- Proposed Collector Network
- Proposed Interconnection Line
- Transmission Line
- Highway
- Watercourse
- Waterbody

SCALE 1:24,994

0 0.25 0.5 1 km

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, GEONB, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-09

FILE LOCATION: K:\2021\211329\Product\Internal\Westchester_Figures_2022\WC_ProjectLocation_2022.mxd

## *1.1* Background

Bats and bat habitat, as well as other wildlife have the potential to be present with the same ecodistrict that the Project is located. The Project is located within the Nova Scotia Uplands – Cobequid Hills ecodistrict (Unit 340) (Neily et al. 2017). This ecodistrict is characterized by late successional Acadian shade tolerant hardwood forests (Neily et al. 2017). At higher elevations within this ecodistrict, such as those within the PDA, softwood stands occur on moist, level terrain, with shade tolerant mixed-wood forests found along steep-sided ravines (Neily et al. 2017). The presence of these general habitats was confirmed through a two-year assessment of terrestrial habitats and vegetation completed by Dillon between 2021 and 2022 and as documented in separate reports.

Resident and migratory bat species are known to reside within Nova Scotia and the forest habitats within the Cobequid Hills ecodistrict have the potential to support the life stages of these both populations. Resident (i.e., non-migratory) bats known to reside in Nova Scotia include the little brown Myotis (*Myotis lucifugus*), Northern Myotis (*M. septentrionalis*), and Tri-coloured bat *(Pipistrellus subflavus*). All three are small-bodied bats typical of the plain-nosed bats and all three are listed as Endangered under the federal Species at Risk Act (SARA) and the Nova Scotia Endangered Species Act (NSESA). These resident bats live in three different roosting sites: day roosts, night roosts, and hibernacula. Day and night roosts are used during the spring, summer, and fall months, whereas hibernacula sites are used during the winter months. Common hibernacula sites are typically caves and old mining shafts, whereas day and night roosts commonly include tree hollows, spaces between tree bark, rock crevices, buildings, and tree foliage. Migratory bats in Nova Scotia include the hoary bat (*Lasiurus cinereus*), eastern red bat (*Lasiurus borealis*), and silver-haired bat (*Lasionycteris noctivagans*). Migratory bat species are less common in Nova Scotia; however, are known to live in the province for a portion of the year (Moseley 2007). One other bat species, big brown bat (*Eptesicus fuscus)*, is also known to reside in Nova Scotia; however, few sightings have been recorded

The SARA provides the federal legal protection of wildlife species and the conservation of their biological diversity that aims to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery (GOC 2022). The NSESA protects species in Nova Scotia that have been assessed and determined to be at risk of extinction and prohibits the killing or disturbing species at risk, destroying or disturbing its residence, and destroying or disturbing of core habitat (NSDNRR 2021).

The SARA listing for resident bats is the result of drastic bat population declines that have occurred due to a fungal infection (i.e., white nose syndrome, or WNS) that appears to severely affect cave-dwelling hibernating bats. It is believed that mortalities affecting up to 90% of populations result from interference with hibernation and starvation during the winter period. The syndrome was first observed in 2006 in New York and has been since confirmed in Ontario, Québec, New Brunswick and Nova Scotia (EC 2014).

The existing landscape surrounding the Project location consists of a combination of commercial blueberry fields, rolling hills, forested areas in various stages of regeneration due to harvesting activities, lakes, and access roads which additionally used for recreation trails

## *1.2* Purpose and Objectives of the Report

This report provides a summary of the bat and bat habitat surveys that were conducted as part of the biophysical surveys undertaken in support of the Project EA registration. The report includes:

- Brief description of the Project;
- Description of the scope and methodology used for the survey;
- Summary of the approach used to evaluate the data;
- Results of the desktop and field assessments;
- Proposed mitigation based on industry best practice and experience; and
- An assessment of residual effects (including potential interactions and mitigation) of the Project on bats and bat habitat.

# *2.0* Project Description

The following is a high-level summary of the Project. Please refer to the Westchester Wind Project Environmental Assessment Registration Document Addendum (the Addendum) dated December 2022 for further information.

The Project is located on Westchester Mountain in Cumberland County, Nova Scotia. The Project is proposed to have an installed capacity of up to 50 MW, amounting to up to 12 wind turbine generators and associated infrastructure, including an electrical substation, collector lines, and overhead transmission line (**Figure 1**).

The Project will be located predominantly on privately-owned lands used for blueberry farming, forestry, maple groves, and recreation (i.e., snowmobile trails). An easement will be required over a 300 m stretch of Crown land along an existing access road. The forestry activities include previously forested land at varying stages of regeneration, as well as undeveloped forested lands owned by forestry companies. In addition, the Project site met crucial factors that determined suitability, which included features such as the strength and consistency of the wind resources and its proximity to existing electrical and civil infrastructure. The Project site was selected due to the existing mixed anthropogenic land uses and historical anthropogenic impacts in these areas, in order to minimize impacts to undeveloped lands to the extent feasible.

The purpose of the Project is to contribute to Nova Scotia achieving their renewable electricity targets through the generation of clean and renewable energy. Not only will this have environmental benefits, but will also reduce Nova Scotia's reliance on imported energy sources through the development of a localized renewable energy generation (*Renewable Electricity Regulations* 2021).

# 3.0 Scope of Work

The scope of work for the bat and bat habitat biophysical assessments is based upon an understanding of the nature of the assessment areas, as well as the field biologists' experience in assessing similar landscapes. The following surveys protocols and guidance were considered in the design and implementation of the biophysical assessments for bats and bat habitat for the Project:

- During consultation, Nova Scotia Department of Natural Resources and Renewables (NSDNRR) recommended two survey periods: a spring period (May 1 to June 30), and a fall period (August 15 to October 31) (GNS 2022);
- According to the Ontario Ministry of Natural Resources and Forestry Bat Survey Protocol (OMNRF 2017), acoustic monitoring for breeding bats should occur in the evenings between June 1 and June 30 in order to capture the full suite of migratory and resident bat species that may be present on site;
- The 2009 Pre-Construction Bat Survey Guidelines for Wind Farm Development in New Brunswick (NBDNRE 2009) require acoustic bat surveys for a minimum of one year prior to construction during both the breeding season (June 1 to June 30) and the late summer – early fall migratory period (August 15 to September 15). The guidance advises 40 hours of surveys distributed over a minimum of 10 nights, having a minimum of 4 hours/night for each of the breeding and fall migration season (NBDNRE 2009); and
- The 2009 NBDNRE guidelines require additional pre-construction bat acoustic survey effort if the proposed wind facility and surrounding areas contain high risk habitat features (i.e., within 5 km of a known hibernacula, or potential cave or abandoned mine; within 500 m from a coast line or other major water bodies; or located on or near forested ridge habitats).

The scope of work included surveys conducted over the two survey periods (May 1 to June 30 and August 15 to October 31) over the years 2021 and 2022 of:

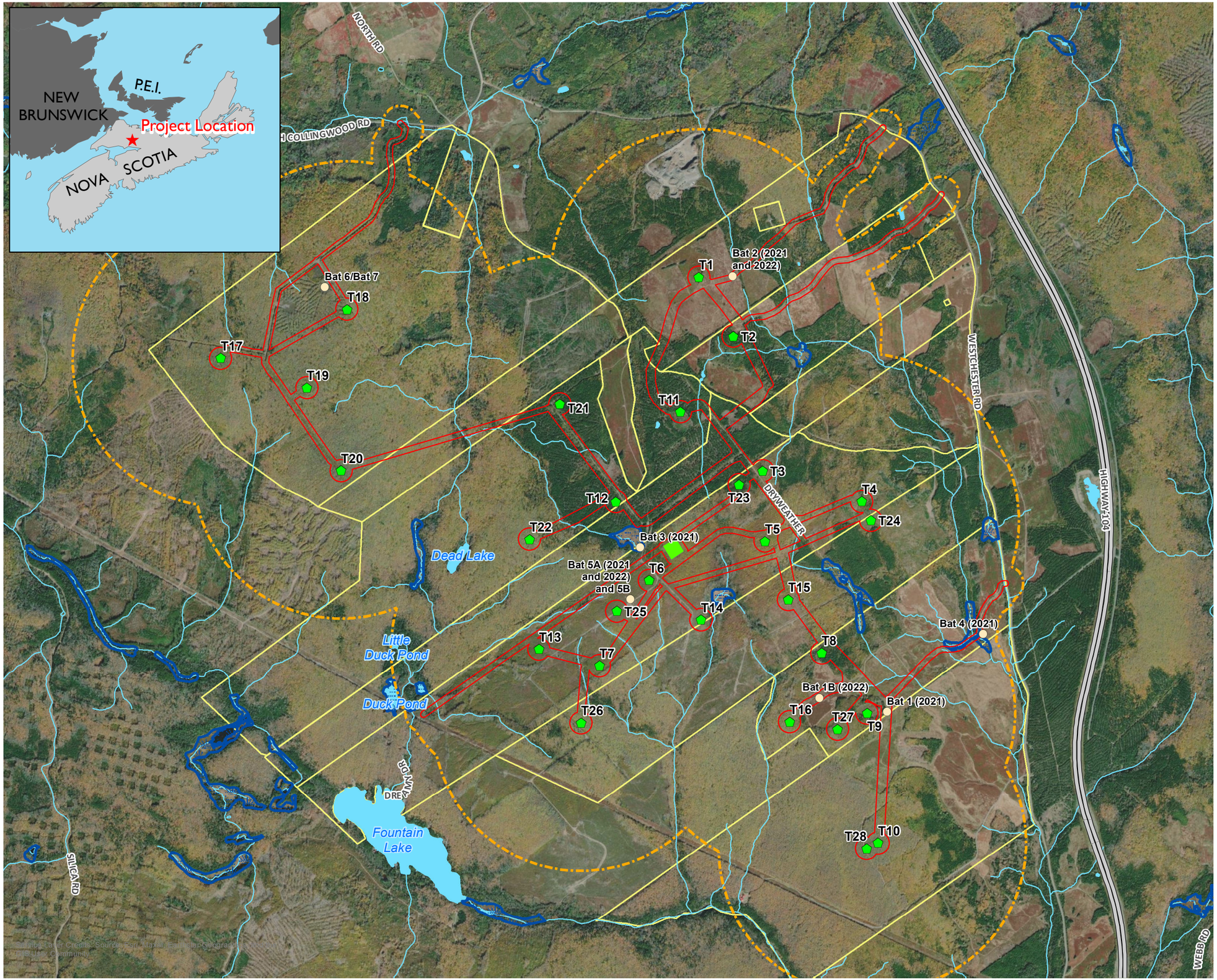
- Background and desktop analysis;
- A high-level assessment of suitable maternity roosting habitat;
- Pre-construction acoustic monitoring surveys designed to capture the entirety of the breeding season and extend through the fall to capture the migration period. This approach allowed for collection of data which could capture bat activity levels during the vulnerable periods (i.e., breeding and migration) while considering seasonal and temporal variations. The monitoring of two breeding and two migratory periods (i.e., 2021 and 2022) allowed for a more detailed understanding of the local bat movements and activities in the area.

## 3.1 Spatial Boundaries

The spatial boundaries have been defined in **Table 1** and are shown on **Figure 2**. For the purpose of this assessment, the Local Assessment Area (LAA) has been defined as a 120 m buffer area encompassing the access roads and a 1,000 m buffer around each proposed WTG location. The LAA was defined to align with the OMNR advice to identify bat habitat components that may extend to or within 120 metres of the project location during the records review and in recognition that confirmed habitat can extend as much as 1000 metres beyond an identified point location (OMNR 2011).

**Table 1 Spatial Boundaries for the Assessment of Bat and Bat Habitat**

| Spatial Boundary | Definition | Purpose of Spatial Boundary |
|---|---|---|
| Potential Development Area (PDA) | The PDA encompasses the Project footprint and a buffer of 15 m on either side of shoulders of roadways (either existing or new), collector lines, and transmission line, a 75 m buffer around the base of each turbine location, and a 25 m buffer around the substation. | Represents the extent of anticipated areas that could undergo physical disturbance associated with the Project. This area encompasses all of the proposed 28 turbines locations and their associated infrastructure. The Project would consist of up to 12 of those locations and their associated infrastructure. |
| Study Area | The PDA and the representative locations selected for the placement of acoustic bat monitors. | The area covered on foot during surveys. Observations in the Study Area are applied to understand potential effects of the Project on the LAA. |
| Local Assessment Area (LAA) | Area includes a 120 m buffer encompassing the access roads and a 1,000 m buffer around each proposed WTG location. | The anticipated maximum area where Project-specific environmental interactions can be predicted and measured with a reasonable degree of accuracy and confidence (i.e., the zone of influence of the Project on each VEC). |




WESTCHESTER WIND PROJECT

## STUDY AREA AND LOCAL ASSESSMENT AREA FOR BATS

FIGURE 2

- Proposed Turbine Location
- Proposed Substation Location
- Bat Meter Locations in 2021 and 2022
- Potential Development Area (PDA)
- Local Assessment Area
- Highway
- Site Parcel
- Watercourse
- Waterbody
- Wetland (Province of Nova Scotia, 2021)

0 0.25 0.5 1 km

N W E S

SCALE 1:25,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, NSDNRR, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-09

FILE LOCATION: K:\2021\211329\Product\Internal\Westchester_Figures_2022\Bat Figure 2022\WC_F02_Bat_StudyArea_LAA_2022.mxd

# 4.0 Methods

## 4.1 Desktop and Habitat Assessment Methods

### 4.1.1 Desktop Screening for Priority Species

Prior to conducting field work, a high-level desktop screening for priority bat species and habitats within the LAA was completed. The purpose of the screening was to aid in the planning of the field surveys and identify targeted species surveys to include in the bat biophysical assessments. The priority species screening included consultation with NSDNRR wildlife biologists and a desktop analysis, which includes data obtained from a site specific report provided by the Atlantic Canada Conservation Data Centre (AC CDC).

For this EARD, the following definitions apply:

- Species at Risk (abbreviated SAR): A species that is determined to be Endangered, Threatened, or Vulnerable/Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Nova Scotia *Endangered Species Act* (NSESA), or the federal *Species at Risk Act* (SARA); and
- Species of Conservation Concern (abbreviated SoCC): those species that are not SAR but are identified as regionally vulnerable or imperilled by the Atlantic Canada Conservation Data Centre (AC CDC) (i.e., those species with AC CDC S-ranks of S1: Critically imperiled in province; S2: Imperiled in province; and S3: Vulnerable in province of Nova Scotia.

Readily-available information from reputable sources was reviewed to evaluate the potential for bat SAR and SoCC within the LAA. Dillon completed a review of the following sources and data lists for the purpose of characterizing existing conditions at the Project site:

- Atlantic Canada Conservation Data Centre (AC CDC) reports for a list of historical observations of rare fauna and flora within 10 km of the Project centre (AC CDC 2021; 2022);
- The Recovery Strategy for the little brown myotis (*Myotis lucifugus*), the northern myotis (*Myotis septentrionalis*), and the tri-coloured bat (*Perimyotis subflavus*) in Canada (ECCC 2018);
- A review of known caves, mines, and other bat hibernacula (i.e., areas where bats hibernate) was conducted (Moseley 2007; NSDNR 2017); and
- Available mapping was consulted to develop a list of terrestrial habitat types with the potential to be impacted by Project activities and was used to inform the selection of monitoring stations. Approximate extents of different habitat types in the assessment area are presented on **Figure 2**.

Site specific AC CDC reports were generated on May 7, 2021 and September 20, 2022 and includes rare and sensitive species historical observations that were reported within 100 km of the Study Area. The AC CDC databases were queried for known observation data of provincial and federal SAR or SoCC within

close proximity to the Project site. As of May 2014, the AC CDC was mandated by the Nova Scotia Department of Lands and Forestry (NSDLF) to consider records of certain species as "location-sensitive", including bat hibernacula. This was done in an attempt to reduce the risk that these species will be exploited; as such, the precise locations of these are not openly distributed. The AC CDC does; however, provide information regarding the presence of “location-sensitive” species or features occurring with 5 km of a defined study area.

### 4.1.2 Bat Maternity Roost Suitability Assessment

The Bat Maternity Roost Suitability Assessment is a desktop survey based on Phase 1 Bat Habitat Suitability Assessment as identified in the 2017 Ontario Ministry of Natural Resources and Forestry Bat Survey Protocol (OMNRF 2017) for methods for evaluating wildlife habitat significant to bats. Available digital forestry data and Google Earth imagery were used to evaluate the potential for suitable bat maternity within the LAA. According to the OMNRF 2017 Protocol, areas of suitable habitat for maternity roosts can be screened based on the presence of mixed-wood forests or hardwood forests and the presence of snags or cavity trees with ≥ 25 cm diameter at breast height (dbh). Ecological Land Classification (ELC) mapping was used to identify the locations of forests with ≥25 cm dbh within 1,000 m surrounding the PDA (OMNRF 2017).

## 4.2 Field Assessment Methods

Acoustic bat data were collected from eight acoustic survey stations in 2021 and 2022. The acoustic survey stations were installed at locations within the LAA that were selected to capture the data in representative terrain and habitat types, as well as capture locations that were in proximity to the proposed WTG locations (**Figure 2**). According to the OMNRF (2017) Bat Survey Protocol, monitoring for breeding bats should occur in the evenings between June 1 and June 30 in order to capture the full suite of migratory and resident bat species that may be present on-site. Through the environmental assessment consultation process, NSDNRR recommended e including  two survey periods: a spring period (May 1 to June 30), and a fall period (August 15 to October 31).

Each survey station consisted of either a Wildlife Acoustics SM3BAT, SM4BAT or miniBAT  (Wildlife Acoustics 2018, 2022a, 2022b) ultrasonic bat detector that was equipped with an omni-directional microphone. Bat detectors were programmed as follows:

- Trigger Frequency Minimum: 16 kHz;
- Trigger Frequency Maximum: 192 kHz;
- Trigger Level: Automatic (12dB);
- Sample Night: from dusk to 5 hours after dusk; and
- Gain Level: Automatic (12dB).

During 2021 and 2022, five of the acoustic monitoring stations were installed at ground level (<2 m above ground level [agl]) and captured bat activity data within the Study Area and located near

proposed WTG locations and unique habitat types. Following the installation of a pole on June 16, 2021, an elevated monitoring station approximately 25 m agl was set up as a mechanism to capture activity data within the elevation range of the blade sweep area of a WTG. The pole was damaged during the winter of 2022, therefore this station could not be used again in 2022. Additionally, a privately-owned meteorological tower (MET) tower was identified near the PDA and land owner permission was obtained to install a second elevated monitoring station (i.e., approximately 25 m agl) beginning May 27, 2022.

The 2021 acoustic bat meters were mobilized on May 27, 2021 and programmed to record bat calls from June 1 through to October 15 (inclusive) in accordance with the aforementioned parameters. Following the recommendations provided by NSDNRR on the EARD, the 2022 acoustic bat meters were programmed to record bat calls from May 1 through October 31 (inclusive). The deployment periods varied through the survey program for reasons such as meter malfunctions, meter relocation and the addition of survey locations throughout the program.

The analysis focused on the breeding period (i.e., early May to June 30) and the migratory period (i.e., from August 15 to October 31). **Table 2** includes a spatial description and the periods of monitoring for each monitoring station relative to the PDA. Representative photos are presented in **Appendix B** and the locations of the acoustic monitoring are shown on **Figure 2**.

**Table 2: Summary Table of Bat Monitoring Stations and Their Location in the Study Area**

| Acoustic Station ID | Description | Monitoring Periods |
|---|---|---|
| Bat 1 | **Elevation**: 1.8 m<br>**Equipment:** Wildlife Acoustics SM3BAT/SM miniBAT<br>**Habitat**: Located at the edge of a blueberry field on the southern edge of the PDA. | June 1-5 and July 14–October 15, 2021 (meter malfunctioned between June 7 and July 13, 2021).<br><br>April 29–May 18, 2022 (Meter relocated on May 19, 2022). |
| Bat 2 | **Elevation**: 1.5 m<br>**Equipment:** Wildlife Acoustics SM4BAT (2021), SM minibat (2022)<br>**Habitat**: Located at the edge of a blueberry field on the northern side of the PDA. | August 11–October 15, 2021 (Location added to the program to capture the migratory period pending late procurement and land owner permission.)<br><br>May 1—June 12, 2022, June 14—June 28, 2022 (Batteries depleted and data was not captured on June 13, 2022 and June 29-30, 2022). |
| Bat 3 | **Elevation**: 1.8 m<br>**Equipment:** Wildlife Acoustics SM3BAT<br>**Habitat**: Located at the edge of a wetland on the western side of the PDA. | June 1-15, 2021 (Meter was moved to Bat 5A location June 15, 2021).<br><br>N/A in 2022. Location discontinued (see Bat 5A). |

| Acoustic Station ID | Description | Monitoring Periods |
|---|---|---|
| Bat 4 | **Elevation**: 1.8 m<br>**Equipment:** Wildlife Acoustics SM3BAT<br>**Habitat**: Located in a small immature tree stand on the edge of a blueberry field and near Gleason Brook, on the south-western portion of the PDA. | June 7 – 25, June 29 – Sept 29, Oct 5 – 15, 2021 (Meter malfunctioned June 26 – 29 and Sept 30 – Oct 4, 2021).<br><br>N/A in 2022. Location discontinued in favour of locations added to program following changes to the PDA in 2022. |
| Bat 5A | **Elevation**: 1.8 m<br>**Equipment:** Wildlife Acoustics SM3BAT/ SM miniBAT<br>**Habitat**: Located in an open, recently clear cut area, on the western side of the PDA. | June 16 – 25, June 30 – Sept 16, and Sept 18 – Oct 15, 2021 (Batteries depleted, no data available June 26 – 29 and Sept 17, 2021).<br><br>May 1—June 12, June 14—June 30, 2022 (Batteries depleted, no data available June 13 2022) |
| Bat 5B | **Elevation**: 25 m<br>**Equipment:** Wildlife Acoustics SM3BAT/ SM miniBAT<br>**Habitat**: Located in an open, recently clear cut area, on the western side of the PDA. | June 16 – 25, June 30 – Sept 16, and Sept 18 – Oct 15, 2021 (Delayed start due to delay in pole procurement and installation. Batteries depleted and data was not recorded June 26 – 29 and Sept 17 2021).<br><br>N/A in 2022. Location discontinued as rope on pole was inaccessible (See Bat 7). |
| Bat 6 | **Elevation:** 1.8 m<br>**Equipment:** Wildlife Acoustics SM3BAT/SM minibat<br>**Habitat:** Regenerating Hardwood Forest | N/A in 2021. Location added to program following changes to the PDA in 2022<br><br>May 1—May 22, June 14—June 28, July 13—June 30, 2022 (meter malfunctioned May 22-June 13, 2022). |
| Bat 7 | **Elevation:** 25 m<br>**Equipment:** Wildlife Acoustics SM3BAT<br>**Habitat:** Cleared area on the edge of regenerating hardwood forest | N/A in 2021. Location added to program following changes to the PDA in 2022<br><br>May 27—June 28, 2022 |

Bat acoustic data were analyzed using the automated software Kaleidoscope Pro (Wildlife Acoustics) with the following settings:

- Minimum number of pulses = 2;
- Division Ratio = 8;
- Time Expansion Factor = 1;
- Duration = 2 – 500 ms; and
- Frequency Range = 16 – 120 kHz.

Using the automated species identification feature provided by Kaleidoscope Pro, each acoustic file was first identified to species and species groups (where possible), or identified as either NOID (i.e., pulses recorded but unable to identify species) or NOISE (i.e., no pulse recorded). Species/species groups were identified based on maximum frequency, minimum frequency, call duration and shape (Jones and Siemers 2010).

When bats are far from the detectors or at an angle that reduces detectability, calls can become fragmented where the higher frequency components of the calls are not recorded. This confounds the ability to reliably differentiate several species with overlapping call parameters. For example, several Myotis species can be differentiated based on the maximum frequency of their calls but not the minimum frequency (Agranat 2012). Although call shape can also aid in differentiating Myotis species, shape varies considerably with habitat structure. Bats modify their calls for better long-distance detection in more open habitats and to reduce interference from echoes generated in more cluttered habitat (i.e., within woodlands) (Jones and Siemers 2010). As such, based on the auto ID generated by Kaleidoscope Pro, each of the acoustic files (including NOISE and NOID) were manually reviewed and subsequently classified as follows (van Zyll de Jong 1985):

- LANO/LABO – Silver-haired Bat (abbreviated LANO) and eastern red bat (abbreviated LABO). Both of these species are migratory and were assessed together as a group based on similarities of their calls. Silver-haired bats produce calls with a constant frequency (CF) tail around 22 – 25 kHz. Although Eastern Red Bats produce calls with a minimum frequency between 30 – 35 kHz, they also produce calls with lower minimum frequencies within the range of silver-haired Bats; therefore, these species were grouped together. Although big brown bat (abbreviated EPFU) also produces calls with a CF similar to silver-haired bat and are generally reported as EPFU/LANO, given the few sightings reported to date in Nova Scotia, all potential EPFU/LANO calls were assumed LANO; hence the species grouping of LANO/LABO. Both silver-haired bat and eastern red bat are considered migratory species.
- LACI – Hoary bat (abbreviated LACI) is a migratory bat with calls that are reliably differentiated from all other species. Hoary bat calls have lower frequency (ranging from 25 to 18 kHz) and are noticeably longer in duration compared to other bat species known to occur within the LAA.
- MYOTID SSP – (abbreviated MYOTID) is a species group that includes resident (i.e., non-migratory) bat species in Nova Scotia including little brown myotis, northern myotis, and the Tri-coloured bat. When possible, tri-coloured bat calls will be assessed separately from other Myotid species group calls. Unlike the migratory species outlined above, the Myotid species group of bats produce shorter duration calls with a minimum frequency between 40 – 45 kHz, and maximum frequencies ranging between 120 kHz and 80 kHz. Occasionally, myotis calls can have a minimum call frequency of 35 kHz.

Ecologically, these classifications make sense as hoary bats are typically confined to more open habitat, the LANO/LABO group typically forage in the open and along woodland edges, and the MYOTID SSP are the most agile and therefore may be found in more cluttered environments, near water bodies, and along woodland edges (van Zyll de Jong 1985).

# 5.0 Results

## 5.1 Desktop Review Results

### 5.1.1 Desktop Screening for Priority Species

Site-specific AC CDC reports were generated on May 7, 2021 and September 20, 2022, and included historical observations of SAR and SoCC reported within 5 km and 10 km of the Project centre (in 2021 and 2022, respectively) and within 100 km of the Project. Based on the later AC CDC report, no bat species were historically observed within 10 km of the PDA; however, five bat species were historically recorded within 100 km of the Study Area (AC CDC 2021; 2022). **Table 3** summarizes the historical observations of bat SAR and SoCC within 100 km of the PDA as reported by the AC CDC.

**Table 3: Rare and/or Endangered Bats within 100 km from the PDA Centre (AC CDC 2021; 2022)**

| Common Name | Scientific Name | S-rank and Conservation Status | No. of Obs. | Distance from PDA Centre to the closest observation (km) |
|---|---|---|---|---|
| **Little Brown Myotis** | ***Myotis lucifugus*** | S1, Endangered (SARA and NS ESA) | 175 | 11.7 |
| **Northern Myotis** | ***Myotis septentrionalis*** | S1, Endangered (SARA and NS ESA) | 60 | 11.7 |
| **Tri-coloured Bat** | ***Perimyotis subflavus*** | S1, Endangered (SARA and NS ESA) | 22 | 33.9 |
| Hoary Bat* | *Lasiurus cinereus* | S1S2B,S1M (no SARA, NS ESA, or COSEWIC listing) | 18 | 66.8 |
| Bat species* | *Vespertilionidae sp* | S1S2 (no SARA, NS ESA, or COSEWIC listing) | 157 | 13.9 |

**Bold** indicates a species is considered a SAR

* indicates a species is considered a SoCC

S-rank refers to the Sub-national (Provincial) rank provided by the AC CDC and includes the following: S1 Critically Imperiled, S2 Imperiled, S3 Vulnerable, S4 Apparently Secure, S5 Secure and SU Unrankable. Rankings are frequently paired with the following breeding status qualifiers: B Breeding, N Non-breeding and M Migrant

As mentioned previously, species associated with the MYOTID species group of bats (which include little brown myotis, northern myotis, and Tri-coloured Bats) were detected during the 2021 and 2022 bat surveys. These bats are known to inhabit much of Nova Scotia, and all three are listed as Endangered under both the federal SARA and the NSESA. Additionally, all three migratory bat SoCC currently

undergoing assessment by COSEWIC (i.e., silver-haired bat, eastern red bat, and hoary bat) were detected at the site in 2021.

Critical habitat for little brown myotis, northern myotis, and/or tri-coloured bat includes any site where hibernation by these bat species has been observed at least once between 1995 and 2018 (ECCC 2018). Hibernacula are required for these bats to survive when ambient temperatures decline and insects are unavailable (Ontario Ministry of Natural Resources 2010, COSEWIC 2013). Hibernacula for these species can include caves, abandoned mines, hand-dug wells, cellars, tunnels, rock crevices or tree root hollows where light and noise levels are low and can support relatively stable temperatures (2-10 ˚C) and high humidity levels (>80 %) (ECCC 2018). Maternity roosts are used for giving birth and rearing young and are considered to be important habitat but are not yet officially recognized as critical habitat (ECCC 2018).

Critical habitat for bats in Atlantic Canada are mapped but the locations are not shared publicly. The AC CDC did not identify any known bat hibernacula within 5 km of the Project site (AC CDC 2021; 2022). Based on the Environment and Climate Change Canada (ECCC) Recovery Plan for little brown myotis, northern myotis, and tri-colored bat (ECCC 2018), which uses a 10 km x 10 km grid to buffer known locations of hibernacula, critical bat habitat is present approximately 14 km south of the nearest Project WTG location.

### *5.1.2* Bat Maternity Roost Suitability Desktop Assessment

To date, only hibernacula sites (and not maternity-roosting sites) have been designated as critical habitat for bats (ECCC 2018). Hibernacula are used by SAR bats to survive when temperatures decline and insects are unavailable (ECCC 2018) and therefore are necessary for the ongoing survival and eventual recovery of these species. The importance of maternity roosts to the survival and recovery of these three species of bats is evident; however, the locations of the vast majority of maternity roosts are currently either unknown or undocumented, or the data are unavailable to ECCC. The criteria for identifying which maternity roosts would be considered as critical habitat would likely consider species, number of individuals using the roost, whether the roost is within a WNS-affected area, and the number of other known maternity roosts in the vicinity (ECCC 2018).

Little brown myotis and northern myotis are known to form roosts in forests and swamps with softwood trees (Foster and Kurta 1999). No forest stands with large trees (i.e., ≥ 25 cm dbh) were identified within the LAA. The locations of mixed-wood or hardwood forest stands and average dbh within the LAA are shown on **Figure 3,** based on available digital forestry data. Although the stand boundaries were reviewed using and Google Earth imagery and observations from the field surveys conducted in 2021 and 2022, there are active forestry practices in the area and the forest stands are expected change.

Natural Forces

WESTCHESTER WIND PROJECT

# POTENTIAL SUITABLE BAT MATERNITY ROOST STANDS

FIGURE 3

- Proposed Turbine Location
- Proposed Substation Location
- Potential Development Area (PDA)
- Local Assessment Area
- Stand With Average Diameter >= 25cm [1]
- Highway
- Watercourse
- Waterbody
- Wetland (Province of Nova Scotia, 2021)
- Site Parcel
- Forest
  Average DBH > 16 cm
- Forest
  Average DBH < 16 cm

[1] For consideration of large diameter softwood dominant stands as no hardwood or mixed wood dominant stands with average diameter >= 25cm were identified

0 0.25 0.5 1 km

N W E S

SCALE 1:30,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, NSDNRR, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-09

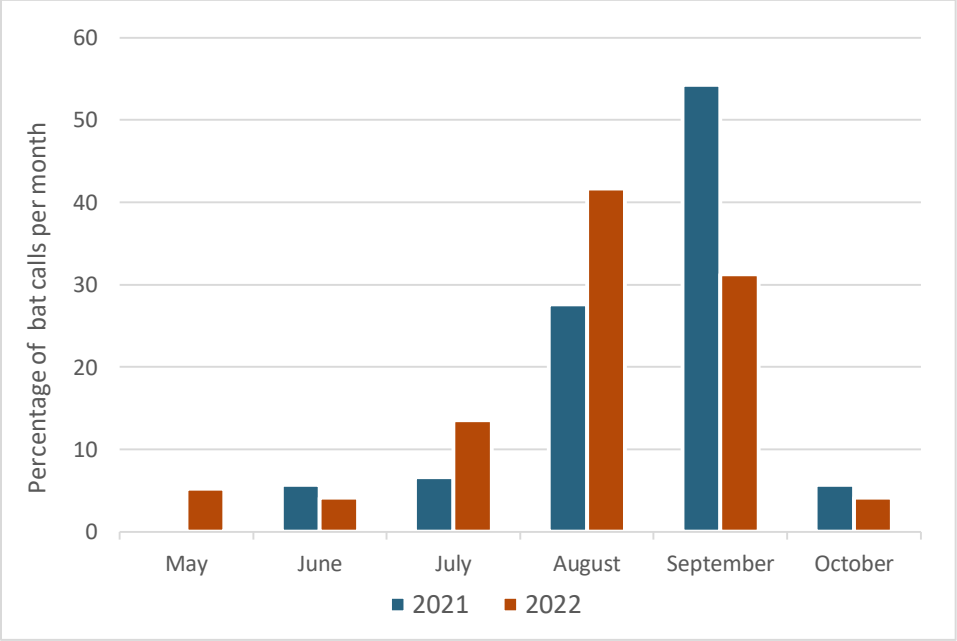


FILE LOCATION: K:\2021\211329\Product\Internal\Westchester_Figures_2022\Bat Figure 2022\WC_F03_Bat_Potential_Suitable_Maternity_Roost_Stands_2022.mxd

## *5.2* Field Survey Results

The results of the two-year acoustic survey are presented in the sections below. A survey data summary, including a breakdown of the number of bat passes by month and monitoring station each year, are included in **Appendix A**.

The number of passes per month recorded during the 2021 and 2022 bat monitoring program are presented below in **Figure 4**. Based on data collected in 2021 and 2022, peak bat activity was recorded between August and September. Of the 105 bat passes recorded during the June 1 to October 15, 2021 monitoring period, 82% (or 86 bat passes) were recorded during the months of August and September 2021 (inclusive). The month of September alone was responsible for 54% (or 57 bat passes) of the 105 recorded bat passes. From May 1st to October 31st, 2022, August and September accounted for 73% of the total 96 recorded passes (70 bat passes). The highest number of bat passes in 2022 was recorded in August with 42% of the total (or 40 bat passes).




**Notes:**
1. Monitoring was conducted in 2021 from June until October 15.

**Figure 4 Monthly Recorded Bat Passes in 2021 and 2022**

### *5.2.1* 2021 Results

In 2021, 13 bat passes were detected during the breeding period (recorded June 1 through July 31). The 13 passes comprised of 3 myotid bats species (i.e., resident species) and 10 migratory bat passes. A total of 92 bat passes were recorded in 2021 between August 1 and October 15 (targeting the fall migration period for migratory bats), 19 bat passes were from migratory bat species during the fall migration period.

The total number of bat passes per species/species group (and broken down by migratory and non-migratory species) per month in 2021 is presented in **Figure 5**. As illustrated in **Figure 5**, the MYOTID species group accounted for 72% (or 76 bat passes) of the 105 bat passes recorded during the survey period, of which 62% (or 47 bat passes) of the 76 MYOTID passes occurred during the month of September alone. Based on the automated species identification feature provided by Kaleidoscope Pro (Wildlife Acoustics), the majority of the MYOTID passes (72 passes or 95%) were from the little brown myotis; the remaining four passes were identified as tri-coloured bat and northern myotis (2 passes each). These three-bat species are considered to be resident species on Nova Scotia and are listed as Endangered under both the federal SARA and the NSESA.

Migratory bats recorded in 2021 included 16 passes from either silver-haired bats or eastern red bats, which were assessed together as a group based on similarities of their passes (abbreviated as LANO/LABO), and 13 passes from hoary bats (abbreviated as LACI).

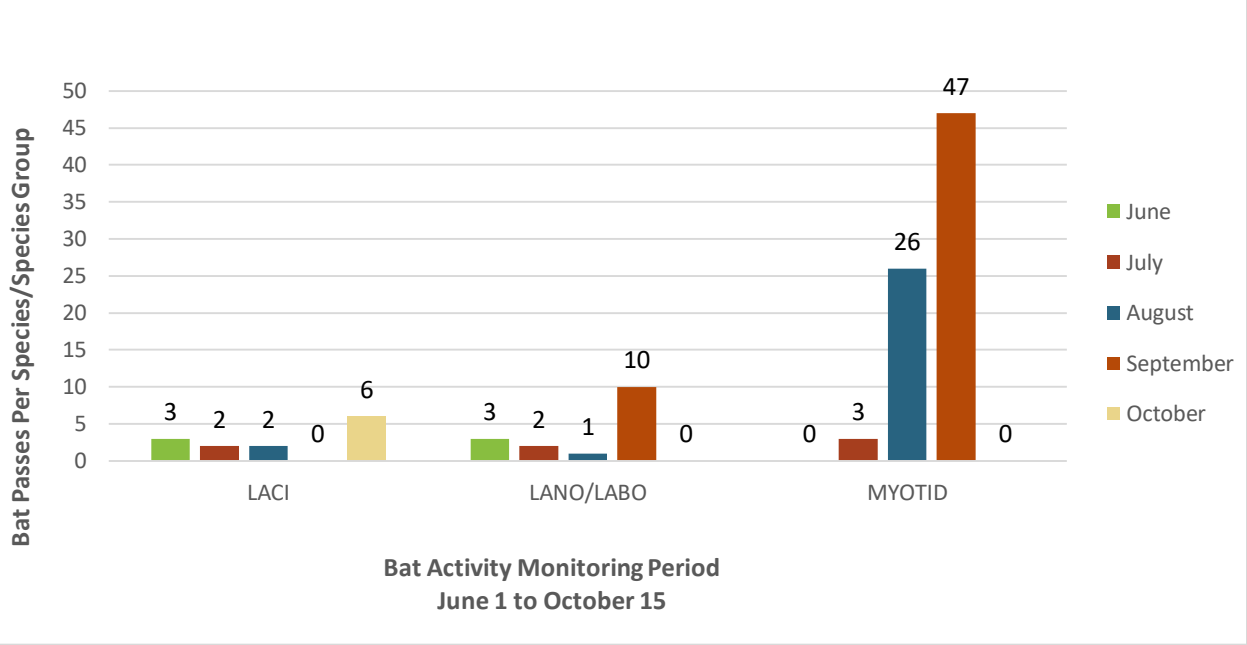



**Figure 5: Number of Bat Passes Recorded in 2021 by Species and Species Grouping**

### *5.2.2* 2022 Results

In 2022, 22 bat passes were detected during the breeding period (recorded May 1 through July 31). The 22 passes comprised of 14 myotid bats species (i.e., resident species) and 8 migratory bat passes. A total of 74 bat passes were recorded in 2021 between August 1 and October 15 (targeting the fall migration period for migratory bats), 36 migratory bat passes were from migratory bat species during the fall migration period.

The total number of bat passes per species/species group (and broken down by migratory and non-migratory species) per month in 2022 is presented in **Figure 6**. As illustrated in **Figure 6**, the MYOTID species group accounted for 54% (or 52 bat passes) of the 96 bat passes recorded during the survey period, of which 40% (or 21 bat passes) of the 52 MYOTID passes occurred during the month of August alone. Based on the automated species identification feature provided by Kaleidoscope Pro (Wildlife Acoustics), all of the MYOTID passes were from the little brown myotis. This bat species is considered to be a resident species in Nova Scotia and is listed as Endangered under both the federal SARA and the NSESA.

Migratory bats recorded in 2022 included 8 passes from either silver-haired bats or eastern red bats, which were assessed together as a group based on similarities of their passes (abbreviated as LANO/LABO), and 36 passes from hoary bats (abbreviated as LACI).

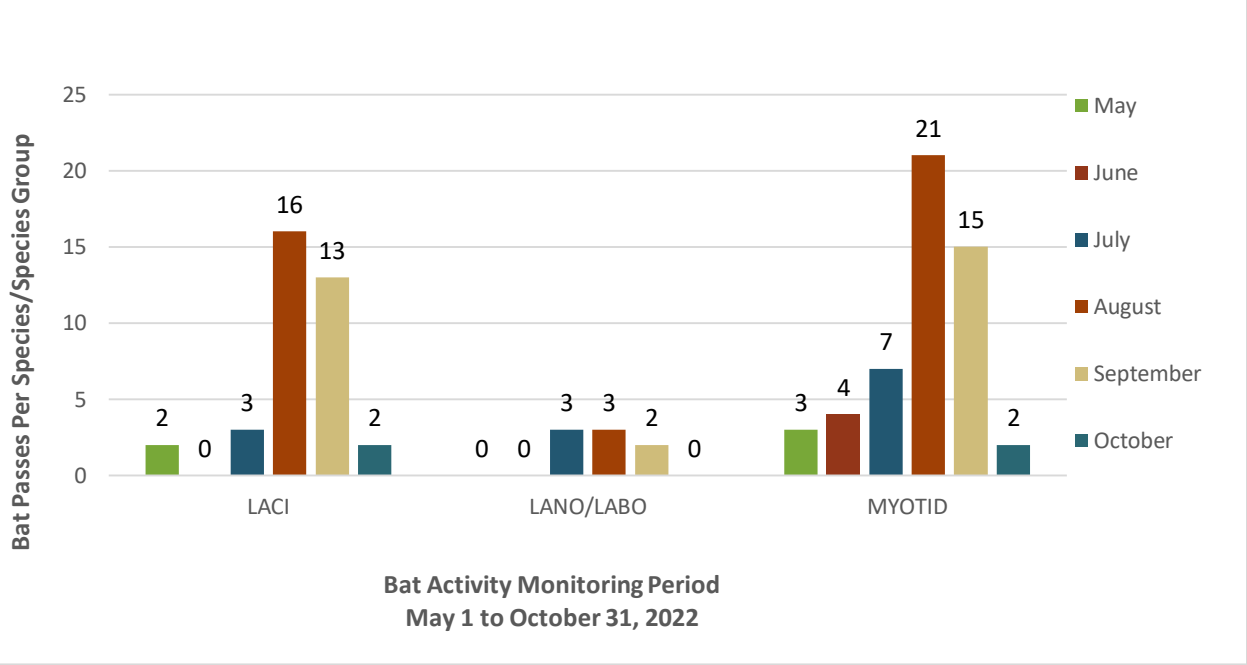



**Figure 6: Number of Bat Passes Recorded in 2022 by Species and Species Grouping**

## 5.3 Assessment Conclusions

The following bat species/species groups were detected during the bat acoustic survey program.

- Silver-haired bat and eastern red bat (these species were assessed together as a group based on similarities of their calls);
- Hoary Bat were detected site wide; however, were detected more frequently by acoustic monitors that were placed adjacent to open habitats, (e.g., forest edges that face a blueberry field); and,
- Little brown myotis northern myotis, and tri-coloured bat (these species were assessed together as a group based on similarities of their calls). Myotid bats which were more frequently detected by acoustic monitors that were placed adjacent to blueberry fields; as well as at one location within a regenerating wood lot.

Based on Dillon's experience on similar bat acoustic programs throughout the country, the total number of bat passes (during the breeding period, fall migration, and entire survey period) are considered very low. Population benchmark guidelines for bats within Nova Scotia are not currently available; therefore, an assessment of how the bat populations in the PDA compare to the regional area is subjective and based on professional opinion only. As discussed above, drastic bat population declines that have occurred throughout Nova Scotia due to a fungal infection (i.e., white nose syndrome, or WNS) that appears to severely affect cave-dwelling hibernating bats. It is believed that mortalities affecting up to 90% of populations result from interference with hibernation and starvation during the winter period. The syndrome was first observed in 2006 in New York and has been since confirmed in Ontario, Québec, New Brunswick and Nova Scotia (EC 2014).

Hibernating bats are known to travel several hundreds of kilometres between overwintering and breeding locations. However, few detections of SARA-listed bats were detected during the two-year acoustic monitoring program during the breeding season (i.e., 17 passes or 13% of SARA-list bat species detected occurred May1-July-31 in 2021 and 2022). Additionally, very little suitable bat maternity roosting habitat based on forestry data was available for bats at the time of the assessment. Based on the information available, maternity roosts within 1,000 m of the WTGs are considered to be possible, but unlikely. The majority of detections were recorded in the late summer/fall as bats move towards swarming and overwintering sites.

# 6.0 Effects Assessment and Mitigation Recommendations

## 6.1 Identification of Potential Environmental Effects

Bats have been identified as one of the biophysical VECs because of their relationship with other biological and physical components addressed as VECs, as well as the potential impacts on bats during all phases of the Project. Bat activity was surveyed in the field using acoustic bat monitors, as discussed above in **Section 4.2**. During the two-year acoustic bat monitoring program, 105 bat passes were detected in 2021 and 96 passes were detected in 2022. Both migratory and resident bat species were detected, all of which are either SAR or SoCC. Based on Dillon's experience on similar bat acoustic programs throughout the country, and in consideration of the survey level of effort (i.e., number of monitoring stations), both the total number of bat passes (during the breeding period, fall migration, and entire survey period) are considered very low for both 2021 and 2022.

Anticipated effects to bats can be predicted based on the nature of the Project and effects to bats on similar projects in the region. The identification of anticipated potential interactions between the Project and bats or bat habitat is presented below.

### 6.1.1 Approach to Project Components

The Project has three main distinct phases during each of which the potential interactions with the surrounding environment are considered distinct. Unplanned events are considered separately from the phases.

The phases of the Project include:

1. *Planning, Site Preparation and Construction Phase;*
2. *Operation Phase; and*
3. *Decommissioning Phase.*

The Project interaction matrix in **Table 4** is used as an initial screening to assist in determining if it is possible that there could be an interaction between the activities being carried out in each phase of the Project and bats and their habitat

**Table 4: Project Interactions with Environmental Components**

| Valued Environmental Component | Project Phases | | | |
|---|---|---|---|---|
| | Planning, Site Preparation and Construction Phase | Operation Phase | Decommissioning Phase | Unplanned Events |
| Bat and Bat Habitat | ✓ | ✓ | ✓ | ✓ |

Legend: ✓ = Potential interaction identified

Those Project phases for which a checkmark is provided indicates that the Project may interact with bats, and thus an environmental effects assessment is warranted. In this case, it is possible that interactions could occur during each phase of the Project, as well as due to unplanned events, which are all discussed below.

### *6.1.2* Identification of Potential Environmental Effects

The mortality rate of bats due to collision and/or habitat loss cannot be accurately predicted as there is little correlation between pre-construction activity levels and operational mortality. However, industry standards, technology and more robust biophysical assessments have improved understanding of the potential interactions between wind projects and wildlife. Without mitigation, the Project is anticipated to interact with bats and/or bat habitat and cause environmental effects in the following ways:

- Temporary disturbance, or displacement from surrounding habitat, during Project construction and decommissioning activities due to increased human presence, noise and anthropogenic footprint;
- Loss of habitat due to Project infrastructure and crane pads during construction, operation, and decommissioning;
- Fatalities due to barotrauma or collisions with turbine towers or blades or the transmission line infrastructure during the operation; and
- Modifications to existing flight paths as bats avoid the PDA or are attracted to the area by tower lights during the operation.

The potential interactions of the Project on bats and bat habitat and the proposed mitigation measures are summarized in **Table 5**.

**Table 5: Potential Interactions and Proposed Mitigation for Bats and Bat Habitat**

| Potential Interactions with Bats and Bat Habitat | Proposed Mitigation Measures |
|---|---|
| Temporary disturbance, or displacement from surrounding habitat, during Project construction and decommissioning activities due to increased human presence, noise and anthropogenic footprint. Loss of habitat due to Project infrastructure and crane pads during construction, operation, and decommissioning | 1. The Project footprint will be limited to that which is necessary to enable the Project to be carried out.<br>2. Vegetation will be retained where possible to maintain bats and bat habitat.<br>3. Any revegetation of a reclaimed site will be either naturally occurring or using native local vegetation in consultation with the landowner.<br>4. Existing roads and trails will be utilized to limit disturbance outside the Project footprint and minimize the interactions with bats and bat habitat.<br>5. Workers, particularly the on-site environmental monitor, will be familiarized with the bat SAR/SoCC identified as having the potential to occur on site prior to work commencing.<br>6. Should a bat SAR/SoCC be identified during Project activities, a buffer will be maintained, and additional mitigation measures will be developed in consultation with NRR.<br>7. Bat SAR observations will be submitted to the Atlantic Canada Conservation Data Centre, following the directions on how to contribute data found at http://AC CDC.com/en/contribute.html |
| Fatalities due to barotrauma or collisions with turbine towers or blades or the transmission line infrastructure during the operation. | 1. A comprehensive Adaptive Management Plan will be developed and implemented in consultation with NSDNRR and CWS, including a follow up bat mortality survey to be conducted after the Project commissioning and appropriate actions to be taken should there be a significant negative impact to bats;<br>2. Non-operational towers shall be dismantled if not expected to be put back into operation; and<br>3. Lighting installed on the turbines will follow Transport Canada's requirements. |
| Modifications to existing flight paths as bats avoid the PDA or are attracted to the area by tower lights during the operation | 1. Mitigative measures #2 and 3 for potential bat fatalities are also applicable for potential modifications to flight paths. |

### *6.1.3* Standard Mitigation for Potential Environmental Effects

Standard mitigation has been identified for the anticipated interaction and/or effect in relation to bats and bat habitat in an attempt to prevent the interaction from occurring if possible, or to reduce the magnitude, geographic extent, frequency, duration, reversibility, or ecological/socioeconomic context of the interaction. Best management practices (based on industry guidelines and regulatory guidance documents) have been proposed as mitigation measures. In addition, several acts, codes, regulations

and guidelines may require appropriate actions be conducted mitigate impacts prior to or during the interaction.

The federal and provincial legislation and codes that could apply to the Project include (but may not be limited to):

- *Canadian Environmental Protection Act* and regulations (EC 1999);
- *Species at Risk Act* (ECCC 2002);
- *Transportation of Dangerous Goods Act*, and regulations (TC 1992);
- Nova Scotia *Environment Act* and regulations (NSG 1994-95);
- Nova Scotia *Endangered Species Act*, and regulations (NSG 1998a);
- Nova Scotia *Wilderness Areas Protection Act* (NSG 1998b), and regulations; and
- Contingency Planning Guidelines (NSECC 2021).

To further reduce the likelihood of interactions between any phase of the Project and bats and bat habitat, the mitigation measures, summarized above in **Table 5** will be followed.

Under the *Species at Risk Act (SARA*), general prohibitions apply regarding any SARA-listed bat (or other) species to the Proponent, staff and contractors. Personnel associated with all phases of the Project are to be made aware that no person shall:

- Kill, harm, harass, capture or take an individual species at risk (SAR);
- Possess, collect, buy, sell or trade an individual, or any part or derivative; and
- Damage or destroy the residence of one or more individuals.

A post-construction bird mortality survey will be conducted and appropriate actions will be taken in consultation with CWS and NSDNRR and in accordance to proposed mitigation measures described above in **Table 5**.

## *6.2* Residual Environmental Effects

A residual environmental effect is an environmental effect of a project that remains, or is predicted to remain, after mitigation measures have been implemented.

The mitigation measures listed in **Table 5** (above) will minimize or prevent habitat loss, disturbance, or displacement of bats from surrounding habitat during Project construction and decommissioning activities by limiting noise and prioritizing development within areas of existing anthropogenic disturbances.

Disturbance of bat habitat has the potential to occur during the construction and operation phases of the Project. However, due to the low number of bat passes recorded at the Project site, limited predicted impacts to the habitat, the implementation of planned mitigation, and careful development of

contingency and emergency response plans, it is anticipated that effects related to the Project will not be substantive.

Fatalities due to barotrauma or collisions with turbine towers or blades or the transmission line infrastructure during the operation will be monitored. Post-construction monitoring for bat mortality during operation will also verify the effect the Project has on bats. Should a significant amount of bat mortality be observed following the post construction surveys, the Proponent will follow the Adaptive Management Plan presented with the Westchester Wind Project Addendum (2022) and engage regulatory authorities in applying additional mitigation measures.

## *6.3* Cumulative Environmental Effects

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions (GoC 2022). Specific to the nature of the undertaking, cumulative effects are combined impacts that may occur when wind power projects or other types of projects are located in the same region (NSECC 2021). This area of the province has a number of existing wind energy developments. The nearest wind farms are as follows:

- Higgins Mountain Wind Phase I, a 3.6 MW project located approximately 9 km east from the Project. This project was commissioned in 2006.
- Fitzpatrick Mountain Wind, a 0.8 MW project located approximately 28 km from the Project. This project was commissioned in 2007.
- Nuttby Mountain Wind, a 50.6 MW project located approximately 40 km east from the Project. This project was commissioned in 2010.
- Amherst Wind, a 32 MW project located approximately 45 km from the Project. This project was commissioned in 2012.

The Project will utilize existing cleared corridors to reduce the potential for residual impacts to bats and their habitats in relation to existing land uses of the site. The Project is located in an area with ongoing agricultural and forestry land uses, including the following anthropogenic activities and developments:

- Historic and ongoing forestry activities within and adjacent to the PDA;
- Historic and ongoing agricultural activities within and adjacent to the PDA;
- Operational and proposed expansion of a quarry adjacent to the PDA;
- Existing major transmission line corridor adjacent to the PDA;
- Existing telecommunication towers and associated infrastructure, including overhead power lines and access roads;
- Existing local roads, provincial roads, and Trans-Canada highway; and
- Operation of motorized vehicles (heavy equipment, passenger vehicles, and recreational vehicles including All Terrain Vehicles and snowmobiles) within and adjacent to the PDA.

The anticipated cumulative effects to residential and migratory bats are anticipated to be low. By following the Adaptive Management Plan and through engagement of regulatory authorities regional population-wide effects due to the cumulative residual effects of each existing land uses are considered unlikely. In order to further mitigate risk to bat habitat during the Project phases, there will be a concerted effort to use existing corridors found on site, to limit over story removal, and vegetation management.

# 7.0 Summary and Conclusion

This report has been prepared for the Environmental Assessment registration of the Westchester Wind Project. The Project is expected to provide renewable electricity to Nova Scotia and support Nova Scotia Power in attaining their future renewable energy targets.

The information provided in this document is based on the current available design/planning information and existing environment information obtained during focused field surveys conducted throughout 2021 and 2022.

Based on the results of the desktop and field surveys for bats, it was concluded that the potential for bats to roost within the LAA is very low. Relatively, there were more bats observed in August and September than other months. This follows similar trends throughout the region, as bats are known to be present in greater numbers throughout the August and September fall migration. Based on the anticipated effects on bats, residual effects may occur as a result of the construction and operation phases of the Project, however the effects are expected to be of low magnitude and be reversible.

In order to further mitigate risk to local and migratory bats during the Project phases, there will be a concerted effort to use existing corridors found on-site, to limit over story removal, and vegetation management. Additionally, a comprehensive post construction monitoring plan will be developed and will include monitoring for bat mortality.

# *8.0* Closure

This report was prepared by Dillon Consulting Limited (Dillon) for Natural Forces Developments Limited Partnership (the Proponent) on behalf of the Westchester Wind Limited Partnership, in support of the Westchester Wind Project Addendum (2022). Dillon has used the degree of care and skill ordinarily exercised under similar circumstances at the time the work was performed by reputable members of the environmental consulting profession practicing in Canada. Dillon assumes no responsibility for conditions which were beyond its scope of work. There is no warranty expressed or implied by Dillon.

The material in the report reflects Dillon's best judgment in light of the information available to Dillon at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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# Appendix A

## *Data Summary*

**Table A.1: Number of Bat Passes by Species/Species Group per Monitoring Station – 2021**

| Station | Species Group | Bat Passes per Month | | | | | Bat Passes |
|---|---|---|---|---|---|---|---|
| | | June | July | August | September | 1-15 October | |
| BAT 1 | LACI | 3 | 0 | 0 | 0 | 3 | 6 |
| | LANO/LABO | 3 | 0 | 0 | 8 | 0 | 11 |
| | MYOTID | 0 | 0 | 22 | 45 | 0 | 67 |
| | **total** | **6** | **0** | **22** | **53** | **3** | **84** |
| BAT 2 | LACI | 0 | 0 | 0 | 0 | 3 | 3 |
| | LANO/LABO | 0 | 0 | 0 | 0 | 0 | 0 |
| | MYOTID | 0 | 0 | 0 | 0 | 0 | 0 |
| | **total** | **0** | **0** | **0** | **0** | **3** | **3** |
| BAT 3 | LACI | 0 | 0 | 0 | 0 | 0 | 0 |
| | LANO/LABO | 0 | 0 | 0 | 0 | 0 | 0 |
| | MYOTID | 0 | 0 | 0 | 0 | 0 | 0 |
| | **total** | **0** | **0** | **0** | **0** | **0** | **0** |
| BAT 5A | LACI | 0 | 0 | 0 | 0 | 0 | 0 |
| | LANO/LABO | 0 | 0 | 0 | 1 | 0 | 1 |
| | MYOTID | 0 | 3 | 1 | 2 | 0 | 6 |
| | **total** | **0** | **3** | **1** | **3** | **0** | **7** |
| BAT 5B | LACI | 0 | 0 | 0 | 0 | 0 | 0 |
| | LANO/LABO | 0 | 0 | 0 | 0 | 0 | 0 |
| | MYOTID | 0 | 0 | 0 | 0 | 0 | 0 |
| | **total** | **0** | **0** | **0** | **0** | **0** | **0** |
| BAT 4 | LACI | 0 | 2 | 2 | 0 | 0 | 4 |
| | LANO/LABO | 0 | 0 | 1 | 1 | 0 | 2 |
| | MYOTID | 0 | 2 | 3 | 0 | 0 | 5 |
| | **total** | **0** | **4** | **6** | **1** | **0** | **11** |
| | **TOTAL** | **6** | **7** | **29** | **57** | **6** | **105** |

**Table A.2: Number of Bat Passes by Species/Species Group per Monitoring Station - 2022**

| Station | Species Group | Bat Passes per Month | | | | | | Bat Passes |
|---|---|---|---|---|---|---|---|---|
| | | May | June | July | August | September | October | |
| BAT 1B | LACI | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | LANO/LABO | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MYOTID | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **total** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| BAT 2 | LACI | 2 | 0 | 2 | 3 | 3 | 1 | 11 |
| | LANO/LABO | 0 | 0 | 2 | 3 | 1 | 0 | 6 |
| | MYOTID | 1 | 1 | 2 | 9 | 13 | 1 | 27 |
| | **total** | **3** | **1** | **6** | **15** | **17** | **2** | **44** |
| BAT 5A | LACI | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | LANO/LABO | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MYOTID | 1 | 2 | 2 | 0 | 0 | 0 | 5 |
| | **total** | **1** | **2** | **2** | 0 | 0 | 0 | **5** |
| BAT 6 | LACI | 0 | 0 | 0 | 9 | 10 | 1 | 20 |
| | LANO/LABO | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | MYOTID | 1 | 1 | 2 | 9 | 1 | 1 | 15 |
| | **total** | **1** | **1** | **2** | **18** | **11** | **2** | **35** |
| BAT 7 | LACI | 0 | 0 | 1 | 4 | 0 | 0 | 5 |
| | LANO/LABO | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| | MYOTID | 0 | 0 | 1 | 3 | 1 | 0 | 5 |
| | **total** | **0** | **0** | **3** | **7** | **2** | **0** | **12** |
| **TOTAL** | | **9** | **5** | **16** | **61** | **42** | **6** | **96** |

# Appendix B

## *Photographs*

Bat 1: near a blueberry field in the southern part of the PDA

Bat 2: near a blueberry field in the northern part of the PDA

Bat 5A: open, recently clear cut area, on the western side of the PDA.

Bat 6: regenerating hardwood forest, northwestern portion of the PDA

Bat 7: regenerating hardwood forest, northwestern portion of the PDA, at Met Tower