

Niagara Region Wind Farm **2019 Post-construction Mortality** **Monitoring Report**

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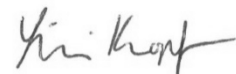
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Niagara Region Wind Farm
2019 Post-construction Mortality Monitoring Report

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Executive Summary

Natural Resource Solutions Inc. was retained to conduct three years of post-construction monitoring at the operational Niagara Region Wind Farm, located within the Townships of West Lincoln and Wainfleet and the Town of Lincoln, within Niagara Region and Haldimand County, Ontario. This wind energy project has a nameplate capacity of 230MW and consists of 77 turbines situated in an agricultural landscape dominated by row crops. Occasional wooded habitats, wetlands, and aquatic features are also present in the areas surrounding the project infrastructure. This report provides the detailed methods and results from the third year of post-construction monitoring for bird and bat mortality conducted at the Niagara Region Wind Farm in 2019.

During twice-weekly searches from May 1 to October 31, 2019, 62 bird mortalities were documented within the search areas around the subset of 23 turbines. Observed bird mortalities consisted of landbird species, the majority of which are considered common in the province. Using appropriate correction factors, an estimated bird mortality rate of 3.77 birds/turbine/year (1.26 birds/MW/year), as calculated by turbine group, was determined for the Niagara Region Wind Farm. This is below the provincial threshold of 14 birds/turbine/year at individual turbines or turbine groups. No significant bird mortality events were documented.

During twice-weekly searches from May 1 to October 31, 2019, and once weekly searches in November, eight raptor mortalities were documented within the search areas around the subset of 23 turbines. Observed raptor mortalities consisted of Turkey Vulture (*Cathartes aura*), Red-tailed Hawk (*Buteo jamaicensis*), and Sharp-shinned Hawk (*Accipiter striatus*). These raptor species are considered common in the province. This resulted in an estimated raptor mortality rate of 0.38 raptors/turbine/year (0.14 raptors/MW/year), which is above the provincial threshold of 0.20 raptors/turbine/year.

During twice-weekly searches from May 1 to October 31, 2019, 99 bat mortalities were documented within the search areas around the subset of 23 turbines. Mortalities of Silver-haired Bat (*Lasionycteris noctivagans*), Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), and Big Brown Bat (*Eptesicus fuscus*) were documented, all of which are ranked as apparently secure within the province. The first three species above are considered long-distance migratory species which over-winter outside of Ontario, and combined to account for approximately 82% of the total bat mortality observations at the Niagara Region Wind Farm in 2019. Using appropriate correction factors, an estimated bat mortality rate of 6.19 bats/turbine/year (2.08 bats/MW/year) was determined for the Niagara Region Wind Farm. This is below the provincial threshold of 10 bats/turbine/year.

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained to conduct the third year of post-construction monitoring at the operational Niagara Region Wind Farm (Niagara Region WF), which is located within the Townships of West Lincoln and Wainfleet and the Town of Lincoln, within Niagara Region and Haldimand County, Ontario. The Niagara Region WF consists of 77 wind energy generating turbines with a total nameplate capacity of 230MW. The project area and turbine locations are provided on Map 1.

Post-construction mortality monitoring at the Niagara Region WF in 2019 consisted of bird, bat, and raptor mortality monitoring, and the corresponding searcher efficiency trials, scavenger removal trials, and turbine visibility class mapping that are used in the calculation of estimated mortality rates. These surveys were conducted in accordance with provincial guidelines and project approval conditions (Renewable Energy Approval (REA) No. 4353-9HMP2R) to assess the potential impacts of this wind energy generating facility on local and migratory birds and bats.

The purpose of this report is to provide the detailed methods and results from the third year of post-construction mortality monitoring conducted at the Niagara Region WF.

For the purposes of this report, NRSI will frequently use the terms 'mortality' and 'carcass'. The term 'mortality' will refer to dead birds and bats that were found in the vicinity of turbines at the Niagara Region WF. The term 'carcass' will refer to dead birds and bats that have been placed beneath wind turbines by NRSI staff for the purposes of searcher efficiency and/or scavenger removal trials.

2.0 Mortality Monitoring Methodology

2.1 Mortality Monitoring

All monitoring undertaken at the Niagara Region WF was conducted in accordance with Ministry of Natural Resources and Forestry (MNRF) guidelines (OMNR 2011a, OMNR 2011b) and any other associated project approval conditions. Summarized methods are provided in the following sections.

2.1.1 Sample Locations

For wind energy projects consisting of greater than 10 turbines, a subset of at least 30% of turbines is required to be monitored (OMNR 2011a, OMNR 2011b, MOE 2016 [L4(1)]). In accordance with these requirements, a subset of 23 turbines (30%) was selected by NRSI in consultation with the MNRF (M. Poskin pers. comm. 2017), which included the turbines identified in the Environmental Effects Monitoring Plan (EEMP; Stantec 2013). The subset of turbines that were monitored at the Niagara Region WF in 2019 was the same as the subset monitored in previous years and is shown on Map 1.

2.1.2 Monitoring Period and Search Frequency

NRSI biologists conducted twice weekly (three- and four-day intervals) mortality monitoring at the subset of 23 turbines during the monitoring period of May 1 to October 31, 2019. Raptor mortality monitoring continued once weekly at the subset of 23 turbines throughout the month of November. Raptor mortality monitoring was also conducted at all other turbines once per month from May to November (inclusive).

Due to turbines T01 and T58 being located in close proximity to habitat that was previously confirmed significant for winter raptor use, weekly mortality searches were also required to occur at these two turbines from January to March, and again throughout December, as per condition L4 (1) (c). However, due to changes in land use associated with common agricultural practices that occurred prior to the onset of the first year of monitoring, and were confirmed again prior to each of the second and third years of monitoring, the habitats no longer meet provincial criteria for candidate Significant Wildlife Habitat (OMNR 2012). As a result, weekly monitoring of these two turbines was not completed in January, February, March, or December 2019. This modification to the

monitoring requirements was made in consultation with the MNRF (K. McGlade pers. comm. 2018) and was published to the project's website, in accordance with Condition L14 (1) of the REA.

As a result of inclement weather and other safety concerns, some turbines could not be searched on their regularly scheduled dates. These adjustments to the monitoring protocol are not expected to impact the results or conclusions presented in this report. The dates when turbines were not able to be searched are listed in Table 1.

Table 1. Summary of Regular Search Days When Turbines Could Not be Searched (2019)

Regular Search Date (2019)	Date Turbine Next Searched (2019) *	Turbine(s)	Rationale
May 9	May 13	T44, T61	Inclement Weather (Thunderstorm)
June 7	June 11	T02	Turbine Maintenance
June 13	June 17	T01, T32, T44, T61	Inclement Weather (Thunderstorm)
June 27	July 1	T32	Turbine Maintenance
July 5	July 9	T02, T03, T05, T12, T24, T62, T63, T99	Inclement Weather (Thunderstorm)
July 11	July 15	T01, T07, T08, T16, T32, T44, T45, T61, T66, T81	Inclement Weather (Thunderstorm)
July 16	July 19	T02, T57, T58, T63, T80	Inclement Weather (Thunderstorm)
	July 23	T62	
July 19	July 23	T05, T12, T62, T99	Inclement Weather (Thunderstorm)
	July 26	T03	
July 23	July 26	T03	Conflicting Landowner Activities
July 26	July 30	T02, T24, T58, T80	Inclement Weather (Thunderstorm)
August 6	August 9	T02, T03, T05, T12, T24, T58, T62, T63	Inclement Weather (Thunderstorm)
August 8	August 12	T01, T07, T08, T16, T32, T44, T45, T61, T81	Inclement Weather (Thunderstorm)
August 15	August 19	T32, T61	Inclement Weather (Thunderstorm)
August 23	August 27	T80	Turbine Maintenance
October 1	October 4	T12, T99	Inclement Weather (Thunderstorm)
October 24	October 28	T08	Turbine Maintenance
October 28	October 31	T01	Turbine Maintenance
November 7	November 14	T08	Turbine Maintenance
November 12	November 15	T02, T03, T12, T24, T57, T58, T62, T63, T80, T99	Inclement Weather (Winter Storm)

	November 19	T05	
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** Due to a variety of factors which may include the duration of turbine maintenance, weather conditions, the location of the project, and/or staff commitments, certain turbines could not be searched again until the next regularly scheduled search day.*

2.1.3 Sample Area and Survey Duration

NRSI conducted mortality searches within a 50m radius of each turbine base. Mortality searches were conducted using linear transects, spaced approximately 5m apart. In order to maintain a consistent search effort, mortality searches followed a consistent search time throughout each month of monitoring. At the subset of 23 turbines, a search time of 20 minutes per turbine was used during the months of May, October, and November. In an attempt to increase the searcher efficiency values, and ultimately the accuracy of the estimated mortality rates, the search effort was increased to 30 minutes per turbine during the month of June, and 40 minutes per turbine during the months of July, August, and September.

2.1.4 Data Collection

During each visit to conduct mortality searches, all appropriate information was documented, including weather conditions, date, time, and observer. The mortality monitoring data collection sheet has been provided in Appendix I.

In addition to general information collected on each visit, a variety of specific information was recorded upon encountering any mortality. This detailed information, as shown on the data sheet provided in Appendix I, included species (if identifiable), sex of the individual (if identifiable), condition, estimated time since death, any apparent injuries, distance and direction from turbine base, substrate type and visibility class, and a unique mortality identification number for future reference. UTM coordinates and photographs were also taken for each specimen to allow for further analysis, if necessary.

2.2 Scavenger Removal Trials

Scavenger removal trials were conducted in each of the spring, summer, and fall seasons of mortality monitoring. For the purposes of this monitoring program, the spring monitoring season is defined as the months of May and June, the summer monitoring season is July and August, and the fall monitoring season is September and October. A minimum of 10 carcasses were placed during each monitoring season. No more than

five carcasses were placed at one time and no more than one carcass was placed at any single turbine during each placement event. These measures were taken to avoid potential bias in the trial resulting from saturation of carcasses available to scavengers. Carcasses were placed throughout the range of habitats and substrate types being searched during each season. Species, UTM coordinates, distance and direction from turbine base, and visibility class were recorded on a data sheet during the placement of each specimen. The scavenger removal data sheet has been provided in Appendix I.

Carcasses placed included both bird and bat specimens, with each trial consisting of at least one-third representation of each of bird and bat carcasses. Bird carcasses included species commonly encountered in this region of the province and ranged in size from very small to moderately-sized carcasses. Long-distance migratory bat carcasses were used in each seasonal scavenger removal trial, and included Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*), and Silver-haired Bat (*Lasionycteris noctivagans*). Carcasses used in scavenger removal trials were obtained from the Royal Ontario Museum and/or were collected from operational wind energy facilities within Ontario. A list of the bird and bat species used during scavenger removal trials has been provided in Appendix II.

During each scavenger removal trial, the bird and bat carcasses were left for up to 14 days and were checked at the same frequency as mortality searches (i.e., twice per week) to note any scavenging or signs of scavenger presence. Following completion of the scavenger removal trials after 14 days, all remaining test carcasses were retrieved and disposed of appropriately.

2.3 Searcher Efficiency Trials

In conjunction with mortality searches, NRSI conducted searcher efficiency trials on staff that conducted mortality searches at the Niagara Region WF. Searcher efficiency trials were conducted on each searcher at a minimum of once during each season (spring, summer, and fall). In order to account for seasonal changes in groundcover, weather, or other potential variations in search conditions, NRSI conducted monthly searcher efficiency trials, rather than seasonal, from May to October. During each trial, searchers were tested without their knowledge through the placement of a minimum of 10 test carcasses per visibility class searched by the searcher. No more than three carcasses

were placed on any one date, as per the *Environmental Effects Monitoring Plan for Wildlife and Wildlife Habitat* (EEMP; Stantec 2013). Carcasses were placed randomly within the search radii of the 23 subset turbines at the Niagara Region WF. Distance and direction from turbine base, visibility class, substrate type, and UTM coordinates were recorded for each test carcass placed. Each specimen found was later compared to the total number of carcasses placed within the project area, the locations of their placement, and species placed. The data sheet used for searcher efficiency trials has been provided in Appendix I.

In order to meet the understood intent of the MNRF guidelines to limit searcher bias (OMNR 2011a, OMNR 2011b), NRSI has not physically marked trial carcasses at this project, as marking the carcasses could influence the results of the trial by alerting the searcher to the ongoing searcher efficiency trial. Instead, NRSI biologists collect detailed information on the location of trial carcasses, including UTM coordinates, distance and direction from the turbine, and mapping the location of each carcass. All collected carcasses are compared to this detailed location and species information to distinguish between trial carcasses and turbine-related mortalities. These steps have been taken to ensure that the location of the carcasses, along with species information, is well documented for future reference should there be any uncertainty about whether an observed carcass is a turbine-related mortality or a trial carcass.

Bat carcasses were used for at least one third of the searcher efficiency trials, and bird carcasses comprised at least another third of the trial carcasses. Bird carcasses included species commonly encountered in this region of the province and varied in size from very small to moderately-sized carcasses. Bat carcasses used during searcher efficiency trials consisted of the three long-distance migratory species known to occur in Ontario, including Hoary Bat, Eastern Red Bat, and Silver-haired Bat. Carcasses used in searcher efficiency trials were obtained from the Royal Ontario Museum and/or were collected from operational wind energy facilities within Ontario. A list of the bird and bat species used during searcher efficiency trials has been provided in Appendix III.

2.4 Proportion of Area Searched

Following MNRF guidelines, visibility class maps were completed by searchers at a minimum frequency of once per season (OMNR 2011a, OMNR 2011b). Due to the

potential for changing conditions from month to month, NRSI completed visibility class maps once per month from May to November to provide additional information to support whether more frequent searcher efficiency trials were warranted and ultimately to increase the accuracy of the estimated mortality rates.

Visibility class mapping was completed for the full 50m search radius at each of the subset of 23 turbines. This mapping categorized portions of the search area according to visibility classes recommended by the MNRF (OMNR 2011a, OMNR 2011b). These include visibility classes 1 through 4, in addition to areas which may be deemed “unsearchable”, such as aquatic features, wooded areas, areas deemed safety hazards, or other areas where searching was not possible. Mapping of these visibility classes within each search radius was conducted and calculated as per a repeatable methodology using a combination of the visibility class field maps, review of aerial photographs, and Geographic Information System (GIS) software. The data sheet used to record visibility class mapping has been provided in Appendix I.

In an effort to increase the accuracy of searcher efficiency rates and minimize the influence of the proportion of area searched on the bird and bat mortality estimates, the majority of the search radii at the subset of 23 turbines was maintained at visibility classes 1 or 2 by occasional plowing or mowing for the duration of the regular monitoring year (May through November), as needed. Small areas of other visibility classes were occasionally present, particularly near the outer limit of the 50m radii. When small and/or temporary areas of other visibility classes were present, they were searched thoroughly until scheduled vegetation maintenance could occur. As a result, the majority of the 50m radius at each turbine was searched for the duration of the 2019 monitoring period. At a small number of turbines, some larger areas were mapped as visibility classes that were not searched as part of this monitoring program (i.e., visibility class 3 or 4) during a particular month. In these cases, the appropriate proportion of area searched was calculated and used for final mortality estimates.

Maintenance of the 50m search radii was only completed when necessary to maintain appropriate visibility and followed a strict schedule that ensured the maintenance activities were completed in a manner to minimize or eliminate any potential negative

influence on the mortality monitoring, searcher efficiency trials, and scavenger removal trials. The maintenance of the search areas is expected to increase the accuracy of the final estimated mortality rates at the Niagara Region WF.

3.0 Scavenger Removal Trial Results

Scavenging activity at the Niagara Region WF was relatively low throughout the monitoring period, with slightly higher scavenging activity noted during the fall trial.

Table 2 shows the results of the seasonal scavenger removal trials conducted at the Niagara Region WF. Details on the date placed, species, distance and direction from turbine, visibility class, dates checked and by whom, UTM coordinates, and whether the carcass was scavenged have been provided in Appendix II.

Table 2. Number of Carcasses Remaining During Scavenger Removal Trials at the Niagara Region Wind Farm (2019)

Number of Carcasses Remaining					
Spring Trial (May/June)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	1	1	1	1
T02	2	2	2	2	2
T03	1	1	1	1	1
T05	1	0	0	0	0
T07	1	1	1	1	1
T08	1	1	1	1	1
T12	1	1	1	1	1
T16	1	1	1	1	1
T24	1	1	1	1	1
T32	1	1	1	1	1
T44	1	1	1	1	1
T45	1	0	0	0	0
T57	2	1	1	1	1
T58	1	1	1	1	1
T61	1	0	0	0	0
T62	1	1	1	1	1
T81	1	1	1	1	1
T95	1	1	1	1	1
Total	20	16	16	16	16
Summer Trial (July/August)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	1	1	1	1
T03	1	1	1	1	1
T05	1	0	0	0	0
T08	1	1	0	0	0
T12	1	1	1	1	1
T16	1	1	1	1	1

Number of Carcasses Remaining					
T24	1	1	1	1	1
T32	1	1	1	1	1
T44	1	0	0	0	0
T57	1	1	1	1	1
T58	1	1	1	1	1
T61	1	1	1	1	1
T62	1	0	0	0	0
T63	1	0	0	0	0
T66	1	1	1	1	1
T80	1	1	1	1	1
T81	1	1	1	1	1
T94	1	0	0	0	0
T95	1	1	1	1	1
T99	1	0	0	0	0
Total	20	14	13	13	13
Fall Trial (September/October)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T02	1	1	1	1	1
T03	1	1	1	1	1
T07	1	0	0	0	0
T08	1	1	1	1	1
T12	1	0	0	0	0
T16	1	1	1	1	1
T32	1	0	0	0	0
T45	1	0	0	0	0
T58	1	0	0	0	0
T61	1	0	0	0	0
T62	1	1	1	1	1
T63	1	1	0	0	0
T66	1	1	1	1	1
T80	2	2	2	1	1
T81	1	1	0	0	0
T94	1	1	0	0	0
T95	1	0	0	0	0
T99	2	2	2	1	1
Total	20	13	10	8	8

To calculate the scavenger removal rate for each of the specific monitoring periods, NRSI has used the following equation recommended by the MNRF:

$$Sc = \frac{n_{visit1} + n_{visit2} + n_{visit3} + n_{visit4}}{n_{visit0} + n_{visit1} + n_{visit2} + n_{visit3}}$$

Sc: proportion of carcasses not removed by scavengers

n_{visit0} : total number of carcasses placed

$n_{visit1} - n_{visit4}$: numbers of carcasses remaining on visits 1 through 4

Using the scavenger removal results presented in Table 2 and the equation provided by the MNRF, the seasonal scavenger removal rates have been determined as follows:

$$\begin{aligned} Sc_{Spring} &= (16 + 16 + 16 + 16) / (20 + 16 + 16 + 16) \\ &= 64 / 68 \\ &= \mathbf{0.94} \end{aligned}$$

$$\begin{aligned} Sc_{Summer} &= (14 + 13 + 13 + 13) / (20 + 14 + 13 + 13) \\ &= 53 / 60 \\ &= \mathbf{0.88} \end{aligned}$$

$$\begin{aligned} Sc_{Fall} &= (13 + 10 + 8 + 8) / (20 + 13 + 10 + 8) \\ &= 39 / 51 \\ &= \mathbf{0.76} \end{aligned}$$

These scavenger removal rates generally represent low scavenging activity and will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0, respectively.

4.0 Searcher Efficiency Trial Results

Searcher efficiency rates at the Niagara Region WF were moderate to high throughout the 2019 monitoring period. Results of the monthly searcher efficiency trials are summarized in Table 3. Details on the searcher, species, distance and direction from turbine, UTM coordinates, visibility class, substrate, and whether the carcass was found or scavenged have been provided in Appendix III.

Table 3. Results of Searcher Efficiency Trials at the Niagara Region Wind Farm (2019)

Searcher	Carcasses Found	Carcasses Placed	Carcasses Scavenged	Searcher Efficiency (Se)	Proportion of Turbines Searched
May 2019					
Searcher A	16	21	1	0.80	0.95
Searcher B ¹	N/A	N/A	N/A	0.80	0.05
June 2019					
Searcher A	18	23	3	0.90	0.52
Searcher C	16	20	0	0.80	0.48
July 2019					
Searcher A	19	23	3	0.95	0.53
Searcher C	17	21	1	0.85	0.47
August 2019					
Searcher A	17	21	2	0.89	0.33
Searcher C	18	23	3	0.90	0.48
Searcher D ²	17	24	4	0.85	0.19
September 2019					
Searcher C	18	20	0	0.90	0.48
Searcher D ²	17	24	4	0.85	0.47
Searcher E ¹	N/A	N/A	N/A	0.88	0.05
October 2019					
Searcher C	16	22	2	0.80	1.00

¹ This searcher searched on up to two dates during the month and therefore could not be sufficiently tested for searcher efficiency following MNRF guidelines (i.e., seven search days are required for proper testing in two visibility classes, since no more than three carcasses can be placed at one time). In this circumstance, the average result obtained by the primary searcher(s) in this month was used for this searcher.

² This searcher searched on six dates in August and therefore could not be sufficiently tested for searcher efficiency following MNRF guidelines (i.e., seven search days are required for proper testing in two visibility classes, since no more than three carcasses can be placed at one time). In this circumstance, the results obtained by this searcher in August and September were combined into one trial and used for each month.

Based on the information collected during detailed searcher efficiency trials and the equations recommended by the MNRF, overall searcher efficiency (SeO) was calculated for each of the monitoring months as follows:

$$Se = \frac{\text{number of test carcasses found}}{\text{number of test carcasses placed} - \text{number of test carcasses scavenged}}$$

$$SeO = Se_A(\text{proportion of turbines searched}) + Se_B(\text{proportion of turbines searched})...$$

$$\begin{aligned} SeO_{\text{May}} &= 0.80 (0.95) + 0.80 (0.05) = \mathbf{0.80} \\ SeO_{\text{June}} &= 0.90 (0.52) + 0.80 (0.48) = \mathbf{0.85} \\ SeO_{\text{July}} &= 0.95 (0.53) + 0.85 (0.47) = \mathbf{0.90} \\ SeO_{\text{August}} &= 0.89 (0.33) + 0.90 (0.48) + 0.85 (0.19) = \mathbf{0.89} \\ SeO_{\text{September}} &= 0.90 (0.48) + 0.85 (0.47) + 0.88 (0.05) = \mathbf{0.88} \\ SeO_{\text{October}} &= 0.80 (1.00) = \mathbf{0.80} \end{aligned}$$

These searcher efficiency values represent moderate to high searcher efficiency rates, likely due to the additional search effort and steps taken to keep the search areas in low visibility classes (i.e., clear and more easily searched) to increase the accuracy of the estimated mortality rate. These values will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0, respectively.

5.0 Proportion of Area Searched Results

Visibility class mapping was completed every month from May to November within the 50m search radius at each of the 23 subset turbines in order to reflect any potential changes in groundcover, land use, or other changes that may influence the resulting visibility classes. Visibility class mapping has been provided in Appendix VII.

Visibility class mapping was used in combination with GIS software to determine the proportion of area searched at each turbine. During the 2019 monitoring program, NRSI biologists searched all areas of visibility classes 1 or 2 at each subset turbine, which have been combined to represent the proportion of area searched (Ps). Table 4 shows the Ps value during each month of the monitoring program for all 23 subset turbines. These values will be used to calculate the estimated avian, raptor, and bat mortality rates in Sections 6.0, 7.0, and 8.0, respectively.

Table 4. Proportion of Area Searched at the Niagara Region Wind Farm (2019)

Month	Total Searched Area (m ²)	Total Search Radius (m ²)	Proportion of Area Searched (Ps)
May	179,678	180,550	1.00
June	167,282	180,550	0.93
July	171,576	180,550	0.95
August	172,497	180,550	0.96
September	176,822	180,550	0.98
October	172,508	180,550	0.96
November	172,508	180,550	0.96

6.0 Avian Mortality Results

6.1 Avian Mortalities

During the 2019 mortality monitoring period at the Niagara Region WF, NRSI documented 62 bird mortalities within the 50m search radii of the monitoring subset of 23 turbines. The mortalities that could be identified to species level were primarily confirmed to be small landbirds, and generally represented common species within the province. The most commonly observed mortalities were of Purple Martin (*Progne subis*; n=17) and Tree Swallow (*Tachycineta bicolor*; n=12). Five bird mortalities could not be identified to the species level due to advanced decomposition and/or scavenging activity, but were each identified as passerine species.

A list of avian mortalities observed during the mortality searches, including date and time of observation, location, and species, has been provided in Appendix IV.

6.2 Temporal Distribution of Avian Mortalities

Bird mortalities were generally observed throughout the monitoring period, but were most abundant during the months of July (23%), August (24%), and September (21%; Figure 1). The monitoring dates with the highest number of documented mortalities occurred on July 9, 2019 and September 6, 2019, when three bird mortalities were documented across the site on each date.

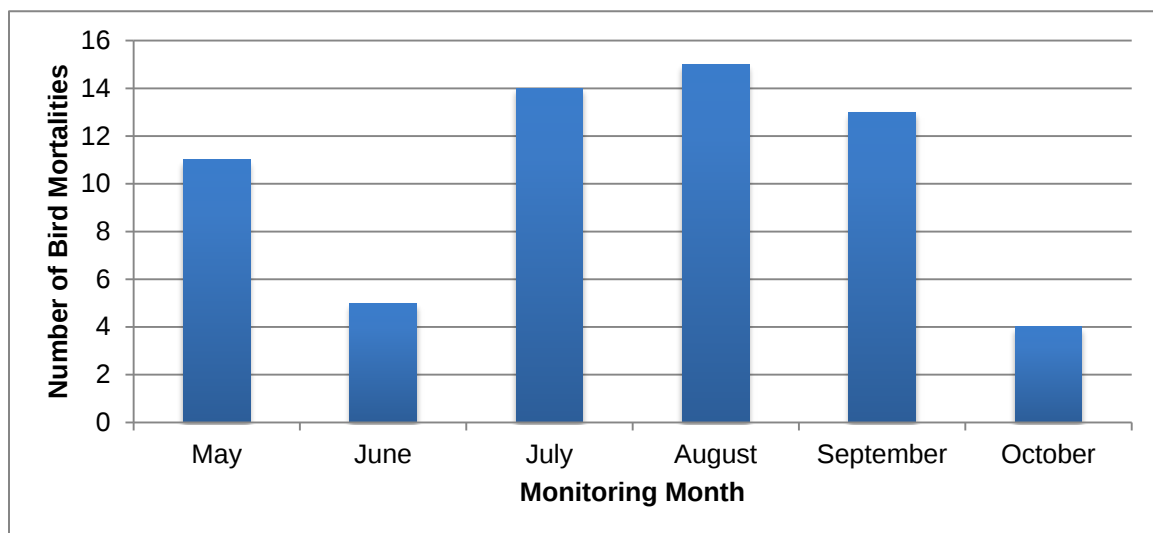


Figure 1. Bird Mortalities Observed by Month at the Niagara Region Wind Farm (2019)

6.3 Spatial Distribution of Avian Mortalities

Avian mortalities were observed at 22 of the 23 subset turbines at the Niagara Region WF in 2019. The number of mortalities observed at each turbine varied, ranging from no avian mortalities at turbine T66 to seven avian mortalities at turbine T12 (Figure 2). The turbines with the highest avian mortality (T05, T12, T45, and T63) are generally located in the southern portion of the project area in relative proximity to the Lake Erie shoreline. Maps identifying the location of each observed mortality are provided in Appendix VI.

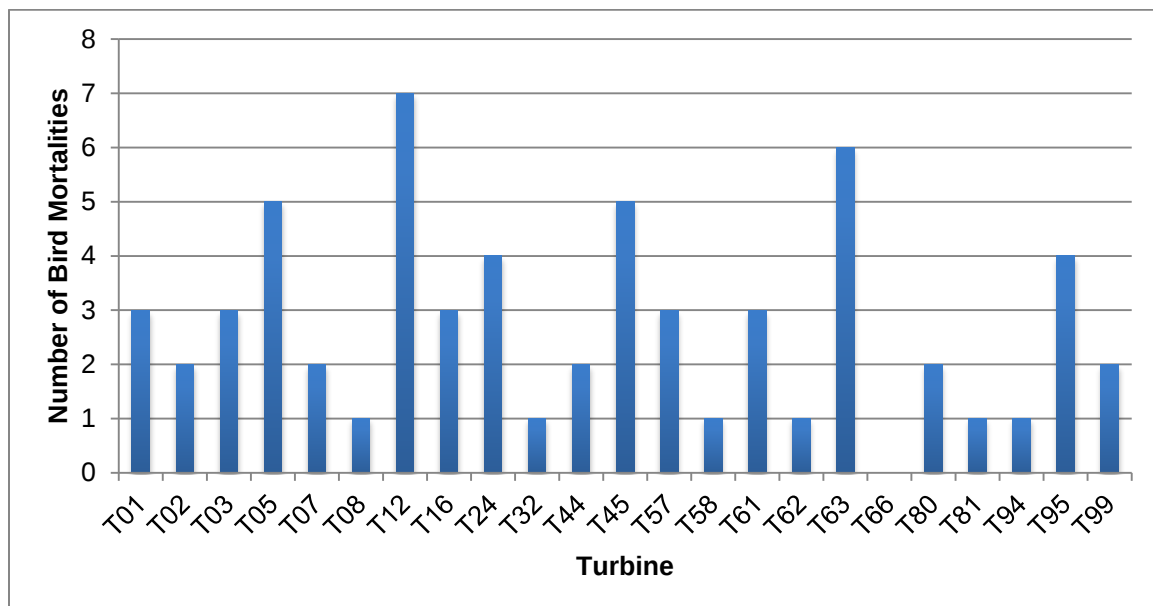


Figure 2. Bird Mortalities Observed by Turbine at the Niagara Region Wind Farm (2019)

Distance and direction of bird mortalities from each of the turbine bases were also documented for each observed mortality. Bird mortalities were generally found throughout the area searched by NRSI biologists, ranging in distance from 1m to 49m from the turbine base, and averaging a distance of approximately 32m from the turbine base. The overall distribution of mortalities by distance class can be seen in Figure 3.

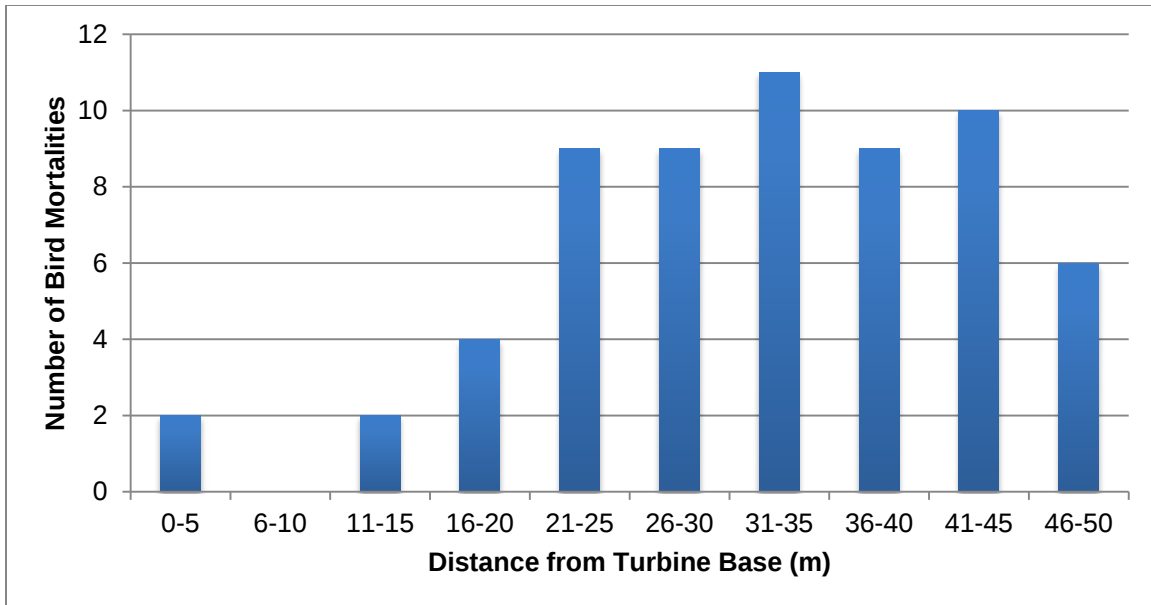


Figure 3. Bird Mortalities Observed by Distance from Turbine at the Niagara Region Wind Farm (2019)

6.4 Corrected (Estimated) Avian Mortality

In accordance with the *Birds and Bird Habitats: Guidelines for Wind Power Projects* (OMNR 2011b), estimated avian mortality rates are to be presented by individual turbine or turbine group. Since searcher efficiency and scavenger removal rates have been collected specifically for the turbine subset, NRSI has presented estimated mortality rates by this same turbine group at which the estimator variables have been collected.

Based on the field observations at the Niagara Region WF, NRSI biologists have compiled the searcher efficiency trial results, scavenger removal trial results, proportion of area searched, and direct mortality observations into an equation that will be used to estimate the total avian mortality at the Niagara Region WF in 2019. The equation recommended by the MNRF is found below:

$$C = c / (Se * Sc * Ps)$$

- C: Corrected (Estimated) Mortality Rate
- c: observed mortalities
- Se: overall searcher efficiency
- Sc: proportion of remaining carcasses
- Ps: proportion of area searched

Using the equation and variables described above, the estimated avian mortality rates by month have been presented below:

$$\begin{aligned}
 C_{\text{May}} &= 11 / (0.80 \times 0.94 \times 1.00) = 11 / 0.7520 = 14.63 \text{ birds} \\
 &= \mathbf{0.64 \text{ birds/turbine}} \text{ (0.21 birds/MW)} \\
 C_{\text{June}} &= 5 / (0.85 \times 0.94 \times 0.93) = 5 / 0.7431 = 6.73 \text{ birds} \\
 &= \mathbf{0.29 \text{ birds/turbine}} \text{ (0.10 birds/MW)} \\
 C_{\text{July}} &= 14 / (0.90 \times 0.88 \times 0.95) = 14 / 0.7524 = 18.61 \text{ birds} \\
 &= \mathbf{0.81 \text{ birds/turbine}} \text{ (0.27 birds/MW)} \\
 C_{\text{August}} &= 15 / (0.89 \times 0.88 \times 0.96) = 15 / 0.7519 = 19.95 \text{ birds} \\
 &= \mathbf{0.87 \text{ birds/turbine}} \text{ (0.29 birds/MW)} \\
 C_{\text{September}} &= 13 / (0.88 \times 0.76 \times 0.98) = 13 / 0.6554 = 19.83 \text{ birds} \\
 &= \mathbf{0.86 \text{ birds/turbine}} \text{ (0.29 birds/MW)} \\
 C_{\text{October}} &= 4 / (0.80 \times 0.76 \times 0.96) = 4 / 0.5837 = 6.85 \text{ birds} \\
 &= \mathbf{0.30 \text{ birds/turbine}} \text{ (0.10 birds/MW)} \\
 \mathbf{Total} &= \mathbf{3.77 \text{ birds/turbine}} \text{ (1.26 birds/MW)}
 \end{aligned}$$

Using the appropriate variables and equations recommended by the MNRF, the corrected (estimated) avian mortality at the Niagara Region WF in 2019 was calculated. Table 5 shows the monthly estimated mortality rates, as well as the overall estimated avian mortality rate at the Niagara Region WF, as calculated by turbine group.

Table 5. Corrected Bird Mortality Rates Based on Mortality Monitoring at the Niagara Region Wind Farm (2019)

Month (2019)	Observed Avian Mortalities	Corrected Mortality (birds/turbine)	Corrected Mortality (birds/MW)
May	11	0.64	0.21
June	5	0.29	0.10
July	14	0.81	0.27
August	15	0.87	0.29
September	13	0.86	0.29
October	4	0.30	0.10
TOTAL	62	3.77	1.26

Based on the information collected during the 2019 post-construction monitoring period, the anticipated impact of this facility on birds is characterized by an estimated mortality rate of **3.77 birds/turbine/year** (1.26 birds/MW/year), as calculated by turbine group.

6.5 Mortalities Documented Near Significant Bird Habitats

Based on the proximity of the Niagara Region WF to significant Migratory Landbird Stopover and Staging Areas, certain turbines were specifically chosen to be surveyed during the post-construction phase, and specific mention of the turbine-specific results at these turbines is required (Stantec 2013, MOE 2016 [L4(1, 2)]). Table 6 outlines the number of bird mortalities documented at each turbine found within 120m of a significant bird habitat at the Niagara Region WF in 2019.

Table 6. Bird Mortalities Documented at Turbines within 120m of Significant Bird Habitat

Turbine	Significant Bird Habitat Within 120m	Total Bird Mortalities	Target ¹ Bird Mortalities
Twice-weekly Monitored Turbines			
T16	MLSA1	3	3
T44	MLSA1	2	0
T45	MLSA1	5	5
T61	MLSA1	3	3
T62	MLSA2	1	1
T63	MLSA2	6	2
Monthly Monitored Turbines			
T14	MLSA1	0	0
T21	MLSA1	1	0
T22	MLSA1	2	2
T47	MLSA1	0	0

¹ Target species are indicator species that are found during the appropriate seasons, as defined by the DRAFT Significant Wildlife Habitat Ecoregion 7E Criterion Schedule (OMNR 2012), which has been used to determine significance of habitats during pre-construction surveys.

Approximately 32% (n=20) of all avian mortalities found within the 50m search radii of the monitoring subset of 23 turbines were documented at the six twice-weekly monitored turbines located within 120m of significant Migratory Landbird Stopover and Staging Areas. As these six turbines comprise approximately 26% of the 23 twice-weekly monitoring subset of turbines, the proportion of avian mortalities found at these turbines is similar to that found at turbines located more than 120m from significant bird habitats.

Of the 16 avian mortalities that occurred across the eight turbines within 120m of MLSA1, one-fifth (n=3; 19%) were documented during June or July and not associated with expected migratory time periods. Of the seven avian mortalities that occurred at the

two turbines within 120m of MLSA2, over half (n=4; 57%) were not migratory landbirds and/or were documented during June or July and not associated with expected migratory time periods.

7.0 Raptor Mortality Results

7.1 Raptor Mortalities

Mortality searches for raptors were conducted twice-weekly from May through October in conjunction with avian and bat mortality searches and once-weekly in November at the subset of 23 turbines. These searches resulted in the observation of eight raptor mortalities at the Niagara Region WF, consisting of Turkey Vulture (*Cathartes aura*; n=5), Red-tailed Hawk (*Buteo jamaicensis*; n=2), and Sharp-shinned Hawk (*Accipiter striatus*; n=1). None of these raptor species are tracked in Ontario (MNRF 2019).

Raptor mortalities were observed predominantly during the spring and summer monitoring seasons, with the highest number of mortalities observed during the month of August (n=3). Raptor mortalities were observed at four of the 23 subset turbines at the Niagara Region WF in 2019. The number of mortalities observed at each of the four turbines varied, with one mortality occurring at turbine T63, two mortalities occurring at each of turbines T66 and T95, and three mortalities occurring at turbine T94.

Details of the raptor mortalities observed during the mortality searches, including date and time of observation, location, and species, are provided in Appendix IV, and maps identifying the location of the observed mortalities are provided in Appendix VI.

7.2 Corrected (Estimated) Raptor Mortality

Using assumed searcher efficiency and scavenger removal values of 1.00, and the proportion of area searched for each month, the estimated raptor mortality rate is as follows:

$$\begin{aligned}C_{\text{May}} &= 2 / (1.00 \cdot 1.00 \cdot 1.00) = 2 / 1.00 = 2.00 \text{ raptors} \\ &= \mathbf{0.09 \text{ raptors/turbine}} \text{ (0.03 raptors/MW)} \\ C_{\text{June}} &= 1 / (1.00 \cdot 1.00 \cdot 0.93) = 1 / 0.93 = 1.08 \text{ raptors} \\ &= \mathbf{0.05 \text{ raptors/turbine}} \text{ (0.02 raptors/MW)} \\ C_{\text{July}} &= 1 / (1.00 \cdot 1.00 \cdot 0.95) = 1 / 0.95 = 1.05 \text{ raptors} \\ &= \mathbf{0.05 \text{ raptors/turbine}} \text{ (0.02 raptors/MW)} \\ C_{\text{August}} &= 3 / (1.00 \cdot 1.00 \cdot 0.96) = 3 / 0.96 = 3.13 \text{ raptors} \\ &= \mathbf{0.14 \text{ raptors/turbine}} \text{ (0.05 raptors/MW)}\end{aligned}$$

$$\begin{aligned}
C_{\text{September}} &= 0 / (1.00 \times 1.00 \times 0.98) = 0 / 0.98 = 0.00 \text{ raptors} \\
&= \mathbf{0.00 \text{ raptors/turbine}} \text{ (0.00 raptors/MW)} \\
C_{\text{October}} &= 0 / (1.00 \times 1.00 \times 0.96) = 0 / 0.96 = 0.00 \text{ raptors} \\
&= \mathbf{0.00 \text{ raptors/turbine}} \text{ (0.00 raptors/MW)} \\
C_{\text{November}} &= 1 / (1.00 \times 1.00 \times 0.96) = 1 / 0.96 = 1.04 \text{ raptors} \\
&= \mathbf{0.05 \text{ raptors/turbine}} \text{ (0.02 raptors/MW)} \\
\mathbf{Total} &= \mathbf{0.38 \text{ raptors/turbine}} \text{ (0.14 raptors/MW)}
\end{aligned}$$

Using the appropriate variables and equations recommended by the MNRF, the corrected (estimated) raptor mortality at the Niagara Region WF in 2019 was calculated. Table 7 shows the monthly estimated mortality rates, as well as the overall estimated raptor mortality rate, at the Niagara Region WF.

Table 7. Corrected Raptor Mortality Rates Based on Mortality Monitoring at the Niagara Region Wind Farm (2019)

Month (2019)	Observed Raptor Mortalities	Corrected Mortality (raptors/turbine)	Corrected Mortality (raptors/MW)
May	2	0.09	0.03
June	1	0.05	0.02
July	1	0.05	0.02
August	3	0.14	0.05
September	0	0.00	0.00
October	0	0.00	0.00
November	1	0.05	0.02
TOTAL	8	0.38	0.14

Based on the information collected during the 2019 post-construction monitoring period, the anticipated impact of this facility on raptors is characterized by an estimated mortality rate of **0.38 raptors/turbine/year** (0.14 raptors/MW/year).

7.3 Monthly Raptor Surveys

Monthly mortality searches were conducted from May to November at turbines which are not included in the subset of 23 regularly monitored turbines. These monthly searches resulted in the documentation of 10 additional raptor mortalities at the Niagara Region WF, consisting of five Turkey Vultures, four Red-tailed Hawks, and one Cooper's Hawk (*Accipiter cooperii*). A list of raptor mortalities observed within 50m of turbines during monthly raptor surveys has been provided in Appendix IV.

The 10 raptor mortalities observed during monthly raptor searches were documented primarily in the summer monitoring season (July: n=4; August: n=2), with no more than two raptor mortalities observed at any individual turbine.

8.0 Bat Mortality Results

8.1 Bat Mortalities

During the 2019 mortality monitoring period at the Niagara Region WF, NRSI documented 99 bat mortalities within the 50m search radii at the subset of 23 turbines that were searched twice weekly. In addition to these mortalities, one live Silver-haired Bat and two live Big Brown Bats (*Eptesicus fuscus*) were encountered while completing mortality monitoring at the subset of 23 turbines. The bats showed no visible signs of injury and appeared to behave normally. As a result, each bat was moved outside of the 50m search radius and placed on a nearby tree. A biologist returned to the relocation site at the end of the search day that each bat was found and noted that the bats had left the area. As the bats showed no signs of injury, otherwise seemed to behave normally, and had moved from the relocation area, they are assumed to have recovered. As such, they have not been included in the calculation of estimated mortality rates below.

Bat mortalities represented four different species, including three long-distance migratory species (Hoary Bat, Eastern Red Bat, and Silver-haired Bat), as well as the resident species Big Brown Bat. The most abundant species observed was Silver-haired Bat (n=34), followed by Eastern Red Bat (n=27), Hoary Bat (n=20), and Big Brown Bat (n=18). Observed mortalities of the three long-distance migratory bat species combined to represent approximately 82% of all documented bat mortalities.

A list of bat mortalities observed during the mortality searches, including date and time of observation, location, and species, is provided in Appendix V.

8.2 Temporal Distribution of Bat Mortalities

Bat mortalities were generally observed throughout the monitoring period, but were most abundant during the months of August (36%) and September (42%; Figure 4). The monitoring date with the highest number of documented mortalities occurred on September 19, 2019, when six bat mortalities were documented across the site. The first bat mortality of the monitoring period was observed on May 28, 2019.

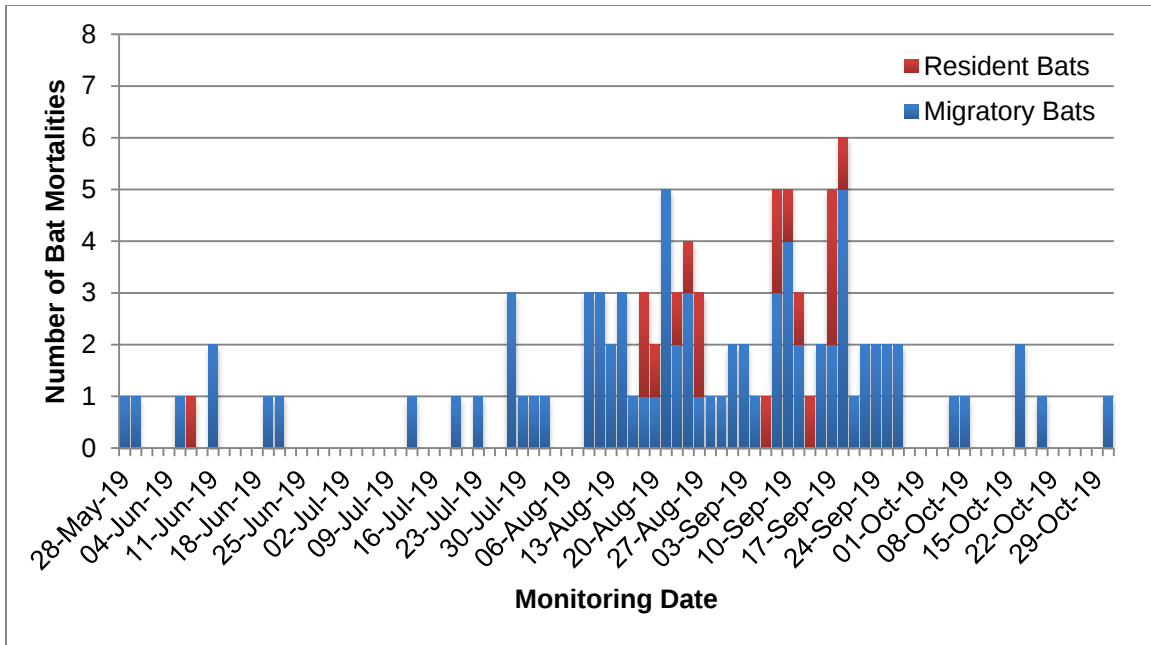


Figure 4. Bat Mortalities Observed by Date at the Niagara Region Wind Farm (2019)

Overall, bat mortality was concentrated during the months of August and September, corresponding to the anticipated peak periods of summer swarming and fall migration for bats.

8.3 Spatial Distribution of Bat Mortalities

Bat mortalities were observed at each of the 23 subset turbines at the Niagara Region WF in 2019. The number of mortalities observed at each of the 23 turbines varied, ranging from one bat mortality at each of turbines T12, T32, and T81 to 12 bat mortalities at turbine T44 (Figure 5). Maps identifying the location of each observed mortality are provided in Appendix VI.

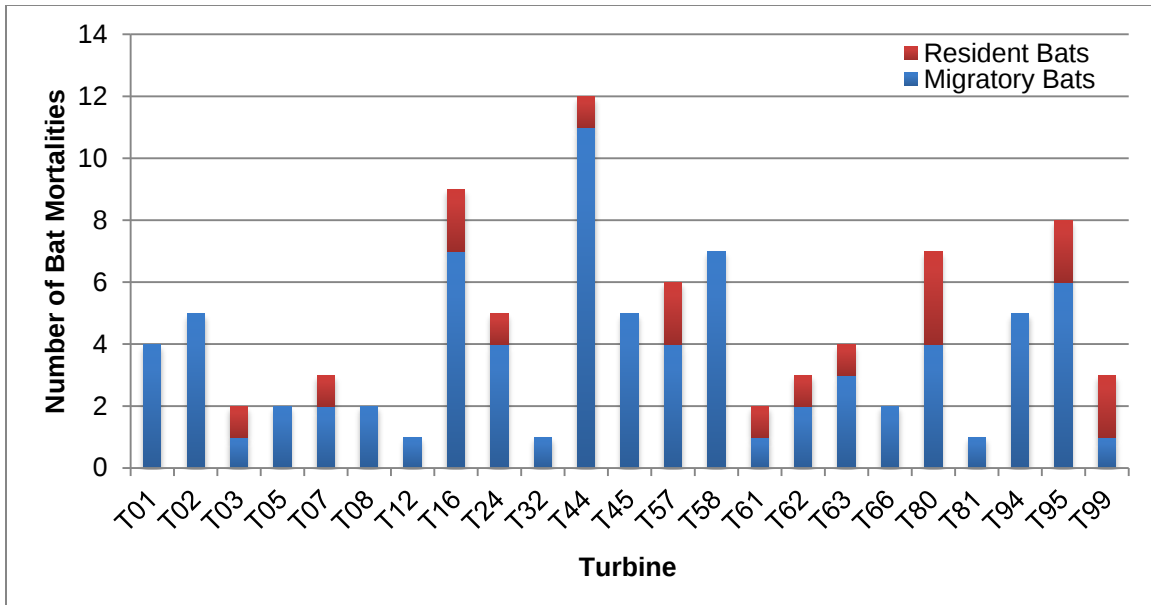


Figure 5. Bat Mortalities Observed by Turbine at the Niagara Region Wind Farm (2019)

Distance and direction of bat mortalities from each of the turbine bases were also documented for each observed mortality. Bat mortalities were generally found throughout the area searched by NRSI biologists, ranging in distance from 3m to 50m from the turbine base, and averaging a distance of approximately 32m from the turbine base. The overall distribution of mortalities by distance class can be seen in Figure 6.

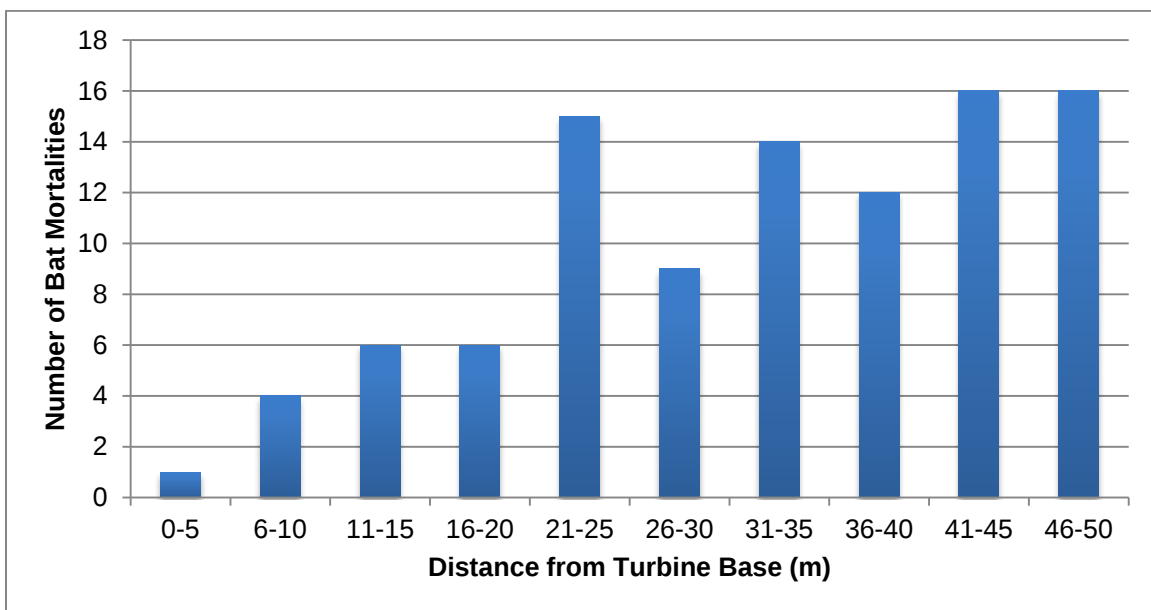


Figure 6. Bat Mortalities Observed by Distance from Turbine at the Niagara Region Wind Farm (2019)

8.4 Corrected (Estimated) Bat Mortality

Based on the field observations at the Niagara Region WF, NRSI biologists have compiled the searcher efficiency trials, scavenger removal trials, proportion of area searched, and direct mortality observations into an equation that will be used to estimate the total bat mortality at the Niagara Region WF in 2019. The equation recommended by the MNRF is found below:

$$C = c / (Se * Sc * Ps)$$

C: Corrected (Estimated) Mortality Rate
c: observed mortalities
Se: overall searcher efficiency
Sc: proportion of remaining carcasses
Ps: proportion of area searched

Using the equation and variables described above, the estimated bat mortality rates by month have been presented below:

C_{May}	$= 2 / (0.80 * 0.94 * 1.00) = 2 / 0.7520 = 2.66 \text{ bats}$ $= \mathbf{0.12 \text{ bats/turbine}}$ (0.04 bats/MW)
C_{June}	$= 6 / (0.85 * 0.94 * 0.93) = 6 / 0.7431 = 8.07 \text{ bats}$ $= \mathbf{0.35 \text{ bats/turbine}}$ (0.12 bats/MW)
C_{July}	$= 7 / (0.90 * 0.88 * 0.95) = 7 / 0.7524 = 9.30 \text{ bats}$ $= \mathbf{0.40 \text{ bats/turbine}}$ (0.14 bats/MW)
C_{August}	$= 36 / (0.89 * 0.88 * 0.96) = 36 / 0.7519 = 47.88 \text{ bats}$ $= \mathbf{2.08 \text{ bats/turbine}}$ (0.70 bats/MW)
$C_{\text{September}}$	$= 42 / (0.88 * 0.76 * 0.98) = 42 / 0.6554 = 64.08 \text{ bats}$ $= \mathbf{2.79 \text{ bats/turbine}}$ (0.93 bats/MW)
C_{October}	$= 6 / (0.80 * 0.76 * 0.96) = 6 / 0.5837 = 10.28 \text{ bats}$ $= \mathbf{0.45 \text{ bats/turbine}}$ (0.15 bats/MW)
Total	= 6.19 bats/turbine (2.08 bats/MW)

Using the appropriate variables and recommended equations provided by the MNRF, the corrected (estimated) bat mortality at the Niagara Region WF in 2019 was calculated. The monthly estimated mortality rates and the overall estimated bat mortality rate for the Niagara Region WF are provided in Table 8.

Table 8. Corrected Bat Mortality Rates Based on Mortality Monitoring at the Niagara Region Wind Farm (2019)

Month (2019)	Observed Bat Mortalities	Corrected Mortality (bats/turbine)	Corrected Mortality (bats/MW)
May	2	0.12	0.04
June	6	0.35	0.12
July	7	0.40	0.14
August	36	2.08	0.70
September	42	2.79	0.93
October	6	0.45	0.15
TOTAL	99	6.19	2.08

Based on the information collected during the 2019 post-construction monitoring period, the anticipated impact of this facility on bats is characterized by a corrected mortality rate of **6.19 bats/turbine/year** (2.08 bats/MW/year).

9.0 Comparative Annual Results

Mortality monitoring conducted by NRSI in 2019 represents the third year of post-construction mortality monitoring at the Niagara Region WF. The following section provides a generalized comparison of the 2017, 2018, and 2019 post-construction mortality monitoring results.

9.1 Avian Mortality Results

Table 9 provides an abbreviated summary of total bird mortalities, monitoring periods, and corrected (estimated) mortality rates for each of the three years of mortality monitoring conducted at the Niagara Region WF. Further details of the 2019 avian mortality results can be found in Section 6.0 of this report.

Table 9. Comparative Results of Avian Mortality Monitoring Seasons (2017-2019)

Year	Total Mortalities	Monitoring Period	Corrected Mortality Rates	
			Birds/Turbine/Year	Birds/MW/Year
2017	111	May 1 – October 31	7.39	2.47
2018	66	May 1 – October 31	4.97	1.67
2019	62	May 1 – October 31	3.77	1.26

9.2 Raptor Mortality Results

Table 10 provides an abbreviated summary of total raptor mortalities, monitoring periods, and corrected (estimated) mortality rates for each of the three years of mortality monitoring conducted at the Niagara Region WF. Further details of the 2019 raptor mortality results can be found in Section 7.0 of this report.

Table 10. Comparative Results of Raptor Mortality Monitoring Seasons (2017-2019)

Year	Total Mortalities	Monitoring Period	Corrected Mortality Rates	
			Raptors/Turbine/Year	Raptors/MW/Year
2017	8	May 1 – November 30	0.37	0.12
2018	11	May 1 – November 30	0.50	0.16
2019	8	May 1 – November 30	0.38	0.14

9.3 Bat Mortality Results

Table 11 provides an abbreviated summary of total bat mortalities, monitoring periods, and corrected (estimated) mortality rates for each of the three years of mortality

monitoring conducted at the Niagara Region WF. Further details of the 2019 bat mortality results can be found in Section 8.0 of this report.

Table 11. Comparative Results of Bat Mortality Monitoring Seasons (2017-2019)

Year	Total Mortalities	Monitoring Period	Corrected Mortality Rates	
			Bats/Turbine/Year	Bats/MW/Year
2017	126	May 1 – October 31	8.67	2.89
2018	103	May 1 – October 31	7.41	2.48
2019	99	May 1 – October 31	6.19	2.08

9.4 Summary

Although a general comparison between the three years of post-construction monitoring data is possible, the differences in searcher efficiency rates, scavenger removal rates, and proportion of area searched over the three monitoring years do not necessarily allow for a direct comparative analysis of observed mortalities from year to year. In addition, bird and bat populations and behavioural patterns change annually based on other variables, such as weather conditions, adjacent land use, food availability, or general variations in population numbers, further adding to the challenges of making direct comparisons between monitoring years.

Despite these comparative challenges, general comparisons between the monitoring years have been made. Overall, the number of bird and bat mortalities documented in 2018 and 2019 were similar, and a decrease in the number of bird and bat mortalities was observed in 2018 and 2019, relative to the 2017 monitoring results. The same number of raptor mortalities were documented in 2017 and 2019, with marginally higher raptor mortality documented in 2018.

10.0 Mortality Thresholds and Notifications

In accordance with the appropriate MNRF guidelines, project approval conditions, and other commitments made as part of the monitoring program, specific mortality thresholds and notification requirements have been established for the Niagara Region WF. The status of each threshold and confirmation of notifications, where applicable, have been described in the following sections.

10.1 Annual Bird Mortality

The annual bird mortality threshold for the Niagara Region WF is 14 birds/turbine/year, calculated by individual turbine or turbine group. Based on an estimated rate of 3.77 birds/turbine/year, as calculated by turbine group, the annual mortality estimate for the Niagara Region WF in 2019 is below this provincial threshold. Since the results are below the established threshold, no notification is required.

10.2 Annual Raptor Mortality

The annual raptor mortality threshold for the Niagara Region WF is 0.20 raptors/turbine/year (or 0.10 raptors/turbine/year for provincially tracked raptors). Based on an estimated rate of 0.38 raptors/turbine/year, this threshold has been exceeded. The submission of this report to the MNRF will satisfy the requirement to notify the MNRF within three months of the completion of the annual mortality monitoring activities. As no mortalities of provincially tracked raptors were observed within the 50m search radii, the Niagara Region WF remains below the threshold of 0.1 raptors/turbine/year for provincially tracked raptors.

10.3 Annual Bat Mortality

The annual bat mortality threshold for the Niagara Region WF is 10 bats/turbine/year. Based on an estimated rate of 6.19 bats/turbine/year, the annual mortality estimate for the Niagara Region WF in 2019 is below this provincial threshold. Since the results are below the established threshold, no notification is required.

10.4 Significant Bird Mortality Event

Significant bird mortality events have been defined by the MNRF as single-day mortality events with 10 or more birds at any one turbine, or 33 or more birds (including raptors) at multiple turbines. Neither of these single-day mortality events was observed at the

Niagara Region WF during the 2019 monitoring year. As no significant bird mortality event occurred, no notification is required.

10.5 Bird Mortality Documented Near Significant Bird Habitat

Three types of bird Significant Wildlife Habitat were originally identified within 120m of the Niagara Region WF. In accordance with *Birds and Bird Habitats: Guidelines for Wind Power Projects* (OMNR 2011b, Stantec 2013, MOE 2016), mortality thresholds must be considered separately for turbines that are located within 120m of bird Significant Wildlife Habitat. This section addresses avian and raptor mortality rates at the following bird Significant Wildlife Habitats:

- Migratory Landbird Stopover and Staging Areas;
- Raptor Wintering Areas; and
- Short-eared Owl Habitats.

Six regularly searched turbines (T16, T44, T45, T61, T62, and T63) and four once-monthly searched turbines (T14, T21, T22, and T47) are located within 120m of significant Migratory Landbird Stopover and Staging Areas (MLSA1 and MLSA2). None of these turbines exceeded the provincial threshold of 14 target birds/turbine/year, whether considered individually or as a turbine group. Furthermore, no significant bird mortality events were documented at any of the turbines within 120m of MLSA1 or MLSA2.

Due to changes in land use associated with common agricultural practices, the habitats identified as significant Raptor Wintering Areas and/or Short-eared Owl Habitats no longer meet provincial criteria for candidate Significant Wildlife Habitat (OMNR 2012), and targeted seasonal monitoring was therefore not required.

Based on the results presented above, NRSI has confirmed that no thresholds have been specifically exceeded at turbines within 120m of bird Significant Wildlife Habitat. As a result, no notification is required.

10.6 Species at Risk Mortality Event

Any provincially listed Threatened or Endangered Species at Risk (MECP 2019) mortality documented during post-construction mortality monitoring at the Niagara Region WF requires formal notification to the MNRF within 24 hours (or next business

day) of a confirmed species identification (Stantec 2013). Where applicable, and in accordance with the *Niagara Region Wind Farm: Environmental Effects Monitoring Plan for Wildlife and Wildlife Habitat* (Stantec 2013), notification of any confirmed Species at Risk mortality was sent to the MNRF within 24 hours (or next business day) of confirmed species identification.

11.0 Summary and Conclusions

NRSI was retained to conduct the third year of post-construction monitoring at the operational Niagara Region WF. The Niagara Region WF consists of 77 wind energy generating turbines, with a total nameplate capacity of 230MW.

Post-construction monitoring at the Niagara Region WF in 2019 included bird, bat, and raptor mortality monitoring, and the corresponding searcher efficiency trials, scavenger removal trials, and visibility class mapping that are used in the calculation of estimated mortality rates. These surveys were conducted to assess the potential impacts of this wind energy generating facility on local and migratory birds and bats.

Sixty-two avian mortalities were documented at the Niagara Region WF during the 2019 monitoring period. The observed mortalities at this facility were predominantly common landbird species. Given the number of observed avian mortalities, searcher efficiency rates, scavenger removal rates, proportion of area searched, and equations recommended by the MNRF, a total corrected (estimated) avian mortality rate of **3.77 birds/turbine/year** (1.26 birds/MW/year), as calculated by turbine group, has been determined for the Niagara Region WF. This estimated mortality rate is below the provincial threshold of 14 birds/turbine/year established by the MNRF guidelines. No significant bird mortality events of 10 or more birds at any one turbine or 33 or more birds (including raptors) at multiple turbines on a single survey date were observed.

Eight raptor mortalities were documented at the Niagara Region WF during the 2019 monitoring period. Based on the observed raptor mortalities, a corrected (estimated) raptor mortality rate of **0.38 raptors/turbine/year** (0.14 raptors/MW/year) has been determined for the Niagara Region WF. This estimated raptor mortality rate is above the provincial threshold of 0.20 raptors/turbine/year established by the MNRF guidelines. As no mortalities of provincially tracked raptors were observed, the Niagara Region WF remains below the threshold of 0.1 raptors/turbine/year for provincially tracked raptors.

Ninety-nine bat mortalities were documented at the Niagara Region WF during the 2019 mortality monitoring period. Long-distance migratory bat species were the most commonly observed mortalities, composing approximately 82% of the documented

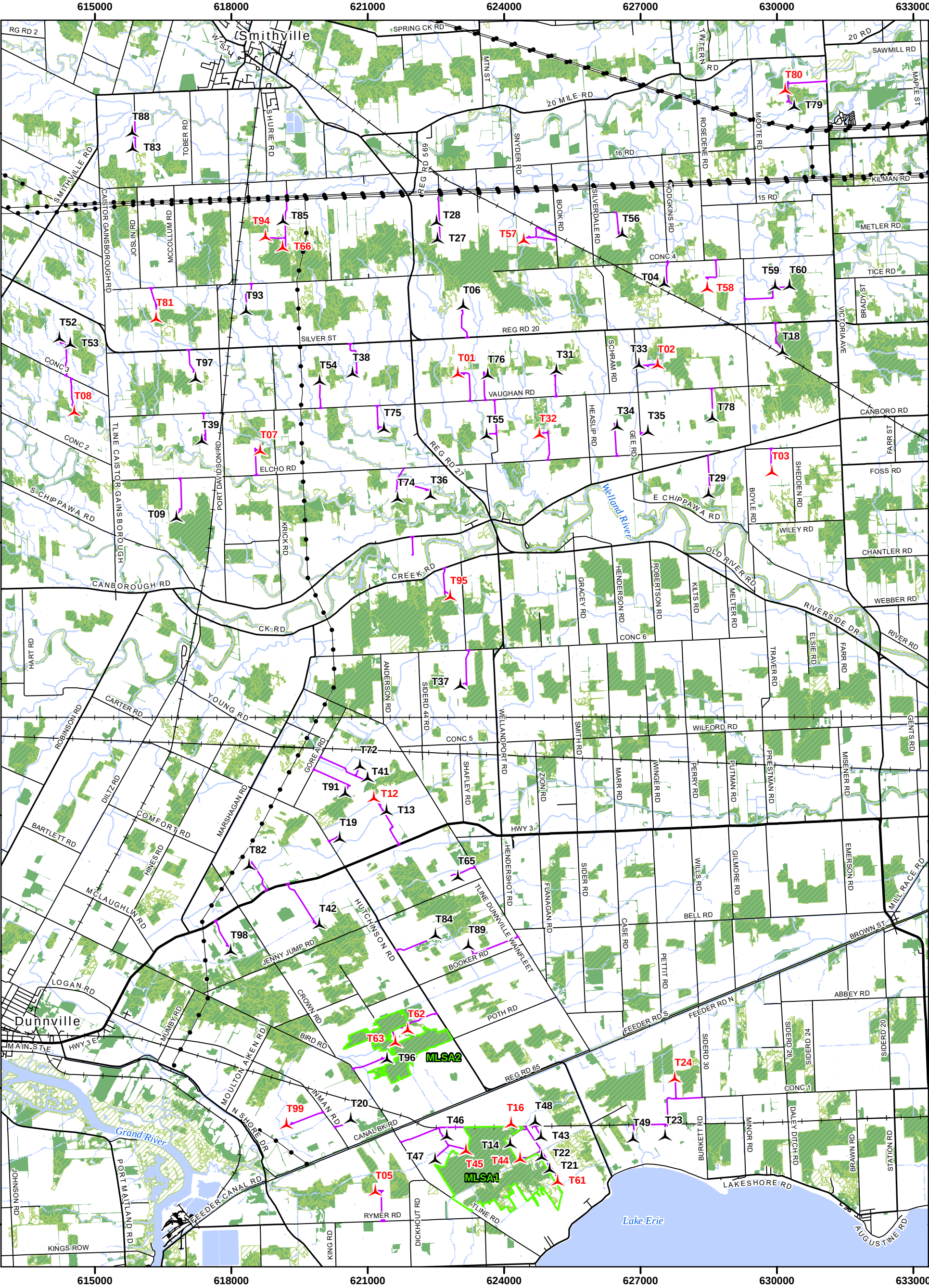
mortalities. Based on the number of observed bat mortalities, searcher efficiency rates, scavenger removal rates, proportion of area searched, and equations recommended by the MNRF, a total corrected (estimated) bat mortality rate of **6.19 bats/turbine/year** (2.08 bats/MW/year) has been determined for the Niagara Region WF. This estimated bat mortality rate is below the provincial threshold of 10 bats/turbine/year established by the MNRF guidelines.

This report summarizes the results of the third year of post-construction bird, raptor, and bat mortality monitoring at the Niagara Region WF, which occurred in 2019. All three years of monitoring (2017, 2018, and 2019) resulted in estimated mortality rates for birds and bats that were below the associated provincial thresholds. Based on the requirements of the MNRF guidelines (OMNR 2011a, OMNR 2011b) and the Project's REA (No. 4353-9HMP2R), all post-construction commitments pertaining to birds and bats have been met and no further bird or bat mortality monitoring is required for the Niagara Region WF. The potential for additional monitoring requirements resulting from the exceedance of the raptor mortality threshold at the Niagara Region WF will be addressed in a separate report.

12.0 References

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Maps



- Legend**
-  Turbine (Twice-weekly)

 Turbine (Monthly)

 Access Road

 Utility Line

 Railway

 Highway

 Primary Road

 Secondary Road

 Permanent Watercourse

 Intermittent Watercourse

 Water Body

 Wetland

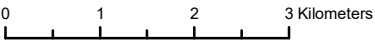
 Wooded Area

 Migratory Landbird Stopover and Staging Area

Map 1

Niagara Region Wind Farm

Mortality Monitoring Turbines



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Source: Data provided by MNRF © Copyright: Queen's Printer Ontario

Project: 1865C
Date: January 30, 2020
NAD83 - UTM Zone 17
Scale 1:80,000 (11x17")

Appendix I
Post-construction Monitoring Data Sheets

Bird and Bat Mortality Search Summary

Date (dd/mm/yy): ____/____/____

Observer(s): _____

Project Name: _____

Project No: _____

Start Time (24hrs): _____hrs

Dog Used? Y N

Days Since Last Search (i.e. Mon to Thurs = 3 days): _____ days

WEATHER

Temp: _____ °C

Cloud Cover: _____ %

Wind Speed: _____

Wind Direction (from): _____ (use N,SW, etc.)

Visibility: High Medium Low

Precip: None Rain Fog

Weather Comments: _____

Significant Weather before visit? _____

COMMENTS (ex. wildlife notes, landowner interactions, turbine maintenance, unsearchable areas, etc.)

SEARCH RESULTS

[illegible]

CC = Condition Codes: I: Injured or Dying, F: Fresh, E: Early Decomposition, M: Moderate Decomposition, A: Advanced Decomposition, C: Complete Decomposition, S: Scavenged

Injuries: Describe any injuries to the bird carcass (e.g. none observed, broken neck, broken left wing, decapitated, laceration etc.)

Substrate/Habitat Types: The material upon which the carcass was found (ex. gravel, soy, corn, open soil, mud, standing water, concrete etc.)

VC = Visibility Class Codes: Class 1: >90% bare ground, <15cm tall Class 2: >25% bare ground, <15cm tall Class 3: < 25% bare ground, <25% >30cm tall Class 4: little or no bare ground, >25% >30cm tall

FA (mm) = Forearm Length (mm): Measure the length of the leading edge of the wing between the wrist and the elbow (mm)

Scavenger Removal Data Form

Project Name:_____ **Project #:**_____

[illegible]

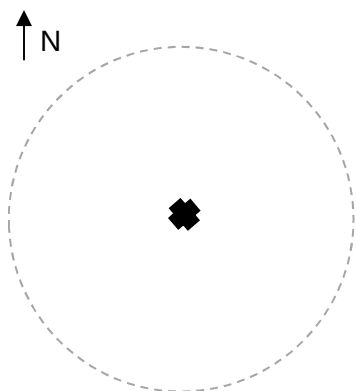
Turbine No.

Specimen 1: Species _____ Dist: _____ Dir: _____ UTM: _____

Visibility Class: Notes:

Specimen 2: Species _____ Dist: _____ Dir: _____ UTM: _____

Species: _____ Dist: _____ Dir: _____ Off: _____
 Visibility Class: _____ Notes: _____

[illegible]

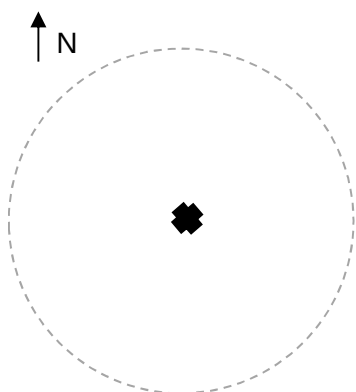
Turbine No. _____

Specimen 1: Species _____ Dist: _____ Dir: _____ UTM: _____

Visibility Class: _____ Notes: _____

Specimen 2: Species _____ Dist: _____ Dir: _____ UTM: _____

Visibility Class: Notes:

[illegible]

Searcher Efficiency Data Form

Project Name: _____ Project #: _____

Date: _____ Time: _____ hrs

Searcher: _____ Placed By: _____

Condition of Carcasses: Fresh Thawed

Carcasses marked (and how)? _____

WEATHER

Temp: _____ °C *Wind Speed: _____ Wind Direction (from): _____ Visibility: High Medium Low

Cloud Cover (%): _____ Cloud Height: High Medium Low Precipitation: Rain Fog Snow None _____

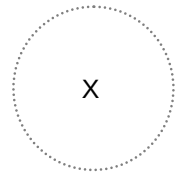
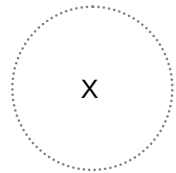
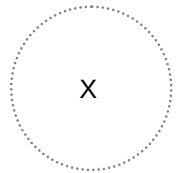
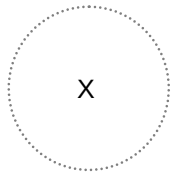
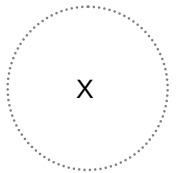
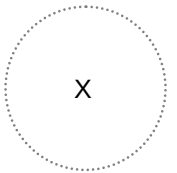
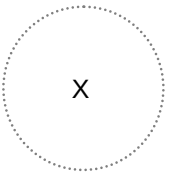
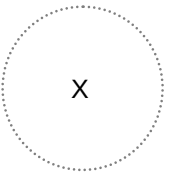
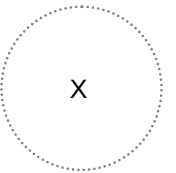
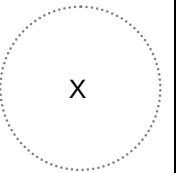
Additional Weather or Other Comments: _____

	Time Placed (24hr)	Turbine #	Species	Distance From Turbine	Direction from Turbine	Habitat/ Substrate	Visibility Class	UTM	Found By Searcher (Y/N)	Found After Search (Y/N)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

*Beaufort Wind Scale: 0 calm; 1 smoke drifts; 2 wind felt on face; 3 leaves in motion; 4 small branches move; 5 small trees sway; 6 large branches move; 7 whole trees in motion; 8 twigs break off and hard to walk; 9 light structural damage; 10 tree uprooted

Placement Location Sketches (Draw access road for each sketch)

N ↑

1	2	3	4	5	6	7	8	9	10
									
T# _____	T# _____	T# _____	T# _____	T# _____	T# _____	T# _____	T# _____	T# _____	T# _____

Visibility Class Map

Project Name: _____ Project #: _____ Turbine #: _____ Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)

Facing North: _____

Facing East: _____

Facing South: _____

Facing West: _____

(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____m

↑

N

General Habitat Description: _____

Photo Numbers (from turbine base)

Facing North: _____

Facing East: _____

Facing South: _____

Facing West: _____

(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____m

↑

N

General Habitat Description: _____

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Appendix II
Scavenger Removal Trial Results

Appendix II
1865C Niagara Region Wind Farm
Scavenger Removal Trial Results 2019

May 2019 Scavenger Removal Trial

No.	Turbine	Species	Distance (m)	Direction (°)	UTM (17T)		Visibility Class	Trial Day	Date	Carcass Present (Y/N)	Signs of Scavenging	Observer
					Eastings	Northing						
1	T07	Magnolia Warbler	3	0	618631	4764058	1	Day 0	02-May-19	Y	Carcass placed	Searcher A
								Day 4	06-May-19	Y	None	Searcher A
								Day 7	09-May-19	Y	None	Searcher A
								Day 11	13-May-19	Y	None	Searcher A
								Day 14	16-May-19	Y	None	Searcher A
2	T08	Hoary Bat	49	345	614517	4764962	1	Day 0	02-May-19	Y	Carcass placed	Searcher A
								Day 4	06-May-19	Y	None	Searcher A
								Day 7	09-May-19	Y	None	Searcher A
								Day 11	13-May-19	Y	None	Searcher A
								Day 14	16-May-19	Y	None	Searcher A
3	T16	Hoary Bat	30	195	624153	4749210	2	Day 0	02-May-19	Y	Carcass placed	Searcher A
								Day 4	06-May-19	Y	Only right wing remains	Searcher A
								Day 7	09-May-19	Y	No further signs	Searcher A
								Day 11	13-May-19	Y	No further signs	Searcher A
								Day 14	16-May-19	Y	No further signs	Searcher A
4	T61	White-throated Sparrow	21	100	625203	4747962	1	Day 0	02-May-19	Y	Carcass placed	Searcher A
								Day 4	06-May-19	N	Carcass removed	Searcher A
								Day 7	09-May-19	N	N/A	Searcher A
								Day 11	13-May-19	N	N/A	Searcher A
								Day 14	16-May-19	N	N/A	Searcher A
5	T95	Black-and-white Warbler	14	310	622799	4760852	2	Day 0	02-May-19	Y	Carcass placed	Searcher A
								Day 4	06-May-19	Y	None	Searcher A
								Day 7	09-May-19	Y	None	Searcher A
								Day 11	13-May-19	Y	None	Searcher A
								Day 14	16-May-19	Y	None	Searcher A
6	T02	Nashville Warbler	42	232	627348	4765907	2	Day 0	03-May-19	Y	Carcass placed	Searcher A
								Day 4	07-May-19	Y	None	Searcher A
								Day 7	10-May-19	Y	None	Searcher B
								Day 11	14-May-19	Y	None	Searcher A
								Day 14	17-May-19	Y	None	Searcher A
7	T03	Golden-crowned Kinglet	7	173	629895	4763570	2	Day 0	03-May-19	Y	Carcass placed	Searcher A
								Day 4	07-May-19	Y	None	Searcher A
								Day 7	10-May-19	Y	None	Searcher B
								Day 11	14-May-19	Y	None	Searcher A
								Day 14	17-May-19	Y	None	Searcher A
8	T12	Hoary Bat	24	20	621132	4756431	2	Day 0	03-May-19	Y	Carcass placed	Searcher A
								Day 4	07-May-19	Y	None	Searcher A
								Day 7	10-May-19	Y	None	Searcher B
								Day 11	14-May-19	Y	None	Searcher A
								Day 14	17-May-19	Y	None	Searcher A
9	T24	House Sparrow	33	222	627733	4750208	1	Day 0	03-May-19	Y	Carcass placed	Searcher A
								Day 4	07-May-19	Y	None	Searcher A
								Day 7	10-May-19	Y	None	Searcher B
								Day 11	14-May-19	Y	None	Searcher A
								Day 14	17-May-19	Y	None	Searcher A
10	T57	Hoary Bat	17	260	624417	4768689	1	Day 0	03-May-19	Y	Carcass placed	Searcher A
								Day 4	07-May-19	Y	None	Searcher A
								Day 7	10-May-19	Y	None	Searcher B
								Day 11	14-May-19	Y	None	Searcher A
								Day 14	17-May-19	Y	None	Searcher A

June 2019 Scavenger Removal Trial

No.	Turbine	Species	Distance (m)	Direction (°)	UTM (17T)		Visibility Class	Trial Day	Date	Carcass Present (Y/N)	Signs of Scavenging	Observer
					Easting	Northing						
1	T01	Silver-haired Bat	14	95	623001	4765748	2	Day 0	03-Jun-19	Y	Carcass placed	Searcher A
								Day 3	06-Jun-19	Y	None	Searcher A
								Day 7	10-Jun-19	Y	None	Searcher A
								Day 10	13-Jun-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 14	17-Jun-19	Y	None	Searcher A
2	T32	Blackpoll Warbler	42	132	624821	4764384	2	Day 0	03-Jun-19	Y	Carcass placed	Searcher A
								Day 3	06-Jun-19	Y	None	Searcher A
								Day 7	10-Jun-19	Y	None	Searcher A
								Day 10	13-Jun-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 14	17-Jun-19	Y	None	Searcher A
3	T44	Silver-haired Bat	22	215	624328	4748453	1	Day 0	03-Jun-19	Y	Carcass placed	Searcher C
								Day 3	06-Jun-19	Y	None	Searcher C
								Day 7	10-Jun-19	Y	None	Searcher C
								Day 10	13-Jun-19	Y	Turbine could not be searched; observed present on next search day	Searcher C
								Day 14	17-Jun-19	Y	None	Searcher C
4	T45	Hermit Thrush	41	315	623121	4748684	1	Day 0	03-Jun-19	Y	Carcass placed	Searcher C
								Day 3	06-Jun-19	N	Carcass removed	Searcher C
								Day 7	10-Jun-19	N	N/A	Searcher C
								Day 10	13-Jun-19	N	N/A	Searcher C
								Day 14	17-Jun-19	N	N/A	Searcher C
5	T81	Hermit Thrush	31	285	616307	4766979	1	Day 0	03-Jun-19	Y	Carcass placed	Searcher A
								Day 3	06-Jun-19	Y	None	Searcher A
								Day 7	10-Jun-19	Y	None	Searcher A
								Day 10	13-Jun-19	Y	None	Searcher A
								Day 14	17-Jun-19	Y	None	Searcher A
6	T02	Hoary Bat	20	20	627389	4765964	2	Day 0	04-Jun-19	Y	Carcass placed	Searcher A
								Day 3	07-Jun-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 7	11-Jun-19	Y	Carcass in a few pieces	Searcher A
								Day 10	14-Jun-19	Y	No further signs	Searcher A
								Day 14	18-Jun-19	Y	No further signs	Searcher A
7	T05	American Woodcock	31	68	621200	4747766	2	Day 0	04-Jun-19	Y	Carcass placed	Searcher C
								Day 3	07-Jun-19	N	Carcass removed	Searcher C
								Day 7	11-Jun-19	N	N/A	Searcher C
								Day 10	14-Jun-19	N	N/A	Searcher C
								Day 14	18-Jun-19	N	N/A	Searcher C
8	T57	Golden-crowned Kinglet	49	65	624483	4768719	1	Day 0	04-Jun-19	Y	Carcass placed	Searcher A
								Day 3	07-Jun-19	N	Carcass removed	Searcher A
								Day 7	11-Jun-19	N	N/A	Searcher A
								Day 10	14-Jun-19	N	N/A	Searcher A
								Day 14	18-Jun-19	N	N/A	Searcher A
9	T58	Nashville Warbler	9	323	628459	4767633	1	Day 0	04-Jun-19	Y	Carcass placed	Searcher C
								Day 3	07-Jun-19	Y	None	Searcher C
								Day 7	11-Jun-19	Y	None	Searcher C
								Day 10	14-Jun-19	Y	None	Searcher C
								Day 14	18-Jun-19	Y	None	Searcher C
10	T62	Hoary Bat	46	317	621840	4751343	2	Day 0	04-Jun-19	Y	Carcass placed	Searcher C
								Day 3	07-Jun-19	Y	None	Searcher C
								Day 7	11-Jun-19	Y	None	Searcher C
								Day 10	14-Jun-19	Y	None	Searcher C
								Day 14	18-Jun-19	Y	None	Searcher C

July 2019 Scavenger Removal Trial

No.	Turbine	Species	Distance (m)	Direction (°)	UTM (17T)		Visibility Class	Trial Day	Date	Carcass Present (Y/N)	Signs of Scavenging	Observer
					Easting	Northing						
1	T01	House Finch	33	80	623019	4765750	1	Day 0	01-Jul-19	Y	Carcass placed	Searcher A
								Day 3	04-Jul-19	Y	None	Searcher A
								Day 7	08-Jul-19	Y	None	Searcher A
								Day 10	11-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 14	15-Jul-19	Y	None	Searcher A
2	T61	House Sparrow	13	88	625188	4747982	2	Day 0	01-Jul-19	Y	Carcass placed	Searcher C
								Day 3	04-Jul-19	Y	None	Searcher C
								Day 7	08-Jul-19	Y	Flesh removed	Searcher C
								Day 10	11-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher C
								Day 14	15-Jul-19	Y	No further signs	Searcher C
3	T66	Hoary Bat	48	95	619180	4768538	2	Day 0	01-Jul-19	Y	Carcass placed	Searcher A
								Day 3	04-Jul-19	Y	None	Searcher A
								Day 7	08-Jul-19	Y	None	Searcher A
								Day 10	11-Jul-19	Y	None	Searcher A
								Day 14	15-Jul-19	Y	None	Searcher A
4	T81	Golden-crowned Kinglet	17	240	616327	4766964	1	Day 0	01-Jul-19	Y	Carcass placed	Searcher A
								Day 3	04-Jul-19	Y	None	Searcher A
								Day 7	08-Jul-19	Y	None	Searcher A
								Day 10	11-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 14	15-Jul-19	Y	None	Searcher A
5	T95	Magnolia Warbler	48	240	622771	4760884	1	Day 0	01-Jul-19	Y	Carcass placed	Searcher C
								Day 3	04-Jul-19	Y	None	Searcher C
								Day 7	08-Jul-19	Y	None	Searcher C
								Day 10	11-Jul-19	Y	None	Searcher C
								Day 14	15-Jul-19	Y	None	Searcher C
6	T12	Hoary Bat	3	90	621130	4756410	1	Day 0	02-Jul-19	Y	Carcass placed	Searcher A
								Day 3	05-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 7	09-Jul-19	Y	None	Searcher A
								Day 10	12-Jul-19	Y	None	Searcher A
								Day 14	16-Jul-19	Y	None	Searcher A
7	T24	Hoary Bat	13	210	627748	4750233	2	Day 0	02-Jul-19	Y	Carcass placed	Searcher C
								Day 3	05-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher C
								Day 7	09-Jul-19	Y	None	Searcher C
								Day 10	12-Jul-19	Y	None	Searcher C
								Day 14	16-Jul-19	Y	None	Searcher C
8	T57	Tennessee Warbler	9	170	624444	4768686	2	Day 0	02-Jul-19	Y	Carcass placed	Searcher A
								Day 3	05-Jul-19	Y	None	Searcher A
								Day 7	09-Jul-19	Y	Only wings and feathers remain	Searcher A
								Day 10	12-Jul-19	Y	No further signs	Searcher A
								Day 14	16-Jul-19	Y	No further signs	Searcher A
9	T80	Hoary Bat	21	285	630186	4771980	1	Day 0	02-Jul-19	Y	Carcass placed	Searcher A
								Day 3	05-Jul-19	Y	Only one wing remains	Searcher A
								Day 7	09-Jul-19	Y	No further signs	Searcher A
								Day 10	12-Jul-19	Y	No further signs	Searcher A
								Day 14	16-Jul-19	Y	No further signs	Searcher A
10	T58	Hoary Bat	8	130	628472	4767628	1	Day 0	12-Jul-19	Y	Carcass placed	Searcher C
								Day 4	16-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher C
								Day 7	19-Jul-19	Y	None	Searcher C
								Day 11	23-Jul-19	Y	None	Searcher C
								Day 14	26-Jul-19	Y	Turbine could not be searched; observed present on next search day	Searcher C

August 2019 Scavenger Removal Trial

No.	Turbine	Species	Distance (m)	Direction (°)	UTM (17T)		Visibility Class	Trial Day	Date	Carcass Present (Y/N)	Signs of Scavenging	Observer
					Easting	Northing						
1	T08	Silver-haired Bat	11	310	614533	4764922	2	Day 0	01-Aug-19	Y	Carcass placed	Searcher A
								Day 4	05-Aug-19	Y	None	Searcher A
								Day 7	08-Aug-19	N	Turbine could not be searched; not present on next search day	Searcher A
								Day 11	12-Aug-19	N	N/A	Searcher A
								Day 14	15-Aug-19	N	N/A	Searcher A
2	T16	Black-and-white Warbler	42	46	624169	4749273	2	Day 0	01-Aug-19	Y	Carcass placed	Searcher C
								Day 4	05-Aug-19	Y	None	Searcher C
								Day 7	08-Aug-19	Y	Turbine could not be searched; observed present on next search day	Searcher C
								Day 11	12-Aug-19	Y	None	Searcher C
								Day 14	15-Aug-19	Y	None	Searcher C
3	T32	Hoary Bat	27	55	624799	4764429	2	Day 0	01-Aug-19	Y	Carcass placed	Searcher A
								Day 4	05-Aug-19	Y	None	Searcher A
								Day 7	08-Aug-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 11	12-Aug-19	Y	None	Searcher A
								Day 14	15-Aug-19	Y	None	Searcher A
4	T44	Magnolia Warbler	37	28	624366	4748510	2	Day 0	01-Aug-19	Y	Carcass placed	Searcher C
								Day 4	05-Aug-19	N	Carcass removed	Searcher C
								Day 7	08-Aug-19	N	N/A	Searcher C
								Day 11	12-Aug-19	N	N/A	Searcher C
								Day 14	15-Aug-19	N	N/A	Searcher C
5	T94	Hoary Bat	45	175	618769	4768717	1	Day 0	01-Aug-19	Y	Carcass placed	Searcher A
								Day 4	05-Aug-19	N	Carcass removed	Searcher A
								Day 7	07-Aug-19	N	N/A	Searcher A
								Day 11	11-Aug-19	N	N/A	Searcher A
								Day 14	15-Aug-19	N	N/A	Searcher A
6	T03	Red-winged Blackbird	35	40	629887	4763674	2	Day 0	02-Aug-19	Y	Carcass placed	Searcher A
								Day 4	06-Aug-19	Y	Turbine could not be searched; observed present on next search day	Searcher A
								Day 7	09-Aug-19	Y	Only feathers remain	Searcher A
								Day 11	13-Aug-19	Y	No further signs	Searcher A
								Day 14	16-Aug-19	Y	No further signs	Searcher A
7	T05	Horned Lark	39	107	621206	4747728	1	Day 0	02-Aug-19	Y	Carcass placed	Searcher C
								Day 4	06-Aug-19	N	Carcass removed	Searcher C
								Day 7	09-Aug-19	N	N/A	Searcher C
								Day 11	13-Aug-19	N	N/A	Searcher C
								Day 14	16-Aug-19	N	N/A	Searcher C
8	T62	Cliff Swallow	46	6	621872	4751366	1	Day 0	02-Aug-19	Y	Carcass placed	Searcher C
								Day 4	06-Aug-19	N	Turbine could not be searched; not present on next search day	Searcher C
								Day 7	09-Aug-19	N	N/A	Searcher C
								Day 11	13-Aug-19	N	N/A	Searcher C
								Day 14	16-Aug-19	N	N/A	Searcher C
9	T63	Black-and-white Warbler	8	230	621607	4751045	2	Day 0	02-Aug-19	Y	Carcass placed	Searcher C
								Day 4	06-Aug-19	N	Turbine could not be searched; not present on next search day	Searcher C
								Day 7	09-Aug-19	N	N/A	Searcher C
								Day 11	13-Aug-19	N	N/A	Searcher C
								Day 14	16-Aug-19	N	N/A	Searcher C
10	T99	Purple Martin	13	158	619214	4749209	1	Day 0	02-Aug-19	Y	Carcass placed	Searcher C
								Day 4	06-Aug-19	N	Carcass removed	Searcher C
								Day 7	09-Aug-19	N	N/A	Searcher C
								Day 11	13-Aug-19	N	N/A	Searcher C
								Day 14	16-Aug-19	N	N/A	Searcher C

September 2019 Scavenger Removal Trial

No.	Turbine	Species	Distance (m)	Direction (°)	UTM (17T)		Visibility Class	Trial Day	Date	Carcass Present (Y/N)	Signs of Scavenging	Observer
					Easting	Northing						
1	T32	Eastern Red Bat	34	240	624773	4764373	2	Day 0	02-Sep-19	Y	Carcass placed	Searcher D
								Day 3	05-Sep-19	N	Carcass removed	Searcher D
								Day 7	09-Sep-19	N	N/A	Searcher D
								Day 10	12-Sep-19	N	N/A	Searcher D
								Day 14	16-Sep-19	N	N/A	Searcher D
2	T45	Cliff Swallow	46	323	623123	4748679	1	Day 0	02-Sep-19	Y	Carcass placed	Searcher C
								Day 3	05-Sep-19	N	Carcass removed	Searcher C
								Day 7	09-Sep-19	N	N/A	Searcher C
								Day 10	12-Sep-19	N	N/A	Searcher C
								Day 14	16-Sep-19	N	N/A	Searcher C
3	T66	Hoary Bat	43	50	619146	4768569	2	Day 0	02-Sep-19	Y	Carcass placed	Searcher D
								Day 3	05-Sep-19	Y	None	Searcher D
								Day 7	09-Sep-19	Y	None	Searcher D
								Day 10	12-Sep-19	Y	None	Searcher D
								Day 14	16-Sep-19	Y	None	Searcher D
4	T94	Hermit Thrush	45	195	618770	4768718	1	Day 0	02-Sep-19	Y	Carcass placed	Searcher D
								Day 3	05-Sep-19	Y	None	Searcher D
								Day 7	09-Sep-19	N	Carcass removed	Searcher D
								Day 10	12-Sep-19	N	N/A	Searcher D
								Day 14	16-Sep-19	N	N/A	Searcher D
5	T12	Hoary Bat	37	100	621167	4756404	1	Day 0	03-Sep-19	Y	Carcass placed	Searcher D
								Day 3	06-Sep-19	N	Carcass removed	Searcher E
								Day 7	10-Sep-19	N	N/A	Searcher D
								Day 10	13-Sep-19	N	N/A	Searcher E
								Day 14	17-Sep-19	N	N/A	Searcher D
6	T58	Hoary Bat	31	301	628443	4767650	1	Day 0	03-Sep-19	Y	Carcass placed	Searcher C
								Day 3	06-Sep-19	N	Carcass removed	Searcher C
								Day 7	10-Sep-19	N	N/A	Searcher C
								Day 10	13-Sep-19	N	N/A	Searcher C
								Day 14	17-Sep-19	N	N/A	Searcher C
7	T62	Horned Lark	47	345	621864	4751357	2	Day 0	03-Sep-19	Y	Carcass placed	Searcher C
								Day 3	06-Sep-19	Y	None	Searcher C
								Day 7	10-Sep-19	Y	Flesh removed	Searcher C
								Day 10	13-Sep-19	Y	No further signs	Searcher C
								Day 14	17-Sep-19	Y	No further signs	Searcher C
8	T80	Eastern Red Bat	13	120	630195	4771976	2	Day 0	03-Sep-19	Y	Carcass placed	Searcher D
								Day 3	06-Sep-19	Y	None	Searcher E
								Day 7	10-Sep-19	Y	None	Searcher D
								Day 10	13-Sep-19	Y	None	Searcher E
								Day 14	17-Sep-19	Y	None	Searcher D
9	T99	Purple Martin	8	5	619240	4749240	2	Day 0	03-Sep-19	Y	Carcass placed	Searcher C
								Day 3	06-Sep-19	Y	None	Searcher C
								Day 7	10-Sep-19	Y	None	Searcher C
								Day 10	13-Sep-19	N	Carcass removed	Searcher C
								Day 14	17-Sep-19	N	N/A	Searcher C
10	T08	Northern Flicker	27	305	614518	4764922	1	Day 0	09-Sep-19	Y	Carcass placed	Searcher D
								Day 3	12-Sep-19	Y	None	Searcher D
								Day 7	16-Sep-19	Y	None	Searcher D
								Day 10	19-Sep-19	Y	None	Searcher D
								Day 14	23-Sep-19	Y	None	Searcher D

October 2019 Scavenger Removal Trial

No.	Turbine	Species	Distance (m)	Direction (°)	UTM (17T)		Visibility Class	Trial Day	Date	Carcass Present (Y/N)	Signs of Scavenging	Observer
					Easting	Northing						
1	T02	Silver-haired Bat	48	279	627331	4765928	2	Day 0	01-Oct-19	Y	Carcass placed	Searcher C
								Day 3	04-Oct-19	Y	None	Searcher C
								Day 7	08-Oct-19	Y	None	Searcher C
								Day 10	11-Oct-19	Y	None	Searcher C
								Day 14	15-Oct-19	Y	None	Searcher C
2	T03	Black-throated Green Warbler	6	131	629895	4763576	1	Day 0	01-Oct-19	Y	Carcass placed	Searcher C
								Day 3	04-Oct-19	Y	None	Searcher C
								Day 7	08-Oct-19	Y	None	Searcher C
								Day 10	11-Oct-19	Y	None	Searcher C
								Day 14	15-Oct-19	Y	None	Searcher C
3	T63	Yellow-bellied Sapsucker	15	84	621616	4751049	1	Day 0	01-Oct-19	Y	Carcass placed	Searcher C
								Day 3	04-Oct-19	Y	None	Searcher C
								Day 7	08-Oct-19	N	Carcass removed	Searcher C
								Day 10	11-Oct-19	N	N/A	Searcher C
								Day 14	15-Oct-19	N	N/A	Searcher C
4	T80	Horned Lark	1	60	630189	4771982	1	Day 0	01-Oct-19	Y	Carcass placed	Searcher C
								Day 3	04-Oct-19	Y	None	Searcher C
								Day 7	08-Oct-19	Y	None	Searcher C
								Day 10	11-Oct-19	N	Carcass removed	Searcher C
								Day 14	15-Oct-19	N	N/A	Searcher C
5	T07	Horned Lark	11	46	618641	4764070	2	Day 0	03-Oct-19	Y	Carcass placed	Searcher C
								Day 4	07-Oct-19	N	Carcass removed	Searcher C
								Day 7	10-Oct-19	N	N/A	Searcher C
								Day 11	14-Oct-19	N	N/A	Searcher C
								Day 14	17-Oct-19	N	N/A	Searcher C
6	T16	Hoary Bat	7	140	624161	4749232	1	Day 0	03-Oct-19	Y	Carcass placed	Searcher C
								Day 4	07-Oct-19	Y	Only wings remain	Searcher C
								Day 7	10-Oct-19	Y	No further signs	Searcher C
								Day 11	14-Oct-19	Y	No further signs	Searcher C
								Day 14	17-Oct-19	Y	No further signs	Searcher C
7	T61	Red-eyed Vireo	41	14	625174	4748021	2	Day 0	03-Oct-19	Y	Carcass placed	Searcher C
								Day 4	07-Oct-19	N	Carcass removed	Searcher C
								Day 7	10-Oct-19	N	N/A	Searcher C
								Day 11	14-Oct-19	N	N/A	Searcher C
								Day 14	17-Oct-19	N	N/A	Searcher C
8	T81	Hoary Bat	47	351	616341	4767032	1	Day 0	03-Oct-19	Y	Carcass placed	Searcher C
								Day 4	07-Oct-19	Y	None	Searcher C
								Day 7	10-Oct-19	N	Carcass removed	Searcher C
								Day 11	14-Oct-19	N	N/A	Searcher C
								Day 14	17-Oct-19	N	N/A	Searcher C
9	T95	Mourning Dove	46	309	622770	4760877	2	Day 0	03-Oct-19	Y	Carcass placed	Searcher C
								Day 4	07-Oct-19	N	Carcass removed	Searcher C
								Day 7	10-Oct-19	N	N/A	Searcher C
								Day 11	14-Oct-19	N	N/A	Searcher C
								Day 14	17-Oct-19	N	N/A	Searcher C
10	T99	Hoary Bat	49	334	619239	4749176	2	Day 0	04-Oct-19	Y	Carcass placed	Searcher C
								Day 4	08-Oct-19	Y	None	Searcher C
								Day 7	11-Oct-19	Y	None	Searcher C
								Day 11	15-Oct-19	Y	None	Searcher C
								Day 14	18-Oct-19	Y	None	Searcher C

Appendix III
Searcher Efficiency Trial Results

Appendix III
1865C Niagara Region Wind Farm
2019 Searcher Efficiency Trial Results

May 2019 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
07-May-19	Searcher A	1	T05	Silver-haired Bat	9	234	Gravel	1	621169	4747758	Y	-
		2	T24	Yellow-bellied Sapsucker	13	0	Mowed grass	2	627751	4750254	Y	-
		3	T62	Hermit Thrush	29	270	Mowed grass	2	621910	4751320	N	N
14-May-19	Searcher A	4	T12	Blackpoll Warbler	21	330	Bare soil	1	621103	4756413	Y	-
		5	T63	White-throated Sparrow	42	45	Mowed grass	2	621622	4751082	N	N
		6	T99	Hoary Bat	45	183	Mowed grass	2	619223	4749177	N	N
16-May-19	Searcher A	7	T44	Yellow-bellied Sapsucker	14	107	Bare soil	1	624346	4748455	Y	-
		8	T66	Black-throated Green Warbler	37	90	Mowed grass	2	619167	4768510	Y	-
		9	T95	Golden-crowned Kinglet	36	104	Bare soil	1	622851	4760829	Y	-
17-May-19	Searcher A	10	T02	Yellow-bellied Sapsucker	9	20	Mowed grass	2	627385	4765956	N	N
		11	T03	Golden-crowned Kinglet	41	240	Mowed grass	2	629861	4763551	Y	-
		12	T57	Eastern Red Bat	25	170	Bare soil	1	624443	4768669	Y	-
23-May-19	Searcher A	13	T01	Golden-crowned Kinglet	45	30	Bare soil	1	623010	4765795	N	Y
		14	T45	Silver-haired Bat	38	250	Gravel	1	623122	4748662	Y	-
		15	T61	Hoary Bat	32	240	Mowed grass	2	625160	4747938	Y	-
24-May-19	Searcher A	16	T24	Hoary Bat	28	190	Mowed grass	2	627747	4750209	Y	-
		17	T62	Hermit Thrush	5	200	Gravel	1	621870	4751305	Y	-
		18	T63	Baltimore Oriole	36	130	Bare soil	1	621642	4751016	Y	-
28-May-19	Searcher A	19	T02	Hermit Thrush	25	100	Bare soil	1	627374	4765975	Y	-
		20	T58	Silver-haired Bat	6	280	Mowed grass	2	628462	4767632	Y	-
		21	T80	Eastern Red Bat	20	200	Bare soil	1	630170	4772003	Y	-

June 2019 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
03-Jun-19	Searcher A	1	T07	Yellow-bellied Sapsucker	12	295	Mowed grass	2	618629	4764061	Y	-
		2	T08	Hoary Bat	46	195	Mowed grass	2	614519	4764879	Y	-
		3	T81	Golden-crowned Kinglet	24	25	Bare soil	1	616364	4767011	Y	-
10-Jun-19	Searcher A	4	T01	Golden-crowned Kinglet	13	70	Gravel	1	623005	4765750	N	N
		5	T66	Yellow-bellied Sapsucker	35	217	Mowed grass	2	619106	4768508	Y	-
		6	T94	House Sparrow	17	204	Mowed grass	2	618744	4768755	Y	-
11-Jun-19	Searcher A	7	T02	Magnolia Warbler	33	90	Bare soil	1	627412	4765952	Y	-
		8	T03	Hoary Bat	47	204	Mowed grass	2	629880	4763528	Y	-
		9	T57	Northern Parula	9	173	Mowed grass	2	624440	4768681	Y	-
13-Jun-19	Searcher A	10	T07	Eastern Red Bat	17	270	Bare soil	1	618612	4764050	Y	-
		11	T08	Hoary Bat	29	187	Mowed grass	2	614551	4764883	N	Y
		12	T81	Baltimore Oriole	43	325	Mowed grass	2	616315	4767018	N	Y
14-Jun-19	Searcher A	13	T02	Silver-haired Bat	27	292	Bare soil	1	627350	4765949	Y	-
		14	T57	Hoary Bat	10	170	Mowed grass	2	624433	4768689	Y	-
		15	T80	Silver-haired Bat	31	195	Bare soil	1	630179	4771948	Y	-
17-Jun-19	Searcher A	16	T01	Orange-crowned Warbler	35	60	Bare soil	1	623018	4765762	N	N
		17	T07	Yellow-bellied Sapsucker	43	250	Mowed grass	2	618589	4764025	Y	-
		18	T81	Hermit Thrush	20	230	Mowed grass	2	616335	4766966	Y	-
18-Jun-19	Searcher A	19	T03	Tennessee Warbler	1	2	Cement	1	629893	4763584	Y	-
		20	T12	Hoary Bat	21	140	Mowed grass	2	621145	4756385	N	Y
		21	T57	Northern Cardinal	47	270	Mowed grass	2	624381	4768697	Y	-
21-Jun-19	Searcher A	22	T12	Hoary Bat	42	110	Bare soil	1	621157	4756381	Y	-
		23	T80	Magnolia Warbler	26	250	Bare soil	1	630162	4771967	Y	-
06-Jun-19	Searcher C	1	T16	Hoary Bat	44	90	Mowed grass	2	624199	4749255	N	N
		2	T61	White-throated Sparrow	22	230	Mowed grass	2	625158	4747952	N	N
		3	T95	Yellow-bellied Sapsucker	11	40	Bare soil	1	622825	4760855	Y	-
10-Jun-19	Searcher C	4	T16	White-throated Sparrow	33	60	Mowed grass	2	624178	4749272	Y	-
		5	T44	Hoary Bat	19	150	Bare soil	1	624369	4748458	Y	-
		6	T45	Eastern Red Bat	28	285	Gravel	1	623127	4748659	Y	-
11-Jun-19	Searcher C	7	T05	Baltimore Oriole	2	330	Gravel	1	621165	4747758	Y	-
		8	T99	Hoary Bat	13	140	Mowed grass	2	619224	4749221	Y	-
		9	T58	Hermit Thrush	24	170	Bare soil	1	628479	4767603	Y	-
14-Jun-19	Searcher C	10	T62	Eastern Red Bat	41	35	Mowed grass	2	621882	4751358	Y	-
		11	T63	Hoary Bat	12	280	Mowed grass	2	621600	4751050	Y	-
		12	T16	House Finch	37	190	Bare soil	1	624147	4749205	Y	-
17-Jun-19	Searcher C	13	T45	Red-eyed Vireo	28	260	Mowed grass	2	623130	4748642	Y	-
		14	T95	Magnolia Warbler	21	355	Bare soil	1	622813	4760873	Y	-
		15	T44	Silver-haired Bat	7	200	Bare soil	1	624338	4748468	Y	-
20-Jun-19	Searcher C	16	T45	Eastern Red Bat	46	310	Bare soil	1	623119	4748685	N	N
		17	T61	Yellow-bellied Sapsucker	44	75	Mowed grass	2	625216	4747997	N	N
		18	T24	Northern Cardinal	49	200	Mowed grass	2	627744	4750187	Y	-
21-Jun-19	Searcher C	19	T58	House Finch	8	100	Bare soil	1	628486	4767627	Y	-
		20	T62	Hermit Thrush	37	320	Mowed grass	2	621843	4751332	Y	-

July 2019 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Eastings	Northing		
05-Jul-19	Searcher A	1	T57	Silver-haired Bat	36	320	Bare soil	1	624403	4768711	N	Y
		2	T80	Eastern Red Bat	7	165	Bare soil	1	630183	4771979	N	Y
08-Jul-19	Searcher A	3	T08	Silver-haired Bat	19	150	Mowed grass	2	614558	4764893	Y	-
		4	T81	Hoary Bat	13	30	Mowed grass	2	616348	4766993	Y	-
		5	T94	Northern Cardinal	41	180	Mowed grass	2	618768	4768728	N	N
12-Jul-19	Searcher A	6	T02	Northern Parula	46	95	Mowed grass	2	627432	4765950	Y	-
		7	T03	Hoary Bat	31	220	Mowed grass	2	629879	4763552	Y	-
		8	T57	Northern Flicker	8	185	Mowed grass	2	624435	4768687	Y	-
16-Jul-19	Searcher A	9	T03	Hoary Bat	45	10	Bare soil	1	629891	4763629	Y	-
		10	T12	Yellow-bellied Sapsucker	21	350	Mowed grass	2	621125	4756431	N	Y
18-Jul-19	Searcher A	11	T01	Gray Catbird	9	314	Mowed grass	2	622973	4765748	Y	-
		12	T07	Hoary Bat	48	253	Bare soil	1	618594	4764030	Y	-
		13	T32	Northern Cardinal	27	109	Mowed grass	2	624804	4764400	Y	-
19-Jul-19	Searcher A	14	T02	Hoary Bat	25	300	Mowed grass	2	627353	4765949	Y	-
		15	T57	Silver-haired Bat	46	50	Bare soil	1	624474	4768734	Y	-
		16	T80	Hoary Bat	1	240	Cement	1	630191	4771982	Y	-
22-Jul-19	Searcher A	17	T66	Warbling Vireo	9	125	Gravel	1	619136	4768523	Y	-
		18	T81	Northern Flicker	45	340	Bare soil	1	616326	4767021	Y	-
		19	T94	Red-winged Blackbird	18	180	Bare soil	1	618753	4768752	Y	-
23-Jul-19	Searcher A	20	T12	Warbling Vireo	48	240	Bare soil	1	621091	4756357	Y	-
		21	T80	Fox Sparrow	26	75	Bare soil	1	630211	4771987	Y	-
25-Jul-19	Searcher A	22	T07	Northern Flicker	46	358	Mowed grass	2	618615	4764103	Y	-
		23	T81	Tennessee Warbler	20	220	Bare soil	1	616341	4766972	Y	-
02-Jul-19	Searcher C	1	T05	Eastern Red Bat	18	60	Bare soil	1	621189	4747771	N	N
		2	T62	Northern Cardinal	41	165	Bare soil	1	621895	4751271	Y	-
		3	T99	Silver-haired Bat	36	190	Mowed grass	2	619211	4749187	Y	-
04-Jul-19	Searcher C	4	T16	Yellow-bellied Sapsucker	32	90	Mowed grass	2	624185	4749255	Y	-
		5	T44	Red-eyed Vireo	43	20	Mowed grass	2	624354	4748521	Y	-
		6	T95	Red-winged Blackbird	7	255	Bare soil	1	622810	4760837	Y	-
09-Jul-19	Searcher C	7	T58	Hoary Bat	34	350	Bare soil	1	628459	4767665	Y	-
		8	T62	Gray Catbird	14	185	Bare soil	1	621874	4751296	Y	-
		9	T63	Common Yellowthroat	27	50	Mowed grass	2	621621	4751062	Y	-
15-Jul-19	Searcher C	10	T44	Silver-haired Bat	12	230	Mowed grass	2	624334	4748473	Y	-
		11	T45	Northern Flicker	43	18	Bare soil	1	623164	4748700	Y	-
		12	T61	Hoary Bat	25	110	Mowed grass	2	625204	4747975	Y	-
18-Jul-19	Searcher C	13	T44	Warbling Vireo	16	215	Mowed grass	2	624340	4748457	Y	-
		14	T45	Northern Cardinal	8	15	Mowed grass	2	623159	4748663	Y	-
		15	T95	Magnolia Warbler	48	300	Bare soil	1	622762	4760854	Y	-
23-Jul-19	Searcher C	16	T24	Hoary Bat	25	210	Bare soil	1	627732	4750214	N	Y
		17	T58	Warbling Vireo	15	175	Bare soil	1	628477	4767612	Y	-
		18	T99	Silver-haired Bat	46	170	Gravel	1	619227	4749179	N	N
26-Jul-19	Searcher C	19	T05	Hoary Bat	31	330	Mowed grass	2	621150	4747783	Y	-
		20	T63	Silver-haired Bat	46	345	Bare soil	1	621590	4751079	Y	-
29-Jul-19	Searcher C	21	T95	Fox Sparrow	5	30	Mowed grass	2	622813	4760853	N	N

August 2019 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Eastings	Northing		
02-Aug-19	Searcher A	1	T02	Silver-haired Bat	46	260	Mowed grass	2	627323	4765950	Y	-
		2	T57	Hoary Bat	9	250	Bare soil	1	624427	4768697	Y	-
		3	T80	Hoary Bat	25	190	Bare soil	1	630208	4771972	N	N
05-Aug-19	Searcher A	4	T08	Common Yellowthroat	29	30	Bare soil	1	614552	4764945	N	N
		5	T66	Silver-haired Bat	9	267	Mowed grass	2	619115	4768525	Y	-
		6	T94	Gray Catbird	46	179	Mowed grass	2	618757	4768725	Y	-
09-Aug-19	Searcher A	7	T02	Silver-haired Bat	48	3	Mowed grass	2	627352	4765989	Y	-
		8	T03	Hoary Bat	12	265	Bare soil	1	629875	4763574	Y	-
		9	T12	Hermit Thrush	25	110	Mowed grass	2	621144	4756385	Y	-
12-Aug-19	Searcher A	10	T01	Silver-haired Bat	45	121	Bare soil	1	623029	4765728	Y	-
		11	T07	Hoary Bat	23	245	Mowed grass	2	618611	4764044	Y	-
		12	T32	Northern Cardinal	15	40	Mowed grass	2	624782	4764427	Y	-
13-Aug-19	Searcher A	13	T02	Black-billed Cuckoo	6	120	Mowed grass	2	627388	4765940	Y	-
		14	T03	Hermit Thrush	43	341	Bare soil	1	629874	4763623	N	Y
		15	T80	House Sparrow	15	224	Bare soil	1	630180	4771974	Y	-
15-Aug-19	Searcher A	16	T08	Northern Cardinal	38	319	Mowed grass	2	614508	4764926	Y	-
		17	T81	Gray Catbird	2	193	Cement	1	616344	4766973	Y	-
		18	T94	White-throated Sparrow	12	39	Bare soil	1	618765	4768783	N	Y
16-Aug-19	Searcher A	19	T02	Northern Flicker	32	41	Mowed grass	2	627398	4765961	Y	-
		20	T03	Fox Sparrow	10	134	Bare soil	1	629893	4763571	Y	-
		21	T12	European Starling	43	285	Bare soil	1	621091	4756417	Y	-

August 2019 Searcher Efficiency Trial (continued)

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Eastings	Northing		
02-Aug-19	Searcher C	1	T05	Gray Catbird	44	130	Bare soil	1	621211	4747732	Y	-
		2	T62	Northern Cardinal	42	160	Bare soil	1	621899	4751272	Y	-
		3	T63	Fox Sparrow	23	330	Bare soil	1	621596	4751059	Y	-
05-Aug-19	Searcher C	4	T16	Silver-haired Bat	37	40	Mowed grass	2	624171	4749280	Y	-
		5	T45	Hoary Bat	13	205	Bare soil	1	623147	4748643	Y	-
		6	T95	Hoary Bat	43	35	Bare soil	1	622840	4760884	Y	-
13-Aug-19	Searcher C	7	T24	Gray Catbird	25	145	Mowed grass	2	627778	4750225	Y	-
		8	T58	Northern Flicker	38	15	Mowed grass	2	628474	4767669	Y	-
		9	T99	Northern Cardinal	4	150	Mowed grass	2	619215	4749222	Y	-
15-Aug-19	Searcher C	10	T44	Hoary Bat	31	135	Bare soil	1	624381	4748456	Y	-
		11	T95	Hoary Bat	4	265	Bare soil	1	622809	4760840	Y	-
19-Aug-19	Searcher C	12	T16	European Starling	19	280	Bare soil	1	624132	4749257	Y	-
		13	T44	Silver-haired Bat	41	90	Mowed grass	2	624394	4748478	N	Y
		14	T45	Tennessee Warbler	9	170	Bare soil	1	623167	4748646	N	Y
20-Aug-19	Searcher C	15	T24	Blue Jay	47	210	Mowed grass	2	627736	4750193	Y	-
		16	T58	Hoary Bat	11	55	Mowed grass	2	628480	4767641	Y	-
		17	T62	Silver-haired Bat	37	240	Mowed grass	2	621843	4751289	N	N
22-Aug-19	Searcher C	18	T44	Hoary Bat	30	10	Mowed grass	2	624345	4748507	Y	-
		19	T45	Black-billed Cuckoo	41	220	Bare soil	1	623146	4748608	Y	-
		20	T61	House Finch	50	10	Bare soil	1	625162	4748023	Y	-
23-Aug-19	Searcher C	21	T05	House Finch	43	350	Bare soil	1	621127	4747775	N	Y
		22	T99	Hoary Bat	19	290	Mowed grass	2	619185	4749219	Y	-
27-Aug-19	Searcher C	23	T63	Mourning Dove	21	35	Mowed grass	2	621611	4751058	N	N

September 2019 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Eastings	Northing		
03-Sep-19	Searcher C	1	T05	Hoary Bat	32	55	Mowed grass	2	621205	4747771	Y	-
		2	T24	Silver-haired Bat	48	195	Mowed grass	2	627748	4750193	Y	-
		3	T62	Eastern Red Bat	9	170	Bare soil	1	621887	4751302	Y	-
12-Sep-19	Searcher C	4	T16	Northern Flicker	20	205	Bare soil	1	624144	4749222	Y	-
		5	T45	Nashville Warbler	6	155	Bare soil	1	623166	4748648	Y	-
		6	T61	Yellow-bellied Sapsucker	29	170	Mowed grass	2	625178	4747939	Y	-
16-Sep-19	Searcher C	7	T16	Eastern Red Bat	32	65	Mowed grass	2	624179	4749270	Y	-
		8	T44	Silver-haired Bat	35	40	Mowed grass	2	624365	4748510	Y	-
		9	T61	Yellow-bellied Sapsucker	17	110	Mowed grass	2	625195	4747976	Y	-
17-Sep-19	Searcher C	10	T58	American Robin	43	40	Bare soil	1	628484	4767677	Y	-
		11	T63	Red-eyed Vireo	22	200	Bare soil	1	621598	4751011	Y	-
		12	T99	Blackpoll Warbler	35	210	Gravel	1	619224	4749189	Y	-
19-Sep-19	Searcher C	13	T16	Hoary Bat	9	195	Bare soil	1	624159	4749250	Y	-
		14	T45	Black-throated Green Warbler	27	25	Mowed grass	2	623162	4748683	N	N
		15	T95	Red-eyed Vireo	16	255	Bare soil	1	622800	4760833	N	N
20-Sep-19	Searcher C	16	T24	Horned Lark	8	175	Mowed grass	2	627764	4750236	Y	-
		17	T58	Hoary Bat	20	225	Bare soil	1	628466	4767607	Y	-
		18	T63	Silver-haired Bat	32	40	Bare soil	1	621622	4751066	Y	-
23-Sep-19	Searcher C	19	T44	Horned Lark	46	20	Mowed grass	2	624355	4748521	Y	-
		20	T95	Blue Jay	24	200	Mowed grass	2	622844	4760853	Y	-
		1	T03	Hoary Bat	47	315	Bare soil	1	629866	4763627	Y	-
27-Aug-19	Searcher D	2	T57	Gray Catbird	7	224	Bare soil	1	624431	4768694	Y	-
		3	T80	Northern Cardinal	33	145	Bare soil	1	630219	4771982	Y	-
30-Aug-19	Searcher D	4	T02	Northern Cardinal	32	215	Mowed grass	2	627363	4765907	N	Y
09-Sep-19	Searcher D	5	T66	Hermit Thrush	37	288	Mowed grass	2	619085	4768525	N	Y
		6	T81	Cliff Swallow	9	212	Bare soil	1	616338	4766965	N	N
		7	T94	Eastern Red Bat	20	58	Mowed grass	2	618771	4768777	N	N
12-Sep-19	Searcher D	8	T07	Yellow-bellied Sapsucker	36	278	Mowed grass	2	618594	4764060	Y	-
		9	T08	Hoary Bat	6	206	Mowed grass	2	614538	4764905	Y	-
		10	T32	Silver-haired Bat	21	76	Bare soil	1	624806	4764426	Y	-
17-Sep-19	Searcher D	11	T02	American Robin	11	142	Mowed grass	2	627387	4765936	Y	-
		12	T57	Eastern Red Bat	46	137	Mowed grass	2	624481	4768682	N	Y
		13	T80	Magnolia Warbler	23	300	Bare soil	1	630162	4771999	N	N
19-Sep-19	Searcher D	14	T01	Silver-haired Bat	1	340	Cement	1	622974	4765747	Y	-
		15	T07	Yellow-bellied Sapsucker	21	1	Mowed grass	2	618644	4764076	Y	-
		16	T32	Hoary Bat	41	198	Mowed grass	2	624782	4764369	Y	-
23-Sep-19	Searcher D	17	T08	Horned Lark	43	29	Bare soil	1	614567	4764953	N	Y
		18	T66	Yellow-bellied Sapsucker	28	233	Mowed grass	2	619119	4768497	Y	-
		19	T81	Hoary Bat	19	355	Bare soil	1	616337	4767001	Y	-
24-Sep-19	Searcher D	20	T02	Blue Jay	6	160	Mowed grass	2	627380	4765934	Y	-
		21	T03	Yellow-bellied Sapsucker	22	241	Bare soil	1	629871	4763564	Y	-
		22	T12	Horned Lark	48	174	Bare soil	1	621163	4756365	Y	-
26-Sep-19	Searcher D	23	T01	American Robin	28	281	Mowed grass	2	622954	4765750	Y	-
		24	T32	Hoary Bat	9	74	Mowed grass	2	624790	4764419	Y	-

October 2019 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (17T)		Found (Y/N)	Scavenged (Y/N)
									Eastings	Northing		
01-Oct-19	Searcher C	1	T24	White-throated Sparrow	23	250	Mowed grass	2	627728	4750239	N	N
		2	T63	Hoary Bat	10	160	Gravel	1	621614	4751045	Y	-
03-Oct-19	Searcher C	3	T44	Hoary Bat	19	270	Bare soil	1	624330	4748484	Y	-
		4	T45	Hoary Bat	14	10	Gravel	1	623146	4748664	Y	-
		5	T61	American Robin	18	350	Mowed grass	2	625161	4747989	Y	-
04-Oct-19	Searcher C	6	T57	Red-breasted Nuthatch	23	350	Bare soil	1	624420	4768721	Y	-
		7	T58	White-throated Sparrow	44	140	Bare soil	1	628511	4767601	Y	-
		8	T80	Swainson's Thrush	32	80	Mowed grass	2	630219	4772000	Y	-
10-Oct-19	Searcher C	9	T07	Purple Martin	41	200	Mowed grass	2	618624	4764010	Y	-
		10	T08	Magnolia Warbler	9	140	Winter wheat	2	614553	4764905	N	N
		11	T81	White-throated Sparrow	43	30	Bare soil	1	616361	4767022	Y	-
15-Oct-19	Searcher C	12	T12	Eastern Red Bat	38	160	Bare soil	1	621168	4756391	N	Y
		13	T62	Palm Warbler	32	110	Bare soil	1	621908	4751327	Y	-
		14	T99	Silver-haired Bat	44	200	Mowed grass	2	619211	4749175	Y	-
17-Oct-19	Searcher C	15	T32	Silver-haired Bat	43	80	Mowed grass	2	624826	4764419	Y	-
		16	T66	Swainson's Thrush	38	300	Mowed grass	2	619090	4768547	Y	-
		17	T94	Eastern Red Bat	23	220	Mowed grass	2	618737	4768743	Y	-
18-Oct-19	Searcher C	18	T02	Eastern Red Bat	15	120	Mowed grass	2	627377	4765931	N	Y
		19	T03	Fox Sparrow	19	310	Bare soil	1	629870	4763595	Y	-
		20	T12	Blackburnian Warbler	23	300	Bare soil	1	621100	4756413	N	N
28-Oct-19	Searcher C	21	T32	Eastern Red Bat	9	270	Mowed grass	2	624765	4764410	N	N
		22	T95	Silver-haired Bat	38	140	Bare soil	1	622846	4760814	Y	-

Appendix IV
Avian Mortalities

Appendix IV
1865C Niagara Region Wind Farm
2019 Avian Mortalities

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
03-May-19	T63	14:10	14:30	N	-	13	100	Rain	1	NE	Brown-headed Cowbird	1865C-030519-T63-01	M	621634	4751057	29	62	M	72	None observed	Weeds	2
03-May-19	T99	17:05	17:25	N	-	13	100	Rain	1	NE	Purple Martin	1865C-030519-T99-01	M	619197	4749188	31	215	E	24	Laceration to head	Mowed grass	2
06-May-19	T08	10:00	10:20	N	4	10	5	None	2	SW	Warbling Vireo	1865C-060519-T08-01	U	614520	4764896	25	255	F	4	Laceration to back	Bare soil	1
07-May-19	T05	16:10	16:30	N	4	11	100	Rain	1	N	Passerine sp.	1865C-070519-T05-01	U	621202	4747717	48	140	S	120	None observed	Weeds	2
07-May-19	T80	8:18	8:38	N	4	8	100	Rain	1	N	Ruby-crowned Kinglet	1865C-070519-T80-01	U	630217	4771988	27	118	M	72	Laceration to back	Weeds	2
13-May-19	T81	9:23	9:43	N	4	6	100	Rain / Fog	2	E	Red-eyed Vireo	1865C-130519-T81-01	U	616376	4766995	43	50	S	48	None observed	Bare soil	1
17-May-19	T12	12:50	13:10	N	3	20	70	None	2	W	Horned Lark	1865C-170519-T12-01	M	621134	4756411	5	60	E	48	None observed	Gravel	1
17-May-19	T63	13:36	13:56	N	3	20	70	None	2	W	Gray Catbird	1865C-170519-T63-01	U	621591	4751002	30	215	F	6	Laceration to head	Mowed grass	2
20-May-19	T16	14:15	14:35	N	4	18	100	None	3-6	SW	Horned Lark	1865C-200519-T16-01	M	624143	4749274	27	350	E	48	Laceration to abdomen	Bare soil	1
24-May-19	T05	15:02	15:22	N	3	19	10	None	3	NW	Red-eyed Vireo	1865C-240519-T05-01	U	621214	4747740	45	108	F	6	None observed	Bare soil	1
31-May-19	T57	9:40	10:00	N	3	11	5	None	1	NW	Red-eyed Vireo	1865C-310519-T57-01	U	624408	4768689	22	270	E	24	Laceration to abdomen	Bare soil	1
03-Jun-19	T07	12:05	12:35	N	4	16	40	None	5	NW	Red-eyed Vireo	1865C-030619-T07-01	U	618667	4764050	27	100	E	48	Laceration to abdomen	Weeds	2
04-Jun-19	T02	11:25	11:55	N	4	12	80	None	3	SW	Philadelphia Vireo	1865C-040619-T02-01	U	627413	4765970	41	65	E	48	Laceration to back	Weeds	2
04-Jun-19	T57	10:30	11:00	N	4	12	80	None	3	SW	Yellow-bellied Flycatcher	1865C-040619-T57-01	U	624470	4768696	30	100	F	3	Laceration to back	Bare soil	1
25-Jun-19	T12	14:38	15:08	N	4	26	75	None	4-6	W	Tree Swallow	1865C-250619-T12-01	U	621093	4756392	45	250	M	72	Laceration to back	Weeds	2
28-Jun-19	T05	12:40	13:10	N	3	25	20	None	2	W	Red-eyed Vireo	1865C-280619-T05-01	U	621205	4747777	38	50	M	72	Laceration to back	Mowed grass	2
01-Jul-19	T01	13:52	14:32	N	4	26	5	None	1	S	Passerine sp.	1865C-010719-T01-01	U	622940	4765761	44	305	S	48	None observed	Bare soil	1
01-Jul-19	T44	14:40	15:20	N	4	25	2	None	1	W	Black-billed Cuckoo	1865C-010719-T44-01	U	624351	4748508	36	180	E	48	Broken neck	Bare soil	1
02-Jul-19	T99	10:15	10:55	N	4	25	80	Rain	1	N	Great Crested Flycatcher	1865C-020719-T99-01	U	619206	4749259	41	13	S	96	None observed	Mowed grass	2
08-Jul-19	T44	13:35	14:15	N	4	25	0	None	1	E	Purple Martin	1865C-080719-T44-01	M	624351	4748489	13	120	M	90	Broken neck	Bare soil	1
09-Jul-19	T03	14:15	14:55	N	7	28	10	None	1-2	NE	Purple Martin	1865C-090719-T03-01	U	629910	4763602	24	90	S	48	None observed	Bare soil	1
09-Jul-19	T05	13:00	13:40	N	7	25	0	None	1	E	Purple Martin	1865C-090719-T05-01	U	621203	4747735	35	102	E	24	Broken neck	Bare soil	1
09-Jul-19	T63	15:10	15:50	N	7	25	0	None	1	E	Purple Martin	1865C-090719-T63-01	U	621570	4751059	48	304	E	30	Laceration to neck	Bare soil	1
15-Jul-19	T95	9:00	9:40	N	4	22	10	None	1	SW	Barn Swallow	1865C-150719-T95-01	U	622804	4760819	30	220	E	24	Laceration to head	Bare soil	1
16-Jul-19	T24	9:45	10:25	N	4	26	5	None	1	W	Barn Swallow	1865C-160719-T24-01	U	627754	4750236	1	350	M	96	None observed	Cement	1
18-Jul-19	T95	8:50	9:30	N	3	23	70	Fog	1	E	Purple Martin	1865C-180719-T95-01	M	622835	4760877	35	32	E	48	Broken neck	Bare soil	1
19-Jul-19	T63	12:20	13:00	N	7	27	20	None	3	SW	Purple Martin	1865C-190719-T63-01	U	621596	4751030	11	290	E	48	Broken wing	Bare soil	1
19-Jul-19	T80	8:50	9:30	N	7	27	10	None	4	SW	Barn Swallow	1865C-190719-T80-01	U	630172	4771963	20	230	F	20	Laceration to neck	Bare soil	1
23-Jul-19	T63	13:00	13:40	N	4	21	30	None	1	W	Barn Swallow	1865C-230719-T63-01	U	621612	4751056	22	10	E	48	Broken neck	Bare soil	1
25-Jul-19	T01	11:49	12:29	N	3	20	5	None	2	W	Passerine sp.	1865C-250719-T01-01	U	622948	4765750	31	287	A	216	Decapitated	Bare soil	1
01-Aug-19	T16	12:40	13:20	N	3	25	5	None	2	SE	Passerine sp.	1865C-010819-T16-01	U	624173	4749259	24	350	S	48	None observed	Bare soil	1
01-Aug-19	T95	9:00	9:40	N	3	25	5	None	2	SE	Tree Swallow	1865C-010819-T95-01	U	622843	4760819	46	180	E	24	Tail severed	Bare soil	1
02-Aug-19	T12	16:05	16:45	N	3	22	5	None	1	NE	Purple Martin	1865C-020819-T12-01	U	621133	4756388	23	135	E	30	Broken neck	Bare soil	1
06-Aug-19	T57	11:00	11:40	N	4	27	35	Rain	3-5	SW	Purple Martin	1865C-060819-T57-01	U	624477	4768705	38	95	F	18	None observed	Gravel	1
12-Aug-19	T45	11:25	12:05	N	7	22	100	None	1	W	Purple Martin	1865C-120819-T45-01	U	623197	4748653	43	129	S	72	None observed	Bare soil	1
12-Aug-19	T94	8:45	9:25	N	4	21	100	None	2	SW	Purple Martin	1865C-120819-T94-01	U	618785	4768784	36	80	E	24	Laceration to neck	Weeds	2
13-Aug-19	T24	12:00	12:40	N	4	22	70	Rain	1	W	Tree Swallow	1865C-130819-T24-02	U	627755	4750259	18	85	E	24	Broken neck	Mowed grass	2
15-Aug-19	T07	13:15	13:55	N	3	24	50	None	2	E	Tree Swallow	1865C-150819-T07-01	U	618644	4764021	30	190	E	24	Laceration	Weeds	2
16-Aug-19	T58	10:20	11:00	N	3	22	20	Rain	2	NE	Barn Swallow	1865C-160819-T58-01	U	628449	4767595	36	223	M	72	Broken neck	Bare soil	1
19-Aug-19	T61	14:30	15:10	N	7	22	70	None	2	NW	Black-billed Cuckoo	1865C-190819-T61-01	U	625151	4747988	28	288	M	72	Broken back	Weeds	2
19-Aug-19	T61	14:30	15:10	N	7	22	70	None	2	NW	Purple Martin	1865C-190819-T61-02	U	625208	4747981	32	66	S	72	Decapitated	Weeds	2
20-Aug-19	T12	14:37	14:57	N	4	29	5	None	3	S	Tree Swallow	1865C-200819-T12-01	U	621111	4756449	49	330	F	18	None observed	Bare soil	1
23-Aug-19	T05	10:20	11:00	N	3	19	5	None	2	W	Tree Swallow	1865C-230819-T05-01	U	621195	4747772	32	36	M	72	Broken neck	Bare soil	1
27-Aug-19	T63	14:00	14:40	N	4	18	100	Rain	2	S	Passerine sp.	1865C-270819-T63-01	U	621584	4751066	35	314	S	48	None observed	Bare soil	1
29-Aug-19	T61	13:30	14:10	N	3	19	3	None	3	W	Purple Martin	1865C-290819-T61-01	U	625195	4747995	23	76	E	48	Broken neck	Gravel	1
02-Sep-19	T45	11:40	12:20	N	4	18	100	Rain	1	N	Purple Martin	1865C-020919-T45-01	U	623186	4748617	41	172	M	60	Broken neck	Bare soil	1
03-Sep-19	T12	10:04	10:44	N	4	18	95	None	1	E	Purple Martin	1865C-030919-T12-01	U	621137	4756446	43	10	E	24	Broken neck	Bare soil	1
03-Sep-19	T12	10:04	10:44	N	4	18	95	None	1	E	Tree Swallow	1865C-030919-T12-02	U	621137	4756370	32	205	M	72	None observed	Bare soil	1
05-Sep-19	T32	13:55	14:35	N	3	17	10	None	3	NW	Cape May Warbler	1865C-050919-T32-01	U	624748	4764381	40	265	E	24	Broken tail	Weeds	2
06-Sep-19	T02	13:20	14:00	N	3	14	10	None	1	S	Northern Cardinal	1865C-060919-T02-01	M	627362	4765913	32	210	S	48	None observed	Mowed grass	2
06-Sep-19	T12	15:56	16:36	N	3	14	10	None	1	S	Tree Swallow	1865C-060919-T12-01	U	621122	4756361	36	190	F	6	None observed	Bare soil	1
06-Sep-19	T62	12:00	12:40	N	3	20	30	Rain	1	S	Purple Martin	1865C-060919-T62-01	U	621843	4751299	21	261	F	6	Broken neck	Weeds	2

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
09-Sep-19	T45	10:55	11:35	N	4	18	90	None	1	E	Tree Swallow	1865C-090919-T45-01	U	623124	4748637	33	235	E	48	Broken neck	Bare soil	1
13-Sep-19	T24	11:00	11:40	N	3	20	95	None	2	E	Red-eyed Vireo	1865C-130919-T24-01	U	627716	4750205	49	227	E	24	Broken wing and neck	Mowed grass	2
17-Sep-19	T24	11:05	11:45	N	4	14	10	None	1	NE	Tree Swallow	1865C-170919-T24-01	U	627791	4750238	38	99	E	48	Broken neck	Mowed grass	2
19-Sep-19	T45	11:05	11:45	N	3	20	10	None	1	S	Red-eyed Vireo	1865C-190919-T45-01	U	623113	4748659	48	280	E	48	Broken neck	Gravel	1
20-Sep-19	T03	10:08	10:48	N	3	18	20	None	2	SE	Tree Swallow	1865C-200919-T03-01	U	629890	4763624	39	15	E	24	Laceration to face	Gravel	1
23-Sep-19	T95	8:40	9:20	N	4	22	100	Rain	2	W	Purple Martin	1865C-230919-T95-01	U	622806	4760864	23	347	M	72	Broken neck	Weeds	2
11-Oct-19	T03	11:35	11:55	N	3	16	3	None	1	SE	Horned Lark	1865C-111019-T03-01	M	629905	4763628	42	54	E	24	Broken neck	Bare soil	1
14-Oct-19	T01	11:10	11:30	N	4	12	95	None	2	W	Tree Swallow	1865C-141019-T01-01	U	622949	4765749	34	284	F	6	Laceration to abdomen	Bare soil	1
14-Oct-19	T16	14:05	14:25	N	4	12	95	None	2	W	Yellow-bellied Sapsucker	1865C-141019-T16-01	U	624138	4749261	17	347	S	24	None observed	Bare soil	1
31-Oct-19	T45	13:10	13:30	N	3	12	100	Rain / Fog	2	S	Brown Creeper	1865C-311019-T45-01	U	623155	4748646	16	233	E	24	Broken neck	Bare soil	1

2019 Raptor Mortalities

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
06-May-19	T94	8:13	8:33	N	4	10	5	None	2	SW	Red-tailed Hawk	1865C-060519-T94-01	U	618798	4768765	40	95	S	216	None observed	Bare soil	1
06-May-19	T95	12:20	12:40	N	4	19	5	None	2	SW	Turkey Vulture	1865C-060519-T95-01	U	622776	4760822	50	235	E	24	Laceration to back	Mowed grass	2
11-Jun-19	T63	15:10	15:40	N	4	14	0	None	1	W	Sharp-shinned Hawk	1865C-110619-T63-01	F	621595	4751047	20	357	S	96	None observed	Bare soil	1
04-Jul-19	T94	9:24	10:04	N	3	24	70	None	2	SE	Turkey Vulture	1865C-040719-T94-01	U	618802	4768764	50	90	M	72	None observed	Weeds	2
05-Aug-19	T66	10:00	10:40	N	4	23	15	None	2	SW	Turkey Vulture	1865C-050819-T66-01	U	619140	4768507	21	170	E	24	None observed	Mowed grass	2
26-Aug-19	T66	9:40	10:20	N	4	18	30	None	2	SE	Turkey Vulture	1865C-260819-T66-01	U	619095	4768519	31	235	M	72	Broken right wing	Weeds	2
26-Aug-19	T94	8:42	9:22	N	4	18	30	None	2	SE	Red-tailed Hawk	1865C-260819-T94-01	U	618786	4768761	31	110	E	48	None observed	Bare soil	1
21-Nov-19	T95	11:55	12:15	N	7	5	95	None	2	S	Turkey Vulture	1865C-211119-T95-01	U	622797	4760845	15	252	E	24	Broken neck	Weeds	2

2019 Raptor Mortalities (Monthly Searches)

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
01-May-19	T06	9:05	9:25	N	-	9	80	None	4	NE	Turkey Vulture	1865C-010519-T06-01	U	623096	4767297	47	14	S	216	None observed	Bare soil	1
12-Jun-19	T54	13:08	13:28	N	35	22	30	None	2	S	Red-tailed Hawk	1865C-120619-T54-01	U	619995	4765606	47	90	A	168	None observed	Weeds	2
03-Jul-19	T85	9:55	10:15	N	28	24	40	None	2	NE	Turkey Vulture	1865C-030719-T85-01	U	619172	4769089	36	130	M	72	None observed	Weeds	2
10-Jul-19	T56	10:25	10:45	N	35	27	15	None	1	E	Red-tailed Hawk	1865C-100719-T56-01	U	626562	4768800	40	240	S	336	None observed	Bare soil	1
24-Jul-19	T37	8:20	8:40	N	35	20	5	None	3	N	Red-tailed Hawk	1865C-240719-T37-01	U	623069	4758890	28	92	M	72	None observed	Gravel	1
31-Jul-19	T60	8:05	8:25	N	49	21	30	None	1	N	Cooper's Hawk	1865C-310719-T60-01	U	630289	4767694	13	74	M	72	Broken neck	Soy crop	2
07-Aug-19	T93	11:02	11:22	N	35	23	95	None	3	NW	Turkey Vulture	1865C-070819-T93-01	U	618344	4767124	27	120	S	144	None observed	Cut wheat	2
29-Aug-19*	T88	-	-	N	1	24	50	None	3	W	Red-tailed Hawk	1865C-290819-T88-01	U	-	-	-	-	F	4	Decapitated	Bare soil	1
17-Oct-19	T35	11:23	11:43	N	29	9	100	None	4	NW	Turkey Vulture	1865C-171019-T35-01	U	627158	4764511	24	0	S	336	None observed	Soy crop	3
17-Oct-19	T54	9:44	10:04	N	43	9	100	Rain	4	NW	Turkey Vulture	1865C-171019-T54-01	U	619974	4765602	28	90	A	96	None observed	Soy crop	3

* Mortality was retrieved by site operator; location information was not recorded and turbine was not searched.

Visibility Class: 1 ≥90% bare ground, vegetation ≤15cm tall
2 ≥25% bare ground, vegetation ≤15cm tall
3 ≤25% bare ground, ≥25% of vegetation is >30cm tall
4 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code: I Injured or dying
F Freshly dead
E Early decomposition
M Moderate decomposition
A Advanced decomposition
C Complete decomposition
S Scavenged

Appendix V
Bat Mortalities

Appendix V
1865C Niagara Region Wind Farm
2019 Bat Mortalities

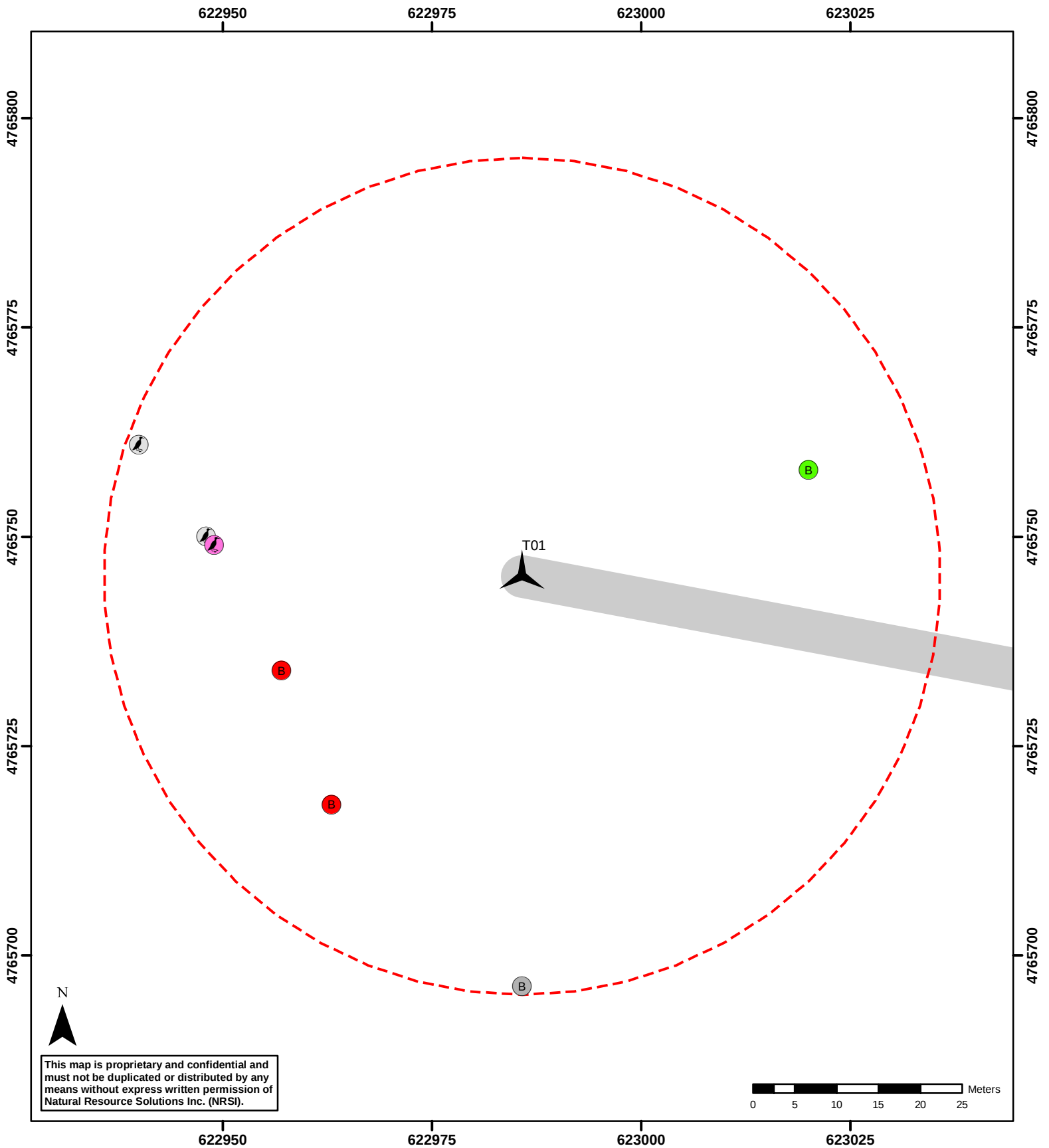
Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
28-May-19	T63	13:20	13:40	N	4	14	100	Rain / Fog	2	N	Silver-haired Bat	1865C-280519-T63-01	41	F	621607	4751047	10	0	S	60	Laceration to back	Gravel	1
30-May-19	T94	8:12	8:32	N	3	14	100	Fog	1	SW	Silver-haired Bat	1865C-300519-T94-01	40	F	618714	4768765	32	285	F	10	None observed	Weeds	2
06-Jun-19	T94	9:05	9:35	N	3	15	100	Fog	3	N	Silver-haired Bat	1865C-060619-T94-01	41	U	618784	4768762	29	108	A	130	None observed	Bare soil	1
07-Jun-19	T99	13:40	14:10	N	3	18	1	None	1	NE	Big Brown Bat	1865C-070619-T99-01	44	F	619247	4749193	47	137	E	36	None observed	Mowed grass	2
11-Jun-19	T58	10:00	10:30	N	4	14	0	None	1	W	Silver-haired Bat	1865C-110619-T58-01	38	M	628487	4767680	48	30	A	108	None observed	Bare soil	1
11-Jun-19	T58	10:00	10:30	N	4	14	0	None	1	W	Silver-haired Bat	1865C-110619-T58-02	40	M	628468	4767630	8	245	A	108	None observed	Weeds	2
20-Jun-19	T01	12:55	13:25	N	3	20	100	Rain	4	E	Eastern Red Bat	1865C-200619-T01-01	40	M	622957	4765734	26	260	F	12	None observed	Bare soil	1
21-Jun-19	T80	13:50	14:20	N	3	24	15	None	3	N	Eastern Red Bat	1865C-210619-T80-01	41	F	630187	4771957	25	185	M	60	None observed	Bare soil	1
12-Jul-19	T62	16:40	17:20	N	3	20	20	None	2	W	Hoary Bat	1865C-120719-T62-01	53	M	621890	4751313	13	90	F	12	Broken wing	Bare soil	1
19-Jul-19	T80	8:50	9:30	N	7	27	10	None	4	SW	Hoary Bat	1865C-190719-T80-02	55	F	630173	4772031	45	0	E	36	None observed	Bare soil	1
23-Jul-19	T58	10:20	11:00	N	4	21	30	None	1	W	Hoary Bat	1865C-230719-T58-01	54	U	628486	4767656	28	350	M	84	Broken wing	Bare soil	1
29-Jul-19	T44	15:15	15:55	N	4	27	70	None	1	W	Eastern Red Bat	1865C-290719-T44-01	40	M	624361	4748495	27	60	M	60	None observed	Bare soil	1
29-Jul-19	T44	15:15	15:55	N	4	27	70	None	1	W	Hoary Bat	1865C-290719-T44-02	55	F	624298	4748476	45	255	M	60	None observed	Bare soil	1
29-Jul-19	T45	11:30	12:10	N	4	27	70	None	1	W	Hoary Bat	1865C-290719-T45-01	-	U	623206	4748692	50	77	S	60	Broken forearm	Bare soil	1
30-Jul-19	T80	9:10	9:50	N	7	21	90	Rain	5	SW	Hoary Bat	1865C-300719-T80-01	57	M	630221	4772006	36	70	F	10	Laceration to abdomen	Bare soil	1
01-Aug-19	T66	9:36	10:16	N	3	19	20	None	2	NE	Hoary Bat	1865C-010819-T66-01	54	F	619159	4768499	39	145	F	12	Broken right arm	Mowed grass	2
02-Aug-19	T02	12:10	12:50	N	3	28	15	None	2	NE	Hoary Bat	1865C-020819-T02-01	56	F	627375	4765915	23	208	E	36	None observed	Mowed grass	2
09-Aug-19	T03	11:08	11:48	N	7	19	10	None	3-5	W	Hoary Bat	1865C-090819-T03-01	52	U	629919	4763587	23	80	M	60	None observed	Bare soil	1
09-Aug-19	T57	8:50	9:30	N	3	19	10	None	3-5	W	Eastern Red Bat	1865C-090819-T57-01	41	F	624486	4768706	49	90	E	36	None observed	Gravel	1
09-Aug-19	T57	8:50	9:30	N	3	19	10	None	3-5	W	Eastern Red Bat	1865C-090819-T57-02	40	F	624470	4768699	32	95	E	36	None observed	Bare soil	1
12-Aug-19	T07	12:55	13:35	N	7	29	100	None	2	SW	Eastern Red Bat	1865C-120819-T07-01	41	F	618682	4764028	47	135	M	84	None observed	Mowed grass	2
12-Aug-19	T07	12:55	13:35	N	7	29	100	None	2	SW	Hoary Bat	1865C-120819-T07-02	55	F	618657	4764010	42	162	E	36	None observed	Mowed grass	2
12-Aug-19	T44	13:15	13:55	N	7	22	100	None	1	W	Hoary Bat	1865C-120819-T44-01	54	F	624389	4748447	36	147	E	36	None observed	Bare soil	1
13-Aug-19	T24	12:00	12:40	N	4	22	70	Rain	1	W	Eastern Red Bat	1865C-130819-T24-01	34	U	627763	4750229	12	166	M	84	None observed	Mowed grass	2
13-Aug-19	T58	10:20	11:00	N	4	22	70	Rain	1	W	Eastern Red Bat	1865C-130819-T58-02	38	U	628501	4767634	24	95	M	60	Broken wing	Bare soil	1
15-Aug-19	T01	14:10	14:50	N	3	24	50	None	2	E	Silver-haired Bat	1865C-150819-T01-01	40	M	623006	4765696	49	180	F	10	None observed	Weeds	2
15-Aug-19	T44	14:00	14:40	N	3	22	10	Rain	1	E	Eastern Red Bat	1865C-150819-T44-01	41	U	624335	4748452	24	213	F	12	None observed	Bare soil	1
15-Aug-19	T44	14:00	14:40	N	3	22	10	Rain	1	E	Silver-haired Bat	1865C-150819-T44-02	40	M	624342	4748433	41	228	F	12	None observed	Bare soil	1
16-Aug-19	T57	12:52	13:32	N	3	25	20	None	4	NE	Silver-haired Bat	1865C-160819-T57-01	41	M	624432	4768672	18	190	F	12	None observed	Bare soil	1
19-Aug-19	T44	13:30	14:10	N	4	22	70	None	2	NW	Eastern Red Bat	1865C-190819-T44-01	42	M	624380	4748504	50	55	E	36	None observed	Bare soil	1
19-Aug-19	T95	8:45	9:25	N	4	22	70	None	2	NW	Big Brown Bat	1865C-190819-T95-02	44	U	622819	4760855	6	319	M	84	None observed	Gravel	1
19-Aug-19	T95	8:45	9:25	N	4	22	70	None	2	NW	Big Brown Bat	1865C-190819-T95-03	46	F	622821	4760858	15	2	E	36	None observed	Bare soil	1
20-Aug-19	T58	17:00	17:40	N	4	25	5	Rain	1	SW	Silver-haired Bat	1865C-200819-T58-01	41	U	628479	4767587	39	185	A	108	None observed	Bare soil	1
20-Aug-19	T80	10:50	11:10	N	4	26	5	None	3	S	Big Brown Bat	1865C-200819-T80-01	44	U	630202	4772027	45	25	A	108	None observed	Bare soil	1
22-Aug-19	T01	14:55	15:35	N	3	18	90	None	3	NW	Hoary Bat	1865C-220819-T01-01	54	U	623020	4765758	32	110	A	108	None observed	Bare soil	1
22-Aug-19	T16	12:45	13:25	N	3	21	70	None	1	N	Silver-haired Bat	1865C-220819-T16-01	39	U	624114	4749248	34	266	A	108	None observed	Bare soil	1
22-Aug-19	T44	13:40	14:20	N	3	21	70	None	1	N	Hoary Bat	1865C-220819-T44-01	58	F	624372	4748484	26	101	F	12	None observed	Bare soil	1
22-Aug-19	T66	9:39	10:19	N	3	18	90	None	3	NW	Hoary Bat	1865C-220819-T66-01	59	F	619140	4768578	46	15	F	12	Laceration to right wing	Mowed grass	2
22-Aug-19	T95	9:00	9:40	N	3	21	70	None	1	N	Eastern Red Bat	1865C-220819-T95-02	38	M	622842	4760881	31	25	F	12	None observed	Bare soil	1
23-Aug-19	T02	10:44	11:24	N	3	19	20	None	2	N	Eastern Red Bat	1865C-230819-T02-01	41	F	627427	4765957	46	120	E	36	Laceration to abdomen	Mowed grass	2
23-Aug-19	T63	11:30	12:10	N	3	19	5	None	2	W	Eastern Red Bat	1865C-230819-T63-01	41	F	621632	4751024	24	115	E	36	None observed	Bare soil	1
23-Aug-19	T63	11:30	12:10	N	3	19	5	None	2	W	Big Brown Bat	1865C-230819-T63-02	44	U	621583	4751006	34	197	A	108	None observed	Bare soil	1
26-Aug-19	T16	11:55	12:35	N	4	19	15	None	3	SW	Silver-haired Bat	1865C-260819-T16-01	39	F	624132	4749209	38	202	F	12	None observed	Gravel	1
26-Aug-19	T16	11:55	12:35	N	4	19	15	None	3	SW	Big Brown Bat	1865C-260819-T16-02	44	F	624180	4749220	36	134	E	36	None observed	Bare soil	1
26-Aug-19	T16	11:55	12:35	N	4	19	15	None	3	SW	Silver-haired Bat	1865C-260819-T16-03	40	F	624172	4749227	30	156	F	12	None observed	Bare soil	1
26-Aug-19	T44	13:00	13:40	N	4	19	15	None	3	SW	Silver-haired Bat	1865C-260819-T44-01	40	F	624323	4748438	41	270	E	36	Broken wing	Bare soil	1
27-Aug-19	T24	11:05	11:45	N	4	18	100	Rain	2	S	Big Brown Bat	1865C-270819-T24-01	45	F	627731	4750235	13	194	E	36	None observed	Mowed grass	2
27-Aug-19	T24	11:05	11:45	N	4	18	100	Rain	2	S	Hoary Bat	1865C-270819-T24-02	58	F	627735	4750253	13	267	F	12	None observed	Mowed grass	2
27-Aug-19	T62	15:00	15:40	N	4	18	100	Rain	2	S	Big Brown Bat	1865C-270819-T62-01	45	M	621830	4751336	47	313	F	12	None observed	Bare soil	1
29-Aug-19	T44	12:35	13:15	N	3	19	3	None	3	W	Silver-haired Bat	1865C-290819-T44-01	42	F	624380	4748492	32	59	F	12	None observed	Bare soil	1
30-Aug-19	T58	10:05	10:45	N	3	19	5	None	1	W	Eastern Red Bat	1865C-300819-T58-01	37	F	628500	4767671	46	198	F	12	Laceration	Bare soil	1
02-Sep-19	T08	12:05	12:45	N	4	17	100	Rain	2	SW	Hoary Bat	1865C-020919-T08-01	55	F	614549	4764930	14	50	E	36	None observed	Bare soil	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
02-Sep-19	T95	8:55	9:35	N	4	18	100	Rain	1	N	Silver-haired Bat	1865C-020919-T95-01	40	U	622799	4760793	42	205	A	108	None observed	Bare soil	1
03-Sep-19	T02	12:25	13:05	N	4	18	95	None	1	E	Hoary Bat	1865C-030919-T02-01	53	U	627395	4765967	25	40	A	108	Broken right forearm	Weeds	2
03-Sep-19	T24	11:00	11:40	N	4	16	10	None	1	E	Hoary Bat	1865C-030919-T24-01	57	F	627747	4750197	44	200	F	12	Broken wing	Mowed grass	2
05-Sep-19	T45	11:05	11:45	N	3	21	5	None	2	N	Silver-haired Bat	1865C-050919-T45-02	43	M	623177	4748634	20	158	E	36	Laceration to back	Bare soil	1
06-Sep-19	T57	12:03	12:43	N	3	14	10	None	1	S	Big Brown Bat	1865C-060919-T57-01	46	M	624463	4768653	48	160	E	36	Broken right forearm	Bare soil	1
09-Sep-19	T01	15:00	15:40	N	4	13	90	None	2	E	Eastern Red Bat	1865C-090919-T01-01	40	M	622963	4765718	33	270	E	36	Laceration to back	Bare soil	1
09-Sep-19	T07	12:52	13:32	N	4	13	90	None	2	E	Big Brown Bat	1865C-090919-T07-01	45	U	618657	4764003	50	175	E	36	Laceration to abdomen	Bare soil	1
09-Sep-19	T16	12:00	12:40	N	4	18	90	None	1	E	Silver-haired Bat	1865C-090919-T16-01	40	M	624129	4749233	24	217	F	12	None observed	Bare soil	1
09-Sep-19	T45	10:55	11:35	N	4	18	90	None	1	E	Eastern Red Bat	1865C-090919-T45-03	40	F	623166	4748643	9	153	F	12	None observed	Gravel	1
09-Sep-19	T61	13:50	14:30	N	4	18	90	None	1	E	Big Brown Bat	1865C-090919-T61-01	45	F	625155	4747928	45	271	E	36	None observed	Mowed grass	2
10-Sep-19	T02	14:30	15:10	N	4	18	20	None	4	NE	Eastern Red Bat	1865C-100919-T02-01	40	U	627330	4765923	48	280	M	84	None observed	Bare soil	1
10-Sep-19	T58	9:50	10:30	N	4	20	5	None	1	S	Eastern Red Bat	1865C-100919-T58-01	37	F	628436	4767663	42	319	F	12	None observed	Bare soil	1
10-Sep-19	T63	12:00	12:40	N	4	20	5	None	1	S	Eastern Red Bat	1865C-100919-T63-01	42	U	621631	4751044	22	53	M	60	Broken wing	Weeds	2
10-Sep-19	T80	11:04	11:44	N	4	18	20	None	4	NE	Big Brown Bat	1865C-100919-T80-01	44	U	630215	4771986	24	105	A	132	Broken wings	Bare soil	1
10-Sep-19	T99	13:40	14:20	N	4	20	5	None	1	S	Silver-haired Bat	1865C-100919-T99-01	42	M	619160	4749227	43	337	F	12	None observed	Mowed grass	2
12-Sep-19	T44	12:30	13:10	N	3	16	100	Rain	2	E	Big Brown Bat	1865C-120919-T44-01	45	M	624336	4748446	24	138	F	12	None observed	Bare soil	1
12-Sep-19	T45	10:50	11:30	N	3	16	100	Rain	2	E	Silver-haired Bat	1865C-120919-T45-01	44	F	623166	4748630	19	168	E	36	None observed	Bare soil	1
12-Sep-19	T94	9:20	10:00	N	3	14	100	Rain	3	NE	Hoary Bat	1865C-120919-T94-01	54	M	618736	4768726	37	230	E	36	None observed	Bare soil	1
13-Sep-19	T80	13:15	13:55	N	3	19	60	None	3	SE	Big Brown Bat	1865C-130919-T80-02	45	M	630147	4771954	49	240	E	36	None observed	Bare soil	1
16-Sep-19	T16	12:55	13:35	N	4	18	100	None	1	E	Hoary Bat	1865C-160919-T16-01	58	F	624171	4749239	19	109	F	12	None observed	Bare soil	1
16-Sep-19	T95	9:35	10:15	N	4	18	100	None	1	E	Silver-haired Bat	1865C-160919-T95-01	44	M	622821	4760829	18	156	F	12	None observed	Bare soil	1
17-Sep-19	T02	13:00	13:40	N	4	18	5	None	2	N	Eastern Red Bat	1865C-170919-T02-01	38	F	627336	4765924	40	270	E	36	Broken left wing	Weeds	2
17-Sep-19	T03	14:30	15:10	N	4	18	5	None	2	N	Big Brown Bat	1865C-170919-T03-01	49	F	629872	4763541	40	230	F	12	Broken right wing	Bare soil	1
17-Sep-19	T05	15:00	15:40	N	4	14	10	None	1	NE	Silver-haired Bat	1865C-170919-T05-01	42	M	621139	4747735	35	257	E	36	Laceration to back	Weeds	2
17-Sep-19	T57	11:55	12:35	N	4	18	5	None	2	N	Big Brown Bat	1865C-170919-T57-01	44	M	624440	4768680	17	225	F	12	None observed	Bare soil	1
17-Sep-19	T99	14:05	14:45	N	4	14	10	None	1	NE	Big Brown Bat	1865C-170919-T99-01	48	F	619168	4749226	34	287	E	36	None observed	Bare soil	1
19-Sep-19	T08	11:50	12:30	N	3	17	10	None	3	S	Eastern Red Bat	1865C-190919-T08-01	40	F	614506	4764894	37	270	M	84	None observed	Bare soil	1
19-Sep-19	T16	11:55	12:35	N	3	20	10	None	1	S	Silver-haired Bat	1865C-190919-T16-01	42	M	624120	4749219	36	237	F	12	None observed	Bare soil	1
19-Sep-19	T16	11:55	12:35	N	3	20	10	None	1	S	Big Brown Bat	1865C-190919-T16-02	48	F	624127	4749220	31	255	E	36	Laceration to back	Bare soil	1
19-Sep-19	T16	11:55	12:35	N	3	20	10	None	1	S	Eastern Red Bat	1865C-190919-T16-03	41	U	624155	4749206	32	193	M	60	None observed	Weeds	2
19-Sep-19	T45	11:05	11:45	N	3	20	10	None	1	S	Eastern Red Bat	1865C-190919-T45-02	39	M	623120	4748684	49	313	F	12	None observed	Bare soil	1
19-Sep-19	T95	8:35	9:15	N	3	20	10	None	1	S	Silver-haired Bat	1865C-190919-T95-01	43	M	622780	4760828	32	265	M	60	Laceration to abdomen	Bare soil	1
20-Sep-19	T57	12:00	12:40	N	3	18	20	None	2	SE	Silver-haired Bat	1865C-200919-T57-01	40	F	624420	4768720	25	345	E	36	None observed	Bare soil	1
23-Sep-19	T95	8:40	9:20	N	4	22	100	Rain	2	W	Silver-haired Bat	1865C-230919-T95-02	40	U	622783	4760847	28	309	M	84	None observed	Bare soil	1
23-Sep-19	T95	8:40	9:20	N	4	22	100	Rain	2	W	Silver-haired Bat	1865C-230919-T95-03	40	M	622841	4760866	43	13	M	60	None observed	Bare soil	1
24-Sep-19	T05	9:40	10:20	N	4	18	5	None	1	SW	Silver-haired Bat	1865C-240919-T05-01	42	F	621198	4747750	43	126	F	12	None observed	Gravel	1
24-Sep-19	T12	10:55	11:35	N	4	17	10	None	2	NW	Silver-haired Bat	1865C-240919-T12-01	44	F	621144	4756363	40	185	F	12	None observed	Bare soil	1
26-Sep-19	T44	12:45	13:25	N	3	16	100	Rain	1	W	Silver-haired Bat	1865C-260919-T44-01	42	F	624358	4748500	24	49	E	36	None observed	Bare soil	1
26-Sep-19	T94	8:40	9:20	N	3	15	100	Rain	3	SW	Silver-haired Bat	1865C-260919-T94-01	42	U	618792	4768790	41	70	M	84	None observed	Bare soil	1
27-Sep-19	T24	11:30	12:10	N	3	20	3	None	2	S	Silver-haired Bat	1865C-270919-T24-01	39	F	627776	4750254	23	43	E	36	None observed	Mowed grass	2
27-Sep-19	T80	8:45	9:25	N	3	14	90	None	2	S	Silver-haired Bat	1865C-270919-T80-01	43	F	630216	4772003	41	55	F	12	None observed	Bare soil	1
07-Oct-19	T61	14:55	15:15	N	4	16	95	Rain	2	W	Eastern Red Bat	1865C-071019-T61-01	39	M	625147	4747959	27	275	E	12	None observed	Mowed grass	2
08-Oct-19	T62	13:30	13:50	N	4	12	3	None	1	E	Silver-haired Bat	1865C-081019-T62-01	42	U	621906	4751318	25	116	A	108	None observed	Bare soil	1
17-Oct-19	T32	11:50	12:10	N	3	7	100	None	3	W	Eastern Red Bat	1865C-171019-T32-01	39	U	624741	4764384	42	264	E	36	None observed	Mowed grass	2
17-Oct-19	T81	9:25	9:45	N	3	7	100	None	3	W	Eastern Red Bat	1865C-171019-T81-01	44	F	616315	4766997	35	297	E	36	Laceration	Bare soil	1
21-Oct-19	T94	8:20	8:40	N	4	15	1	None	1	E	Silver-haired Bat	1865C-211019-T94-01	42	M	618793	4768738	27	182	F	12	None observed	Bare soil	1
31-Oct-19	T44	14:05	14:25	N	3	12	100	Rain / Fog	2	S	Eastern Red Bat	1865C-311019-T44-01	39	F	624354	4748464	3	123	E	36	None observed	Gravel	1

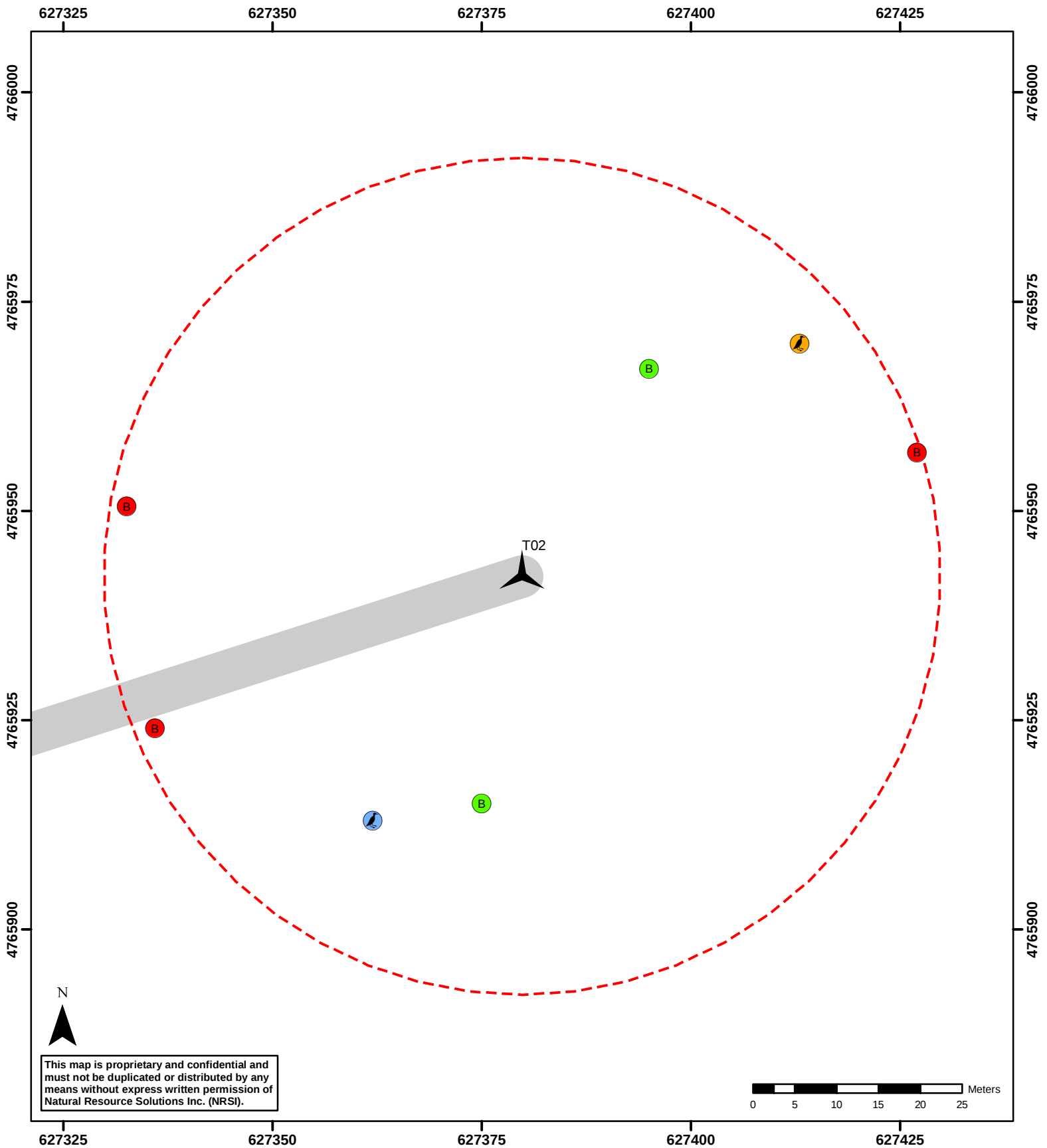
Visibility Class: 1 ≥90% bare ground, vegetation ≤15cm tall
2 ≥25% bare ground, vegetation ≤15cm tall
3 ≥25% bare ground, ≤25% of vegetation is >30cm tall
4 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code: I Injured or dying
F Freshly dead
E Early decomposition
M Moderate decomposition
A Advanced decomposition
C Complete decomposition
S Scavenged

Appendix VI
Locations of Bird and Bat Mortalities



Legend Turbine Search Radius (50m) Access Road		Eastern Red Bat Hoary Bat Silver-haired Bat		Passerine sp. Tree Swallow	
Appendix VI Niagara Region Wind Farm Turbine T01 Mortalities 2019					
NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")			Date: January 30, 2020 Project: 1865C		
NATURAL RESOURCE SOLUTIONS INC. Aquatic, Terrestrial and Wetland Biologists					



Legend

-  Turbine
-  Eastern Red Bat
-  Northern Cardinal
-  Search Radius (50m)
-  Hoary Bat
-  Philadelphia Vireo
-  Access Road

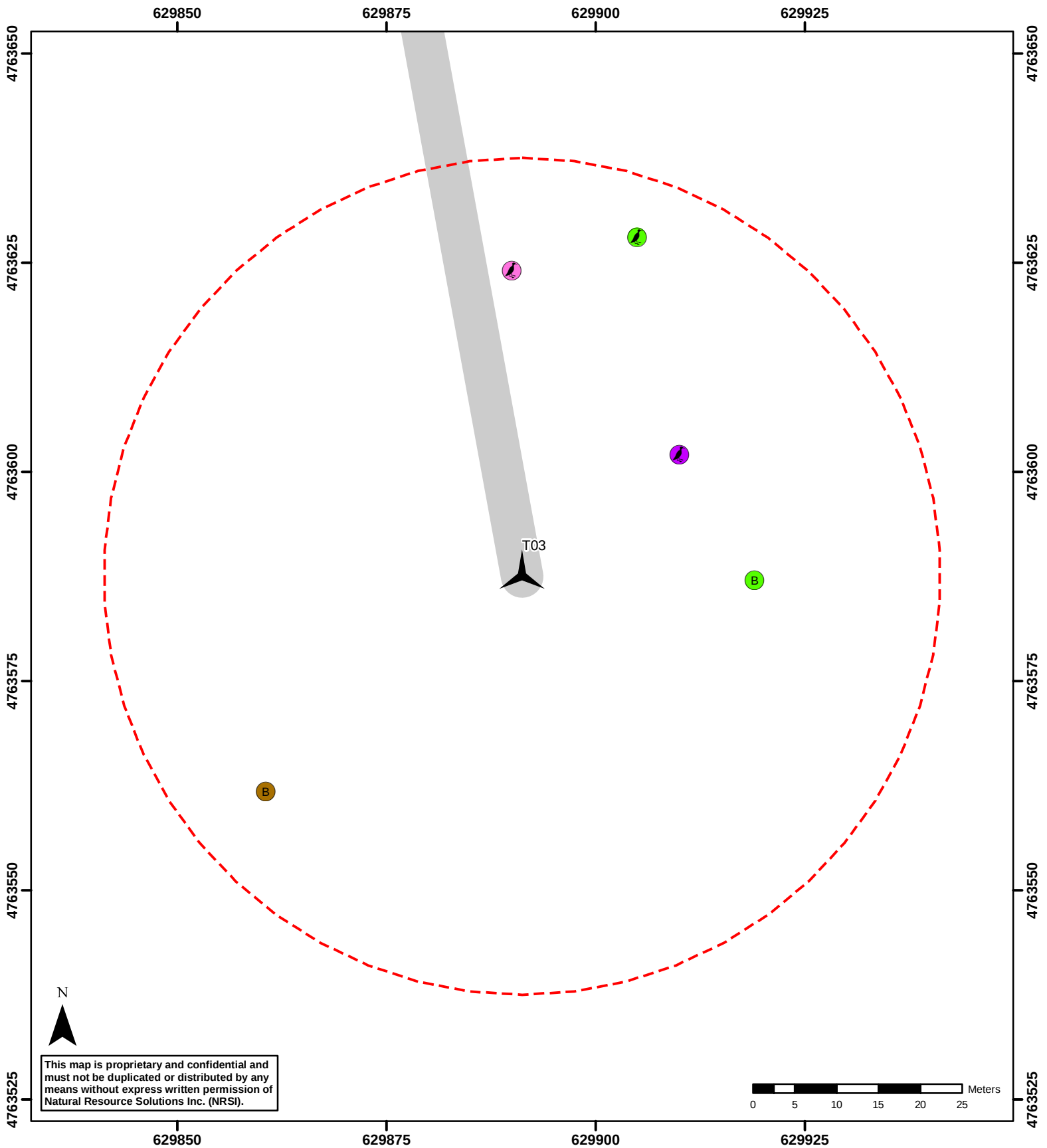
Appendix VI

Niagara Region Wind Farm Turbine T02 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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Legend

-  Turbine
-  Big Brown Bat
-  Purple Martin
-  Search Radius (50m)
-  Hoary Bat
-  Tree Swallow
-  Access Road
-  Horned Lark

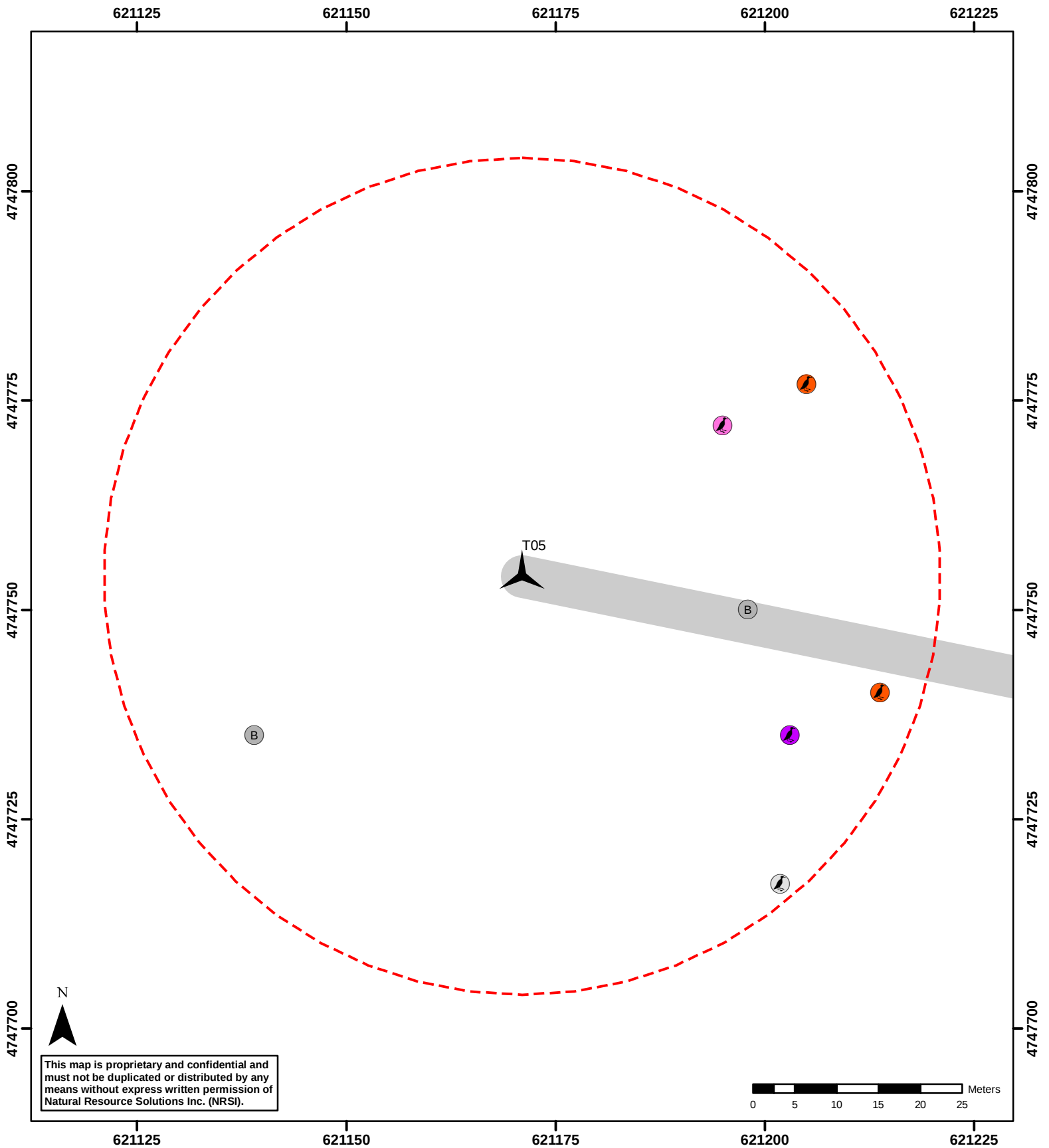
Appendix VI

Niagara Region Wind Farm Turbine T03 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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Legend

-  Turbine
-  Silver-haired Bat
-  Red-eyed Vireo
-  Search Radius (50m)
-  Passerine sp.
-  Tree Swallow
-  Access Road
-  Purple Martin

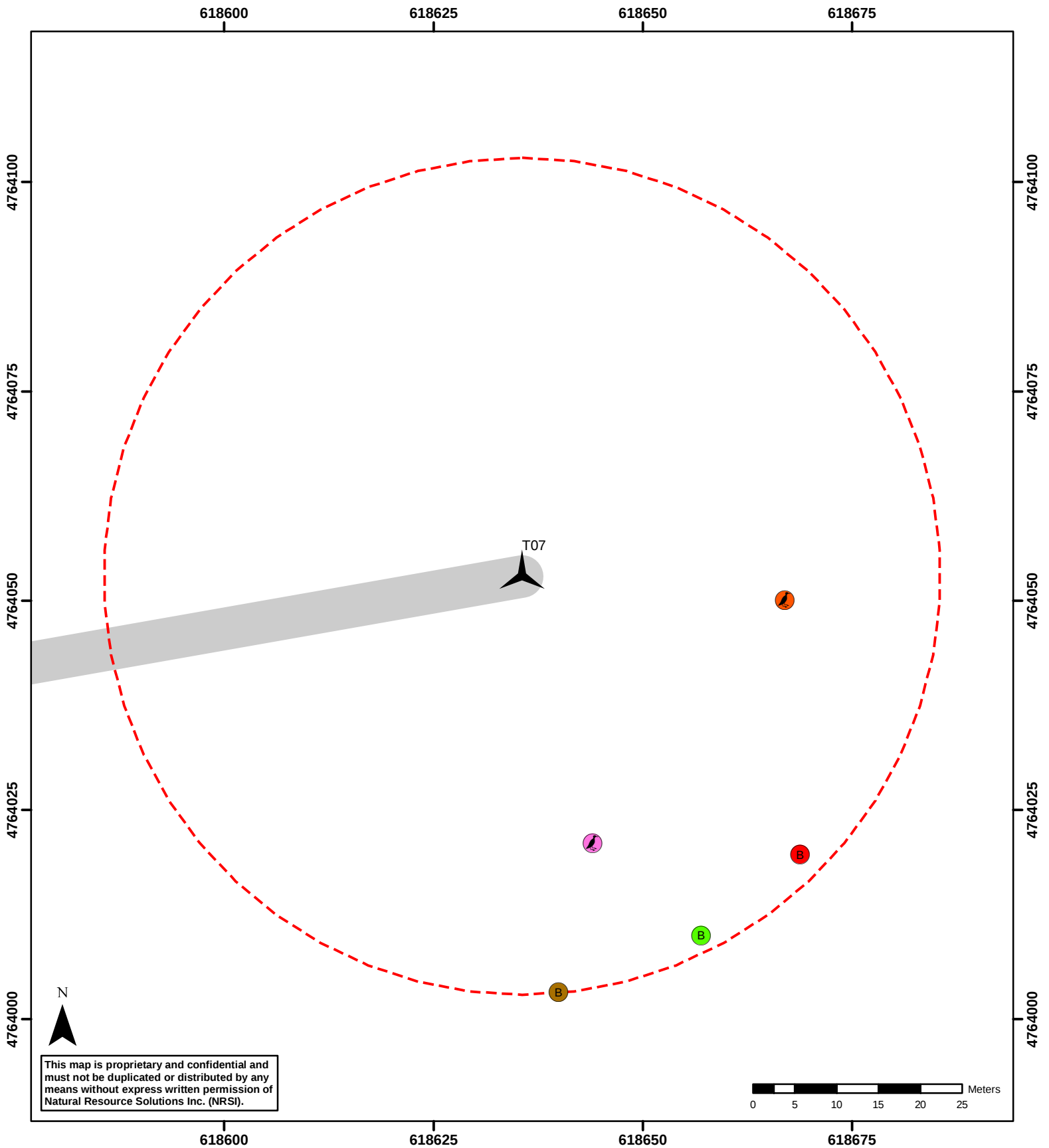
Appendix VI

Niagara Region Wind Farm Turbine T05 Mortalities 2019

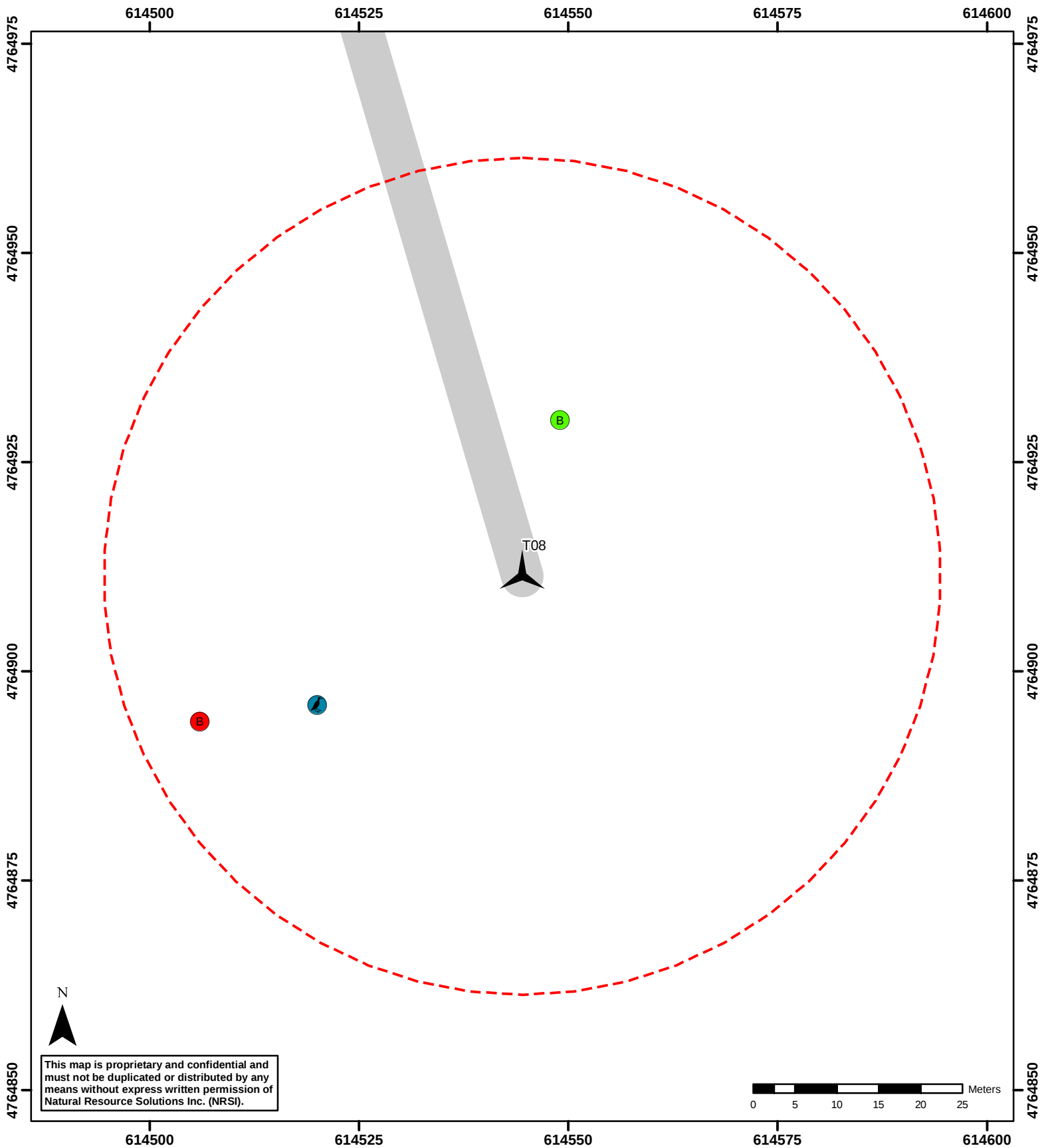
NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

 **NATURAL RESOURCE SOLUTIONS INC.**
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Legend - Turbine - Search Radius (50m) - Access Road - B Big Brown Bat - B Eastern Red Bat - B Hoary Bat - Red-eyed Vireo - Tree Swallow		Appendix VI Niagara Region Wind Farm Turbine T07 Mortalities 2019	
NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")		Date: January 30, 2020 Project: 1865C	
NATURAL RESOURCE SOLUTIONS INC. Aquatic, Terrestrial and Wetland Biologists			



Legend

-  Turbine
-  Eastern Red Bat
-  Warbling Vireo
-  Search Radius (50m)
-  Hoary Bat
-  Access Road

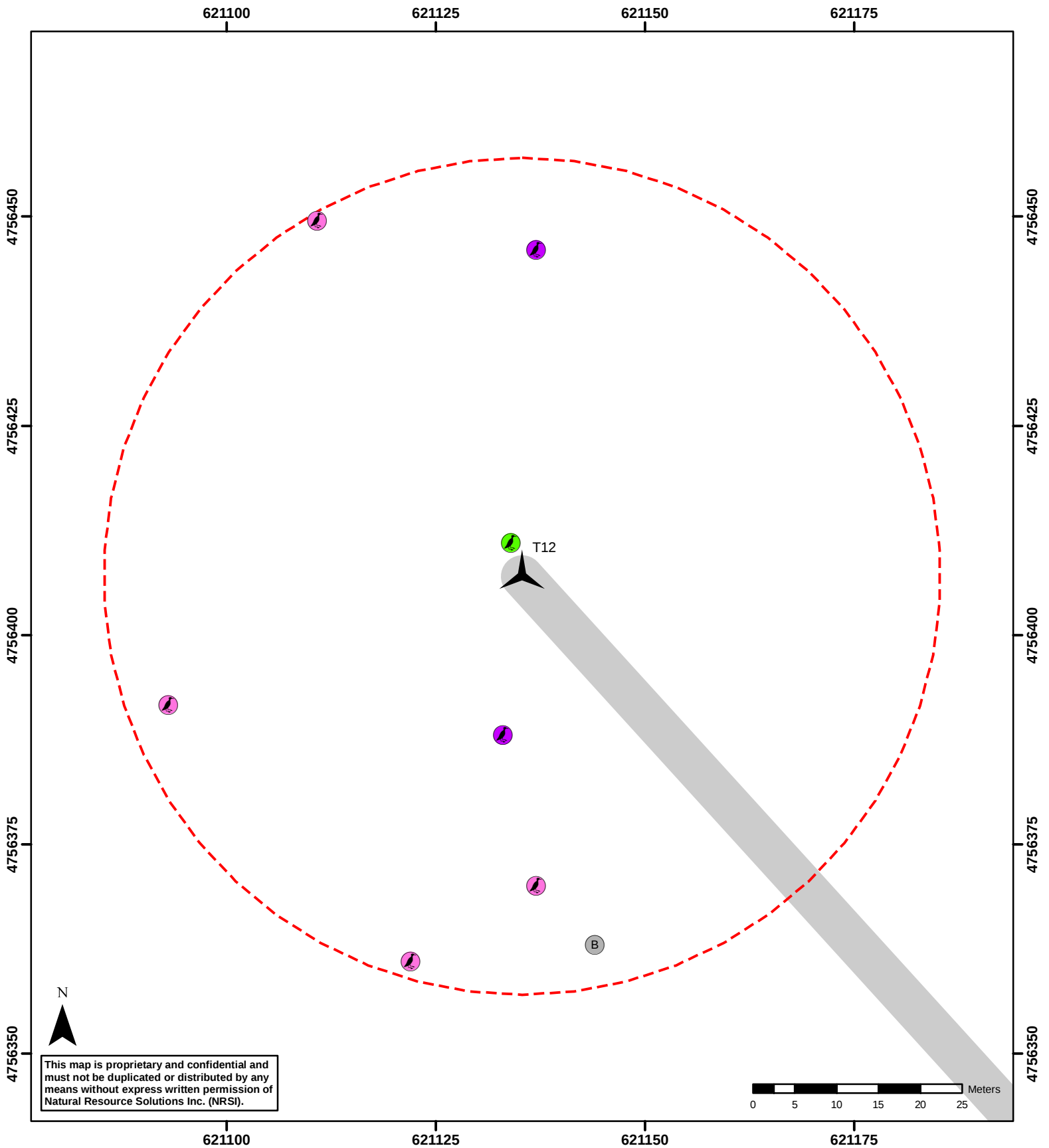
Appendix VI

Niagara Region Wind Farm Turbine T08 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

 **NATURAL RESOURCE SOLUTIONS INC.**
Aquatic, Terrestrial and Wetland Biologists



Legend

-  Turbine
-  Silver-haired Bat
-  Purple Martin
-  Search Radius (50m)
-  Horned Lark
-  Tree Swallow
-  Access Road

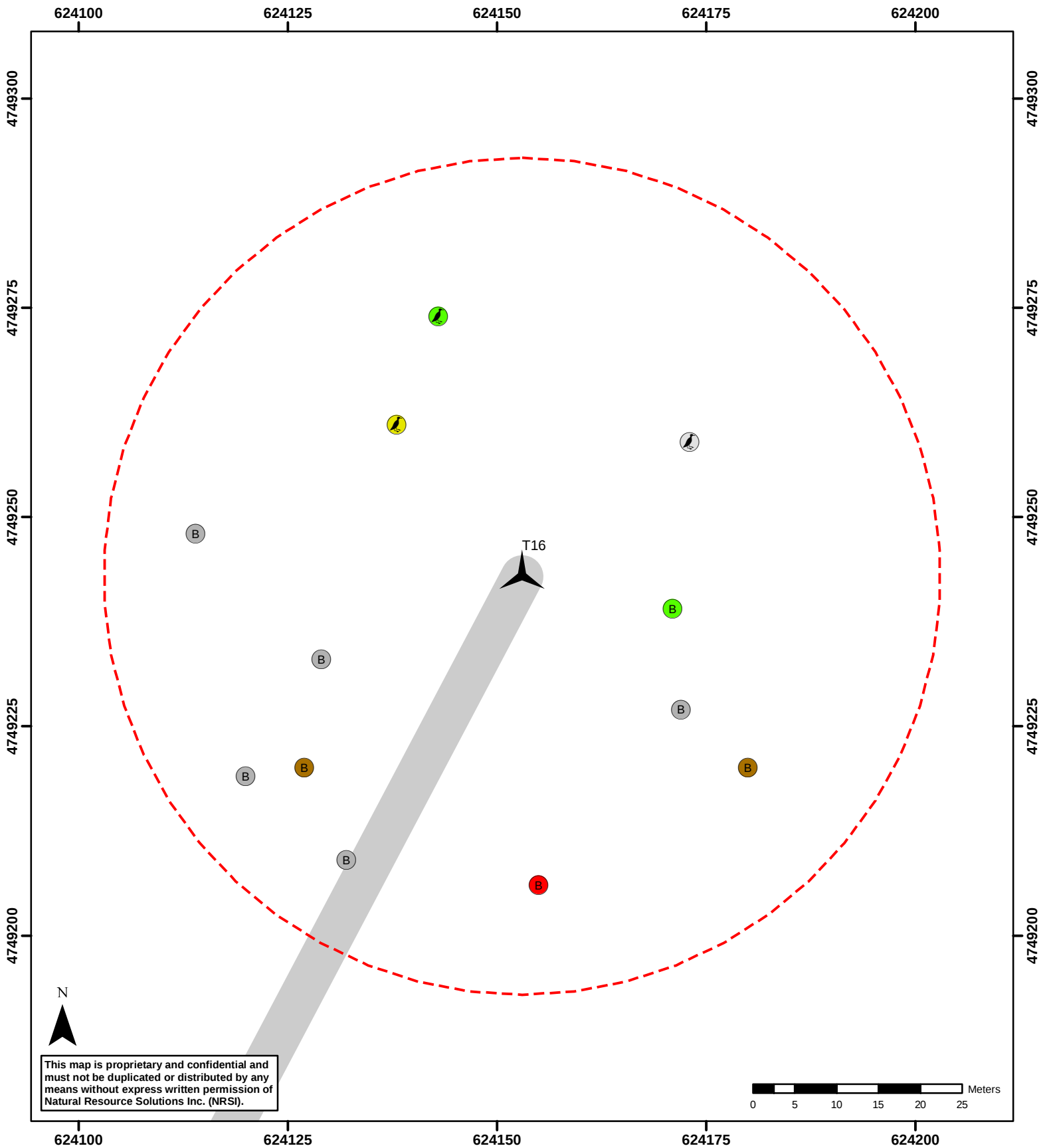
Appendix VI

Niagara Region Wind Farm Turbine T12 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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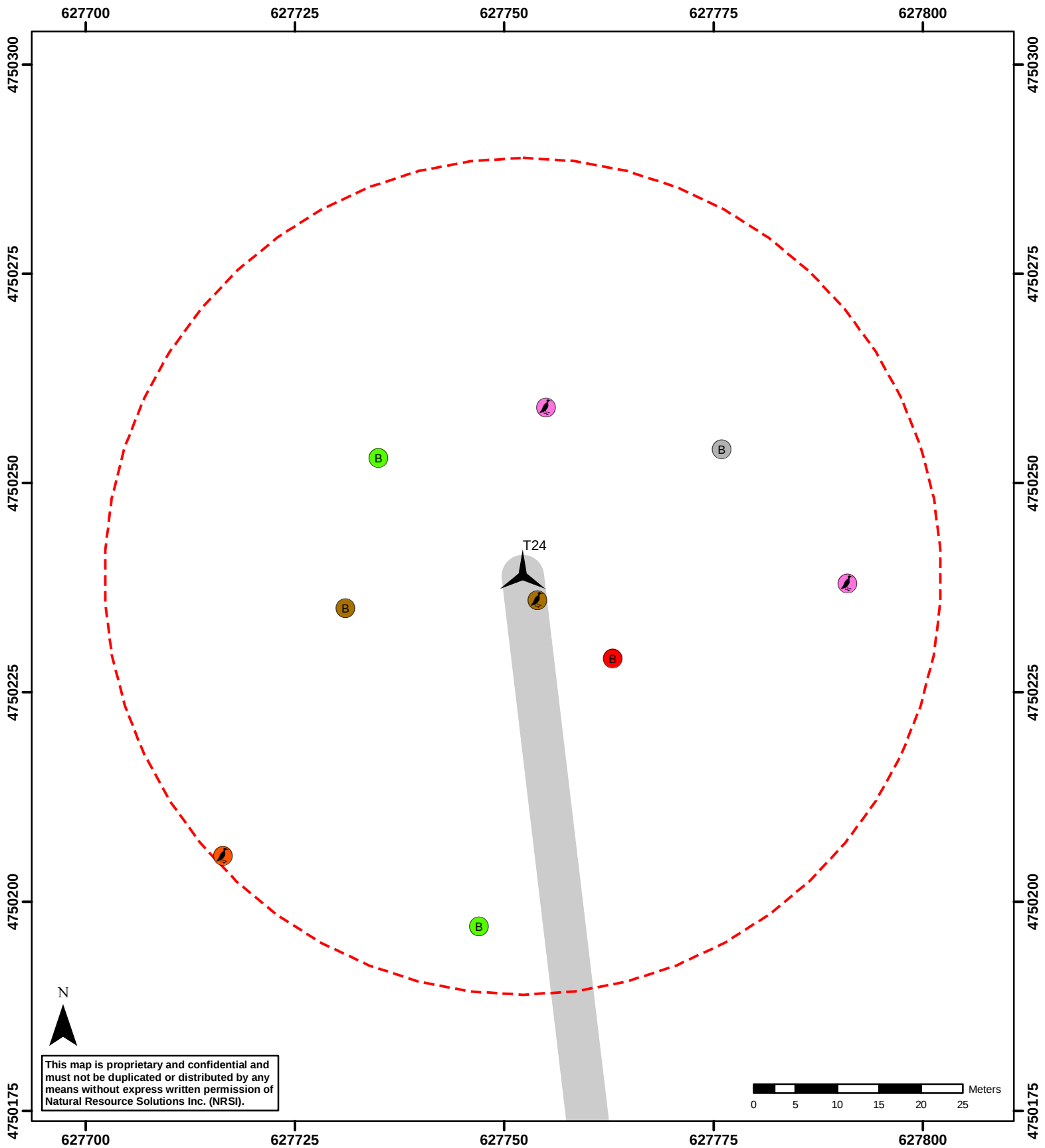
Appendix VI

Niagara Region Wind Farm Turbine T16 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Silver-haired Bat
- Barn Swallow
- Red-eyed Vireo
- Tree Swallow

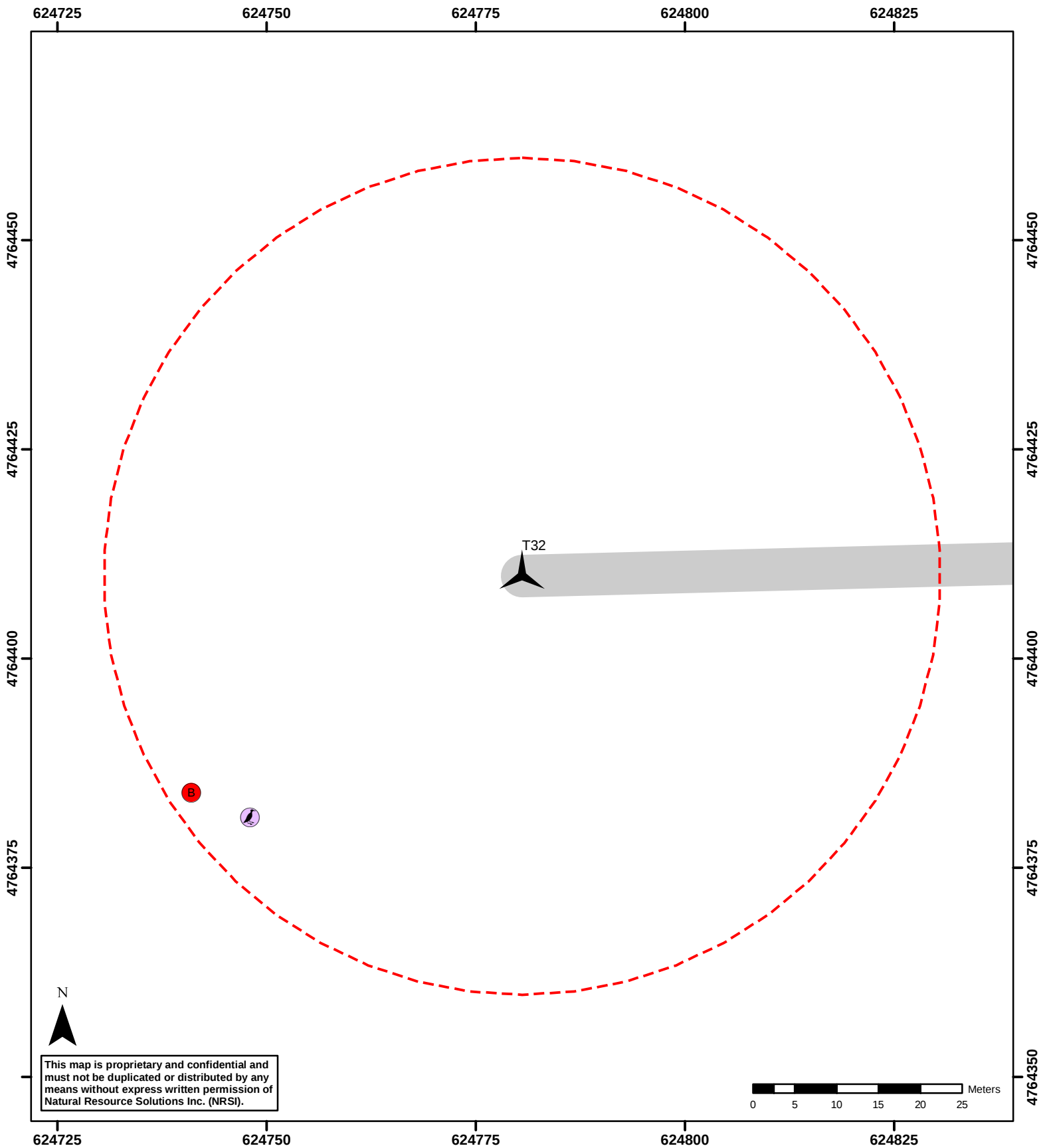
Appendix VI

Niagara Region Wind Farm Turbine T24 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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Aquatic, Terrestrial and Wetland Biologists



Legend

-  Turbine
-  Eastern Red Bat
-  Cape May Warbler
-  Search Radius (50m)
-  Access Road

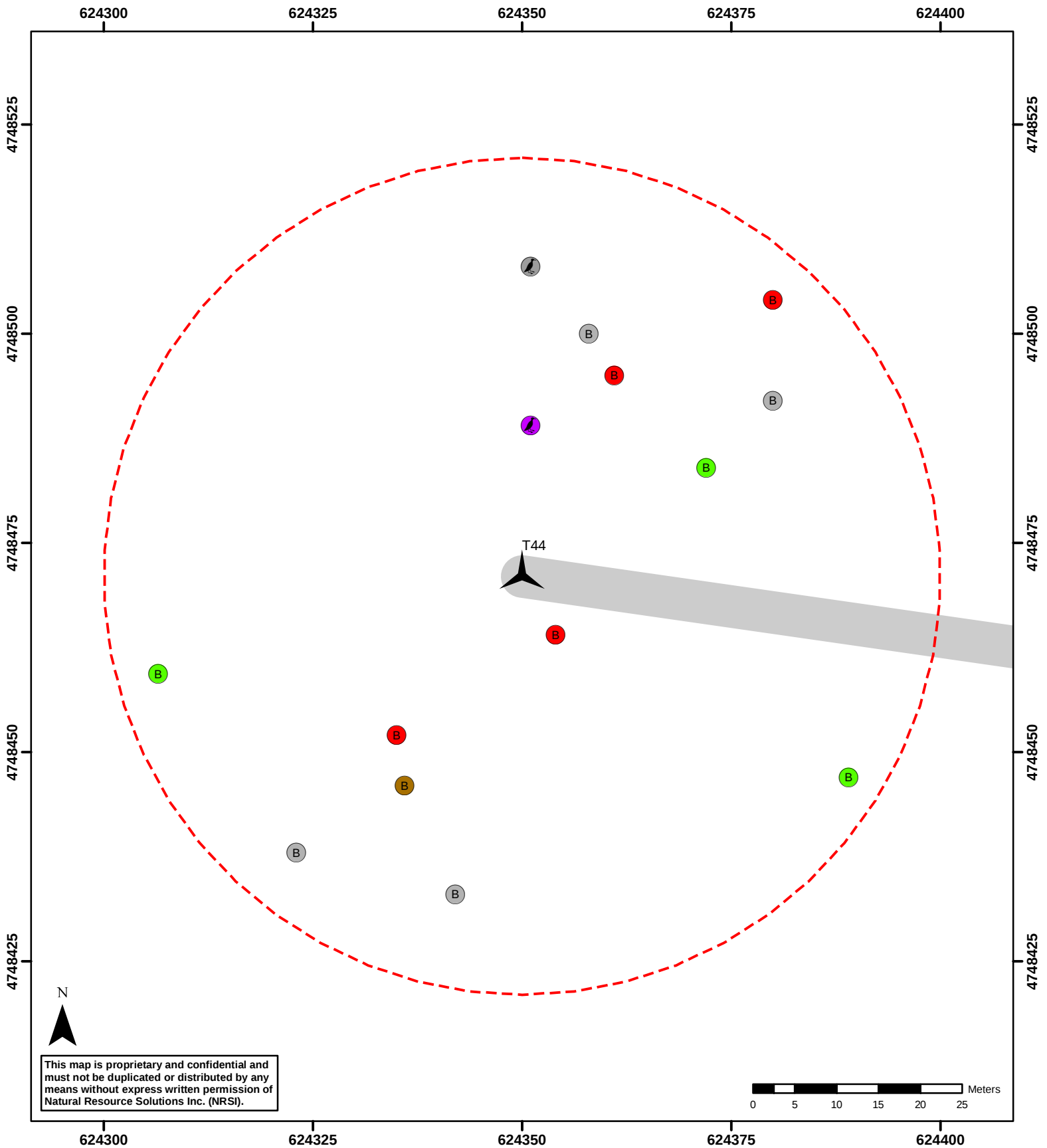
Appendix VI

Niagara Region Wind Farm Turbine T32 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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Legend

-  Turbine
-  Search Radius (50m)
-  Access Road
-  Big Brown Bat
-  Eastern Red Bat
-  Hoary Bat
-  Silver-haired Bat
-  Black-billed Cuckoo
-  Purple Martin

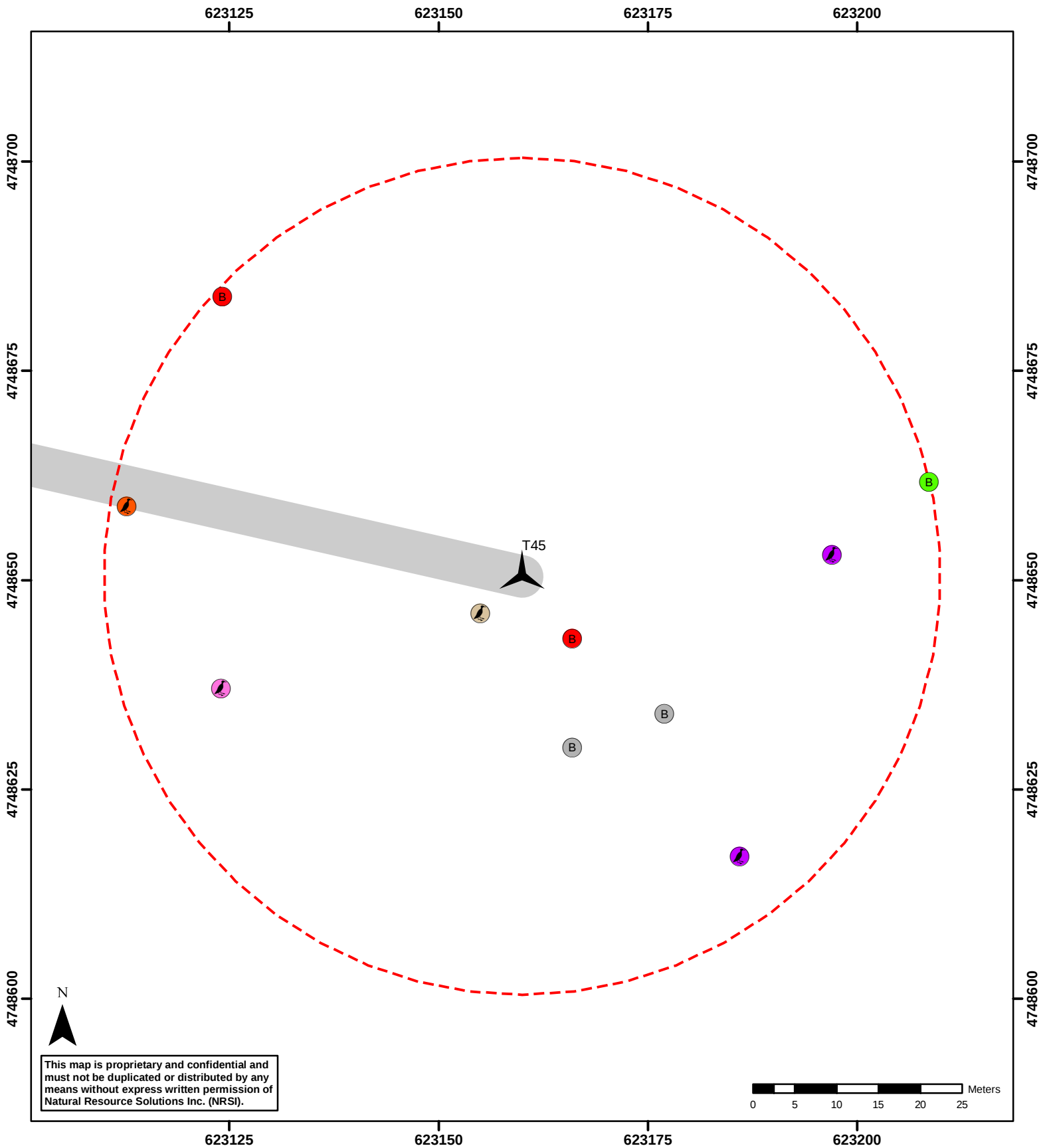
Appendix VI

Niagara Region Wind Farm Turbine T44 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

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Legend

- Turbine
- Search Radius (50m)
- Access Road
- Eastern Red Bat
- Hoary Bat
- Silver-haired Bat
- Brown Creeper
- Purple Martin
- Red-eyed Vireo
- Tree Swallow

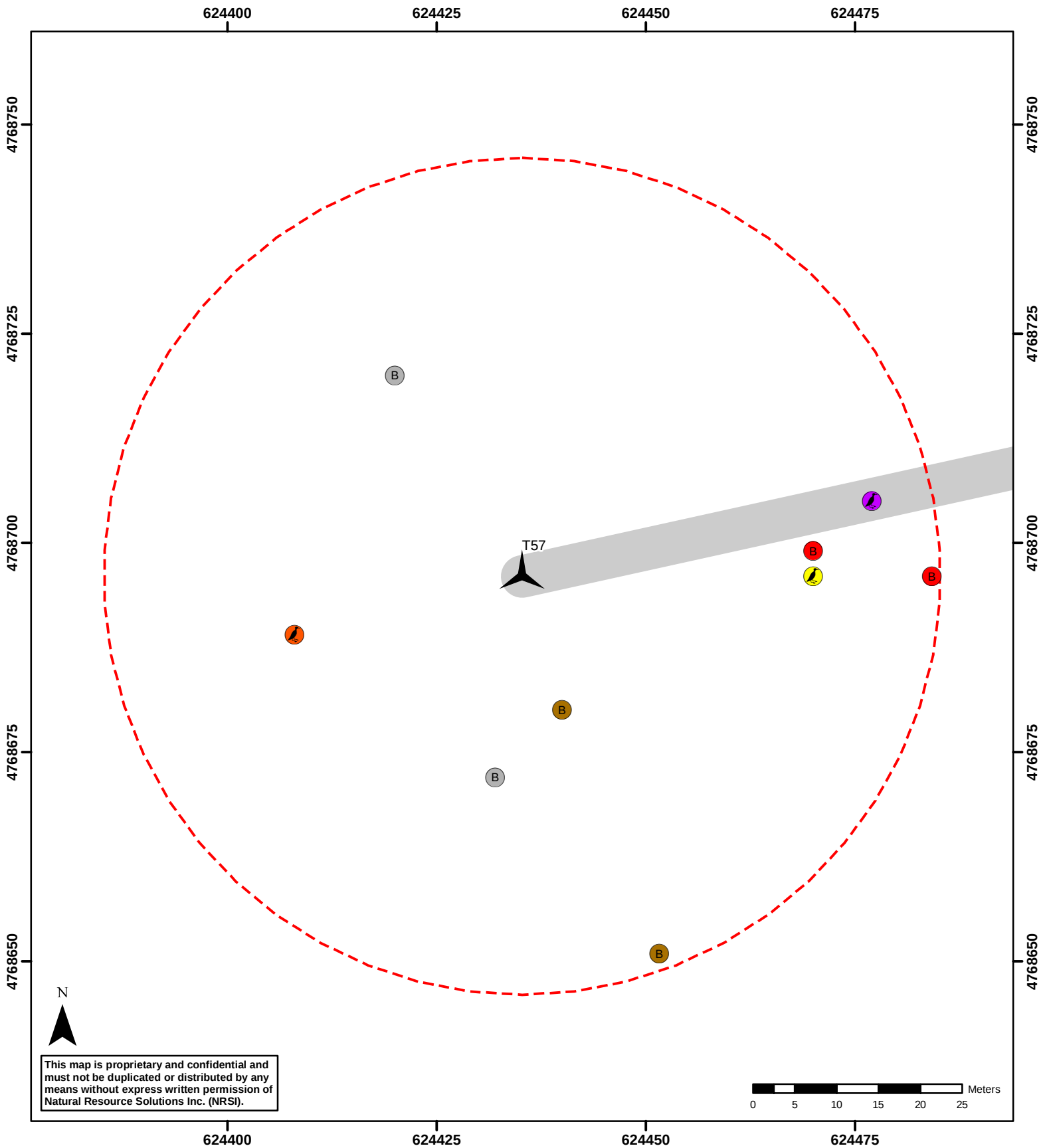
Appendix VI

Niagara Region Wind Farm Turbine T45 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

NATURAL RESOURCE SOLUTIONS INC.
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Legend

- Turbine
- Big Brown Bat
- Purple Martin
- Search Radius (50m)
- Eastern Red Bat
- Red-eyed Vireo
- Access Road
- Silver-haired Bat
- Yellow-bellied Flycatcher

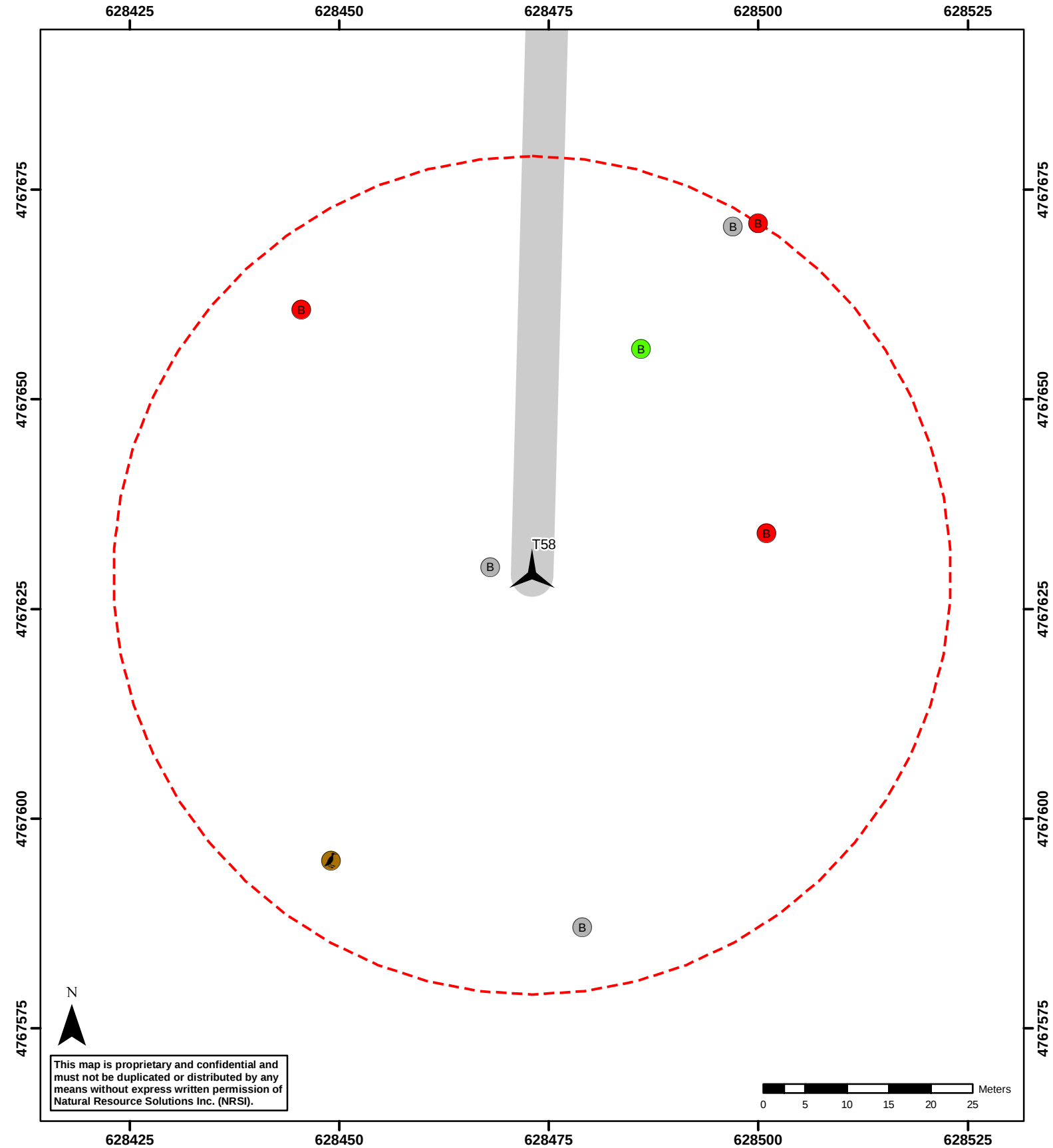
Appendix VI

Niagara Region Wind Farm Turbine T57 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists



Legend

-  Turbine
-  Eastern Red Bat
-  Silver-haired Bat
-  Search Radius (50m)
-  Hoary Bat
-  Barn Swallow
-  Access Road

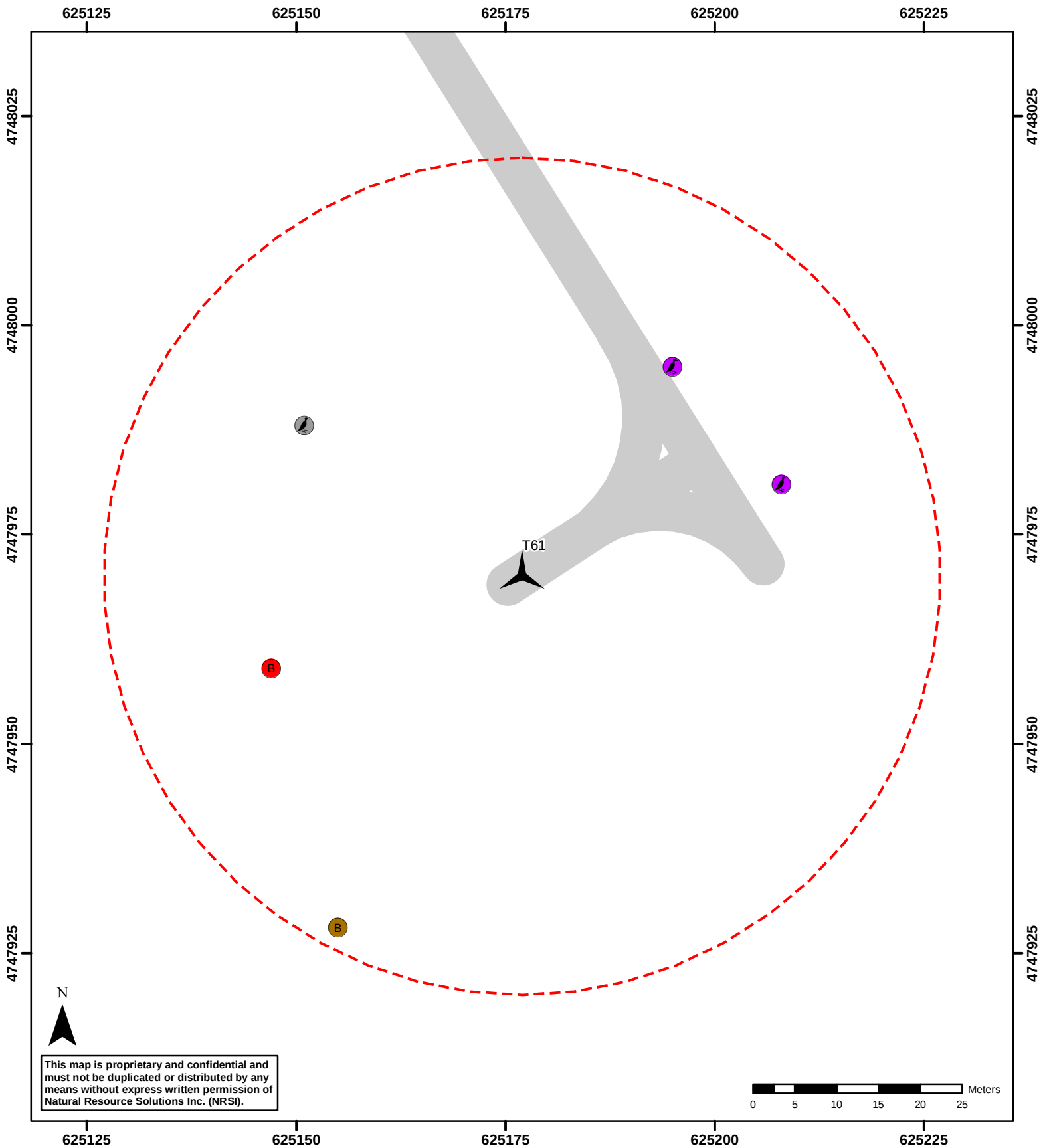
Appendix VI

Niagara Region Wind Farm Turbine T58 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

 **NATURAL RESOURCE SOLUTIONS INC.**
Aquatic, Terrestrial and Wetland Biologists



Legend

-  Turbine
-  Big Brown Bat
-  Black-billed Cuckoo
-  Search Radius (50m)
-  Eastern Red Bat
-  Purple Martin
-  Access Road

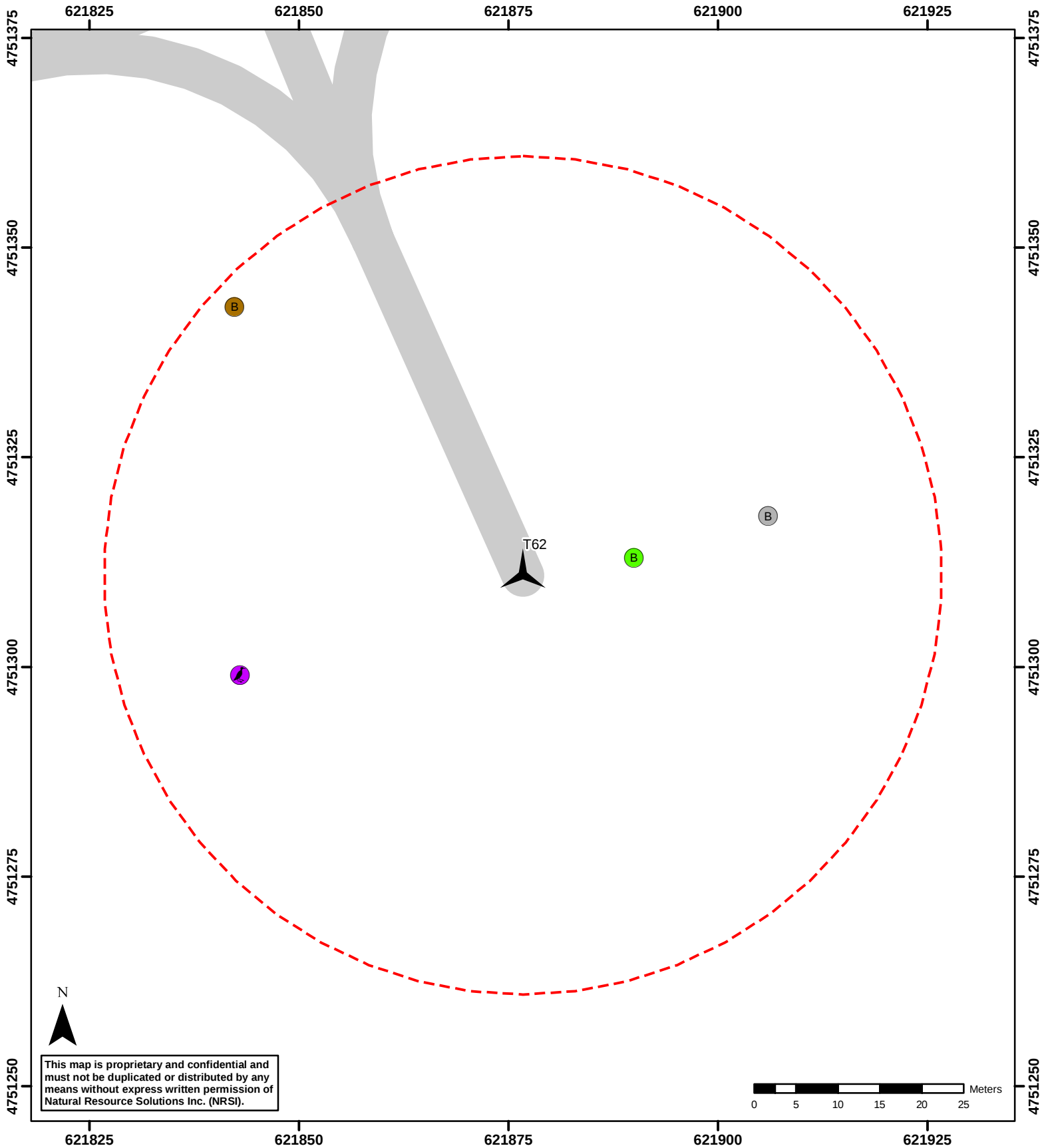
Appendix VI

Niagara Region Wind Farm Turbine T61 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C





Legend  Turbine  Search Radius (50m)  Access Road			 Big Brown Bat  Hoary Bat	 Silver-haired Bat  Purple Martin
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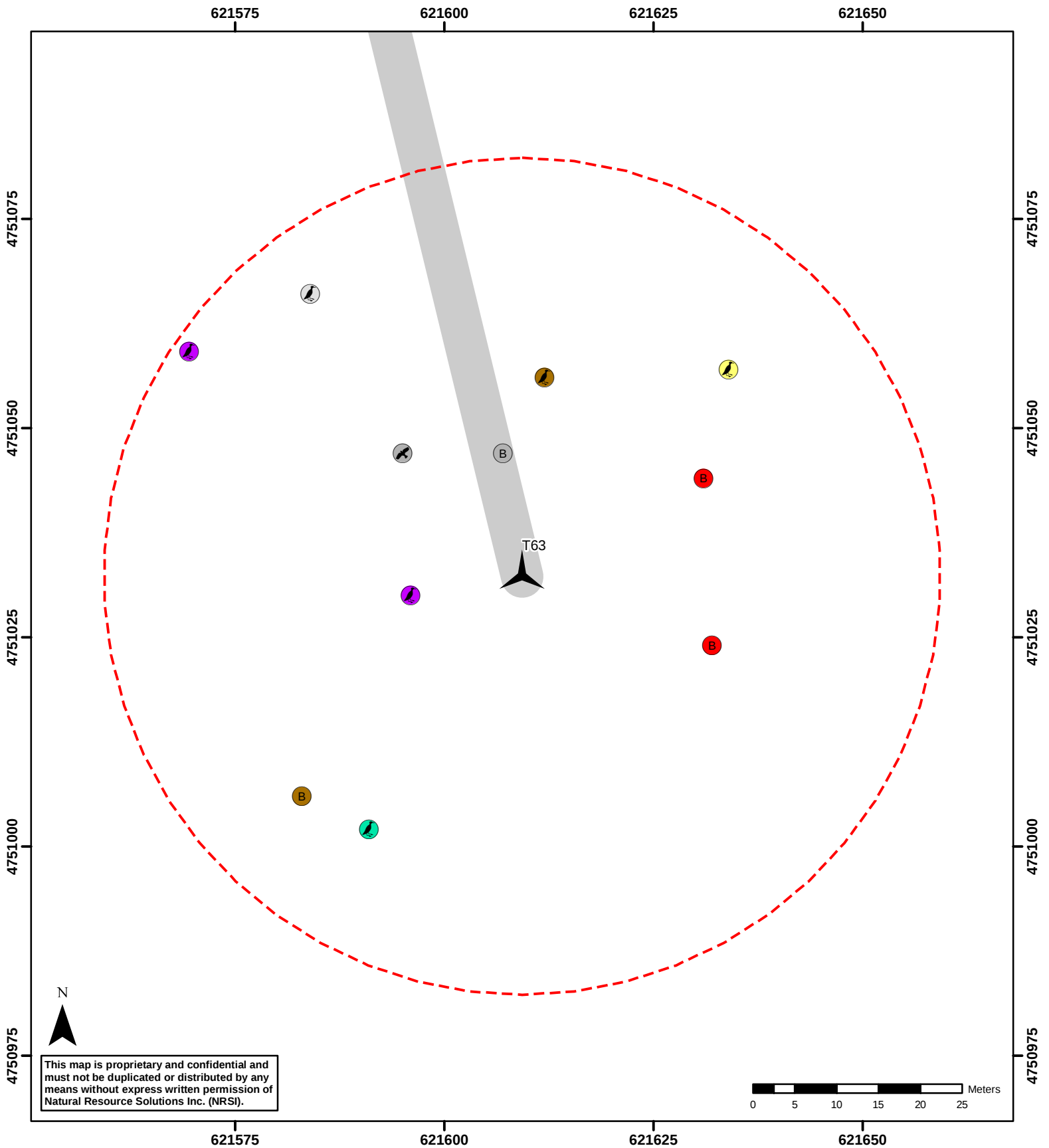
Appendix VI

Niagara Region Wind Farm

Turbine T62 Mortalities 2019

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 30, 2020 Project: 1865C
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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists



Legend

- | | | |
|--|--|--|
|  Turbine |  Big Brown Bat |  Gray Catbird |
|  Search Radius (50m) |  Eastern Red Bat |  Passerine sp. |
|  Access Road |  Silver-haired Bat |  Purple Martin |
| |  Barn Swallow |  Sharp-shinned Hawk |
| |  Brown-headed Cowbird | |

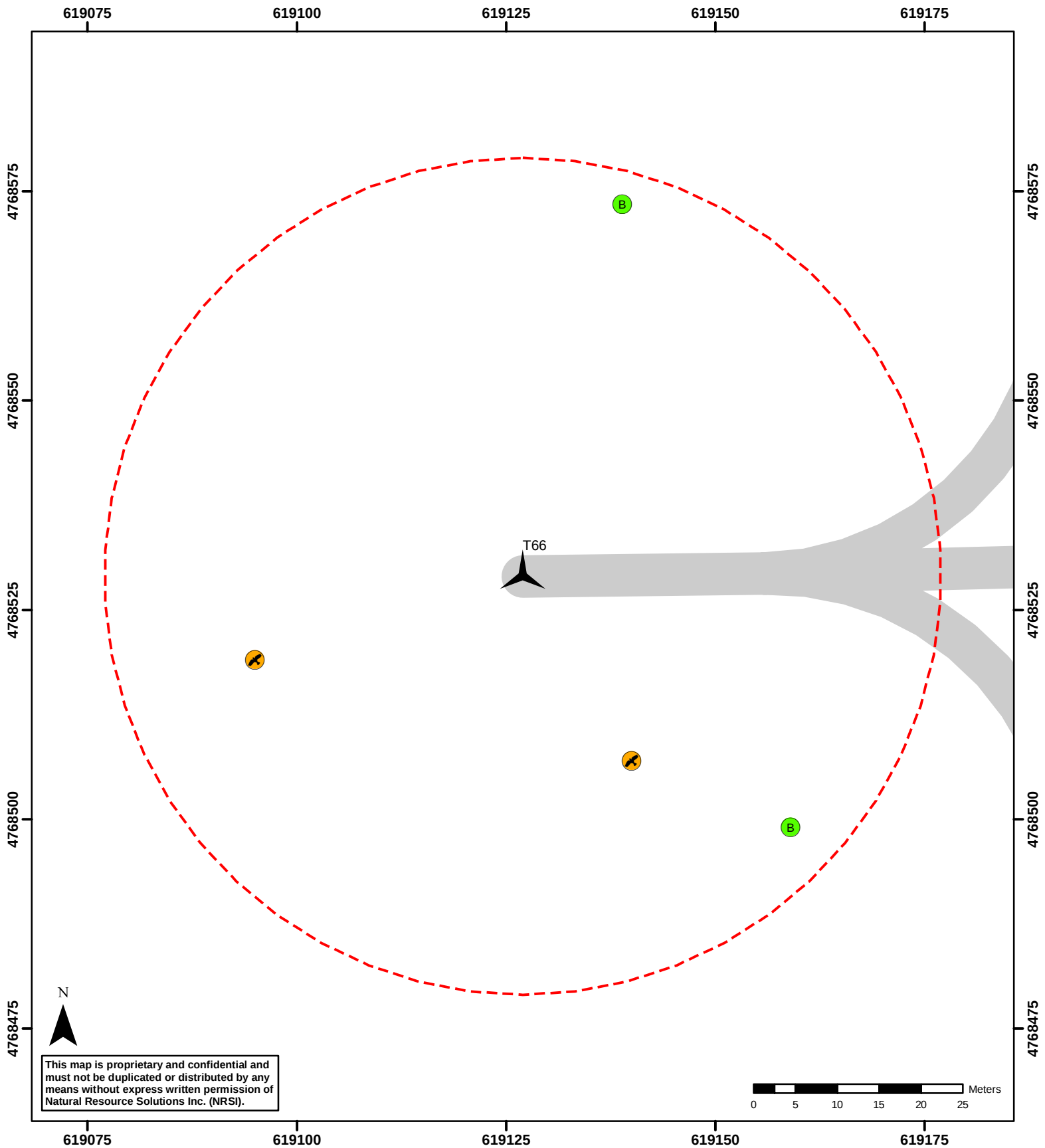
Appendix VI

Niagara Region Wind Farm Turbine T63 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

 **NATURAL RESOURCE SOLUTIONS INC.**
Aquatic, Terrestrial and Wetland Biologists



This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of Natural Resource Solutions Inc. (NRSI).

0 5 10 15 20 25 Meters

Legend

- Turbine
- Hoary Bat
- Turkey Vulture
- Search Radius (50m)
- Access Road

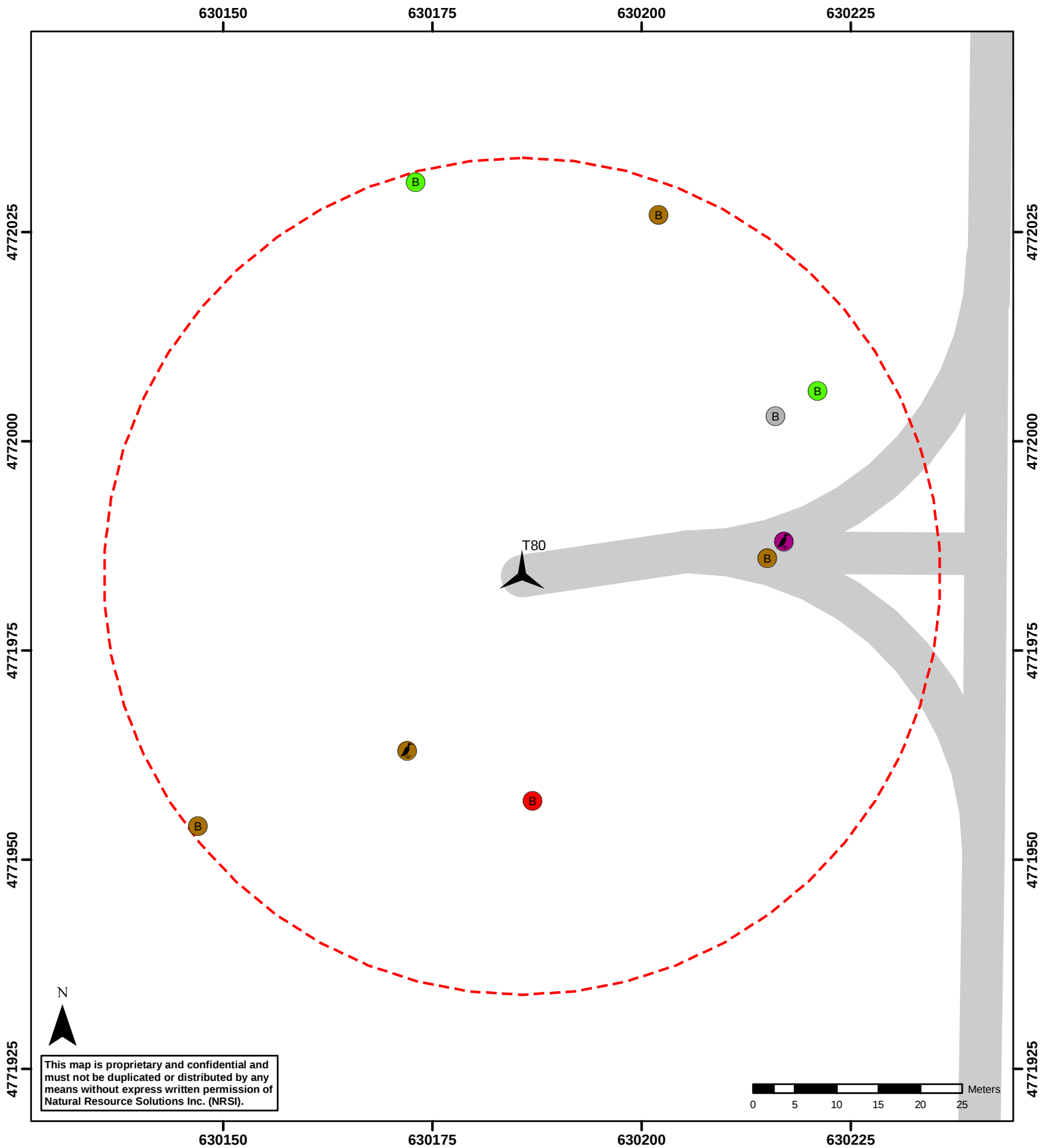
Appendix VI

Niagara Region Wind Farm Turbine T66 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

NATURAL RESOURCE SOLUTIONS INC.
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0 5 10 15 20 25 Meters

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Silver-haired Bat
- Barn Swallow
- Ruby-crowned Kinglet

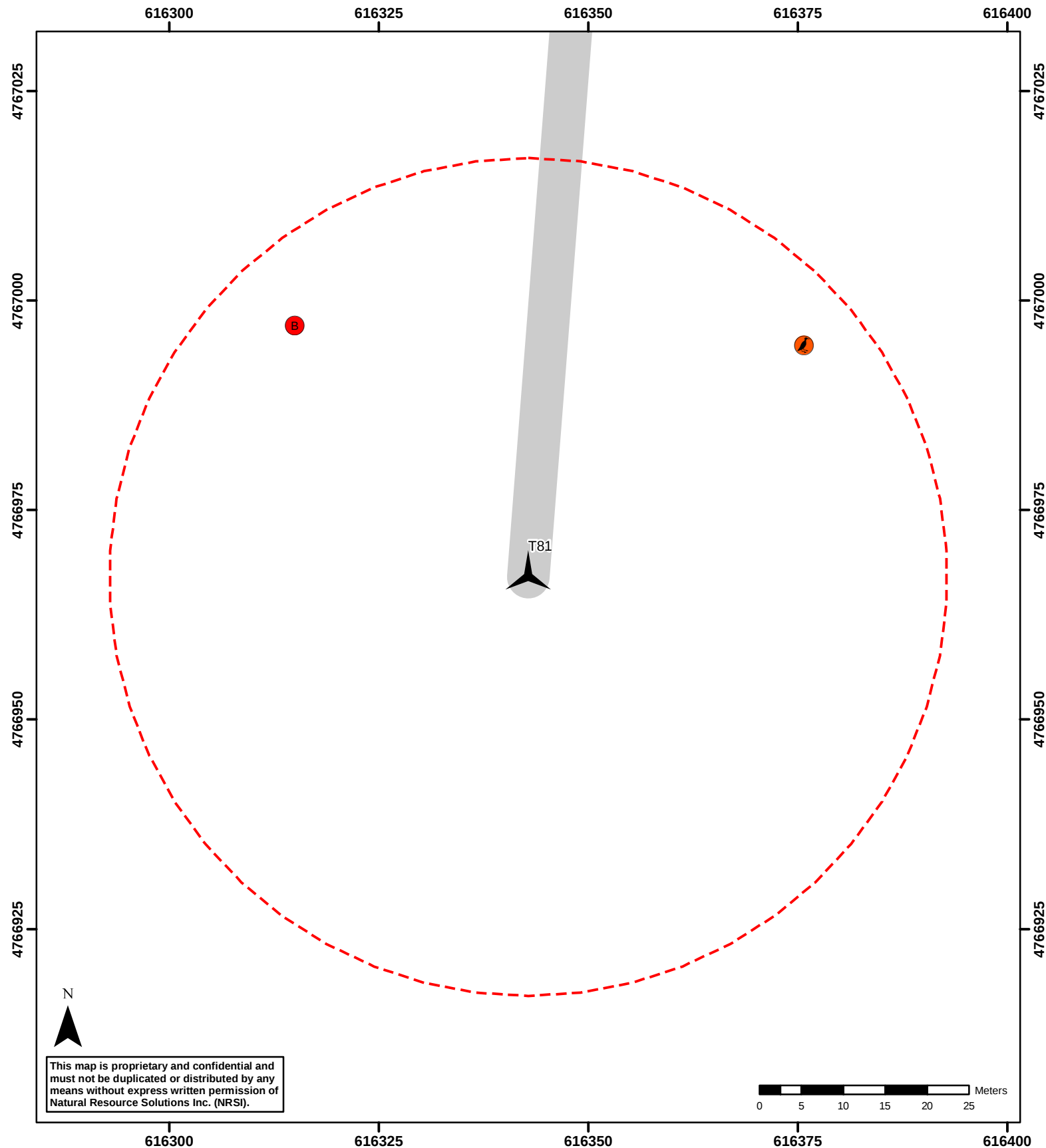
Appendix VI

Niagara Region Wind Farm Turbine T80 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

NATURAL RESOURCE SOLUTIONS INC.
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Legend

-  Turbine
-  Eastern Red Bat
-  Red-eyed Vireo
-  Search Radius (50m)
-  Access Road

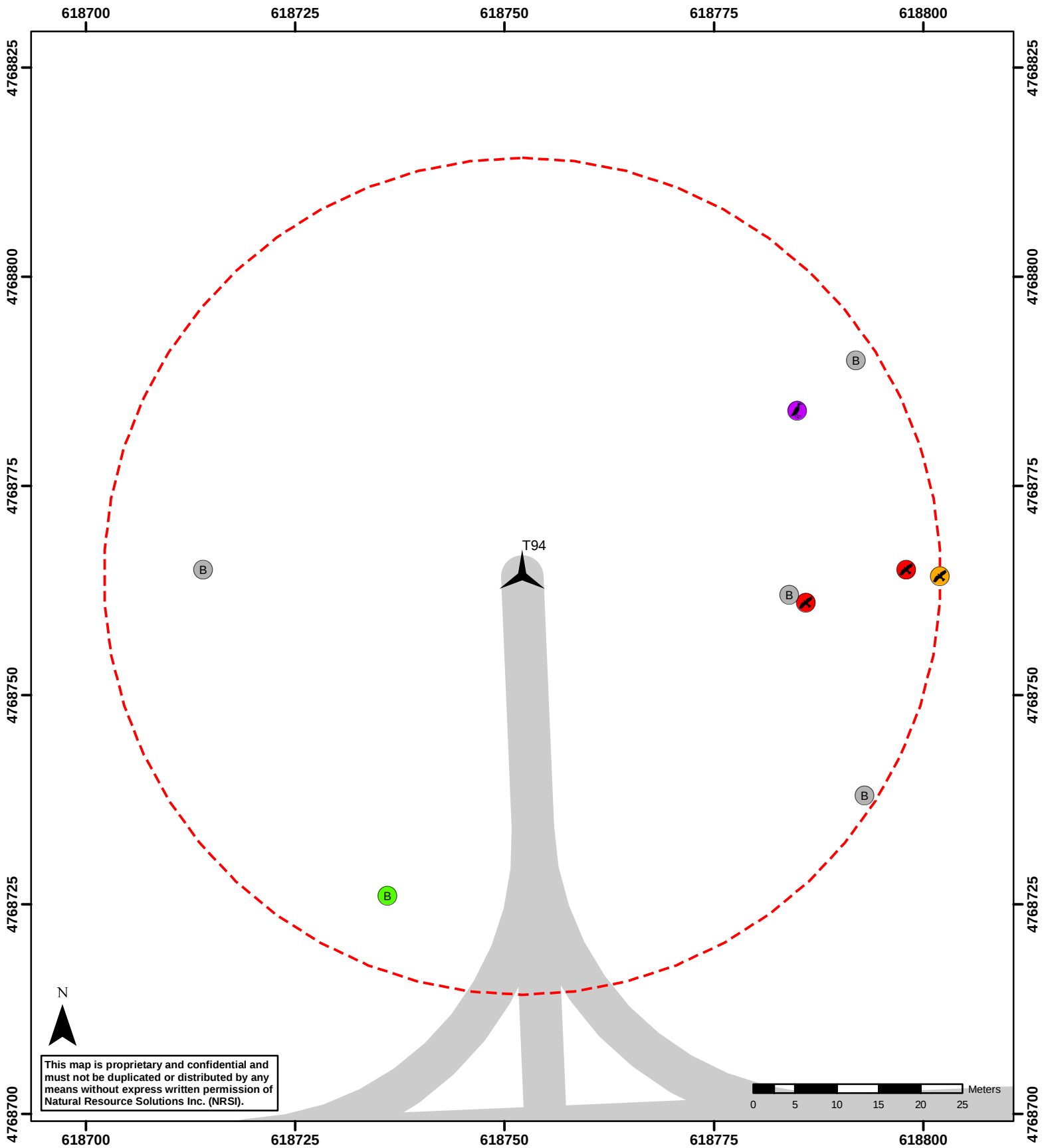
Appendix VI

Niagara Region Wind Farm Turbine T81 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

 **NATURAL RESOURCE SOLUTIONS INC.**
Aquatic, Terrestrial and Wetland Biologists



Legend

-  Turbine
-  Hoary Bat
-  Red-tailed Hawk
-  Search Radius (50m)
-  Silver-haired Bat
-  Turkey Vulture
-  Access Road
-  Purple Martin

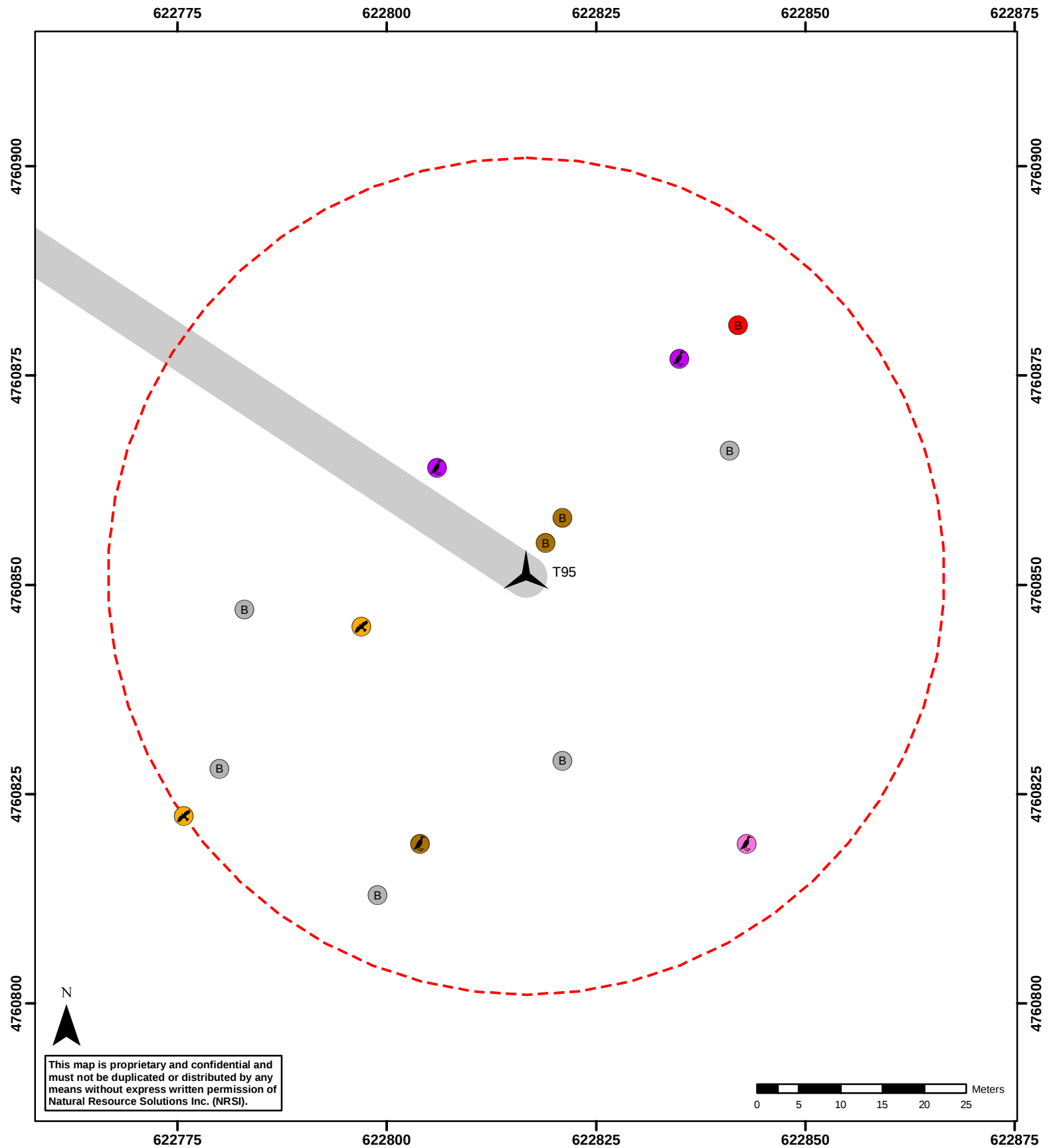
Appendix VI

Niagara Region Wind Farm Turbine T94 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

 **NATURAL RESOURCE SOLUTIONS INC.**
Aquatic, Terrestrial and Wetland Biologists



Legend

-  Turbine
-  Search Radius (50m)
-  Access Road
-  Big Brown Bat
-  Eastern Red Bat
-  Silver-haired Bat
-  Barn Swallow
-  Purple Martin
-  Tree Swallow
-  Turkey Vulture

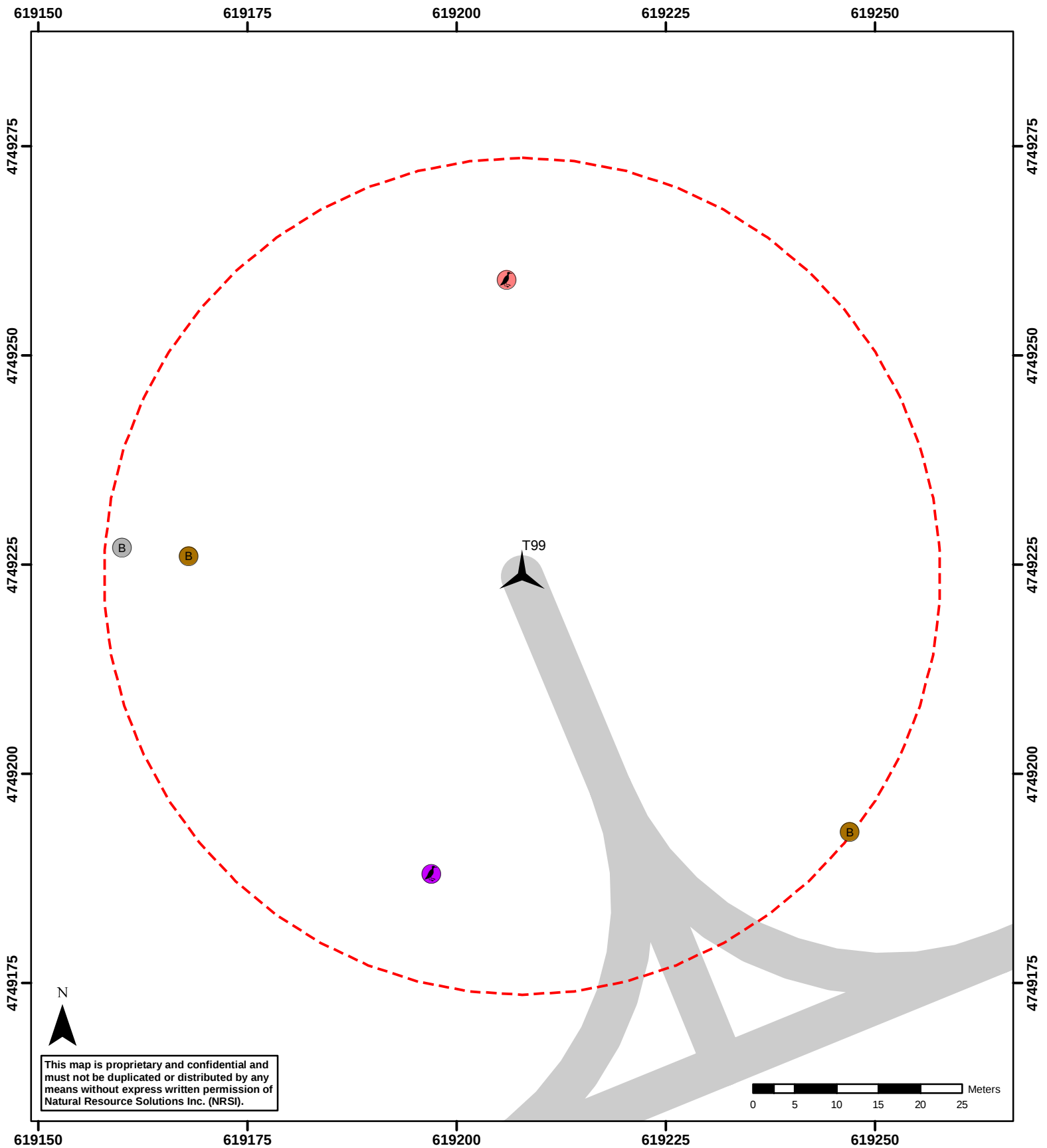
Appendix VI

Niagara Region Wind Farm Turbine T95 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C

NATURAL RESOURCE SOLUTIONS INC.
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Legend

-  Turbine
-  Big Brown Bat
-  Great Crested Flycatcher
-  Search Radius (50m)
-  Silver-haired Bat
-  Purple Martin
-  Access Road

Appendix VI

Niagara Region Wind Farm Turbine T99 Mortalities 2019

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 30, 2020
Project: 1865C



Appendix VII
Visibility Class Mapping

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T01 Degree of Slope 2 degrees Slope Orientation SW (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0753
Facing East: 0754
Facing South: 0755
Facing West: 0756
(sketch habitat and visibility classes)

Date (DD/MM/YY): 09/05/19 ↑
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N

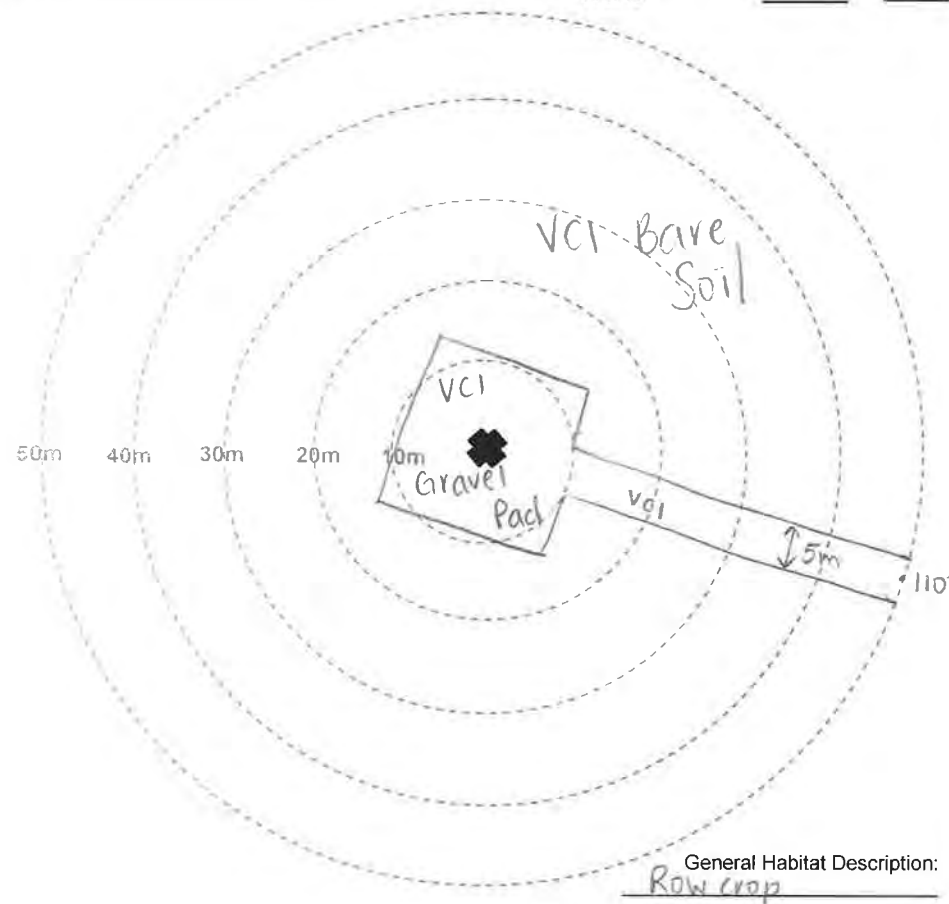
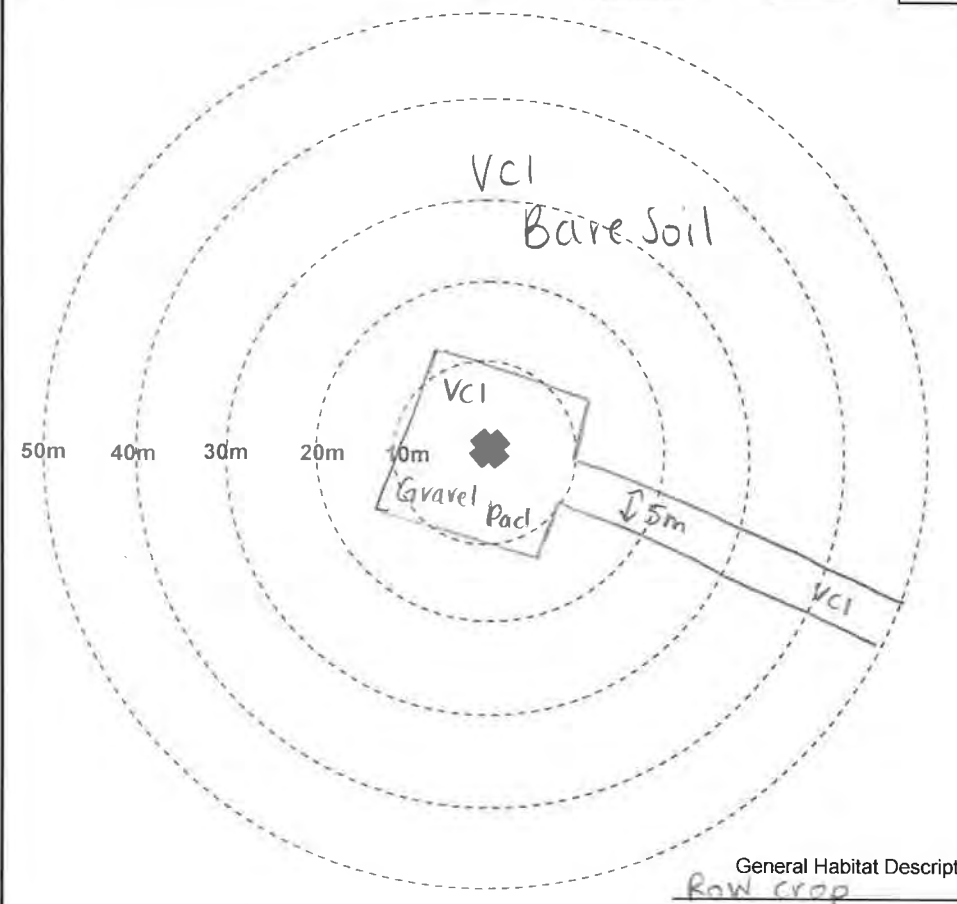


Photo Numbers (from turbine base)
Facing North: 0983
Facing East: 0984
Facing South: 0985
Facing West: 0986
(sketch habitat and visibility classes)

Date (DD/MM/YY): 06/06/19 ↑
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T01

Photo Numbers (from turbine base)
Facing North: 1118
Facing East: 1119
Facing South: 1120
Facing West: 1121
(sketch habitat and visibility classes)

Date (DD/MM/YY): 04/07/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

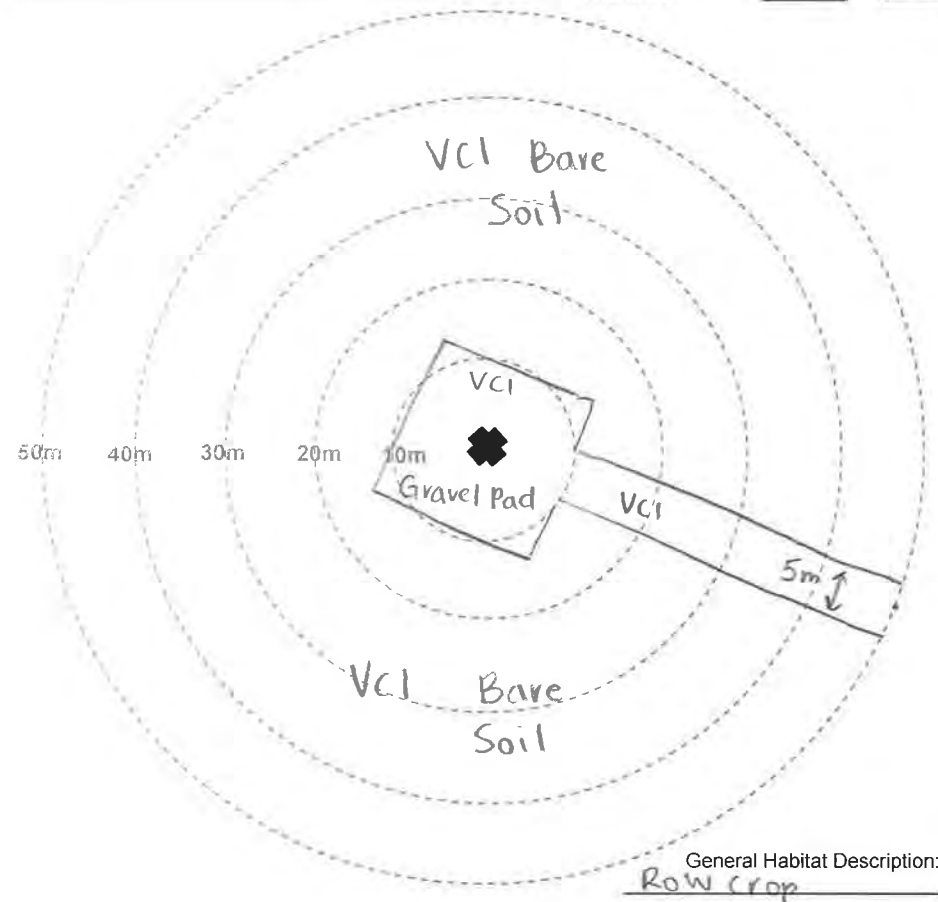
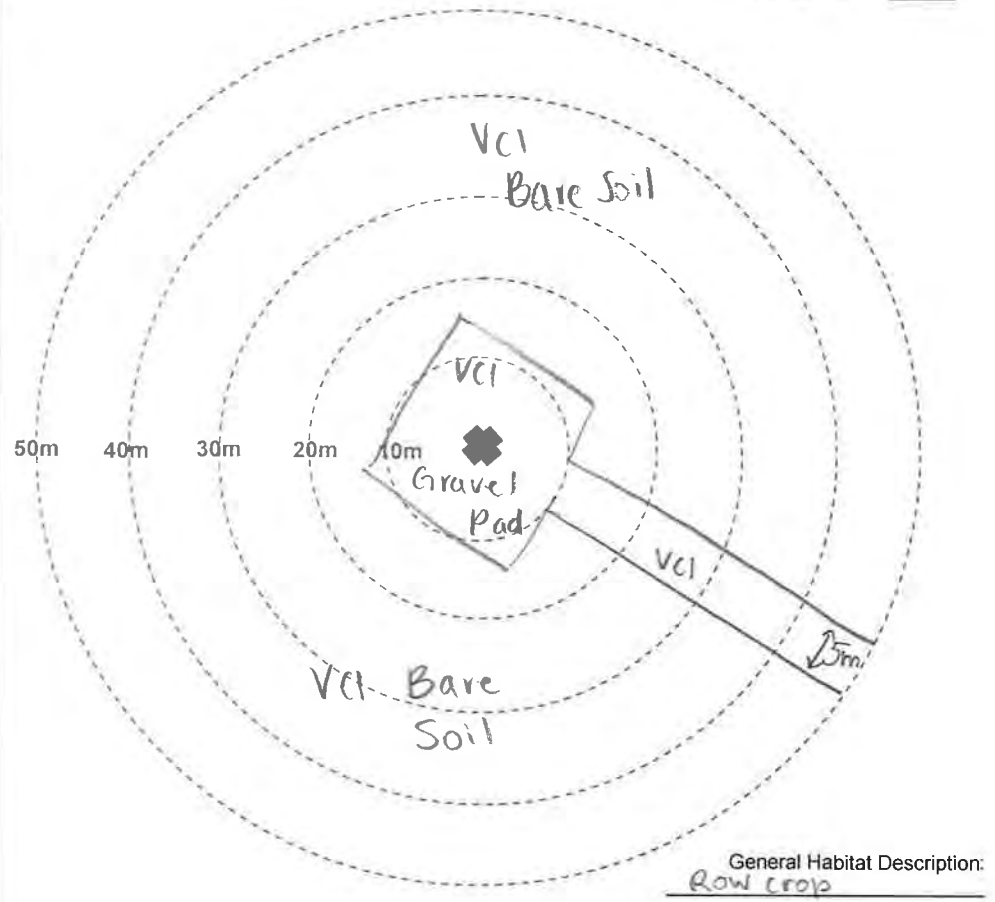


Photo Numbers (from turbine base)
Facing North: 1270
Facing East: 1271
Facing South: 1272
Facing West: 1273
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T01

Photo Numbers (from turbine base)
Facing North: 1748
Facing East: 1749
Facing South: 1750
Facing West: 1751
(sketch habitat and visibility classes)

Date (DD/MM/YY): 30/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m

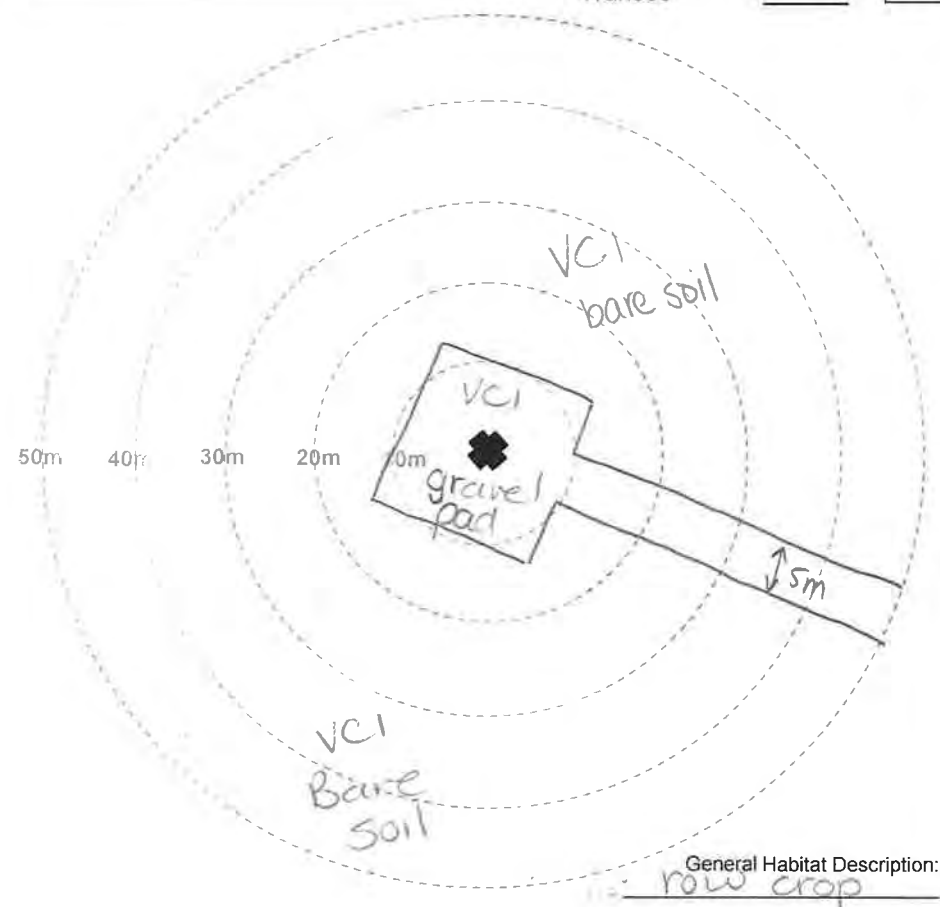
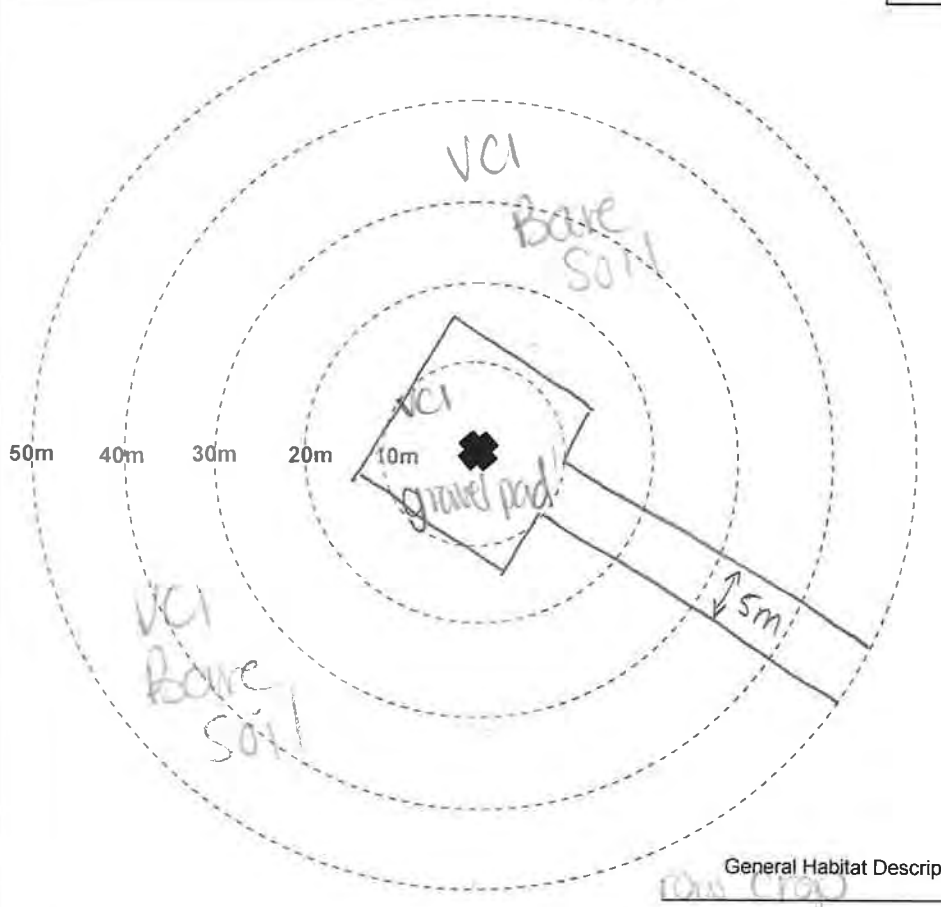


Photo Numbers (from turbine base)
Facing North: 2955
Facing East: 2956
Facing South: 2957
Facing West: 2958
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NIAGARA REGION WF Project #: 1865C Turbine #: T01

Photo Numbers (from turbine base)
Facing North: 114904
Facing East: 114912
Facing South: 114929
Facing West: 114936
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N

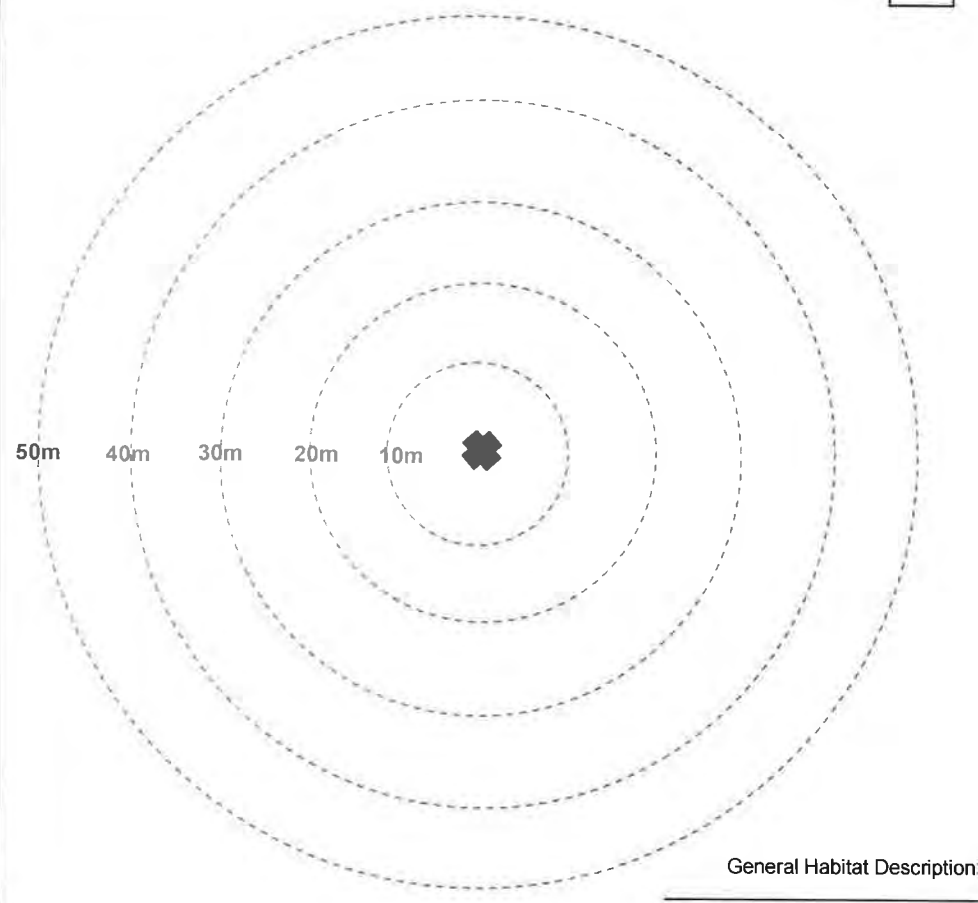
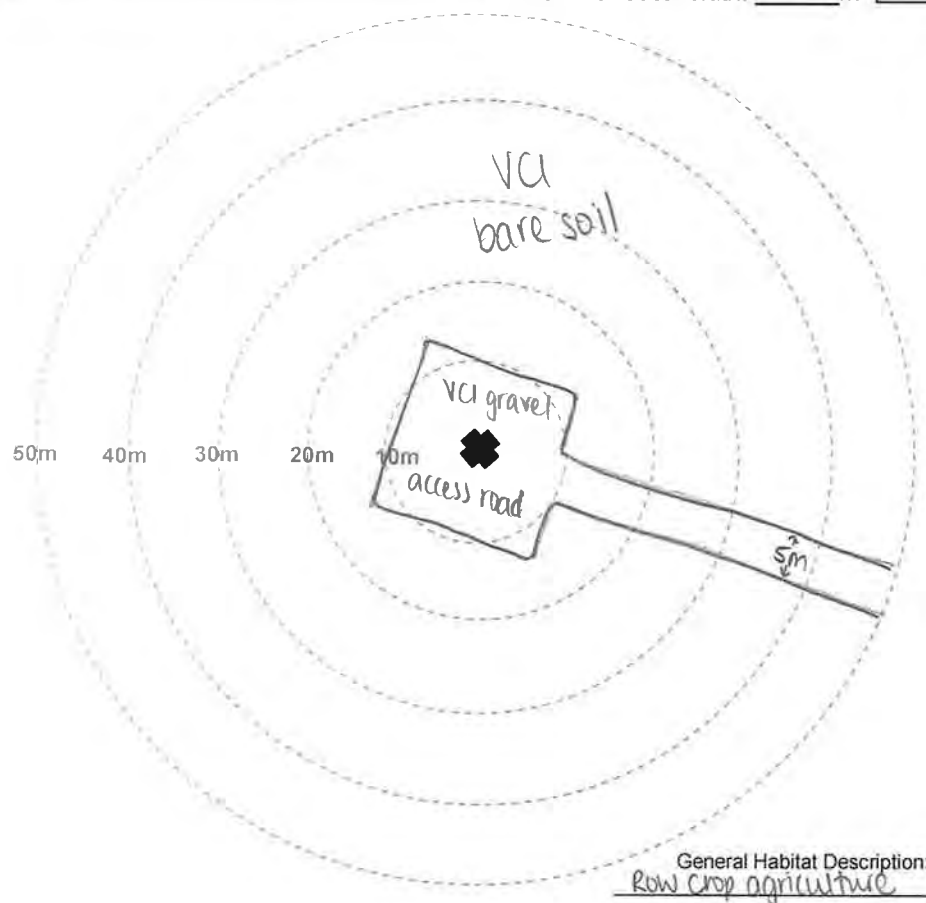
Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m

N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T02 Degree of Slope 1 degrees Slope Orientation SE (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0824
Facing East: 0825
Facing South: 0826
Facing West: 0827
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

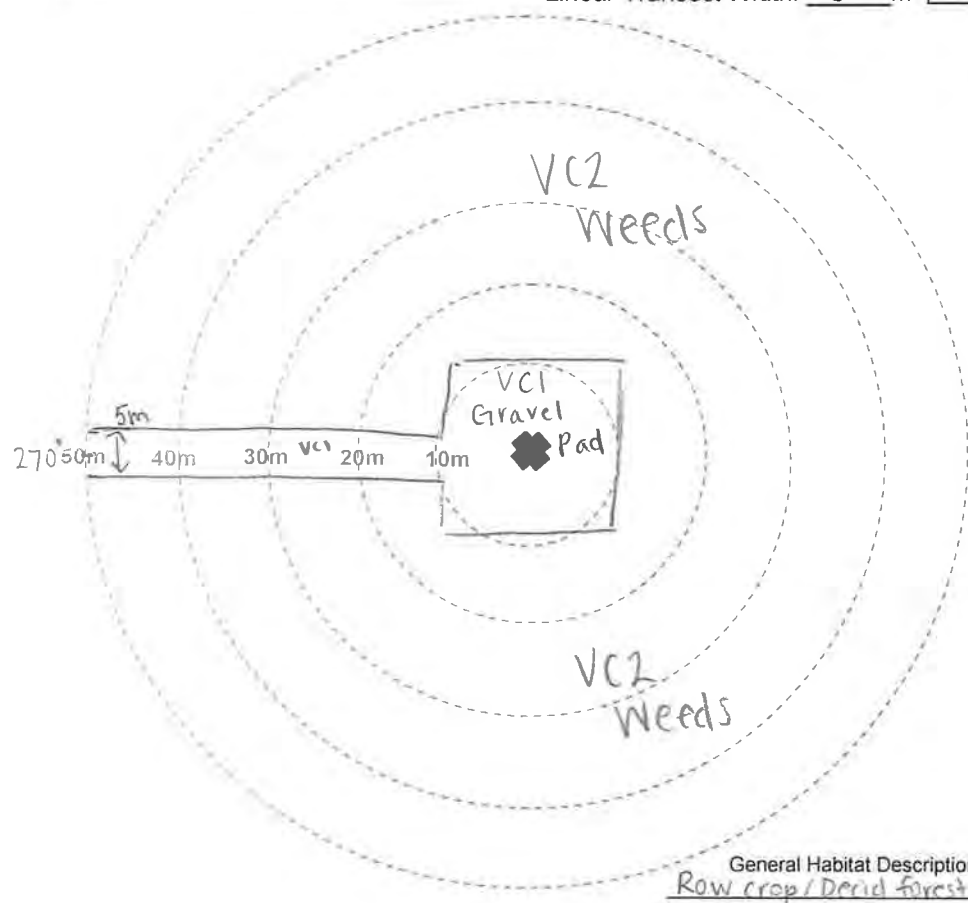
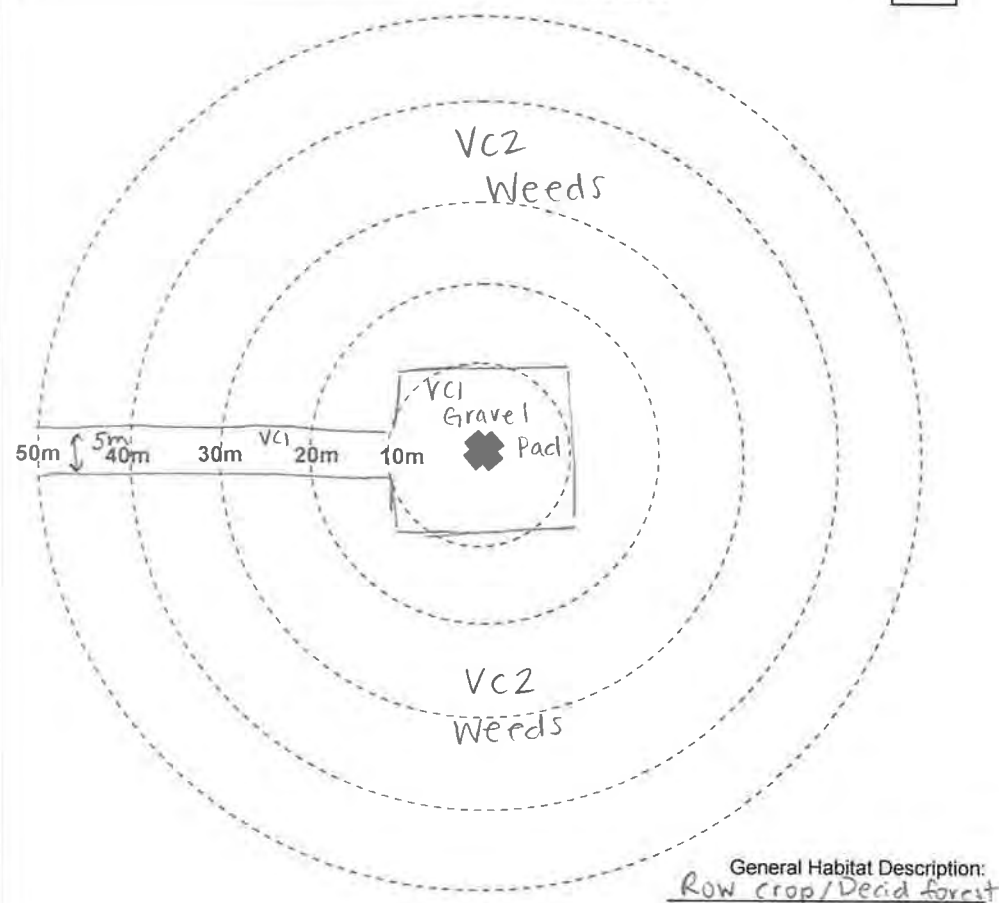


Photo Numbers (from turbine base)
Facing North: 1038
Facing East: 1039
Facing South: 1040
Facing West: 1041
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/06/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 18656 Turbine #: T02

Photo Numbers (from turbine base) Facing North: <u>1186</u> Facing East: <u>1187</u> Facing South: <u>1188</u> Facing West: <u>1189</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>09/07/19</u> Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: <u>1351</u> Facing East: <u>1352</u> Facing South: <u>1353</u> Facing West: <u>1354</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>13/08/19</u> Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m
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General Habitat Description: Row crop / decid forest

General Habitat Description: Row crop / decid forest

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T02

Photo Numbers (from turbine base)
Facing North: 1534
Facing East: 1535
Facing South: 1536
Facing West: 1537
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m

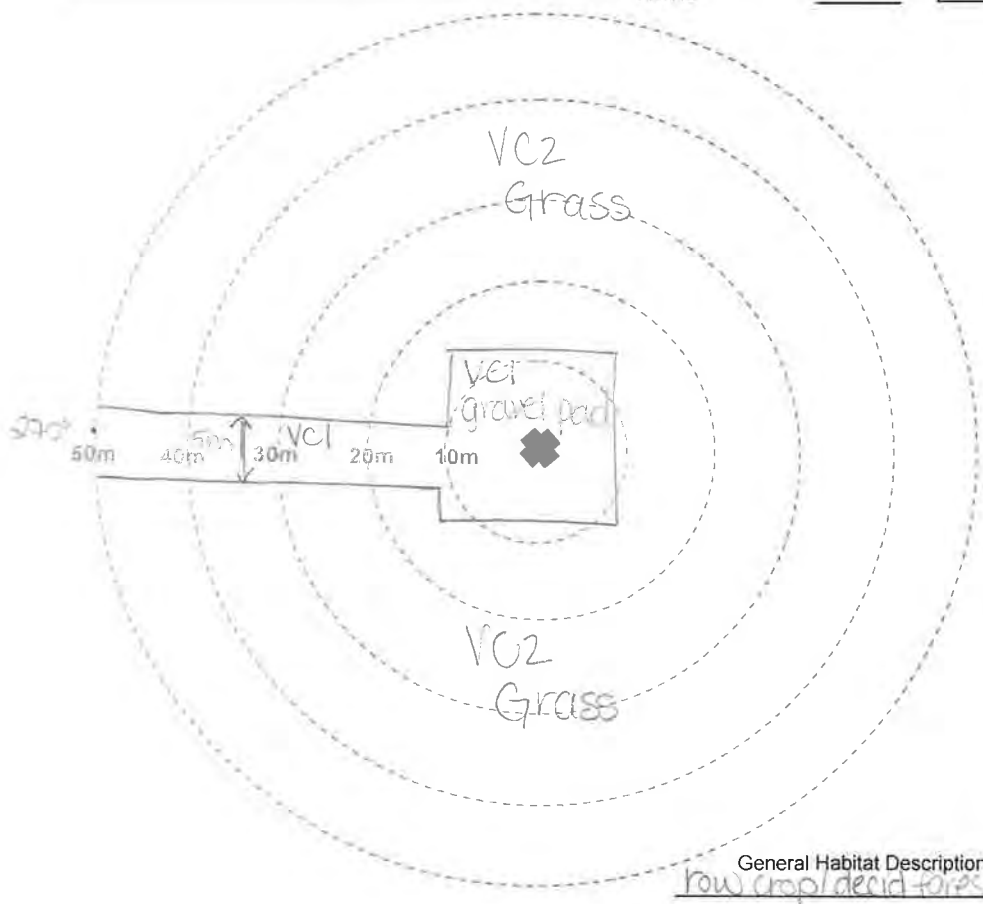
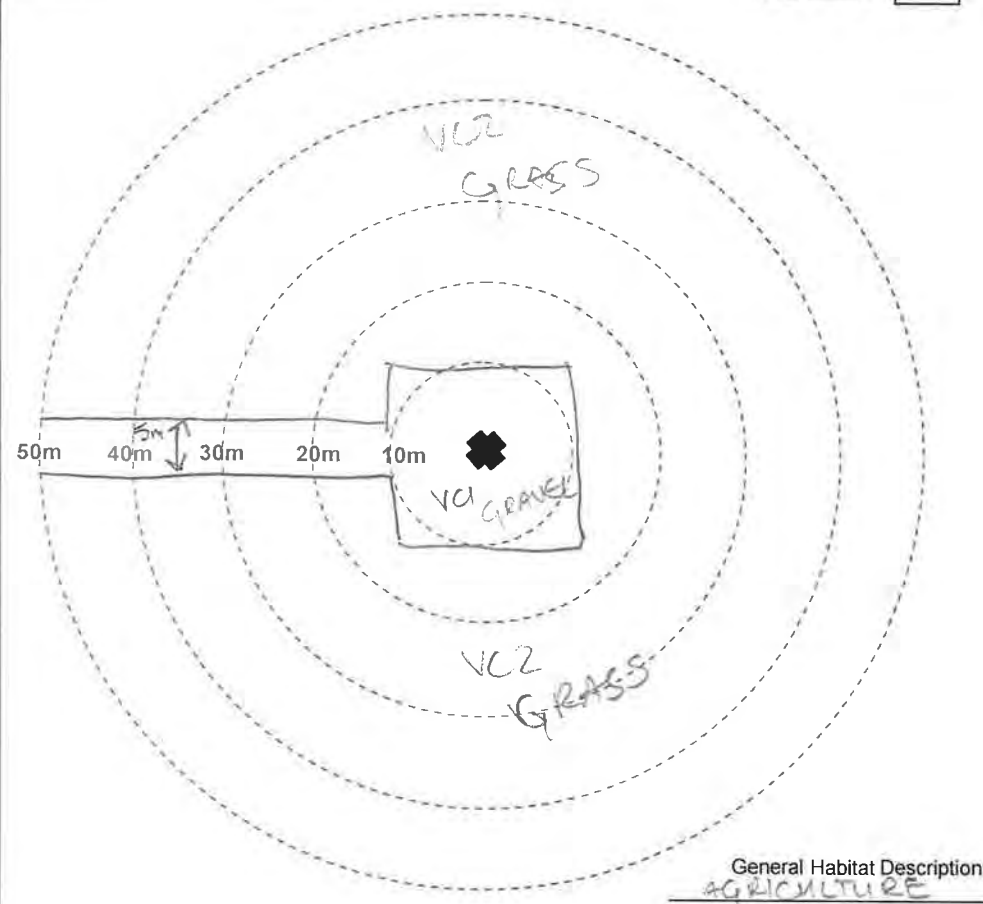


Photo Numbers (from turbine base)
Facing North: 123602
Facing East: 123612
Facing South: 123622
Facing West: 123632
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NIAGARA REGION WF Project #: 1865C Turbine #: T02

Photo Numbers (from turbine base) Facing North: <u>150313</u> Facing East: <u>150322</u> Facing South: <u>150332</u> Facing West: <u>150350</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>28/11/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: _____ Facing East: _____ Facing South: _____ Facing West: _____ (sketch habitat and visibility classes)	Date (DD/MM/YY): ____/____/____ Observer: _____ Monthly/Seasonal Linear Transect Width: _____ m
---	---	---	--

General Habitat Description: ROW CROP / WOODLAND

General Habitat Description: _____

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T03 Degree of Slope 1 degrees Slope Orientation S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0830
Facing East: 0831
Facing South: 0832
Facing West: 0833
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

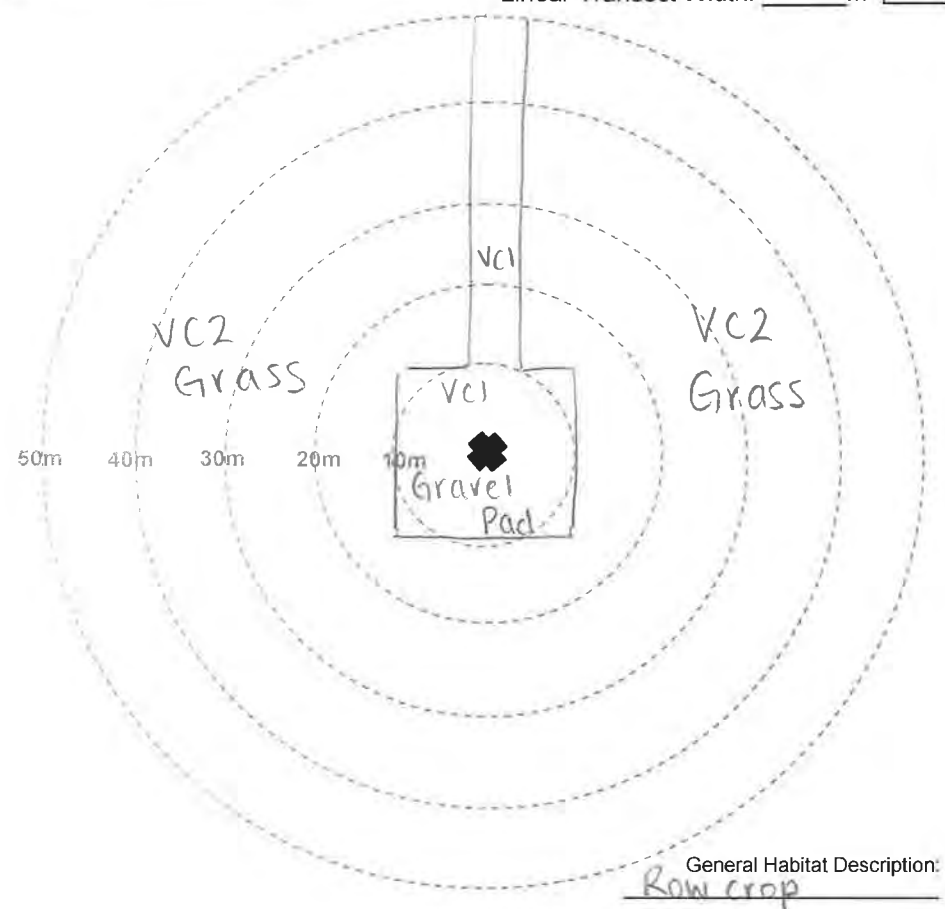


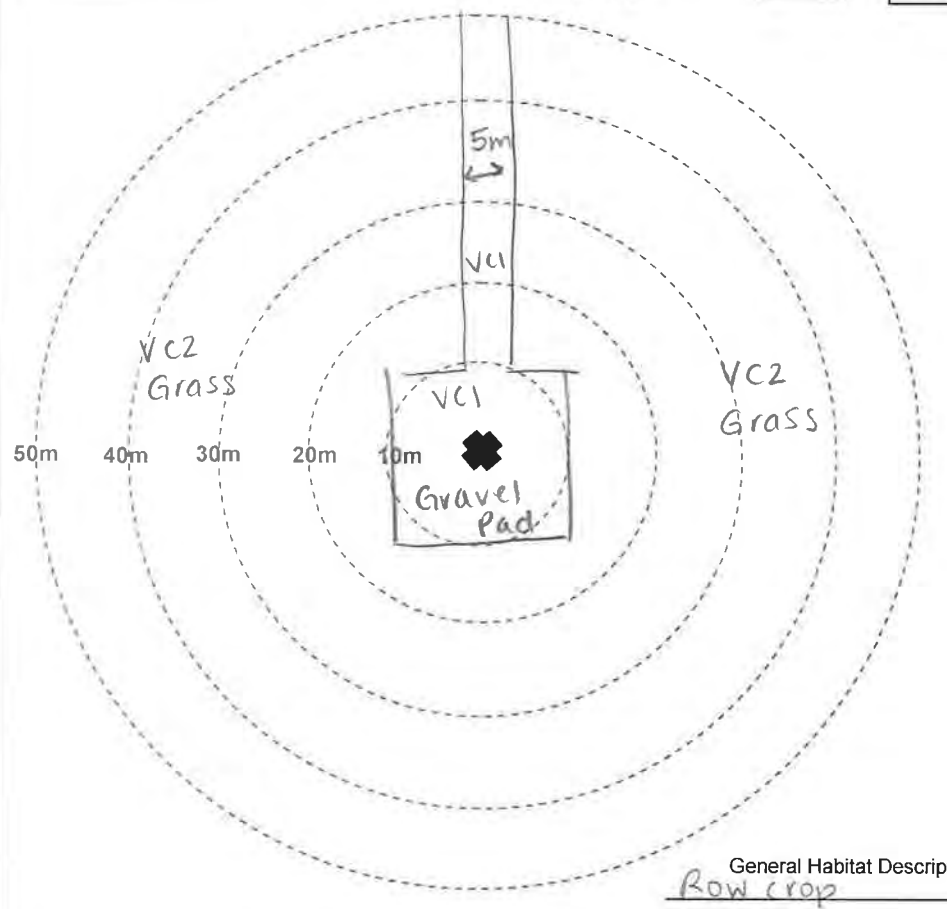
Photo Numbers (from turbine base)
Facing North: 1003
Facing East: 1004
Facing South: 1005
Facing West: 1006
(sketch habitat and visibility classes)

Date (DD/MM/YY): 07/06/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF

Project #: 1865C Turbine #: T03

Photo Numbers (from turbine base)
Facing North: 1161
Facing East: 1162
Facing South: 1163
Facing West: 1164
(sketch habitat and visibility classes)

Date (DD/MM/YY): 09/07/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

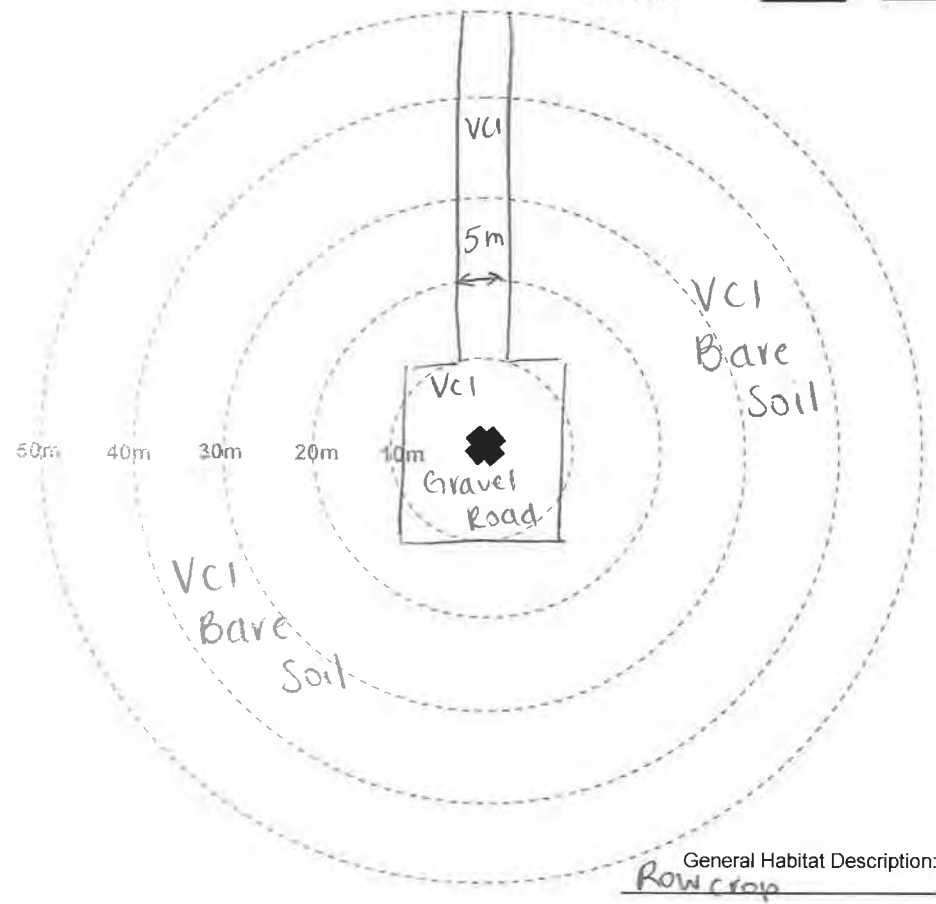
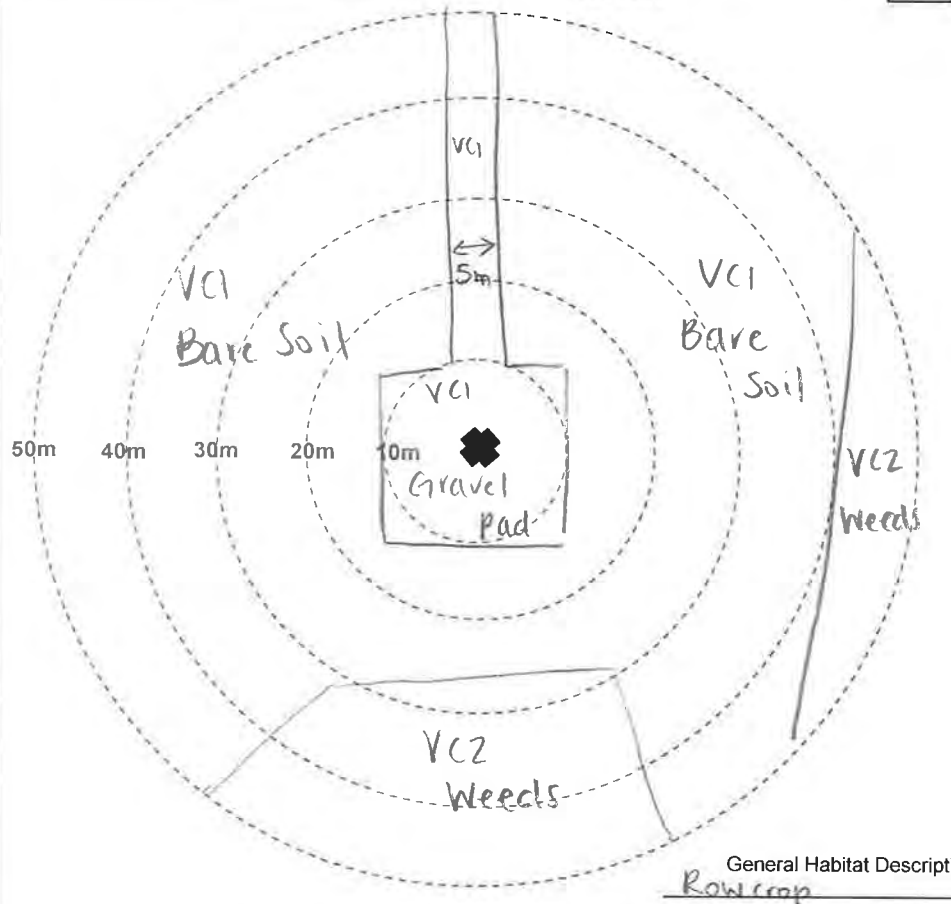


Photo Numbers (from turbine base)
Facing North: 1292
Facing East: 1293
Facing South: 1294
Facing West: 1295
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/08/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T03

Photo Numbers (from turbine base)
Facing North: 2713
Facing East: 2714
Facing South: 2715
Facing West: 2716
(sketch habitat and visibility classes)

Date (DD/MM/YY): 18/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m

N

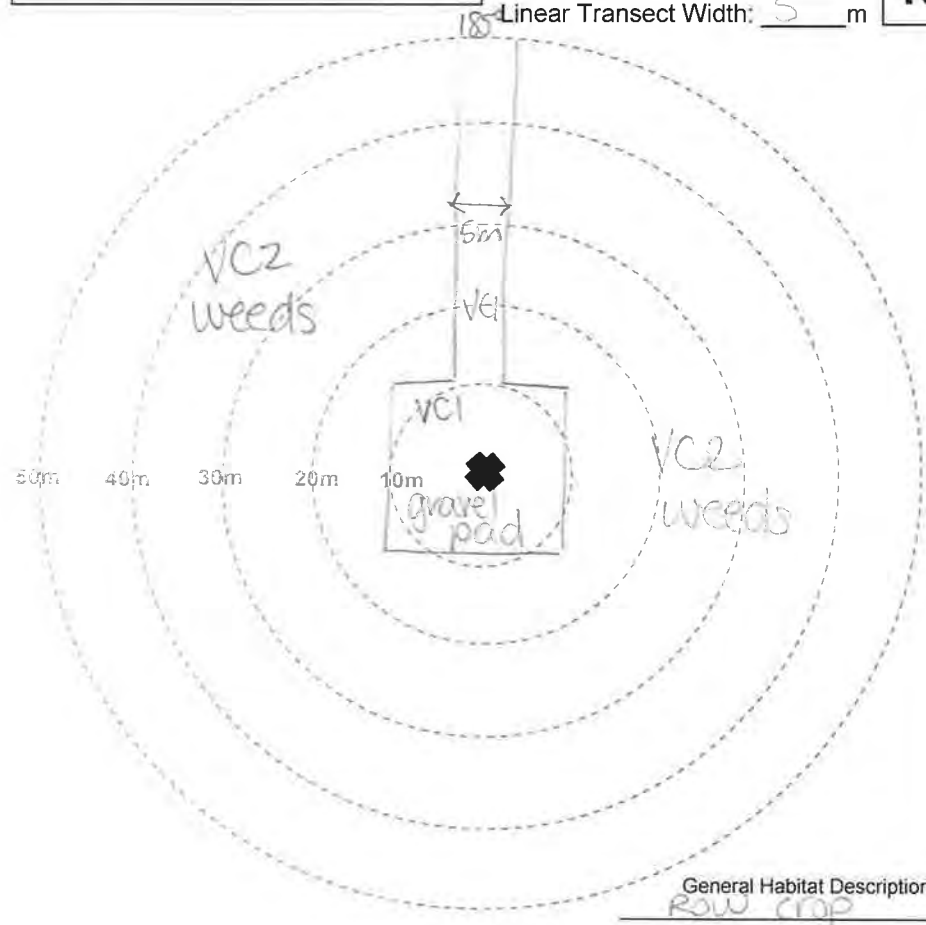
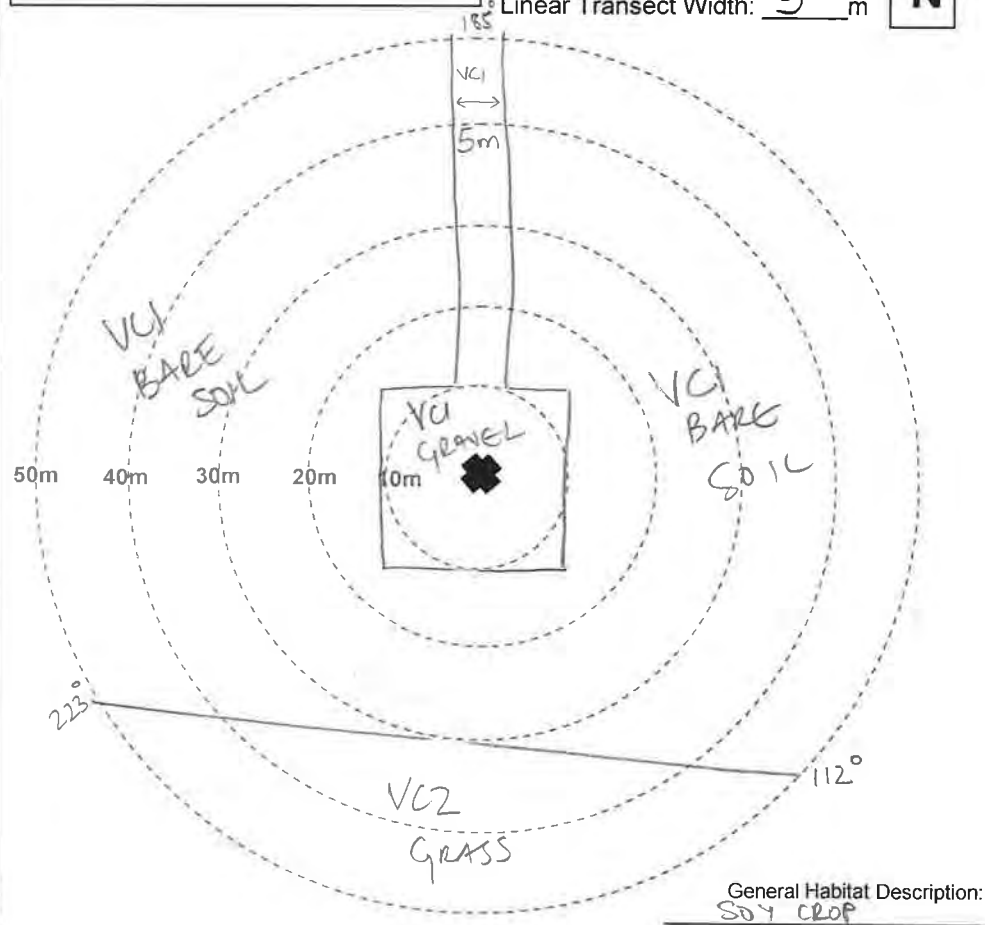


Photo Numbers (from turbine base)
Facing North: 131947
Facing East: 131954
Facing South: 132003
Facing West: 132012
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region W.F. Project #: 1865C Turbine #: T03

Photo Numbers (from turbine base)
Facing North: 145455
Facing East: 145505
Facing South: 145513
Facing West: 145520
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

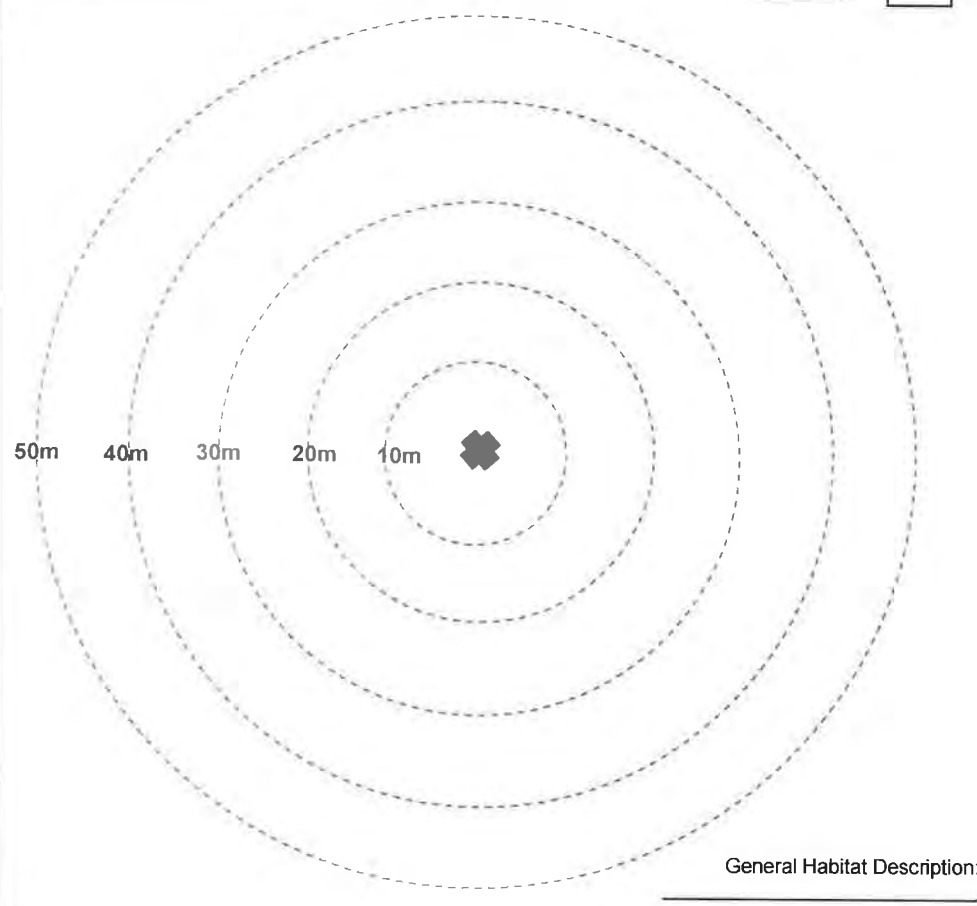
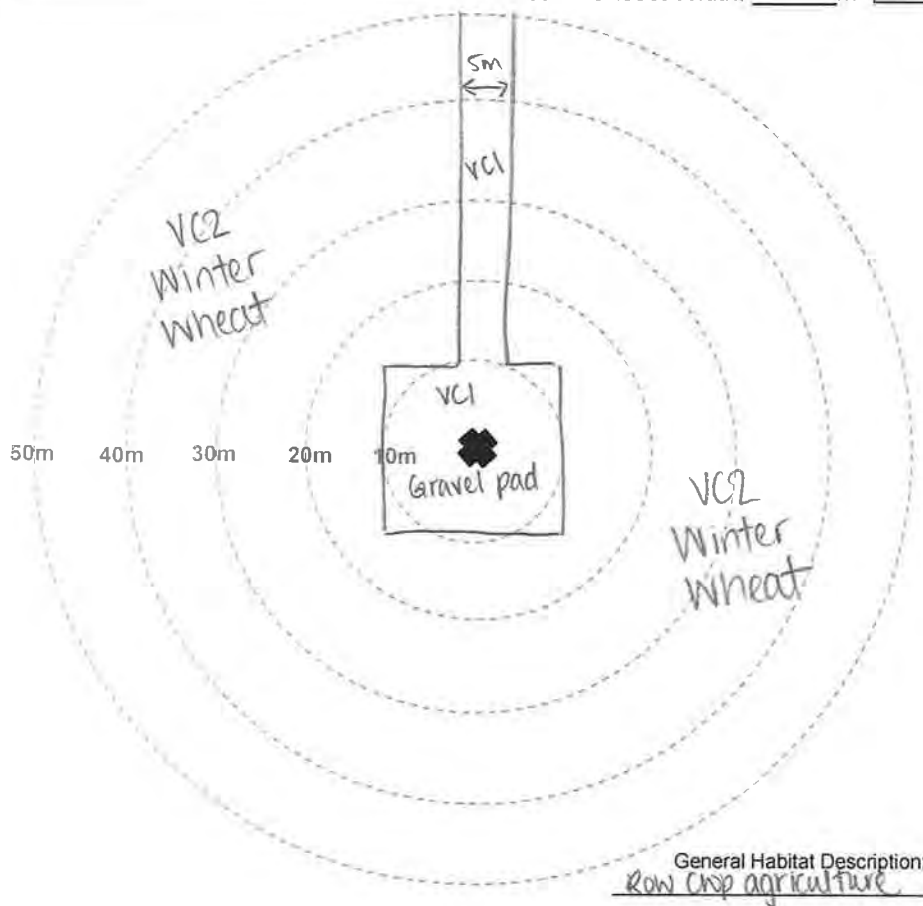
Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T05 Degree of Slope 0 degrees Slope Orientation — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0853
Facing East: 0854
Facing South: 0855
Facing West: 0856
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19

Observer: HCB

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: 2092
Facing East: 2089
Facing South: 2090
Facing West: 2091
(sketch habitat and visibility classes)

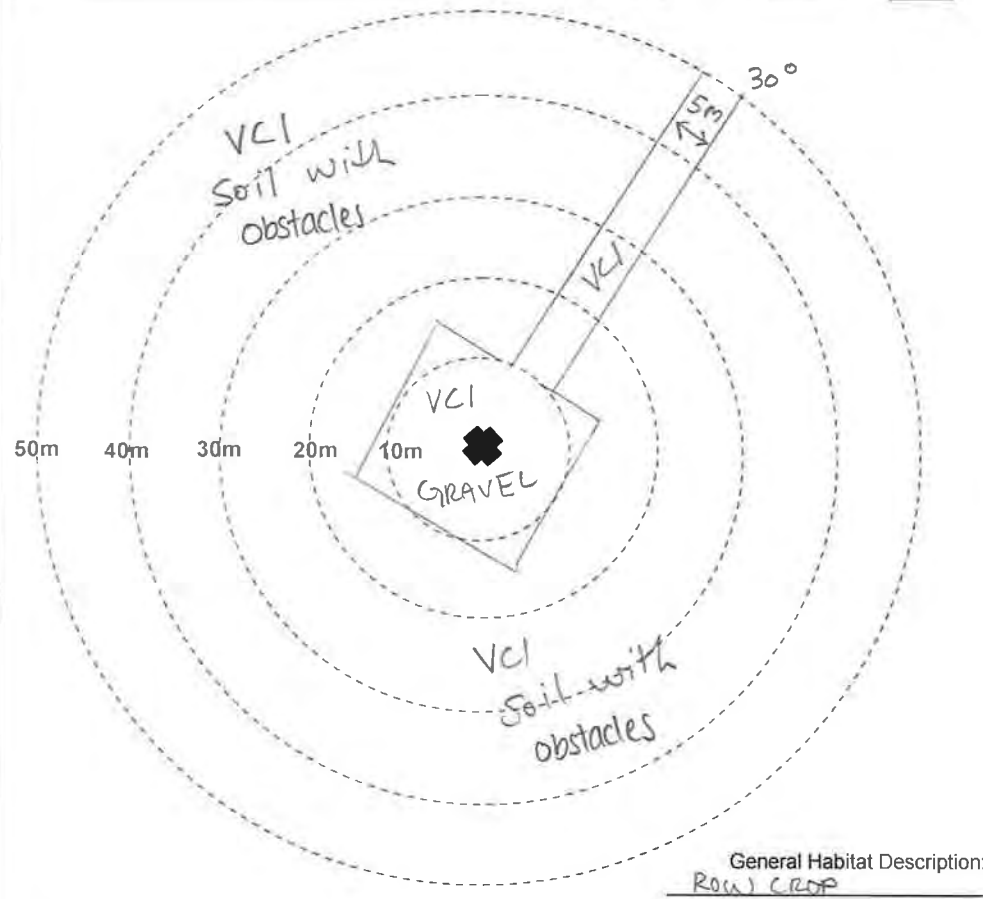
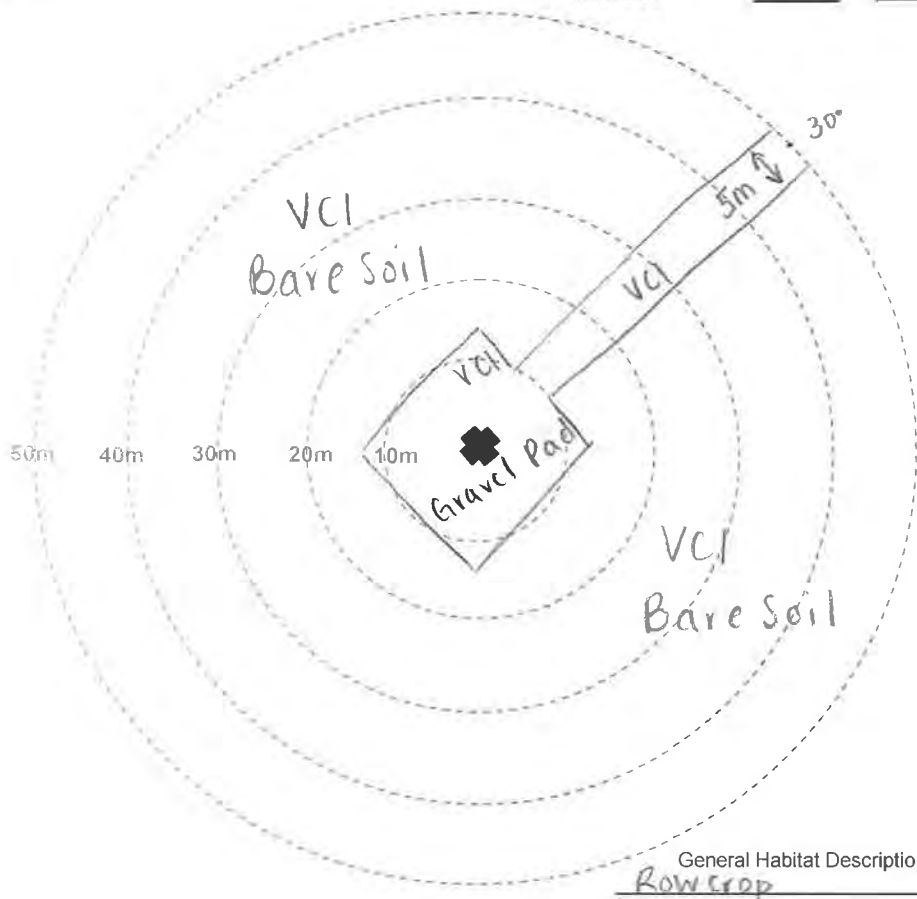
Date (DD/MM/YY): 11/06/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865L Turbine #: T05

Photo Numbers (from turbine base)
Facing North: 2239
Facing East: 2280
Facing South: 2281
Facing West: 2282
(sketch habitat and visibility classes)

Date (DD/MM/YY): 12/07/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: 2409
Facing East: 2410
Facing South: 2411
Facing West: 2412
(sketch habitat and visibility classes)

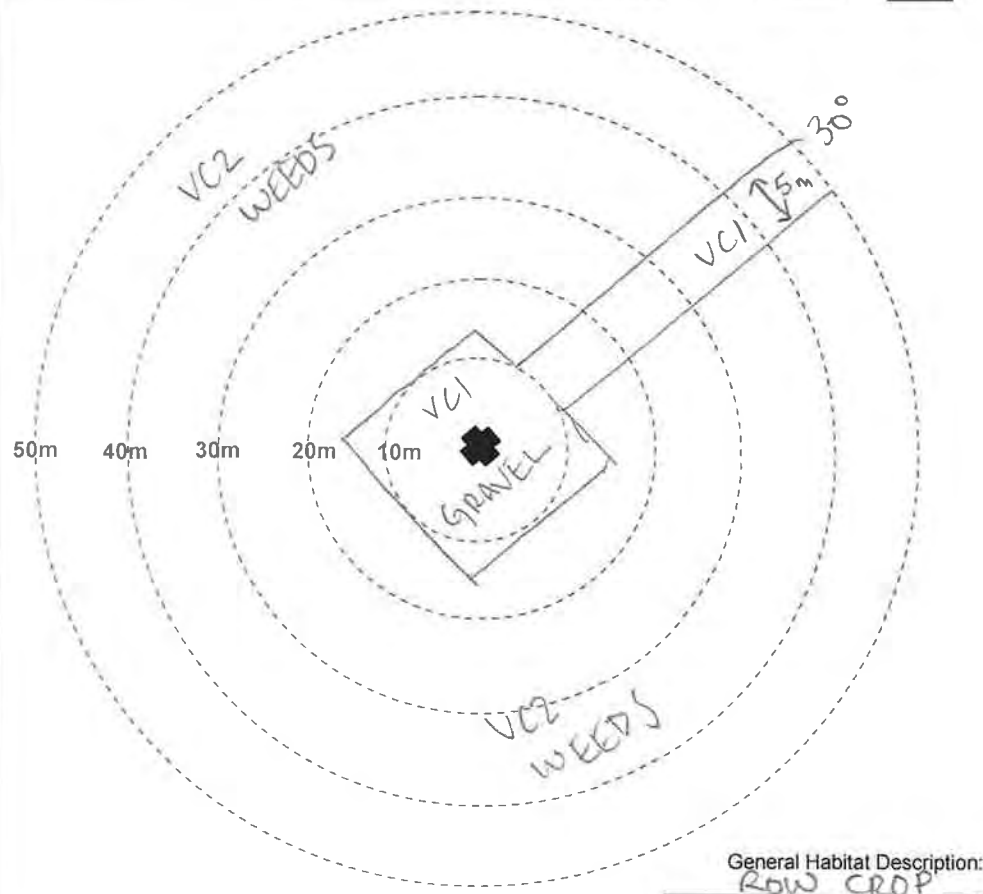
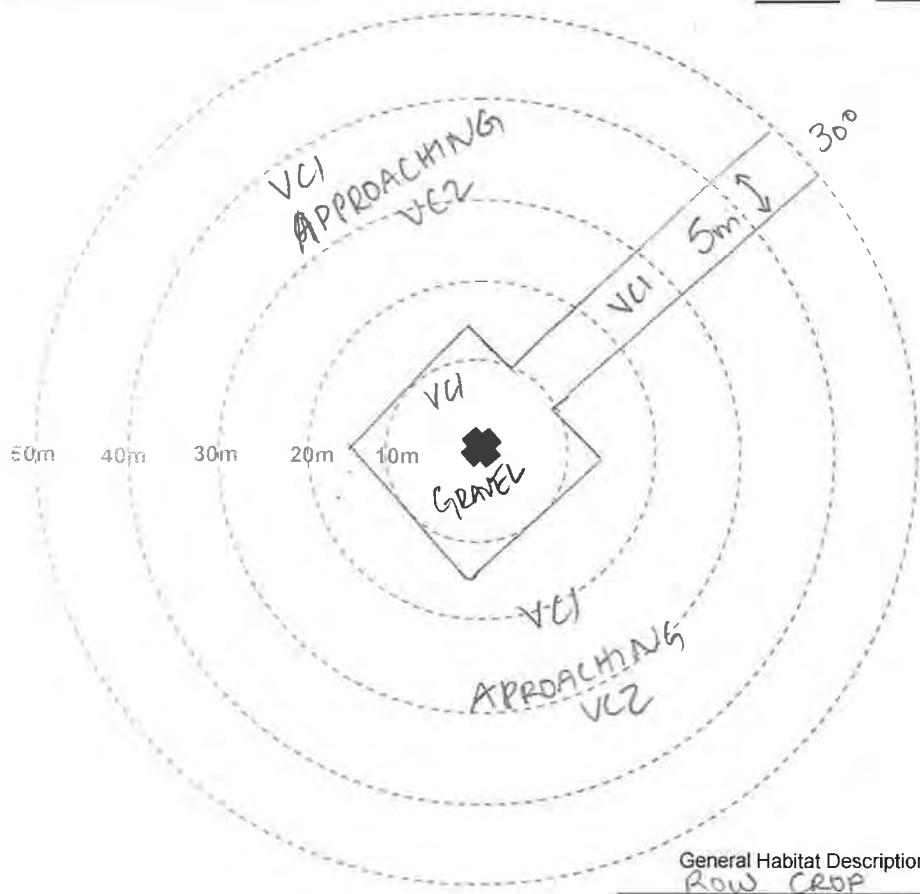
Date (DD/MM/YY): 02/08/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NDWF Project #: 18654 Turbine #: T05

Photo Numbers (from turbine base)
Facing North: 2720
Facing East: 2721
Facing South: 2722
Facing West: 2723
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: 160517
Facing East: 160528
Facing South: 160539
Facing West: 160553
(sketch habitat and visibility classes)

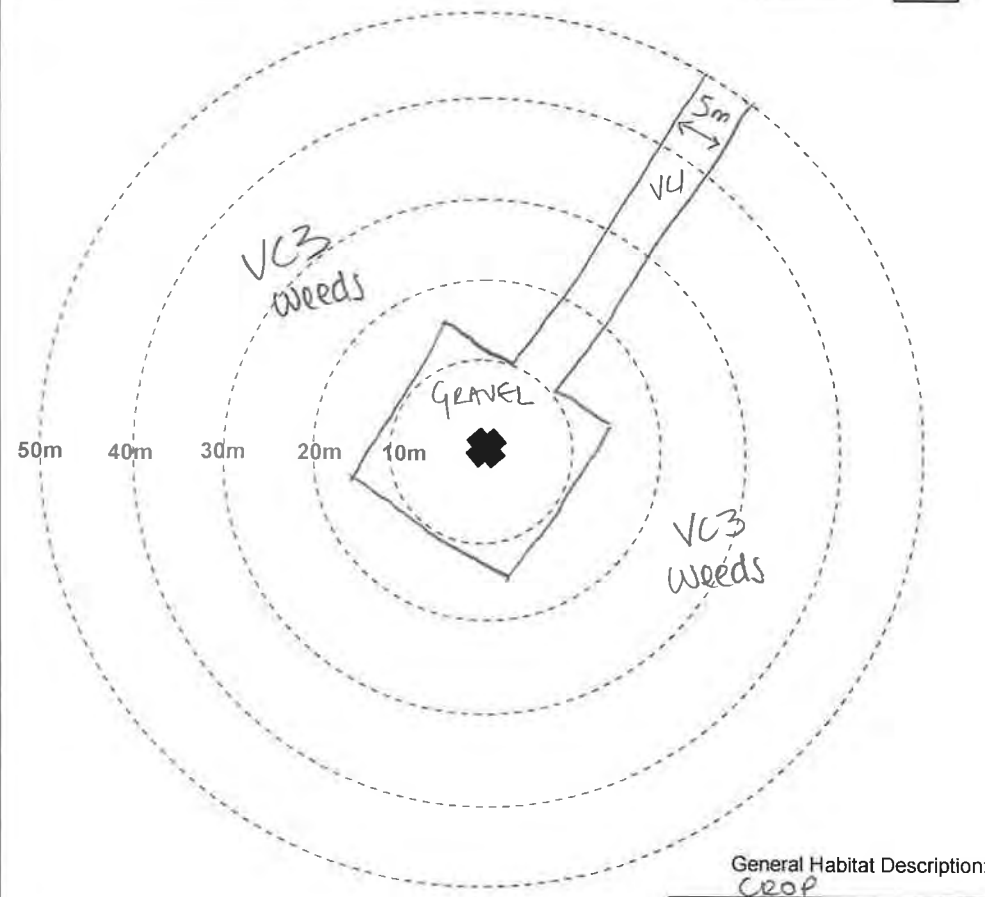
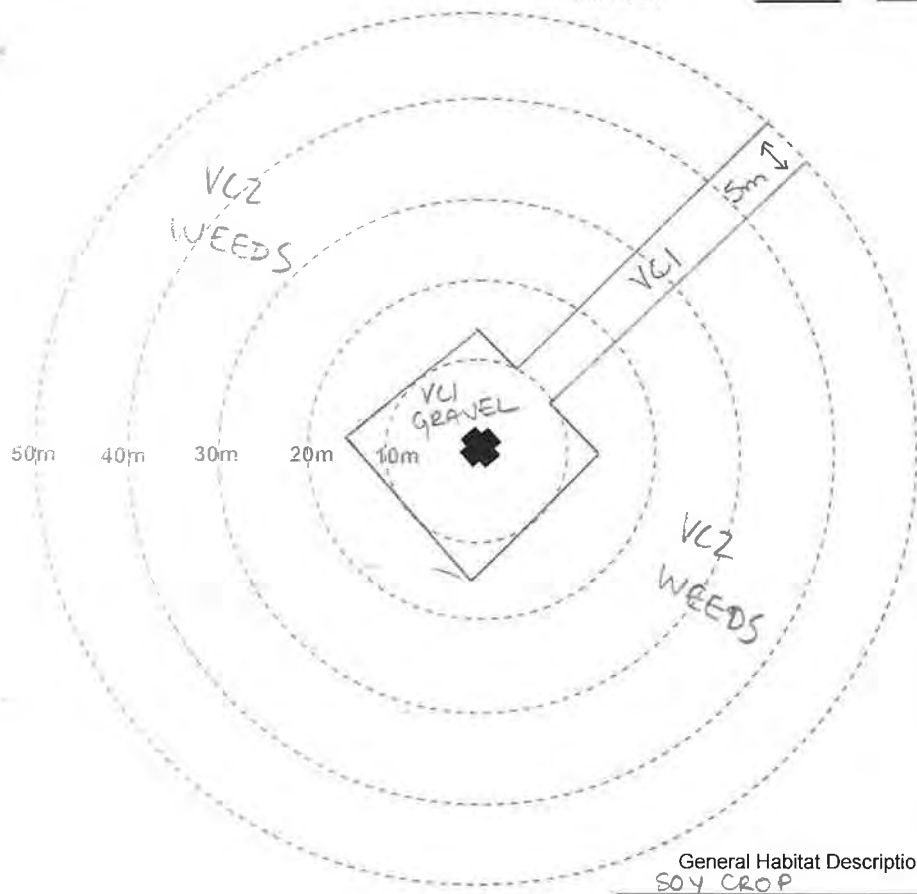
Date (DD/MM/YY): 01/10/2019

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NIAGARA REGION WF Project #: 1805C Turbine #: T05

Photo Numbers (from turbine base)
Facing North: 133504
Facing East: 133513
Facing South: 133530
Facing West: 133538
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28 / 11 / 19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

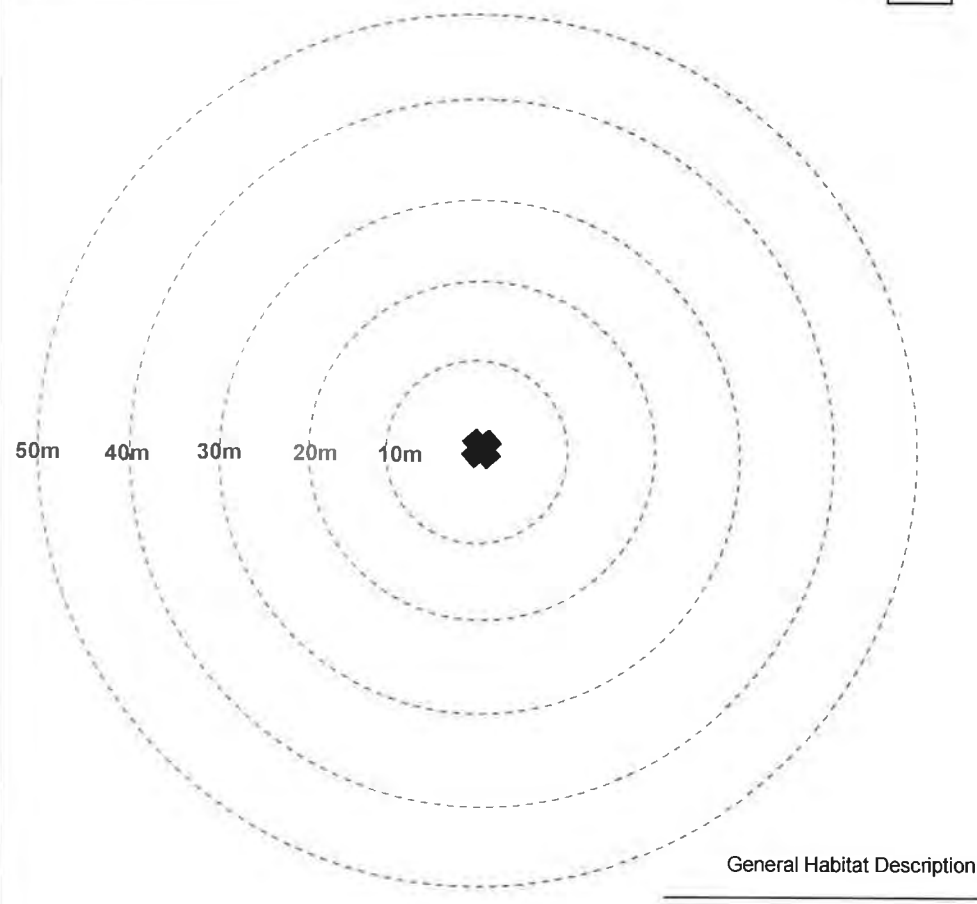
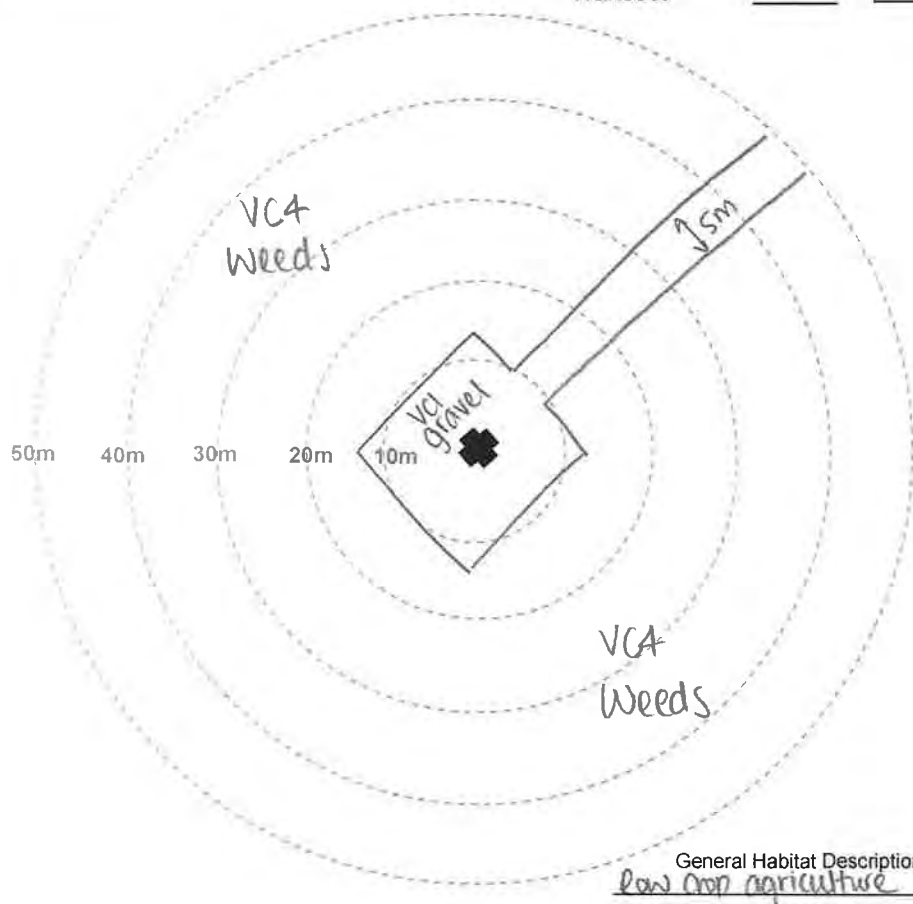
Date (DD/MM/YY): ____ / ____ / ____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: 107 Degree of Slope 1 degrees Slope Orientation NE (e.g. SSW)

Photo Numbers (from turbine base)

Facing North: 0748

Facing East: 0749

Facing South: 0750

Facing West: 0751

(sketch habitat and visibility classes)

Date (DD/MM/YY): 09/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m



N

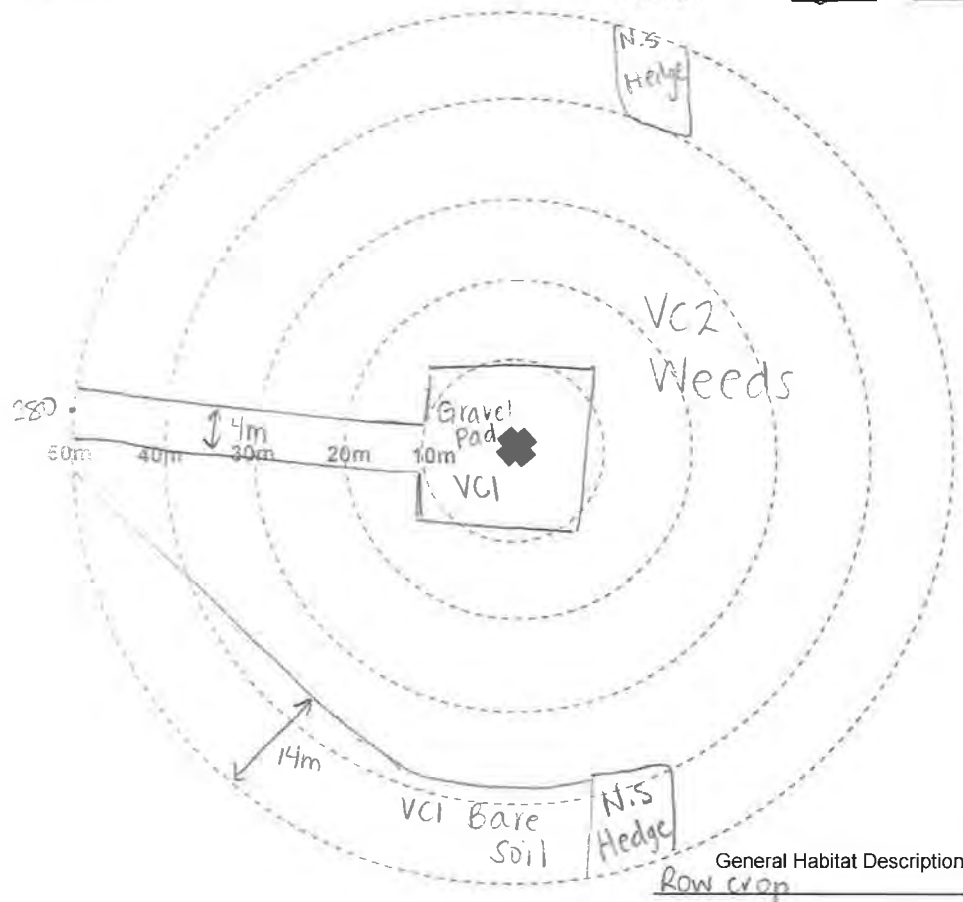


Photo Numbers (from turbine base)

Facing North: 0978

Facing East: 0979

Facing South: 0980

Facing West: 0981

(sketch habitat and visibility classes)

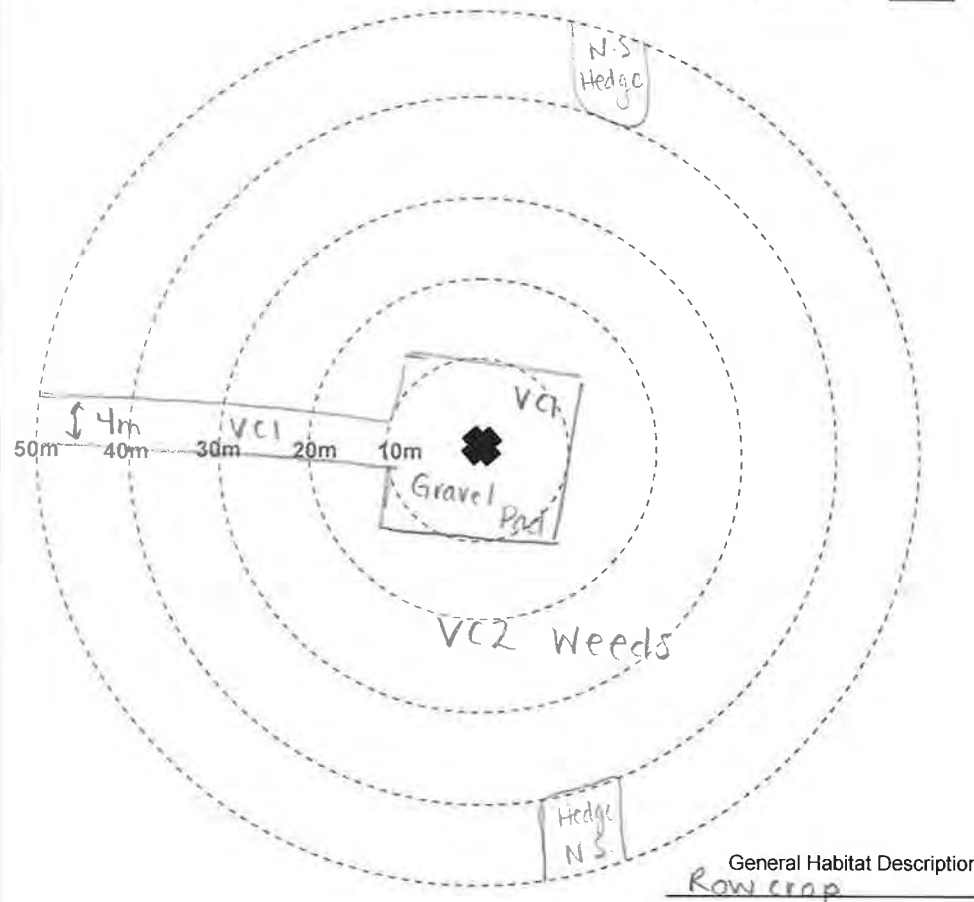
Date (DD/MM/YY): 06/06/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 18650 Turbine #: T07

Photo Numbers (from turbine base)
Facing North: 1113
Facing East: 1114
Facing South: 1115
Facing West: 1116
(sketch habitat and visibility classes)

Date (DD/MM/YY): 04/07/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

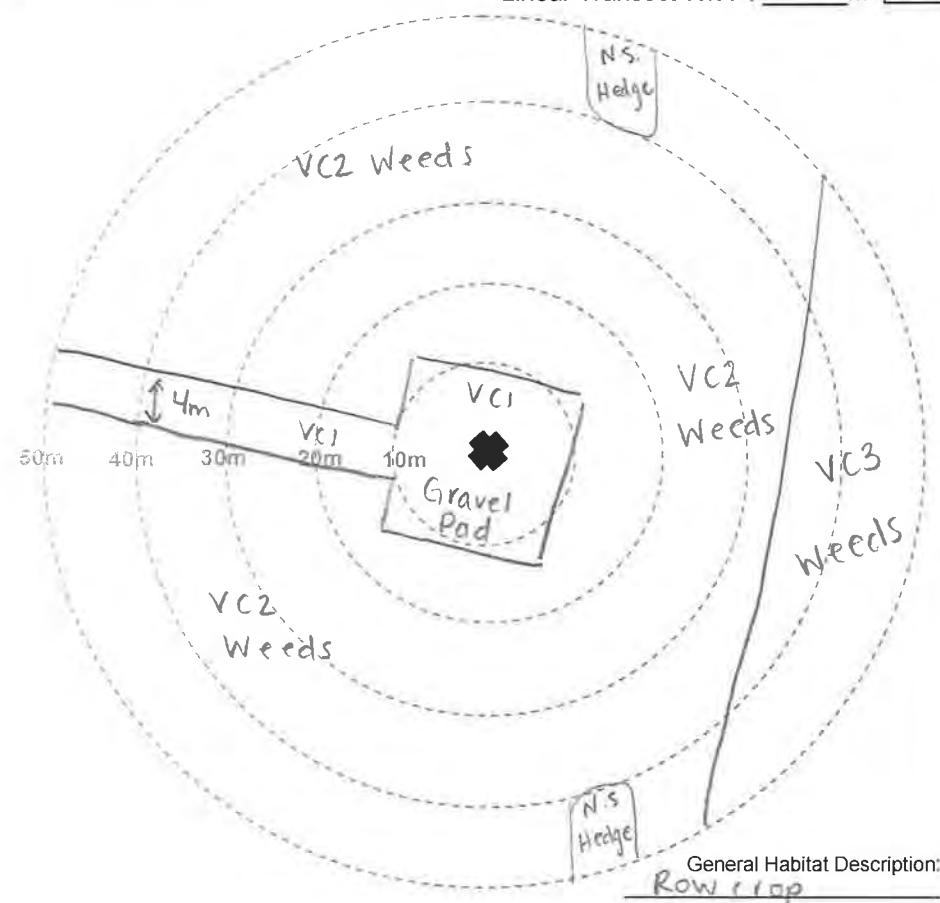
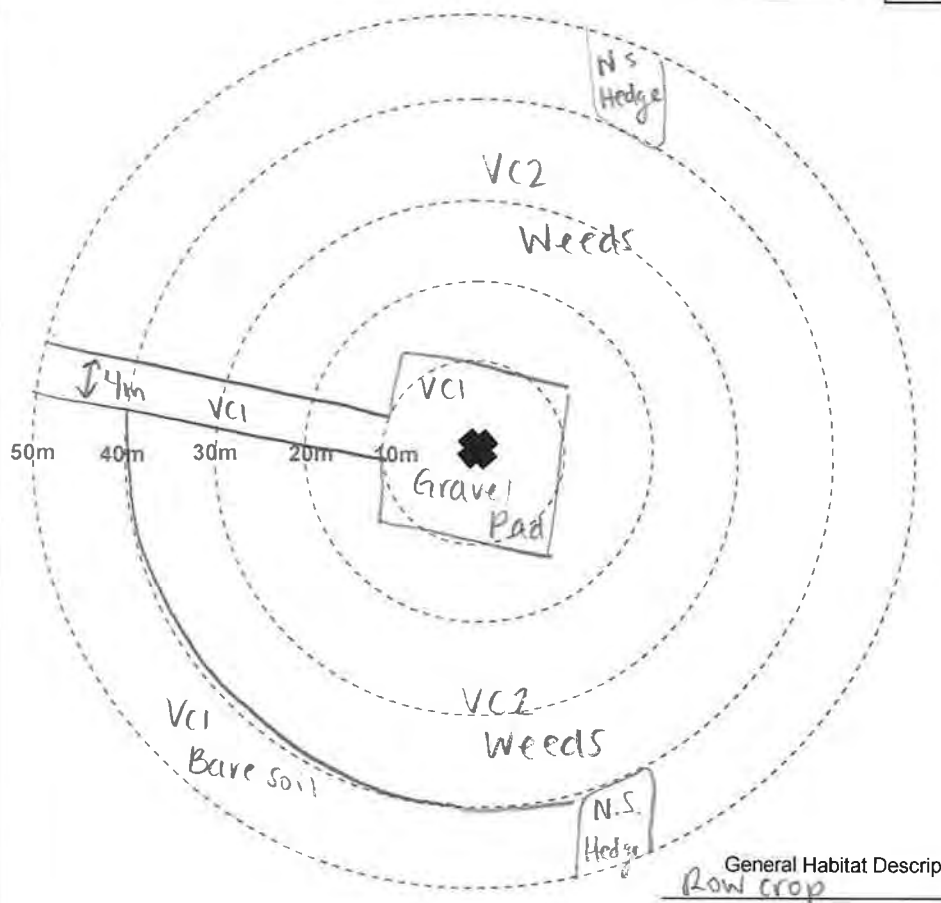


Photo Numbers (from turbine base)
Facing North: 1266
Facing East: 1267
Facing South: 1268
Facing West: 1269
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T07

Photo Numbers (from turbine base)

Facing North:	<u>1502</u>
Facing East:	<u>1503</u>
Facing South:	<u>1504</u>
Facing West:	<u>1505</u>

(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19

Observer: BEIM

Monthly/Seasonal
Linear Transect Width: 5 m

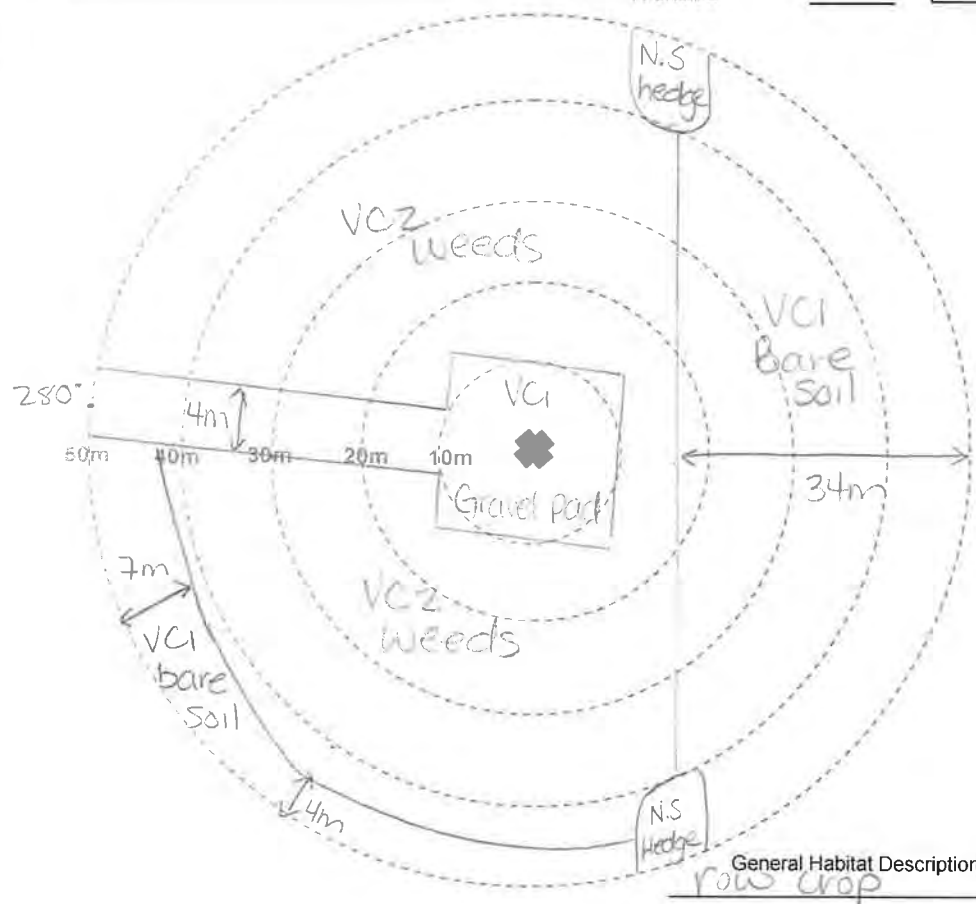
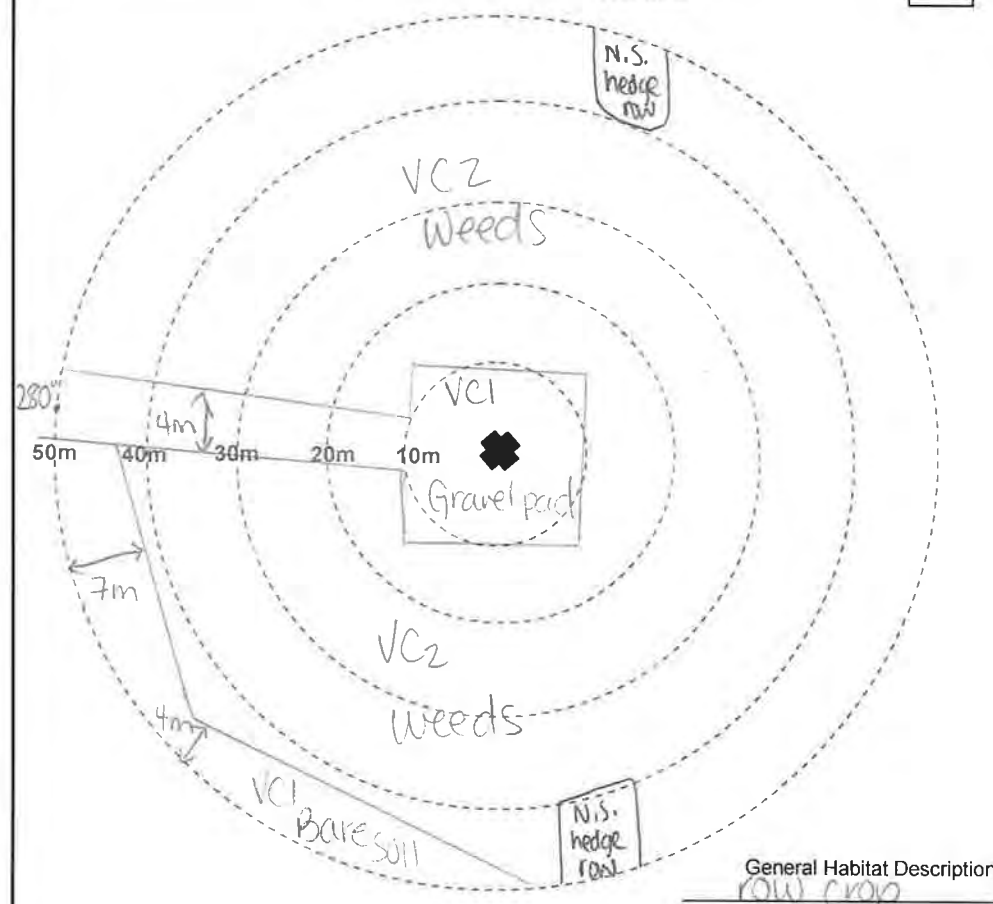


Photo Numbers (from turbine base)
Facing North: 2950
Facing East: 2951
Facing South: 2952
Facing West: 2953
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region W.F. Project #: 1865C Turbine #: T07

Photo Numbers (from turbine base)
Facing North: 112335
Facing East: 112346
Facing South: 112354
Facing West: 112800
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

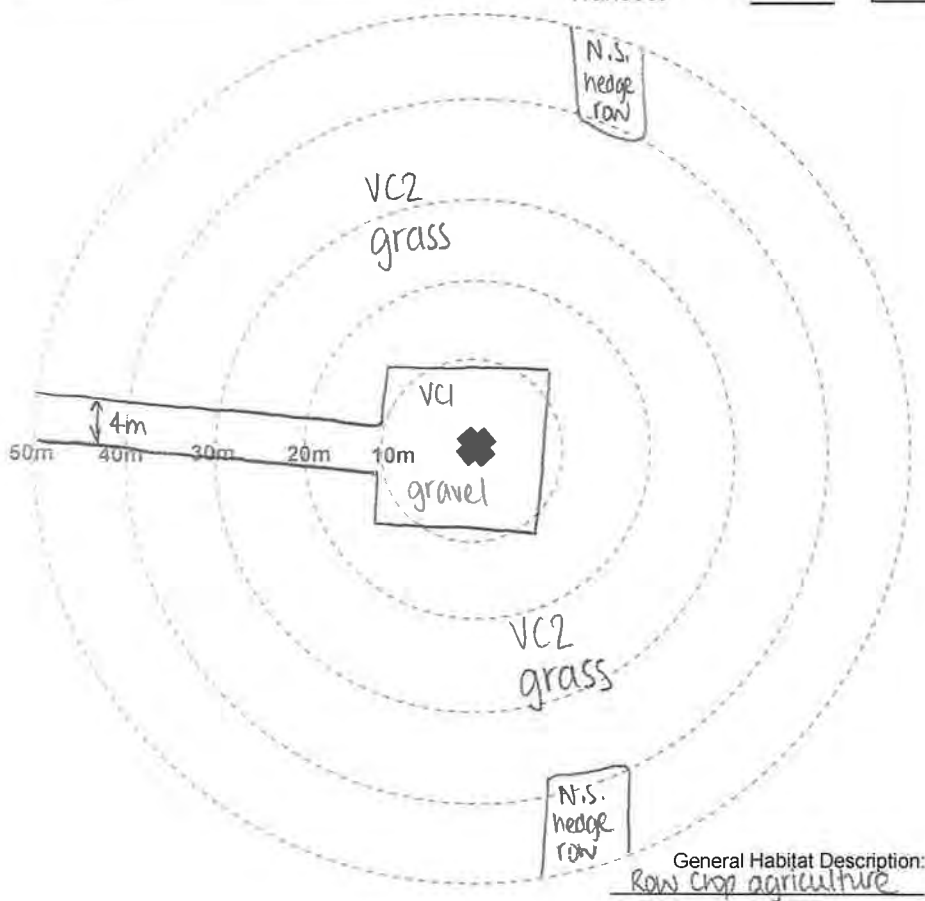
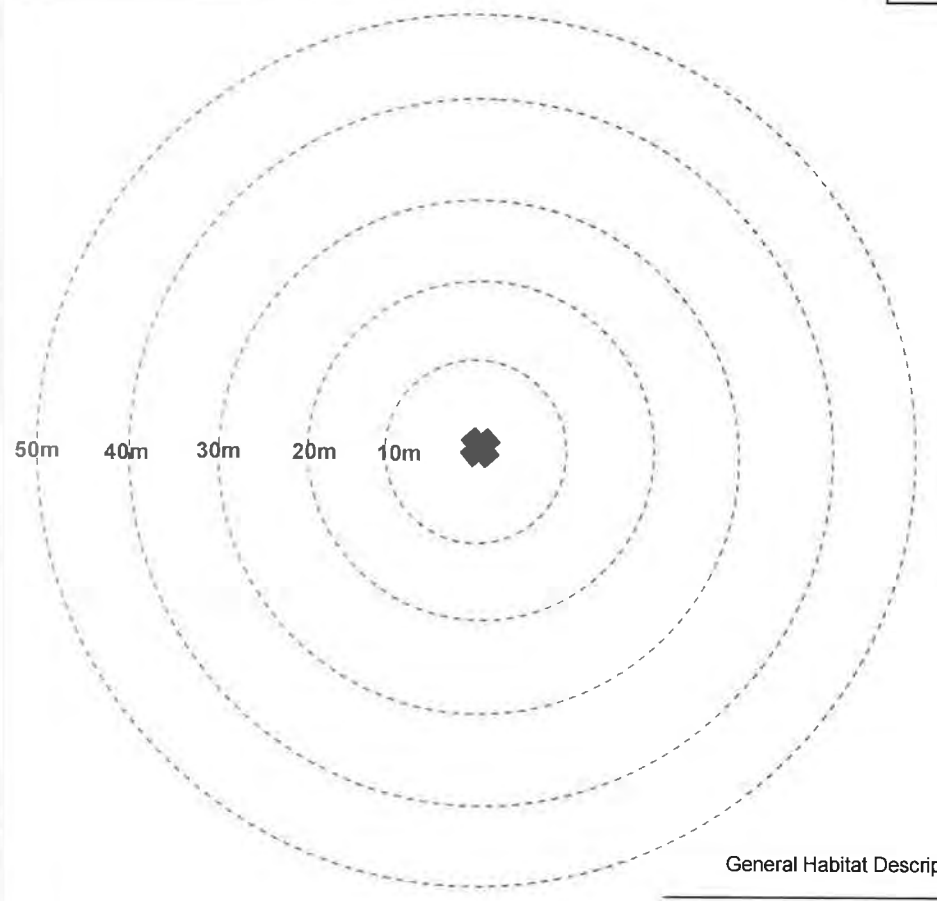


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T08 Degree of Slope 2 degrees Slope Orientation E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0876
Facing East: 0877
Facing South: 0878
Facing West: 0879
(sketch habitat and visibility classes)

Date (DD/MM/YY): 16/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

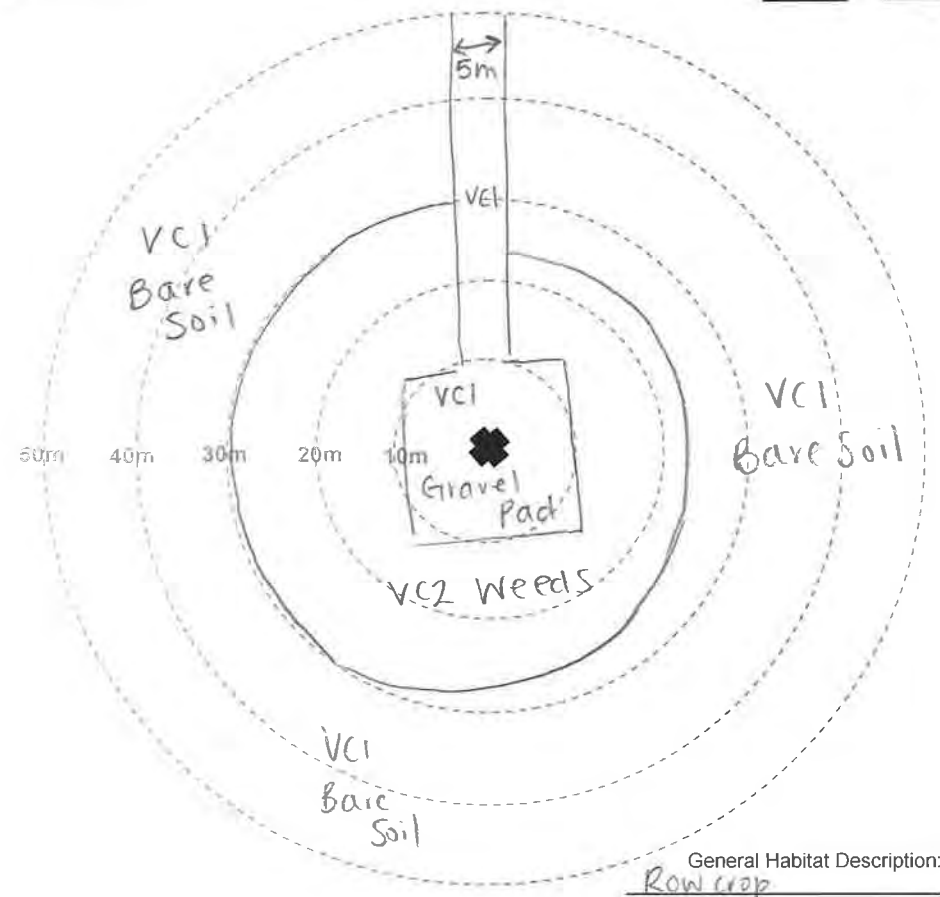
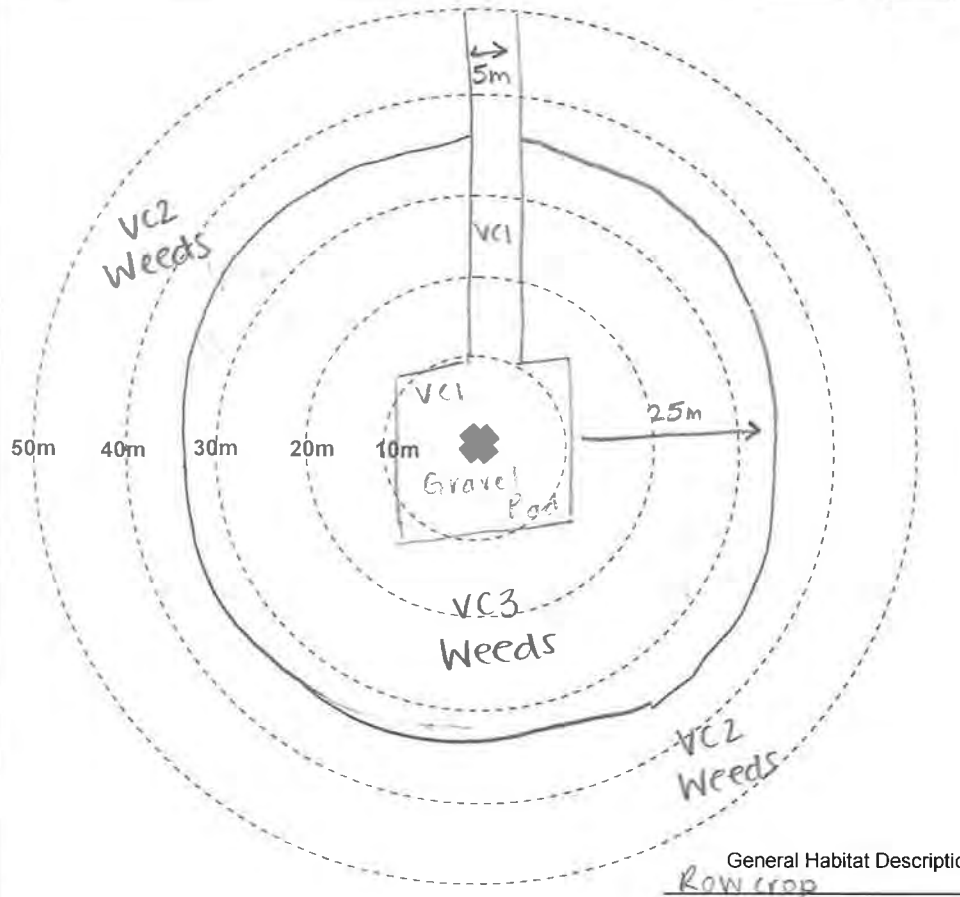


Photo Numbers (from turbine base)
Facing North: 0974
Facing East: 0975
Facing South: 0976
Facing West: 0977
(sketch habitat and visibility classes)

Date (DD/MM/YY): 06/06/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Project Name: NRWF Project #: 1865C Turbine #: T08

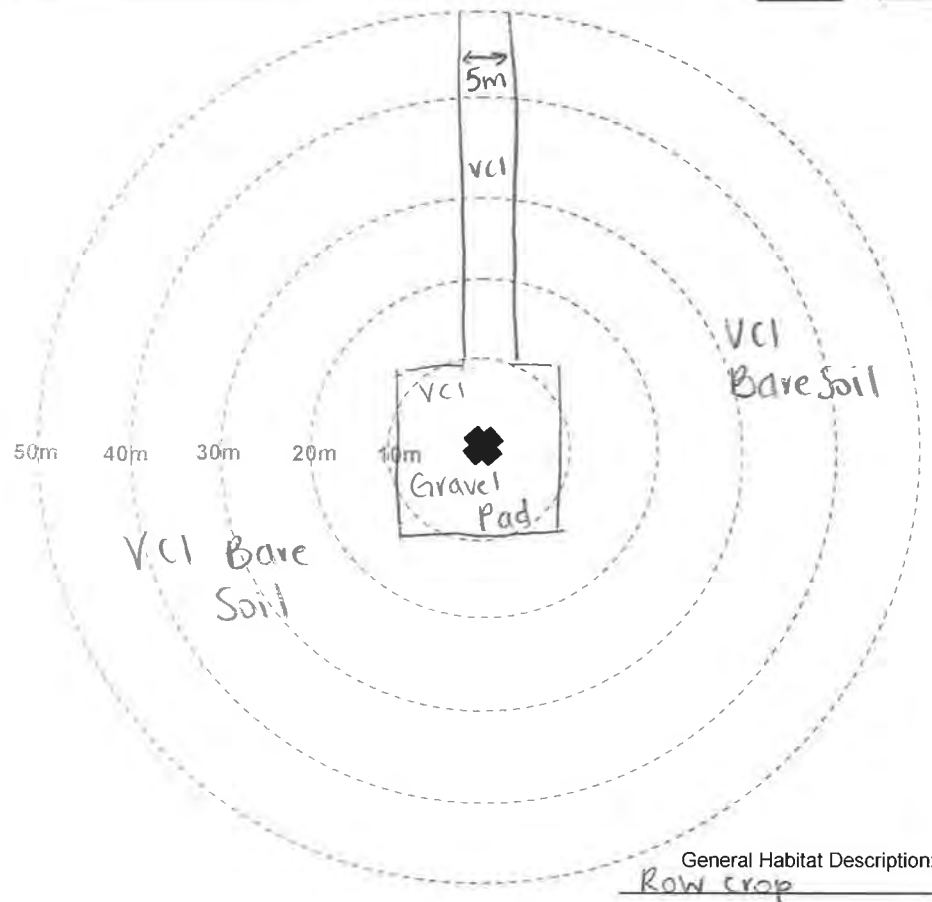
Date (DD/MM/YY): 08/07/19

Observer: MCB

Monthly/Seasonal

Linear Transect Width: 5 m

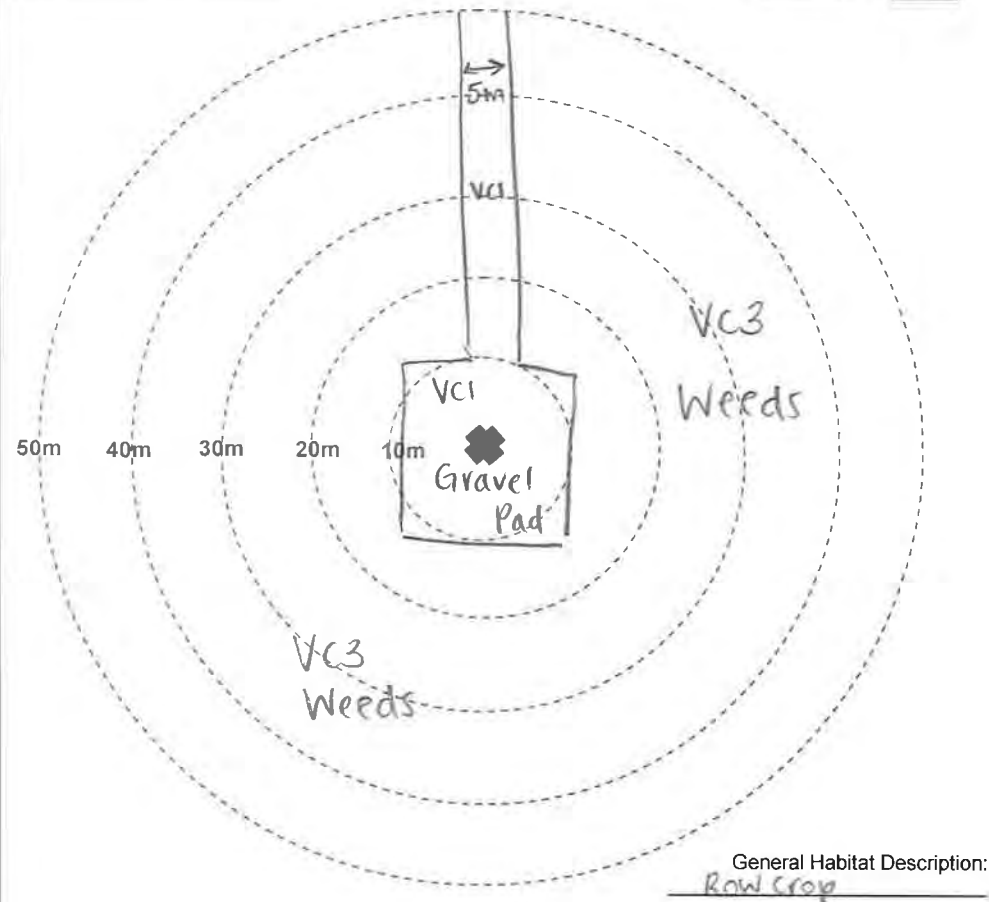
N



Date (DD/MM/YY): 01/08/19 

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m 



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1365C Turbine #: T08

Photo Numbers (from turbine base)
Facing North: 1493
Facing East: 1494
Facing South: 1495
Facing West: 1496
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m

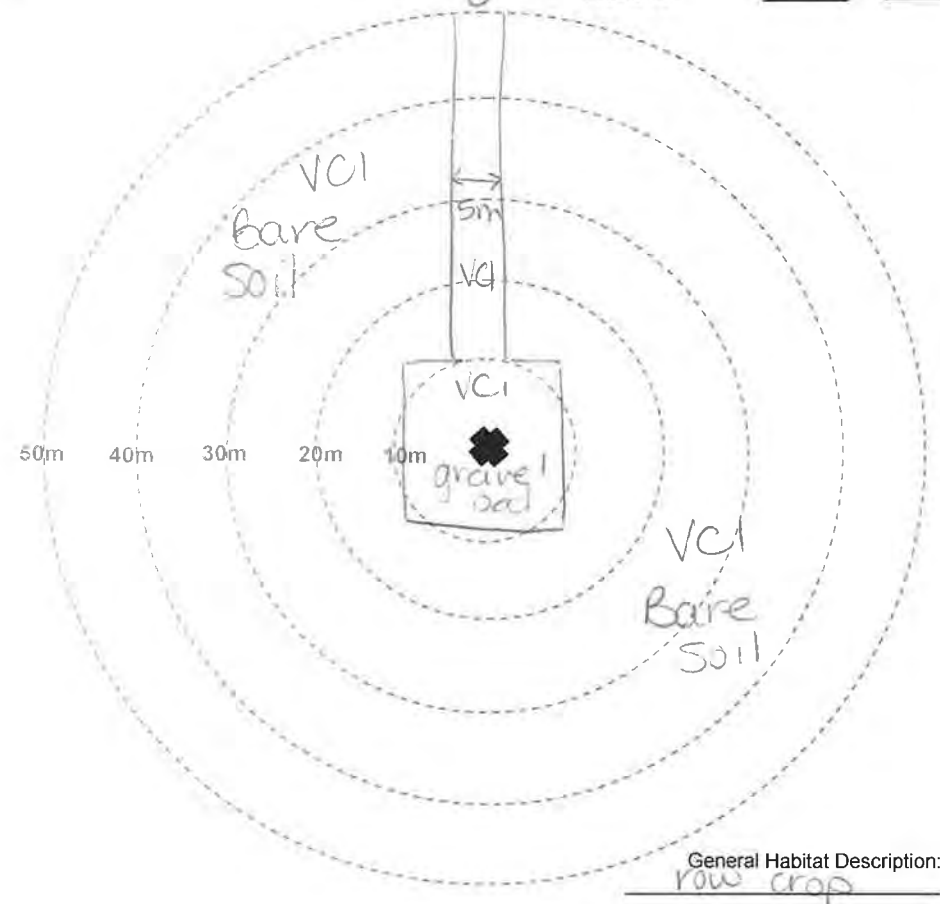
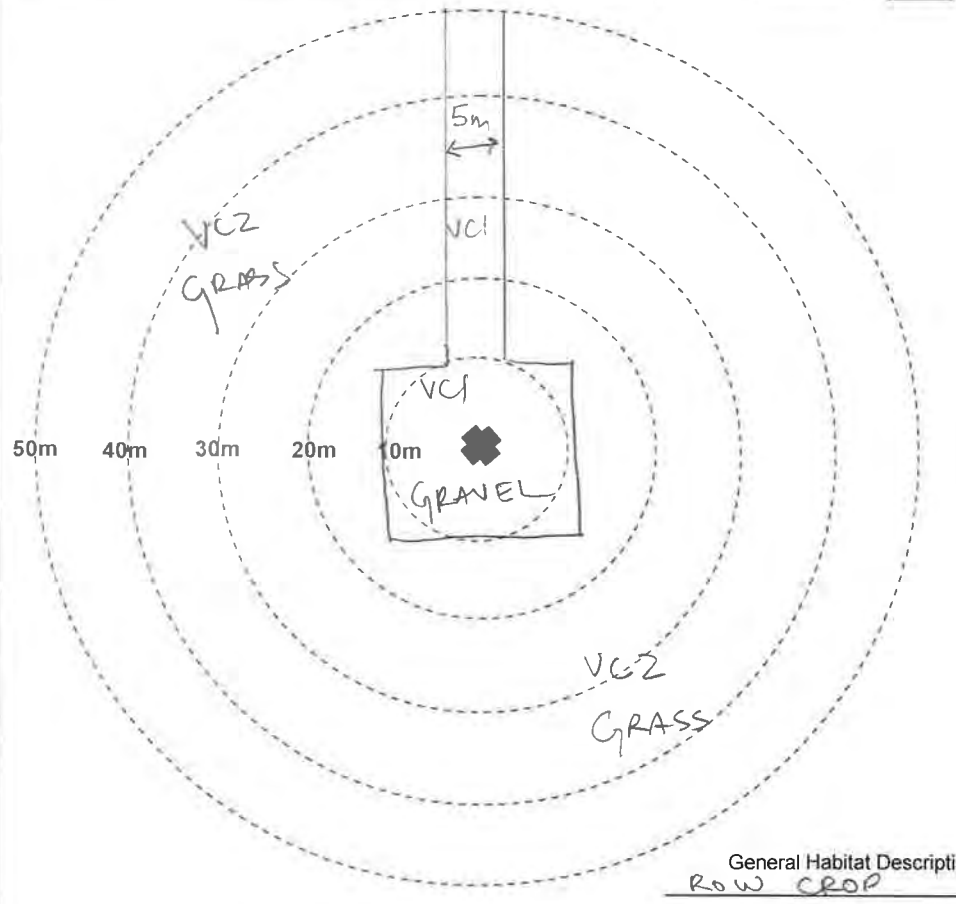


Photo Numbers (from turbine base)
Facing North: 2946
Facing East: 2947
Facing South: 2948
Facing West: 2949
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T08

Photo Numbers (from turbine base)
Facing North: 104104
Facing East: 104114
Facing South: 104123
Facing West: 104131
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19

Observer: EWJ

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

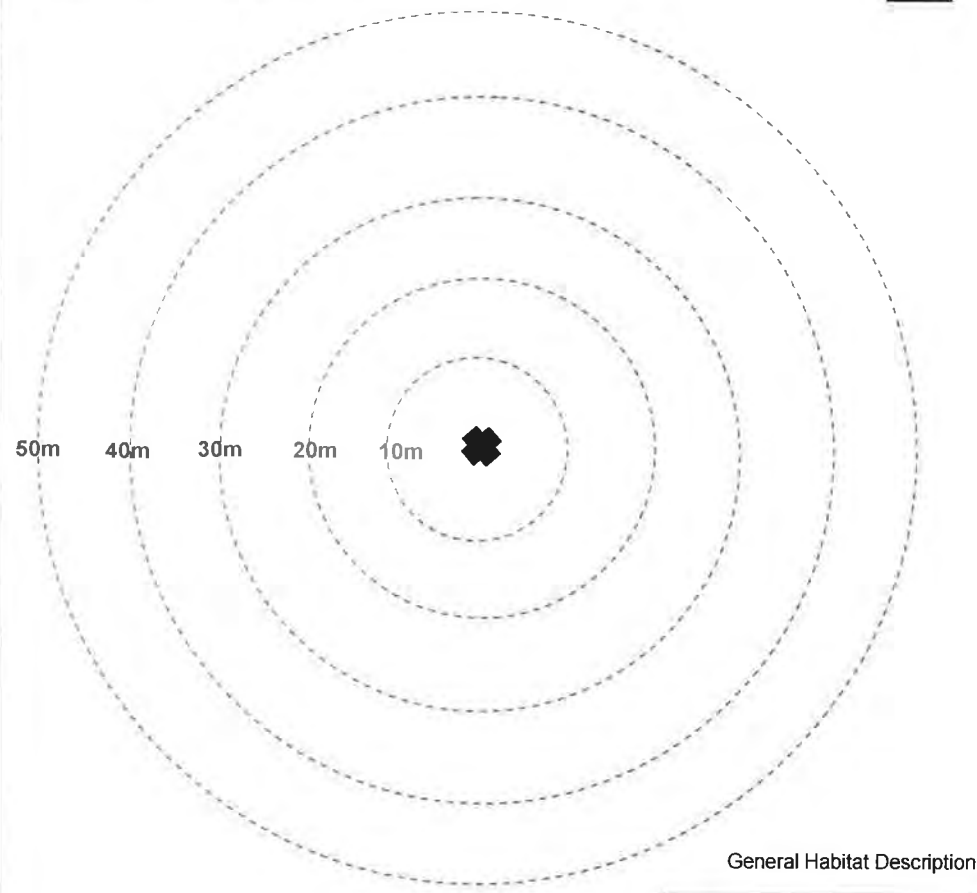
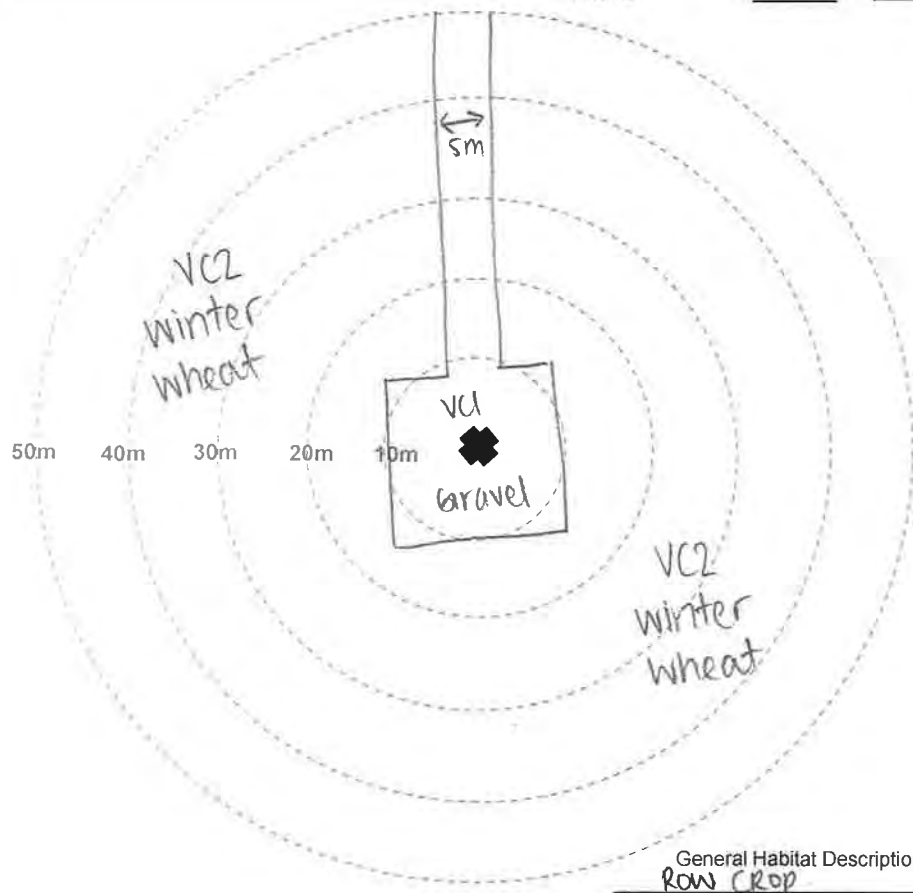
Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T12 Degree of Slope 1 degrees Slope Orientation N (e.g. SSW)

Photo Numbers (from turbine base)

Facing North: 0834

Facing East: 0835

Facing South: 0836

Facing West: 0837

(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

Photo Numbers (from turbine base)

Facing North: 1007

Facing East: 1008

Facing South: 1009

Facing West: 1010

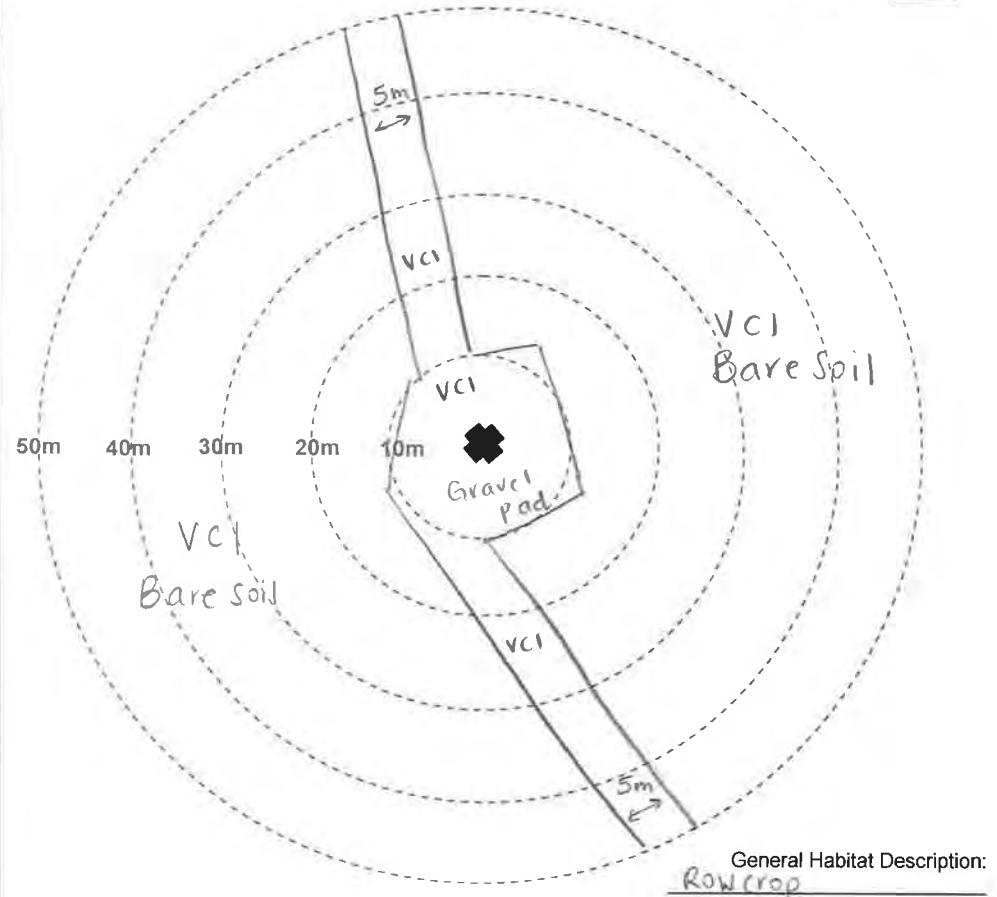
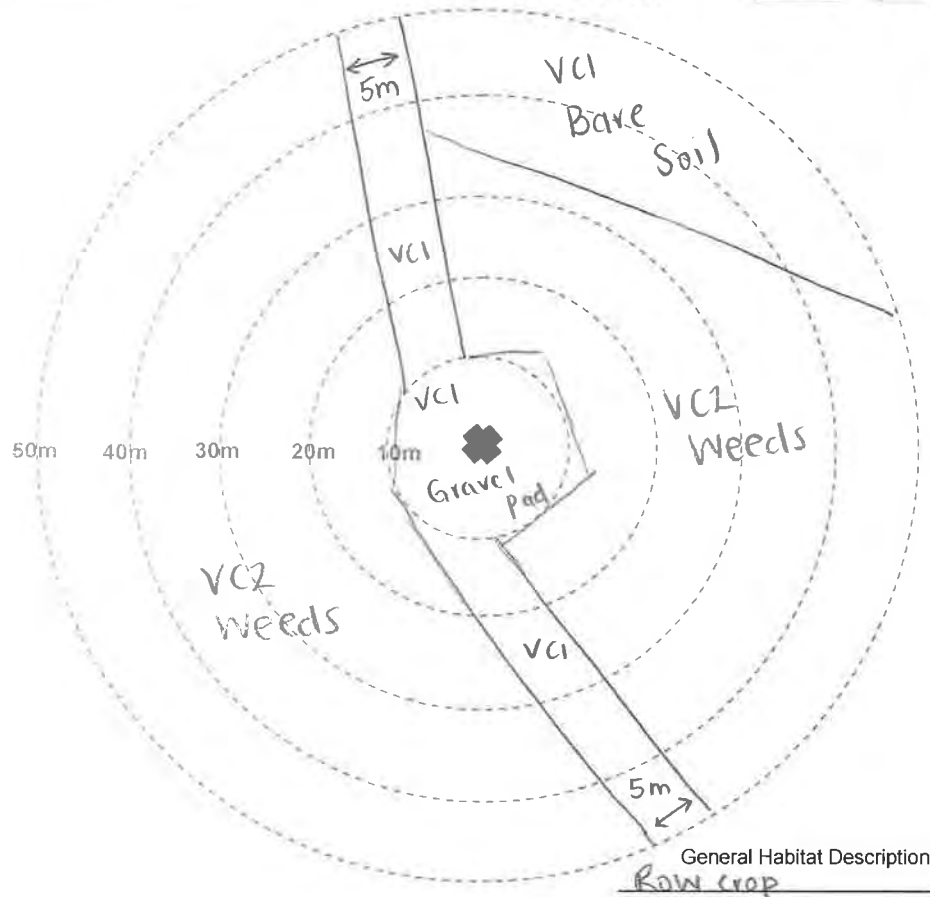
(sketch habitat and visibility classes)

Date (DD/MM/YY): 07/06/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T12

Photo Numbers (from turbine base)

Facing North: 1168

Facing East: 1169

Facing South: 1170

Facing West: 1171

(sketch habitat and visibility classes)

Date (DD/MM/YY): 09/07/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m



N

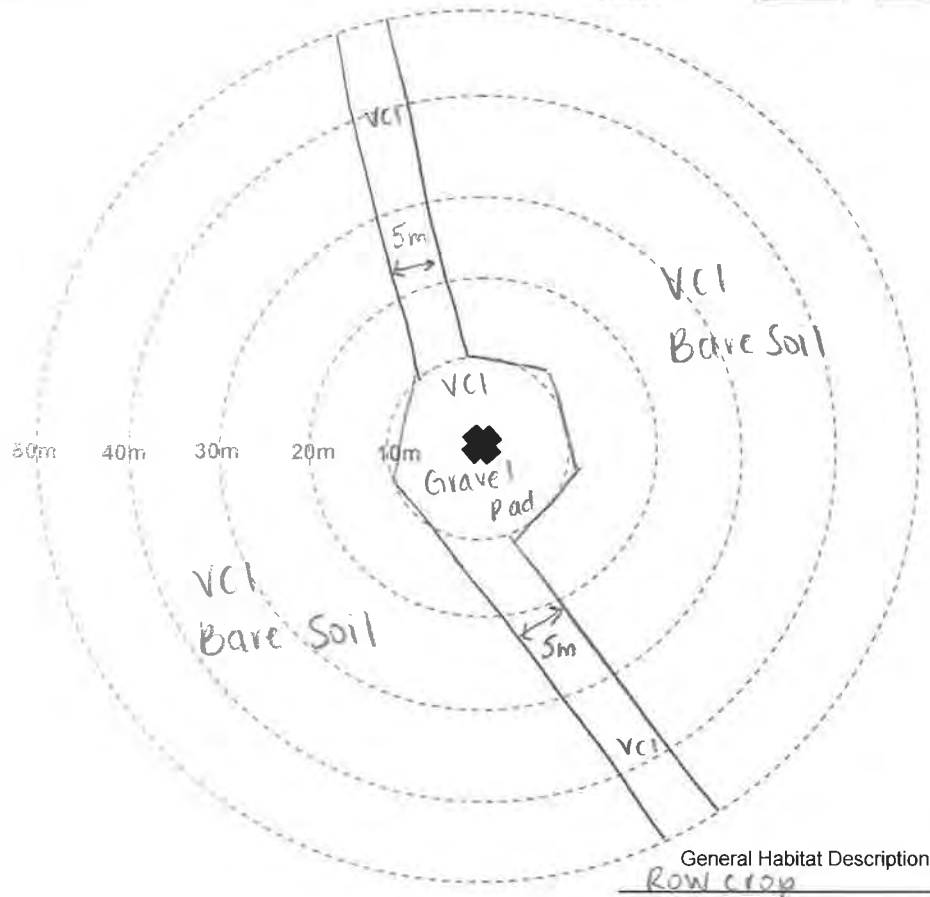


Photo Numbers (from turbine base)

Facing North: 1379

Facing East: 1380

Facing South: 1381

Facing West: 1382

(sketch habitat and visibility classes)

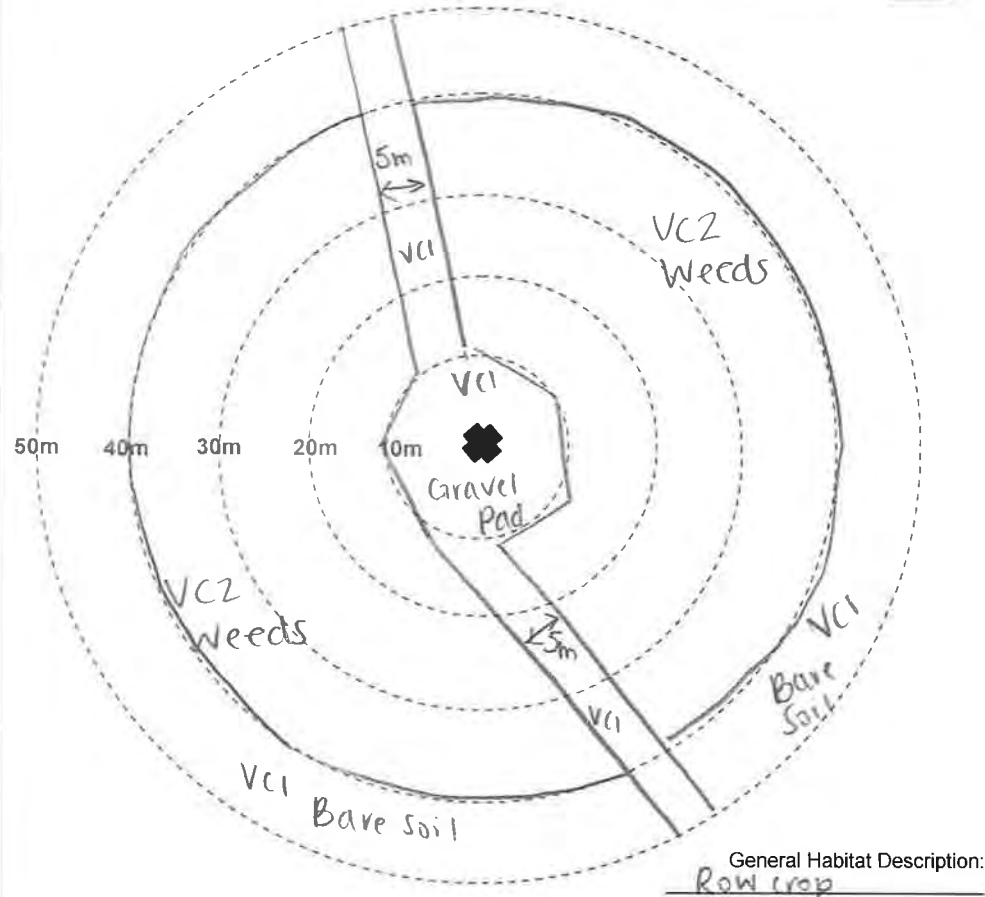
Date (DD/MM/YY): 16/08/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: 112

Photo Numbers (from turbine base)
Facing North: 1608
Facing East: 1609
Facing South: 1610
Facing West: 1611
(sketch habitat and visibility classes)

Date (DD/MM/YY): 10/19/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m

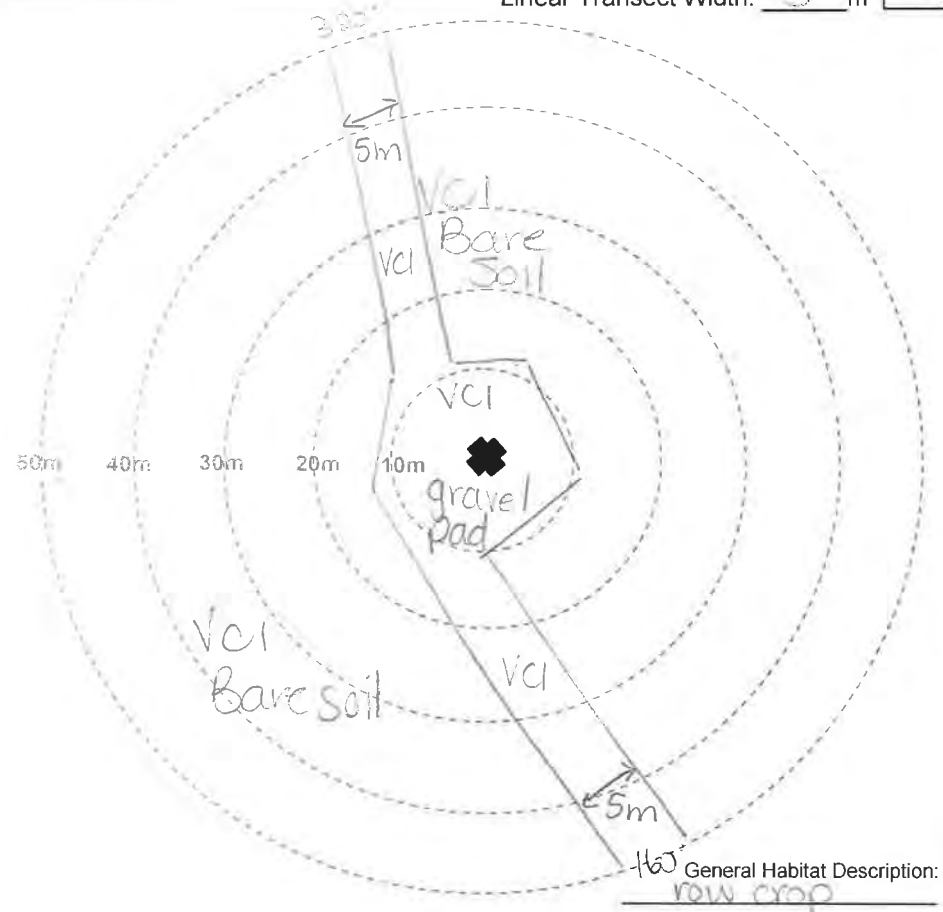
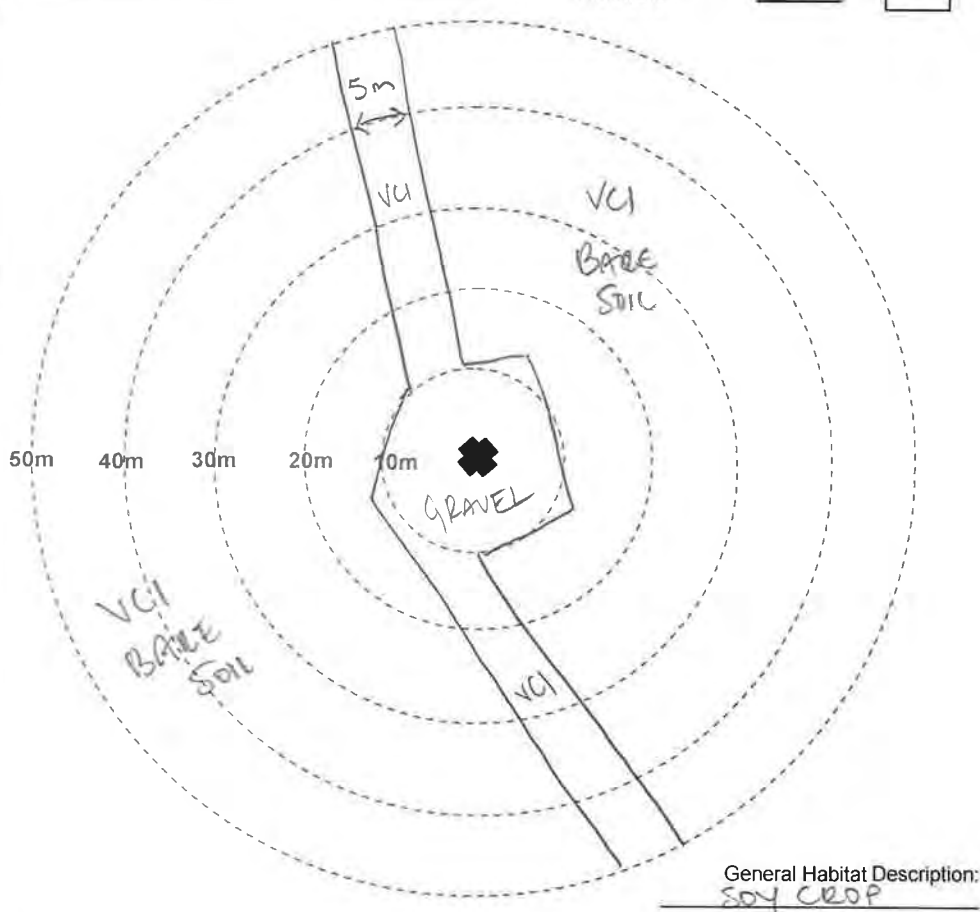


Photo Numbers (from turbine base)
Facing North: 154553
Facing East: 154605
Facing South: 154615
Facing West: 154624
(sketch habitat and visibility classes)

Date (DD/MM/YY): 08/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T12

Photo Numbers (from turbine base)
Facing North: 141112
Facing East: 141121
Facing South: 141133
Facing West: 141144
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

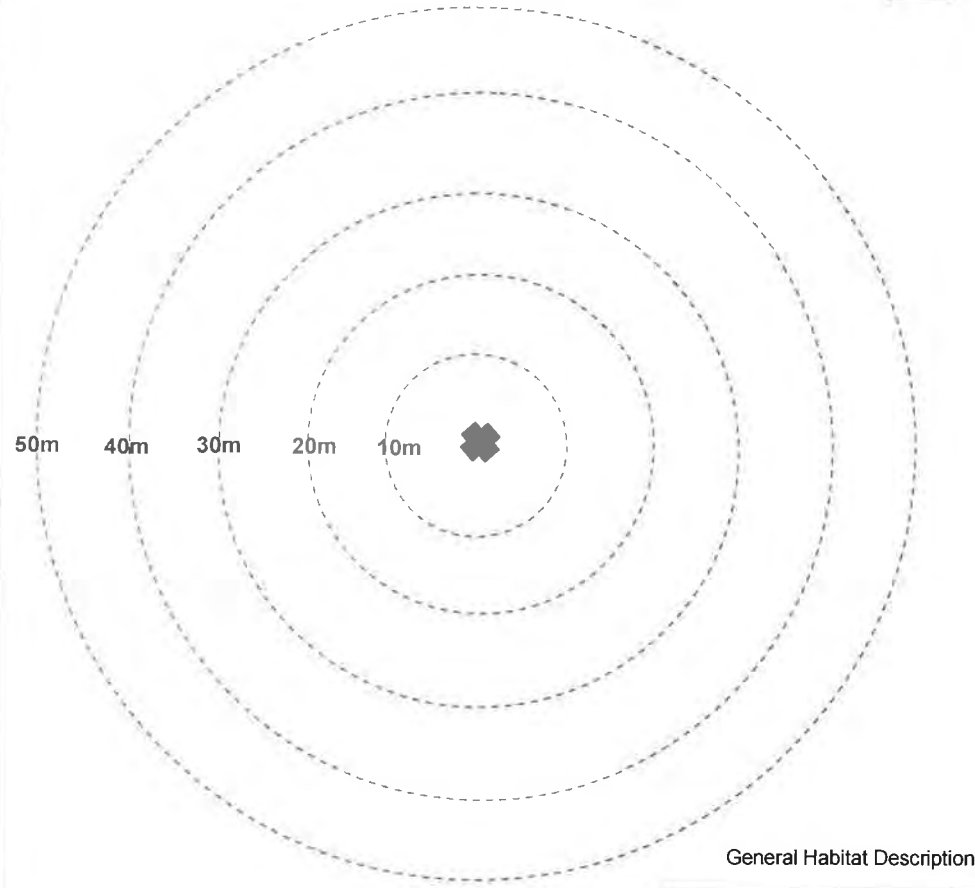
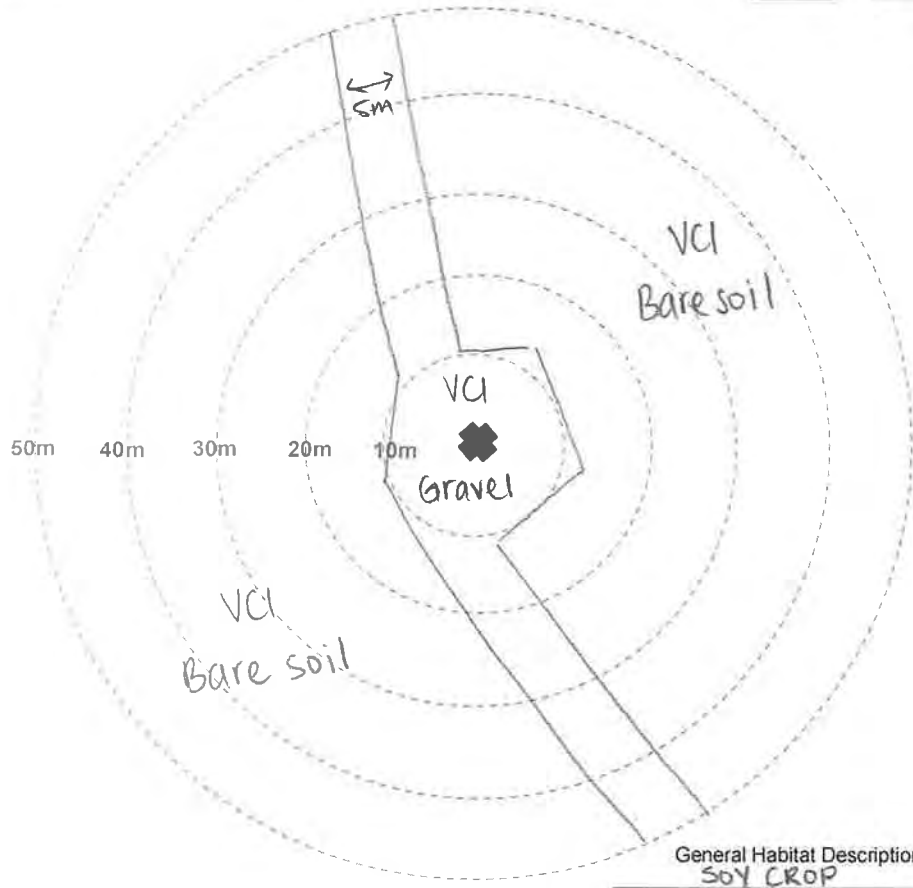


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T16 Degree of Slope 0 degrees Slope Orientation — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0796
Facing East: 0797
Facing South: 0798
Facing West: 0799
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

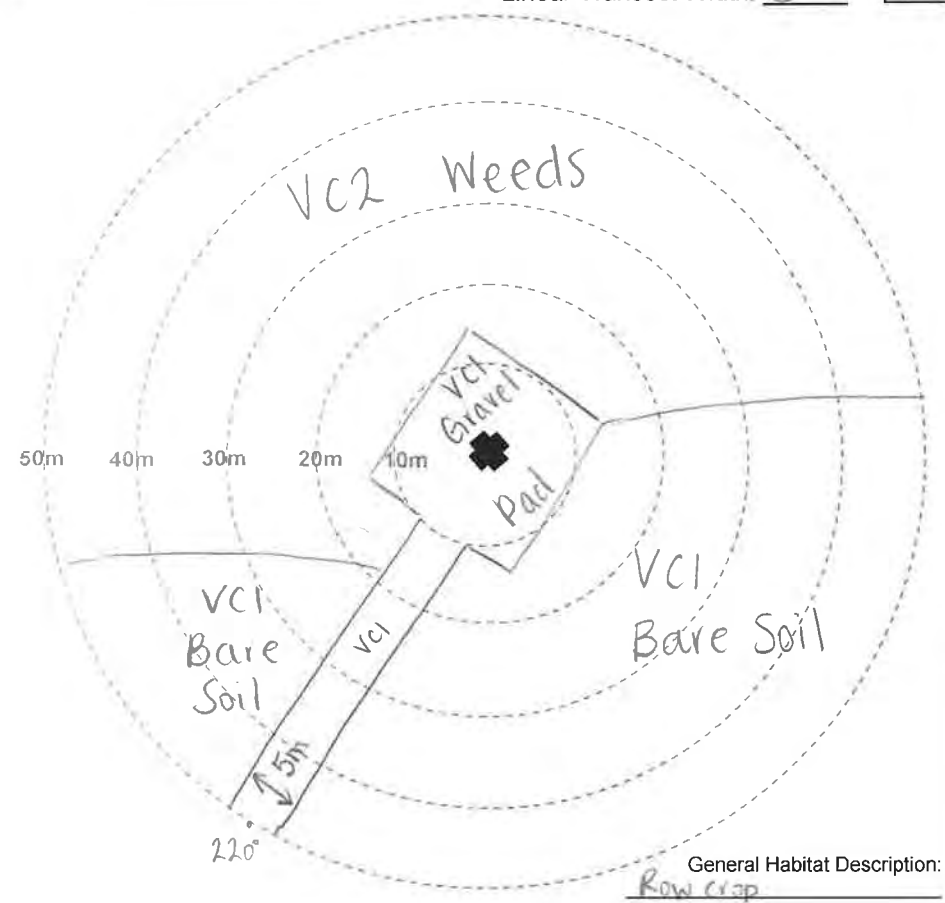
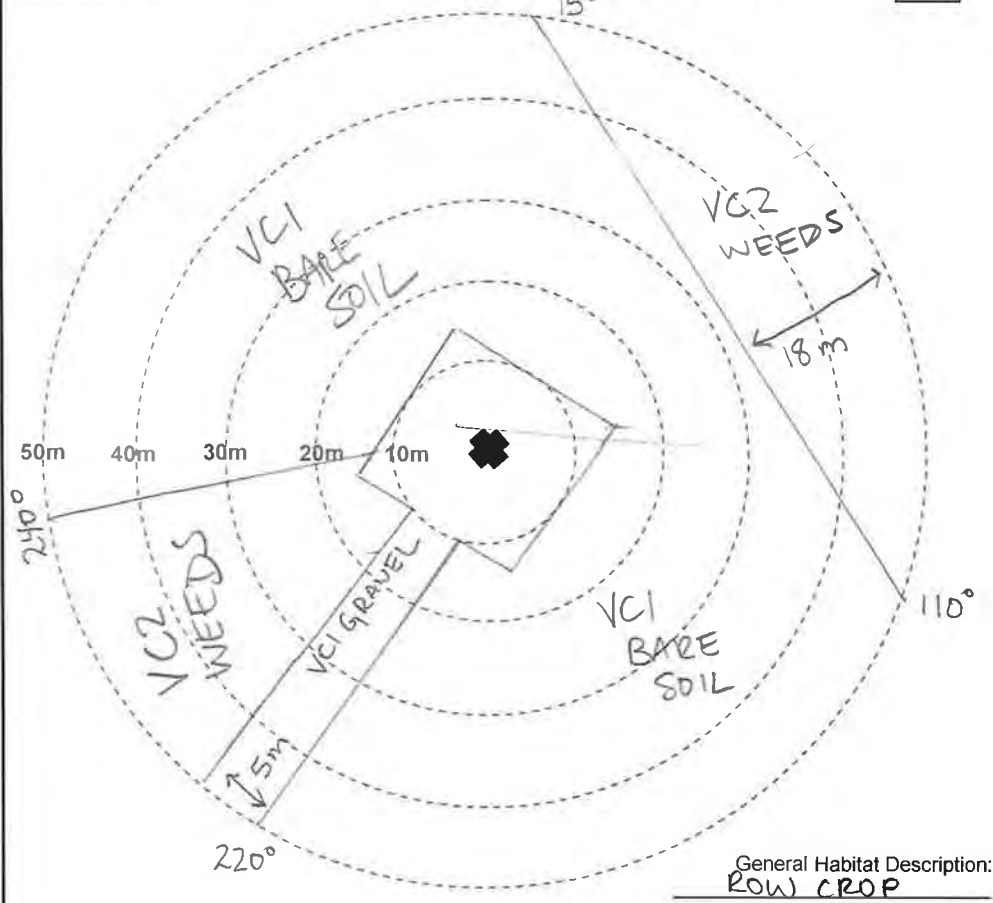


Photo Numbers (from turbine base)
Facing North: 2142
Facing East: 2142
Facing South: 2143
Facing West: 2144
(sketch habitat and visibility classes)

Date (DD/MM/YY): 10/06/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865L Turbine #: 16

Photo Numbers (from turbine base)
Facing North: 2199
Facing East: 2200
Facing South: 2201
Facing West: 2202
(sketch habitat and visibility classes)

Date (DD/MM/YY): 04/07/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

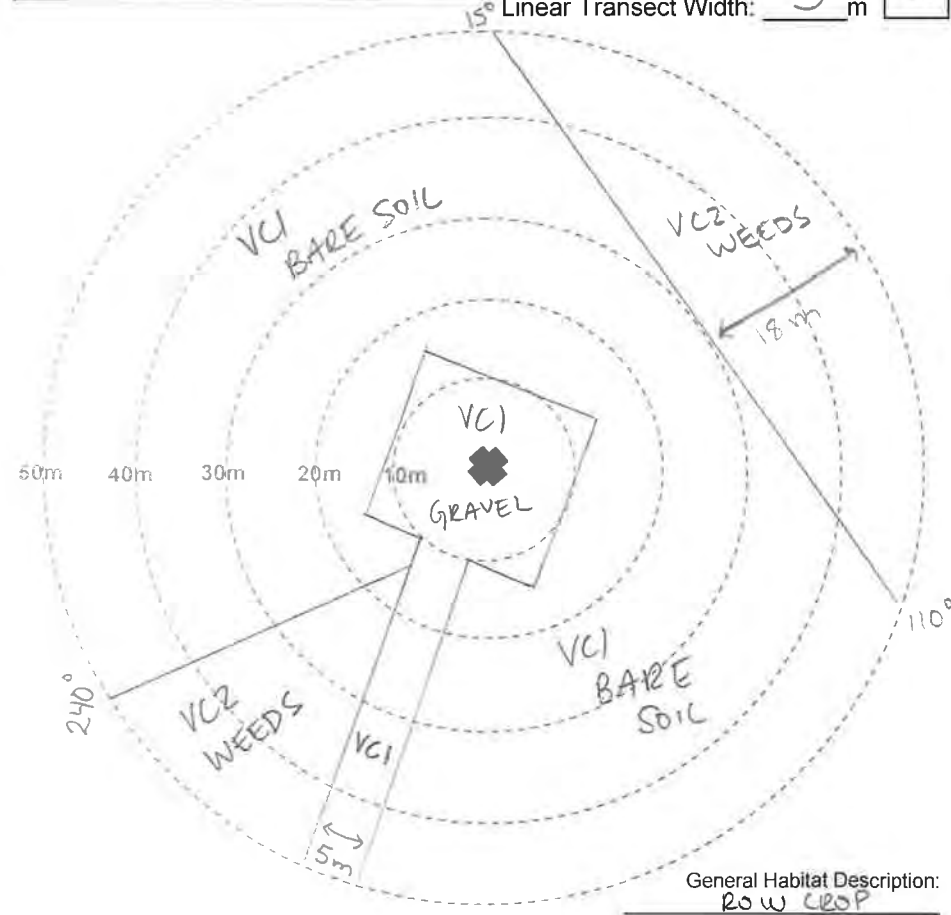
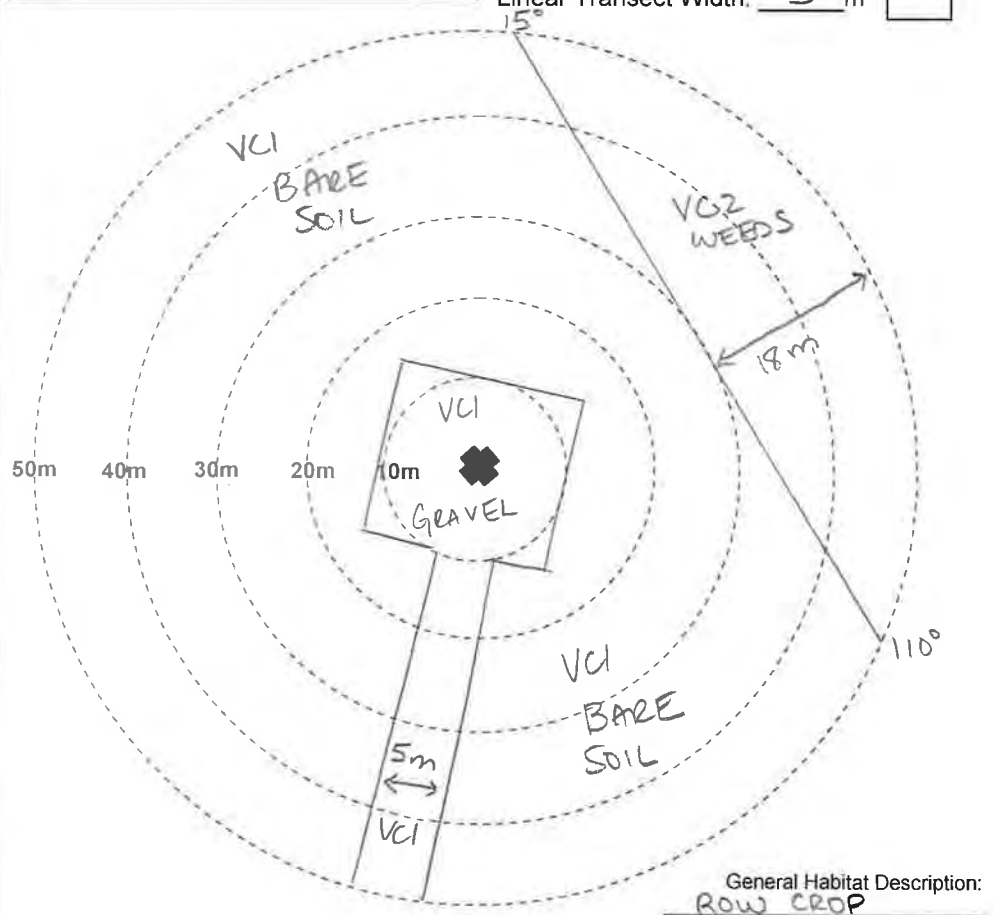


Photo Numbers (from turbine base)
Facing North: 2382
Facing East: 2383
Facing South: 2384
Facing West: 2385
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1805L Turbine #: T16

Photo Numbers (from turbine base)
Facing North: 2690
Facing East: 2691
Facing South: 2692
Facing West: 2693
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

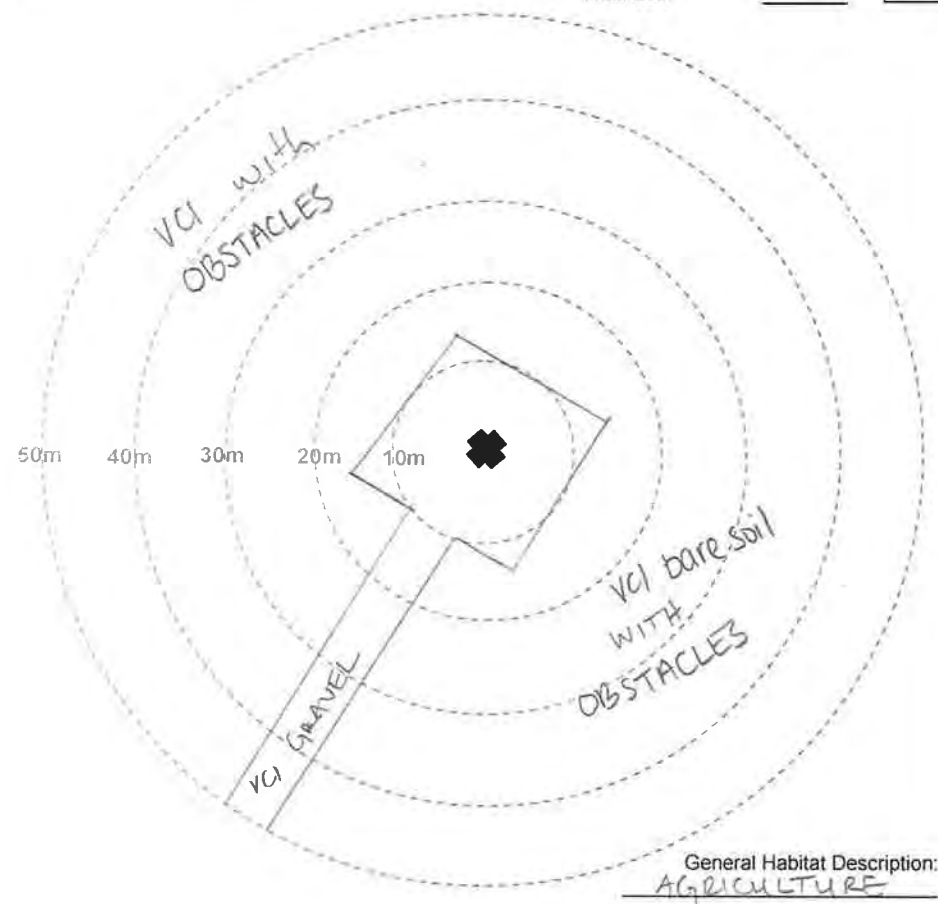
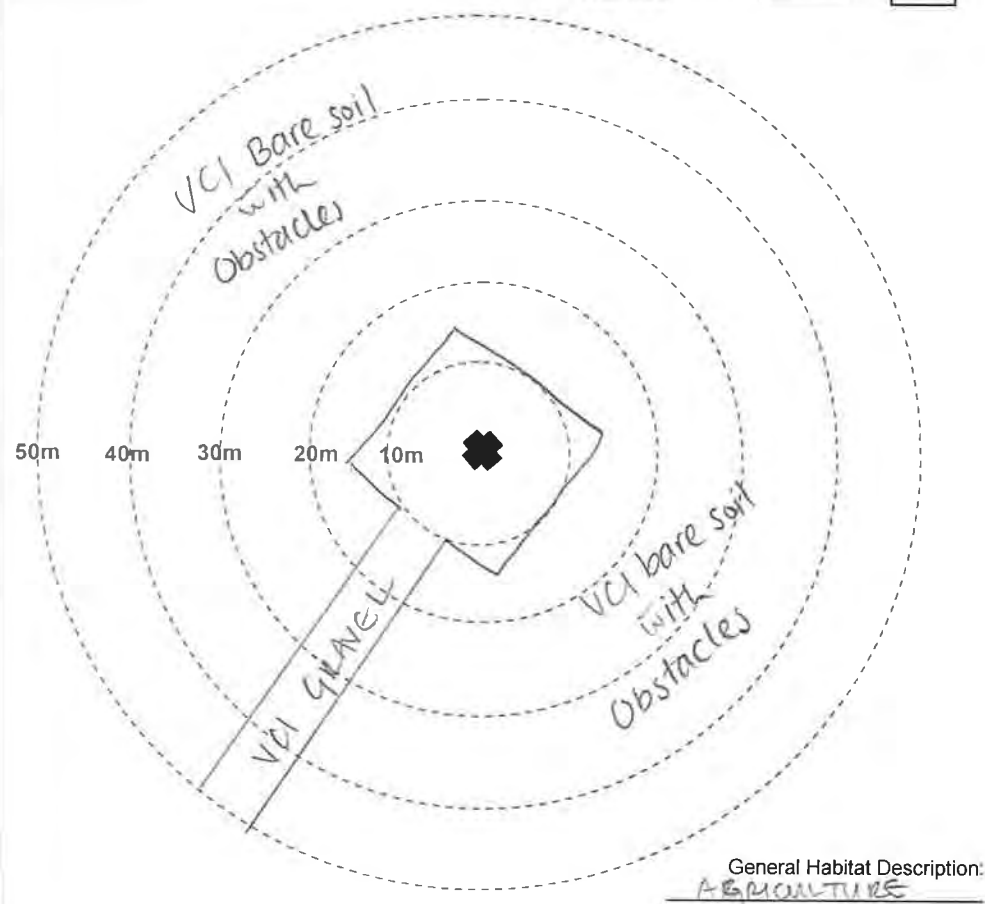


Photo Numbers (from turbine base)
Facing North: 2991
Facing East: 2992
Facing South: 2993
Facing West: 2994
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1805C Turbine #: T16

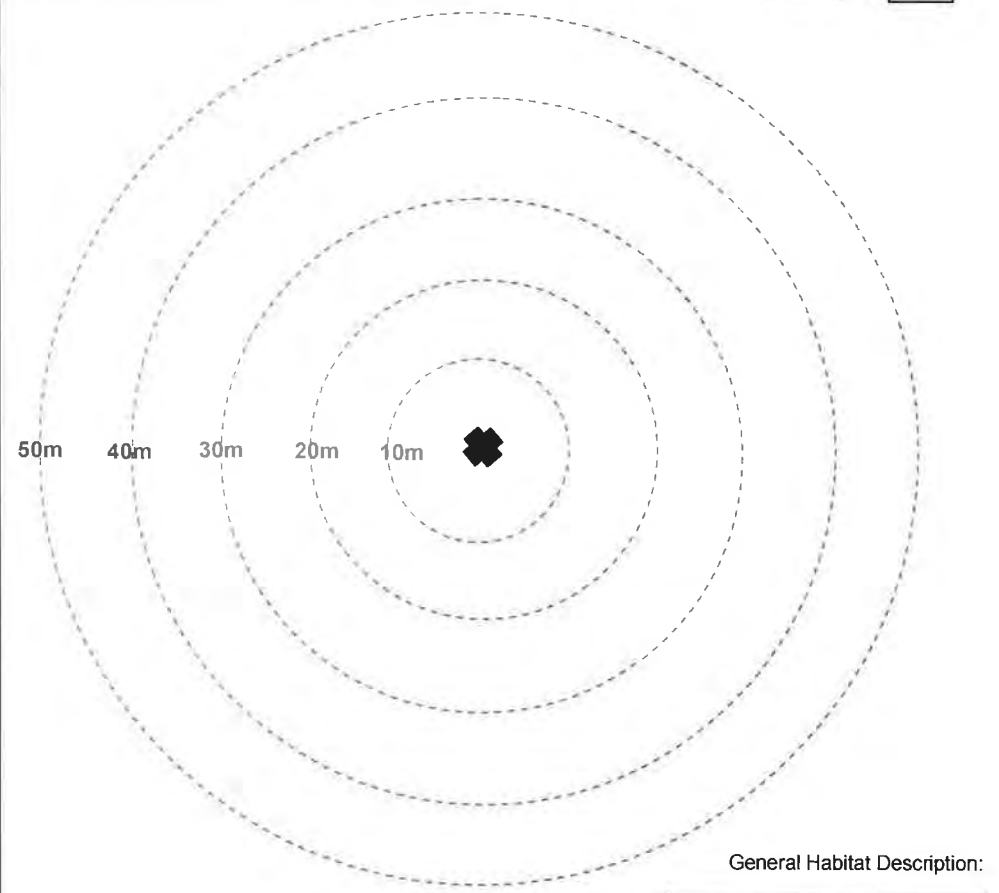
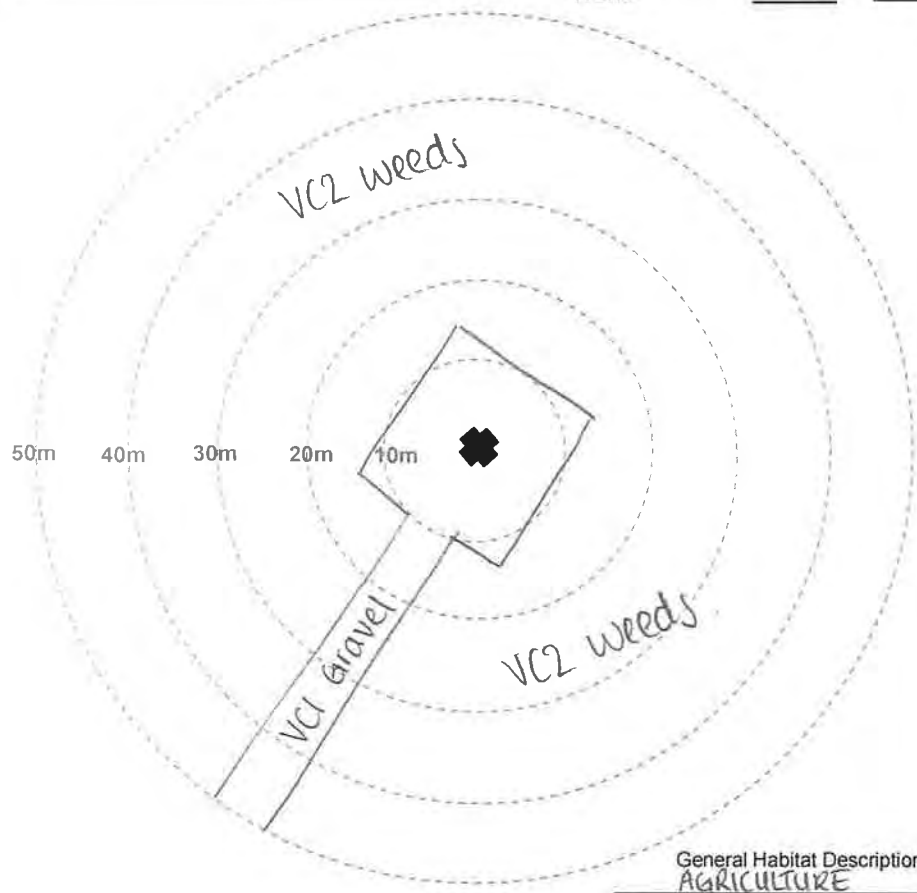
Photo Numbers (from turbine base)
Facing North: 155952
Facing East: 160009
Facing South: 160022
Facing West: 160034
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T24 Degree of Slope 0 degrees Slope Orientation — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0849
Facing East: 0850
Facing South: 0851
Facing West: 0852
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

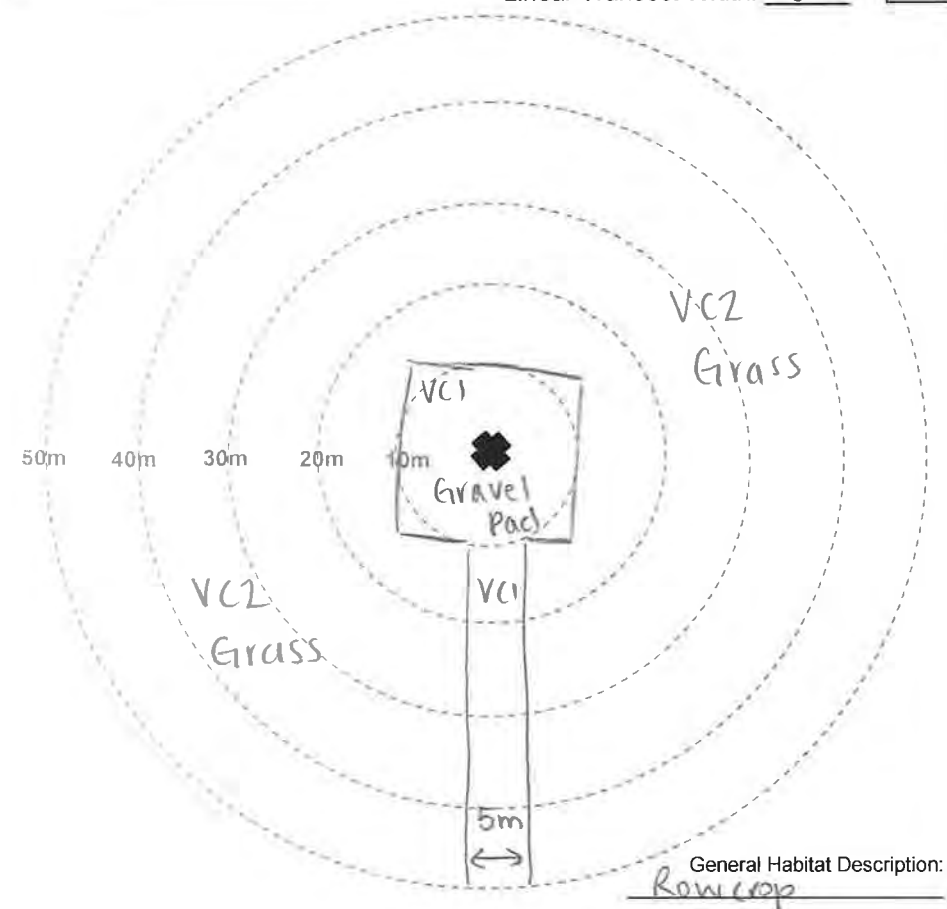


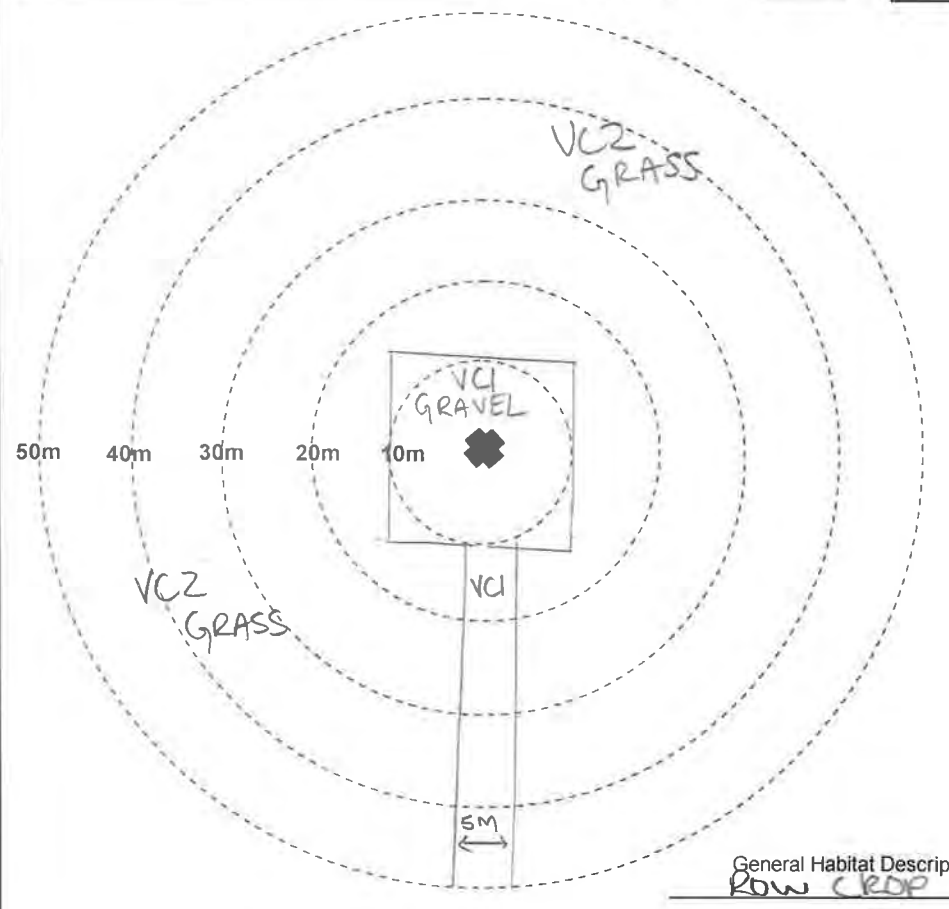
Photo Numbers (from turbine base)
Facing North: 2096
Facing East: 2099
Facing South: 2098
Facing West: 2097
(sketch habitat and visibility classes)

Date (DD/MM/YY): 11/06/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T24

Photo Numbers (from turbine base) Facing North: <u>2283</u> Facing East: <u>2284</u> Facing South: <u>2285</u> Facing West: <u>2286</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>12/07/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: <u>2402</u> Facing East: <u>2403</u> Facing South: <u>2404</u> Facing West: <u>2405</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>02/08/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m
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General Habitat Description: ROW CROP

General Habitat Description: ROW CROP

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF

Project #: 18656 Turbine #: T24

Photo Numbers (from turbine base)
Facing North: 2702
Facing East: 2703
Facing South: 2704
Facing West: 2705
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

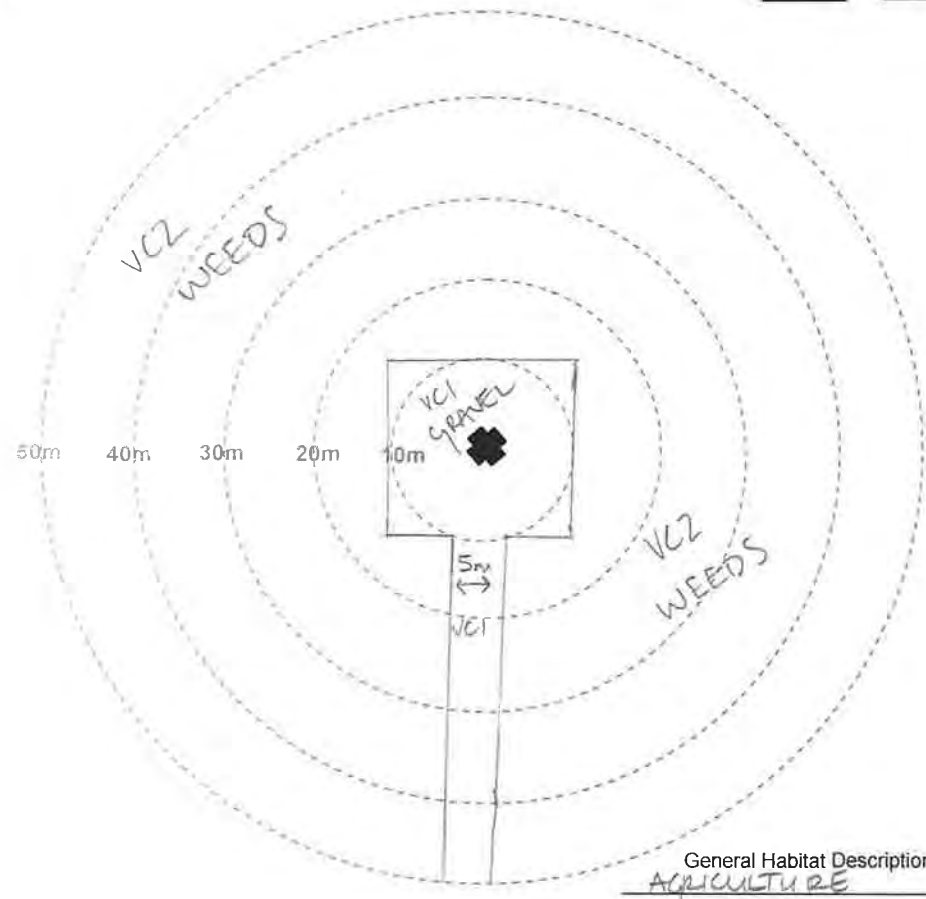
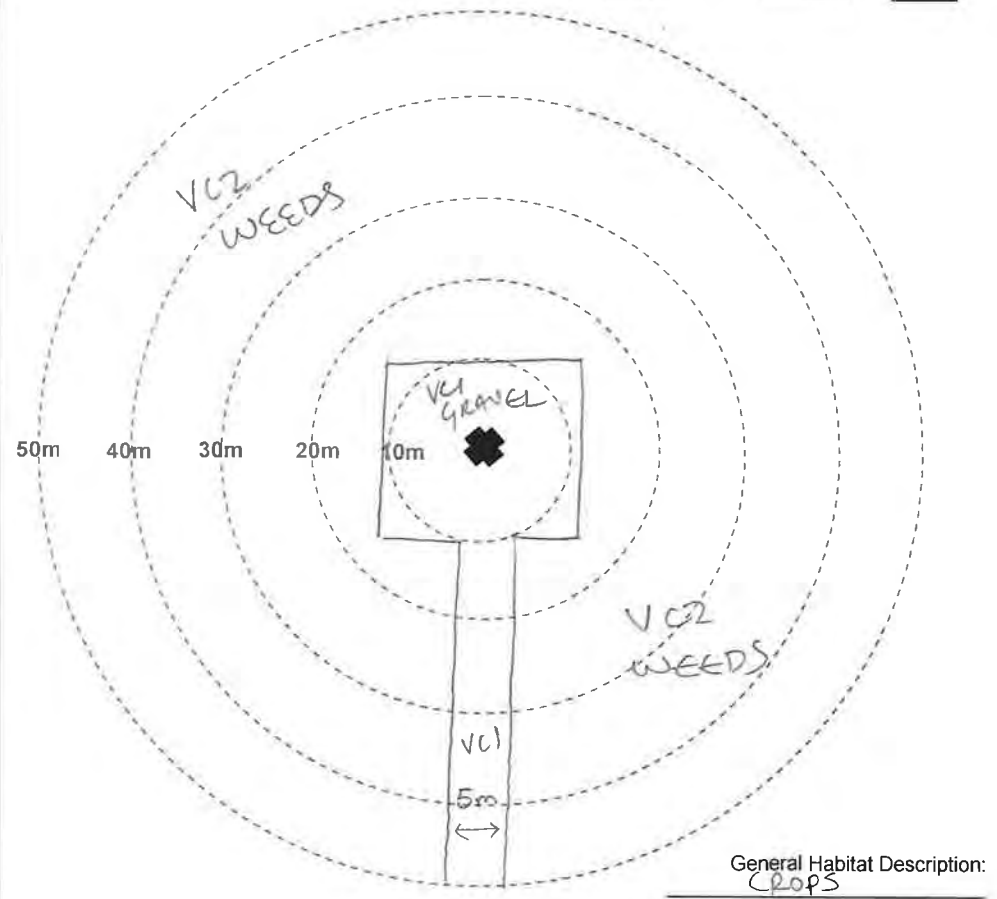


Photo Numbers (from turbine base)
Facing North: 140530
Facing East: 140545
Facing South: 140554
Facing West: 140606
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1805C Turbine #: T24

Photo Numbers (from turbine base)
 Facing North: 143037
 Facing East: 143047
 Facing South: 143050
 Facing West: 143108
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19
 Observer: EWP
 Monthly/Seasonal
 Linear Transect Width: 5 m

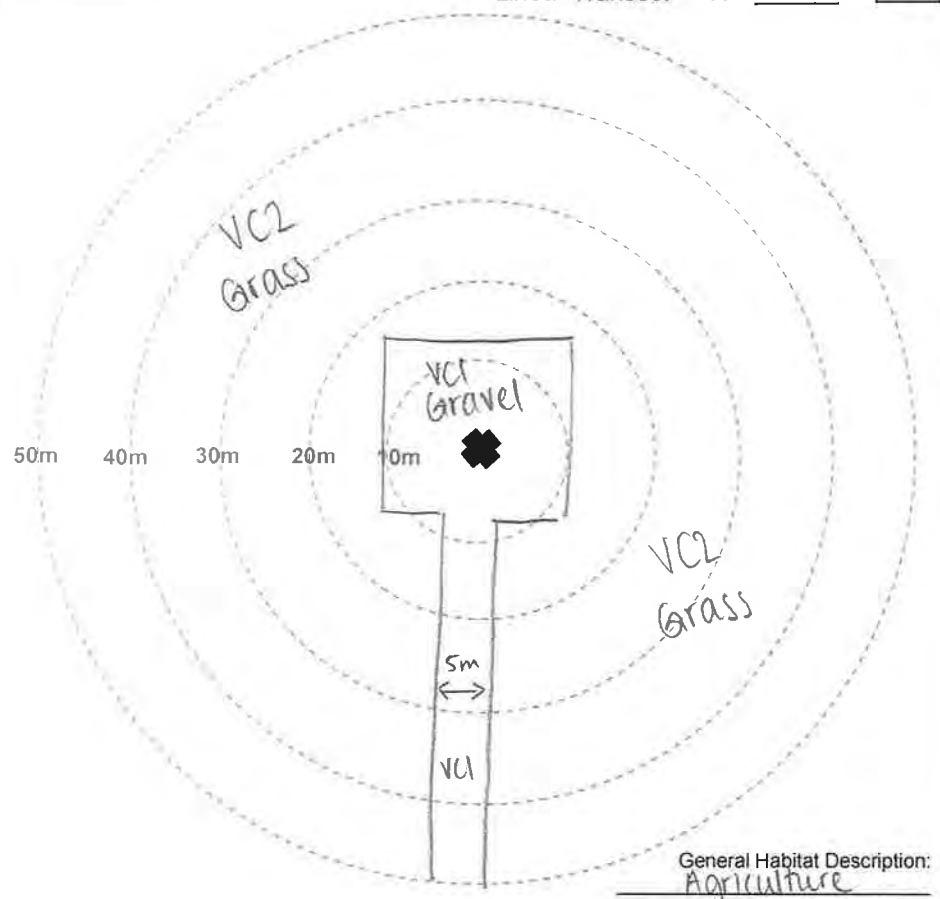
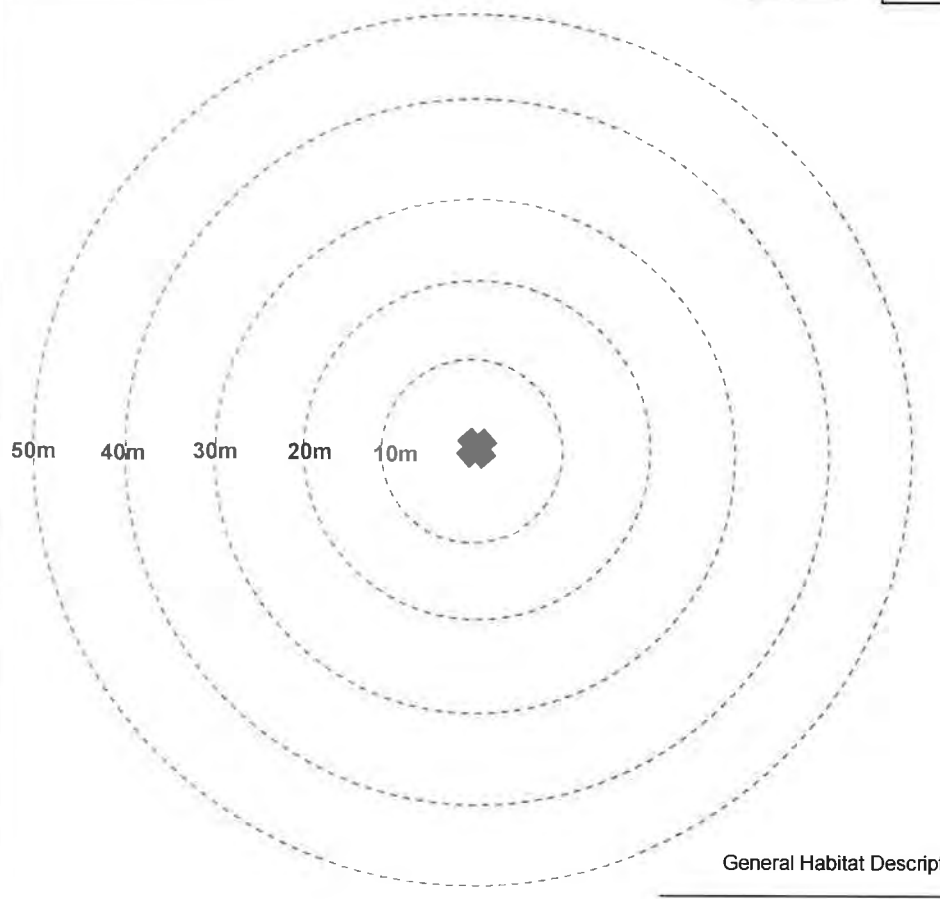


Photo Numbers (from turbine base)
 Facing North: _____
 Facing East: _____
 Facing South: _____
 Facing West: _____
 (sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
 Observer: _____
 Monthly/Seasonal
 Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T32 Degree of Slope 2 degrees Slope Orientation S (e.g. SSW)

Photo Numbers (from turbine base) Facing North: <u>0759</u> Facing East: <u>0760</u> Facing South: <u>0761</u> Facing West: <u>0762</u> (sketch habitat and visibility classes) Date (DD/MM/YY): <u>09/05/19</u> ↑ Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m ↑ N	Photo Numbers (from turbine base) Facing North: <u>0988</u> Facing East: <u>0989</u> Facing South: <u>0990</u> Facing West: <u>0991</u> (sketch habitat and visibility classes) Date (DD/MM/YY): <u>06/06/19</u> ↑ Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m ↑ N
General Habitat Description: <u>Row crop - winter wheat</u>	General Habitat Description: <u>Row crop</u>

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T32

Photo Numbers (from turbine base)
Facing North: 1154
Facing East: 1155
Facing South: 1156
Facing West: 1157
(sketch habitat and visibility classes)

Date (DD/MM/YY): 08/07/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

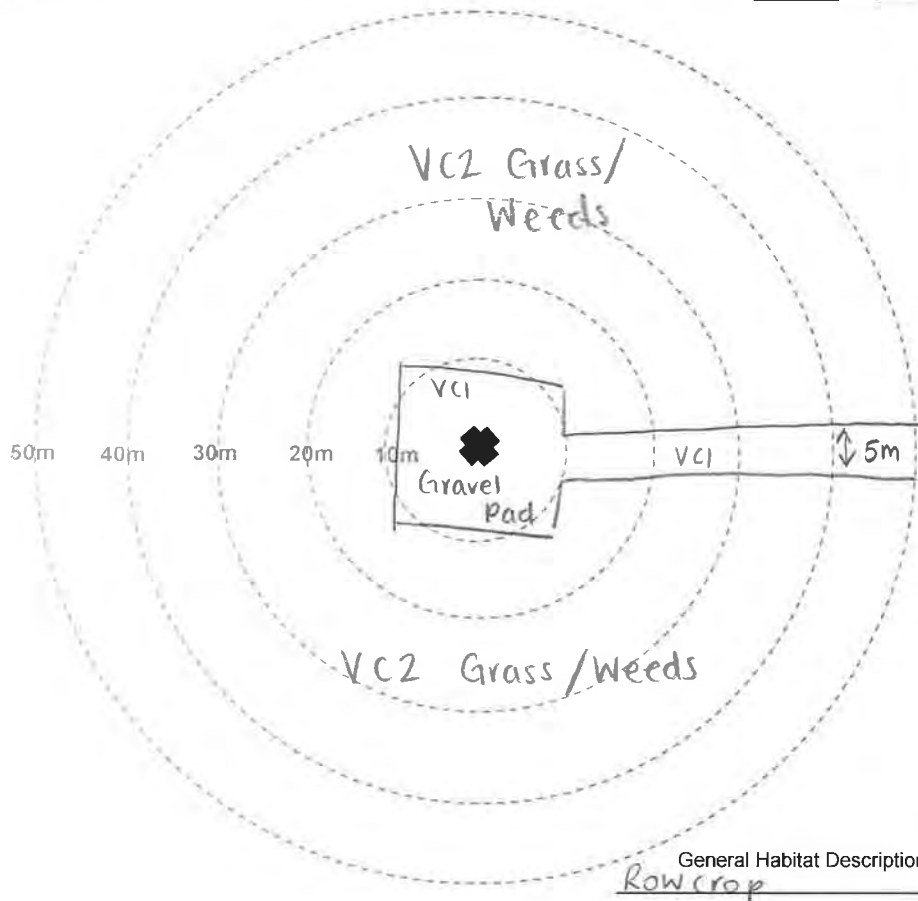
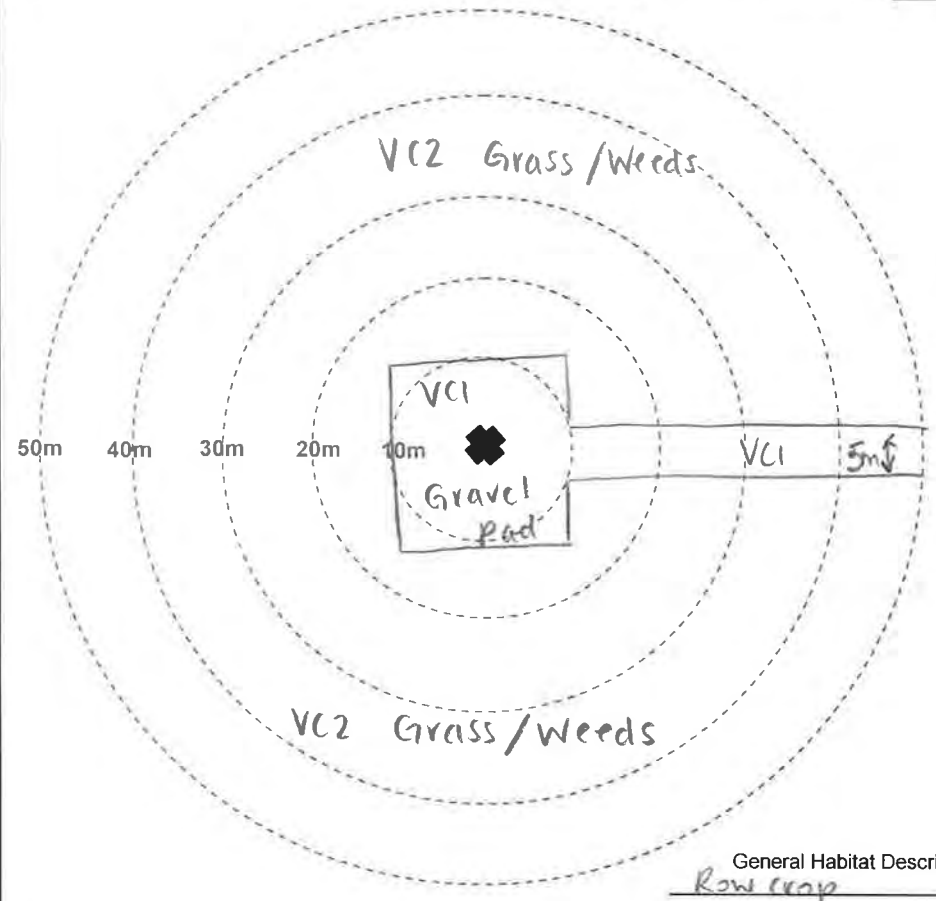


Photo Numbers (from turbine base)
Facing North: 1275
Facing East: 1276
Facing South: 1277
Facing West: 1278
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T32

Photo Numbers (from turbine base)
 Facing North: 1506
 Facing East: 1537
 Facing South: 1508
 Facing West: 1509
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
 Observer: BEM
 Monthly/Seasonal
 Linear Transect Width: 5 m
 N

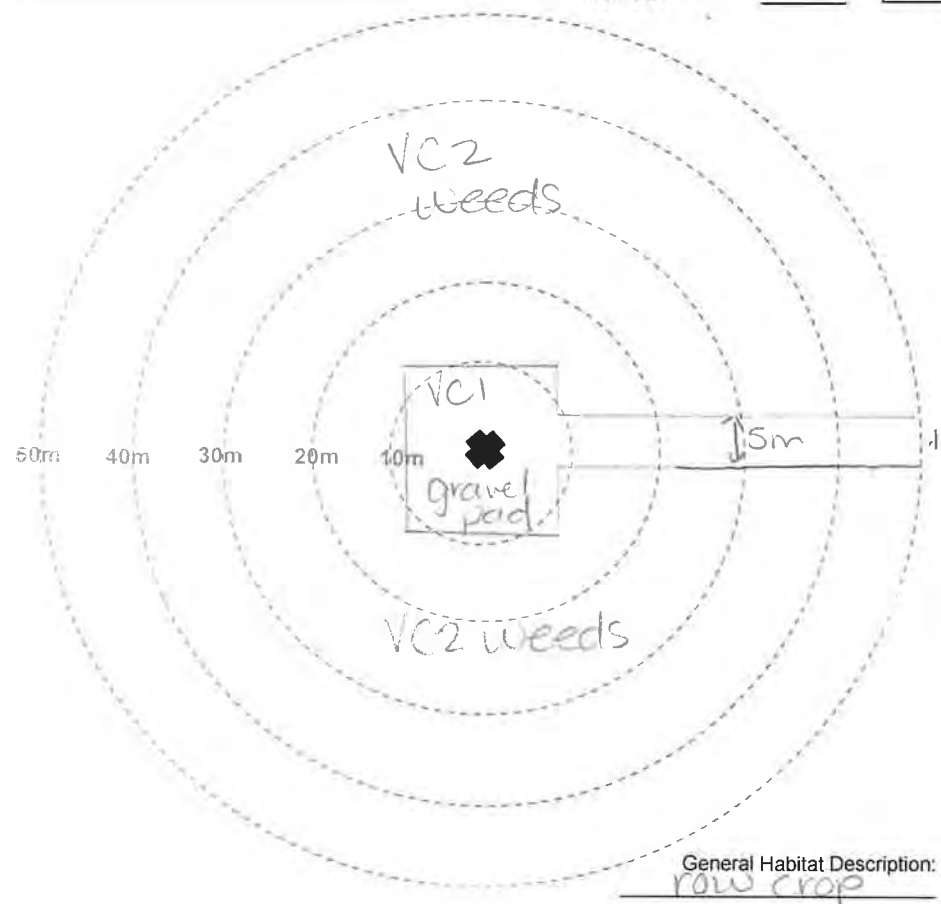
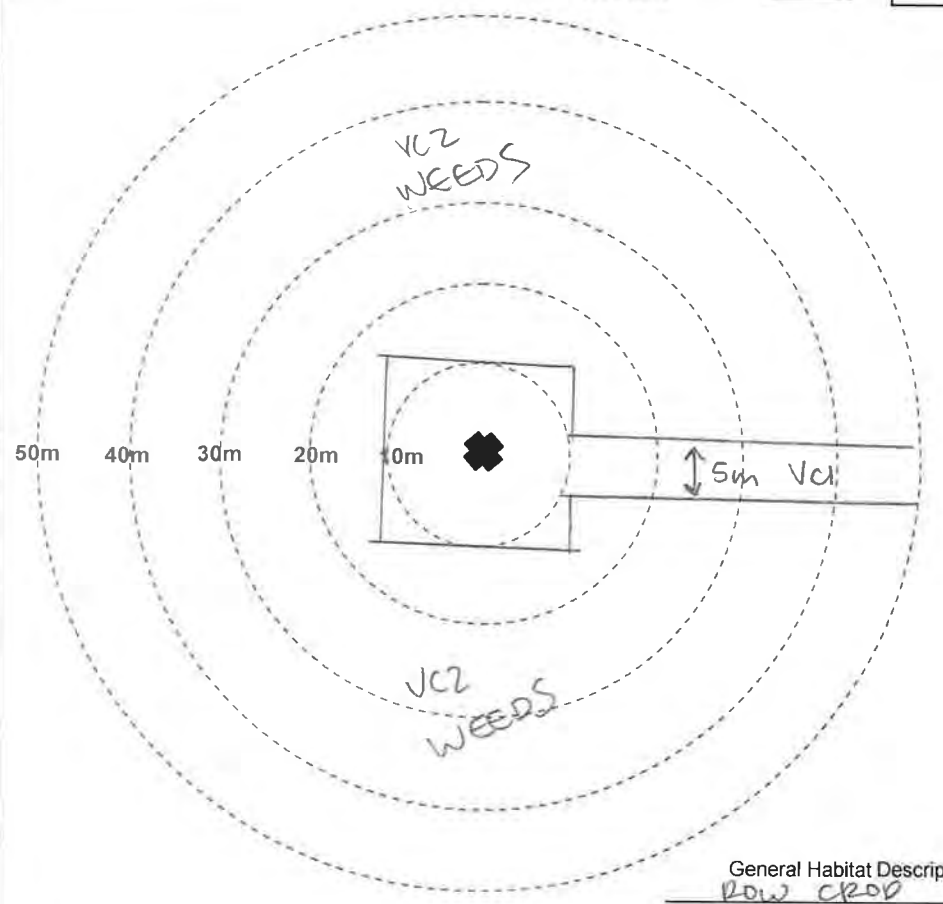


Photo Numbers (from turbine base)
 Facing North: 2959
 Facing East: 2960
 Facing South: 2961
 Facing West: 2962
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
 Observer: EWP
 Monthly/Seasonal
 Linear Transect Width: 5 m
 N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1805C Turbine #: T32

Photo Numbers (from turbine base)
Facing North: 163038
Facing East: 163047
Facing South: 163057
Facing West: 163105
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

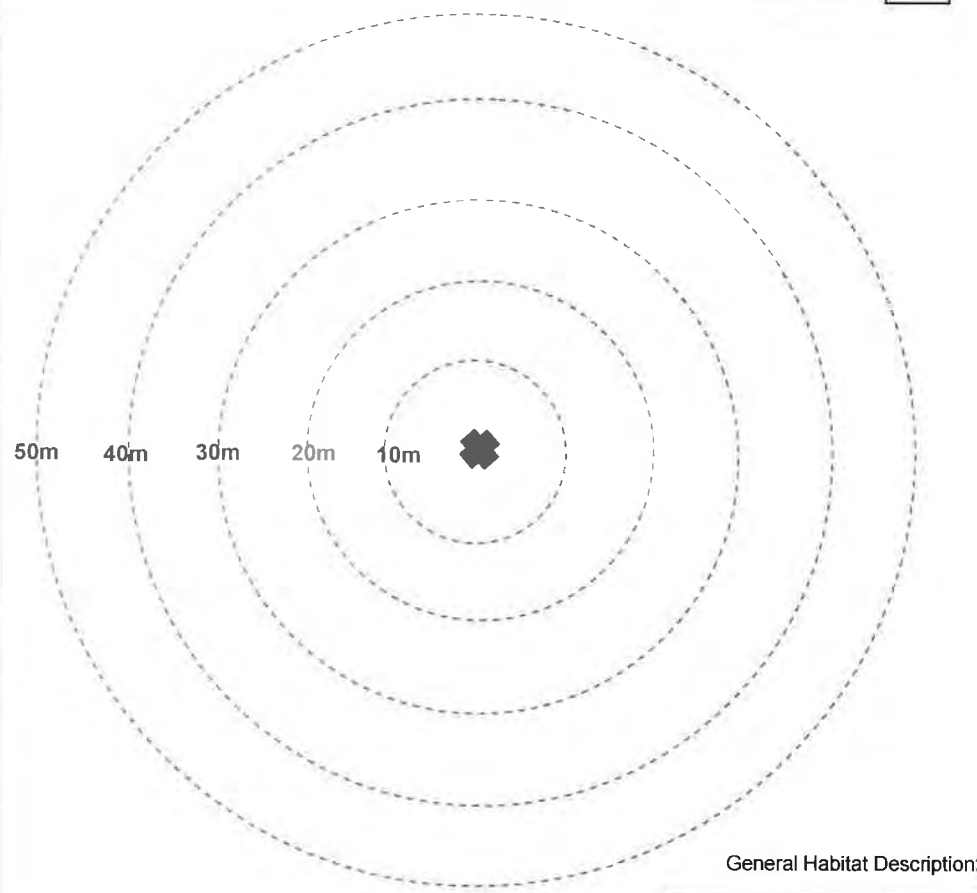
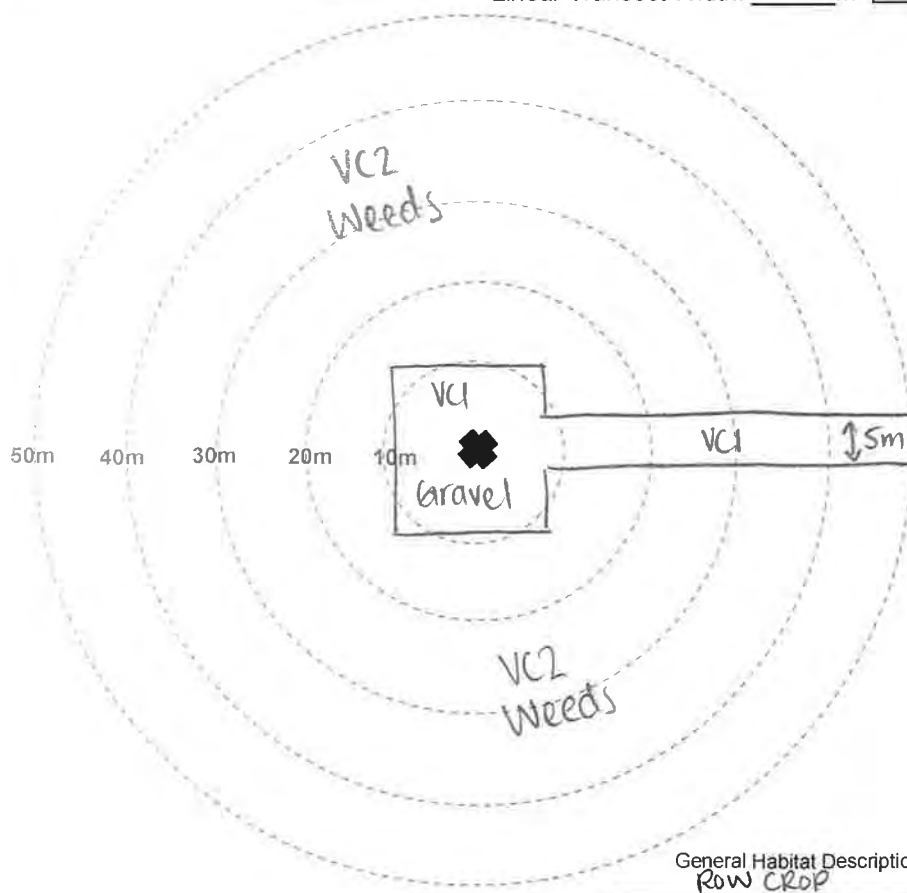
Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T44 Degree of Slope 1 degrees Slope Orientation E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0800
Facing East: 0801
Facing South: 0802
Facing West: 0803
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

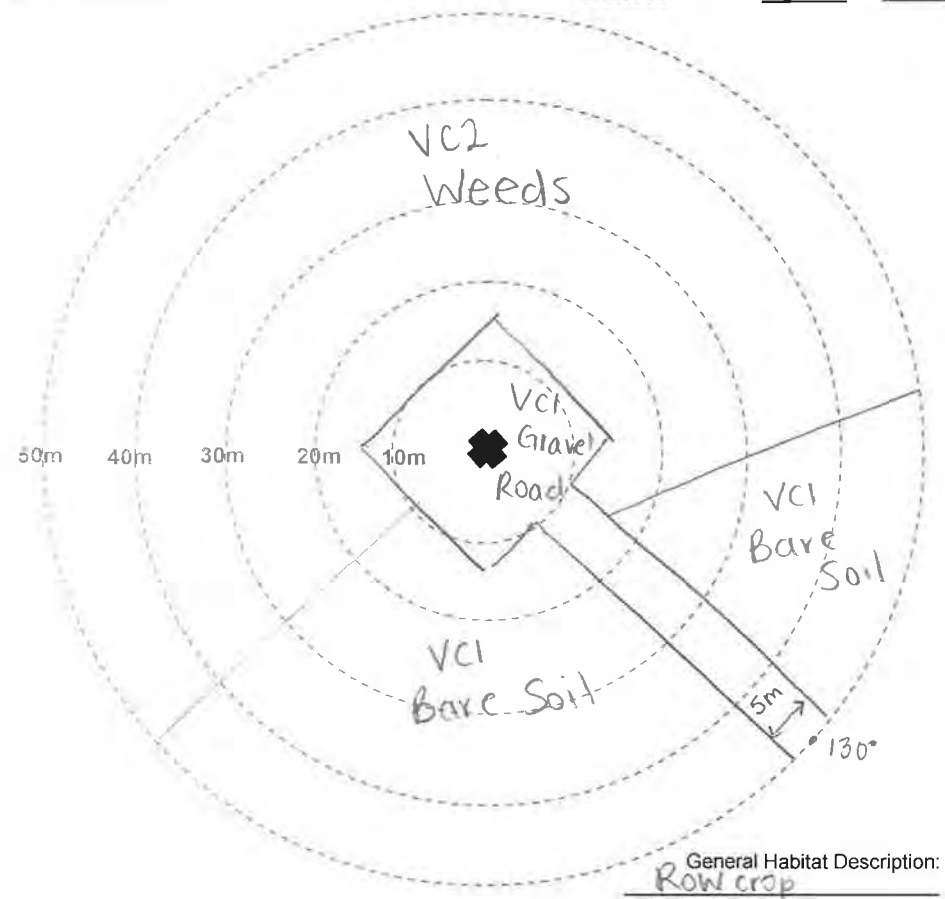


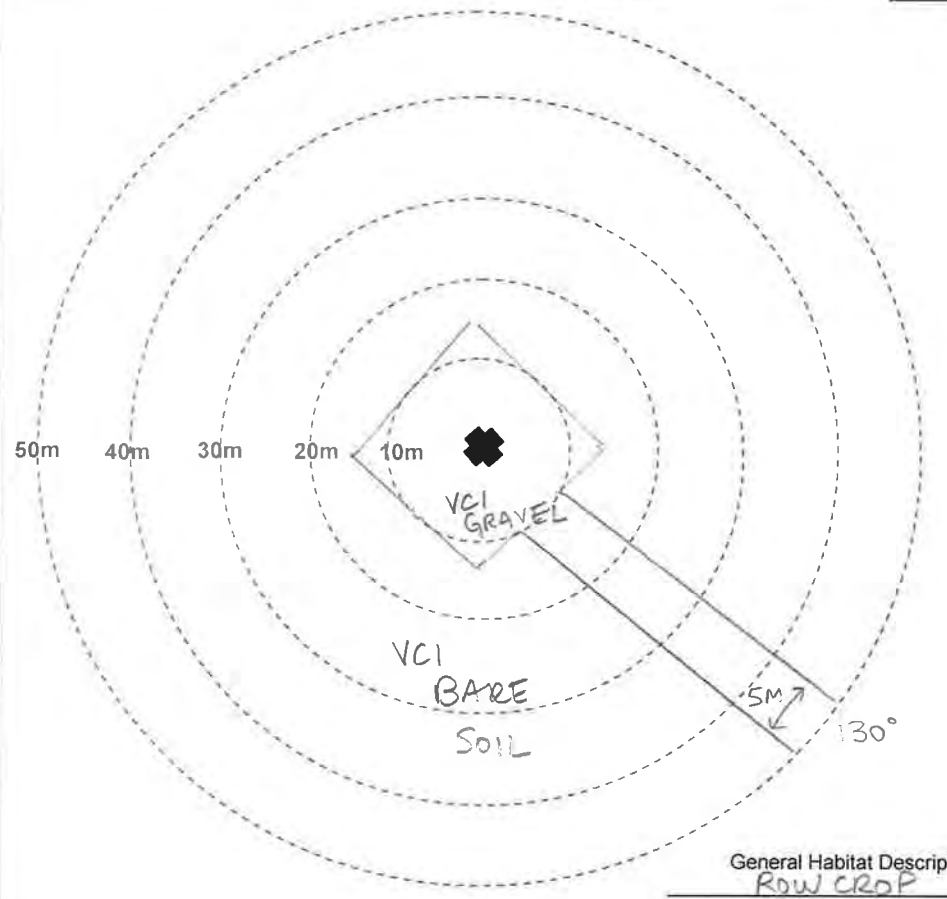
Photo Numbers (from turbine base)
Facing North: 2145
Facing East: 2149
Facing South: 2147
Facing West: 2148
(sketch habitat and visibility classes)

Date (DD/MM/YY): 10/06/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: 44

Photo Numbers (from turbine base)
Facing North: 2207
Facing East: 2208
Facing South: 2209
Facing West: 2210
(sketch habitat and visibility classes)

Date (DD/MM/YY): 04/07/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

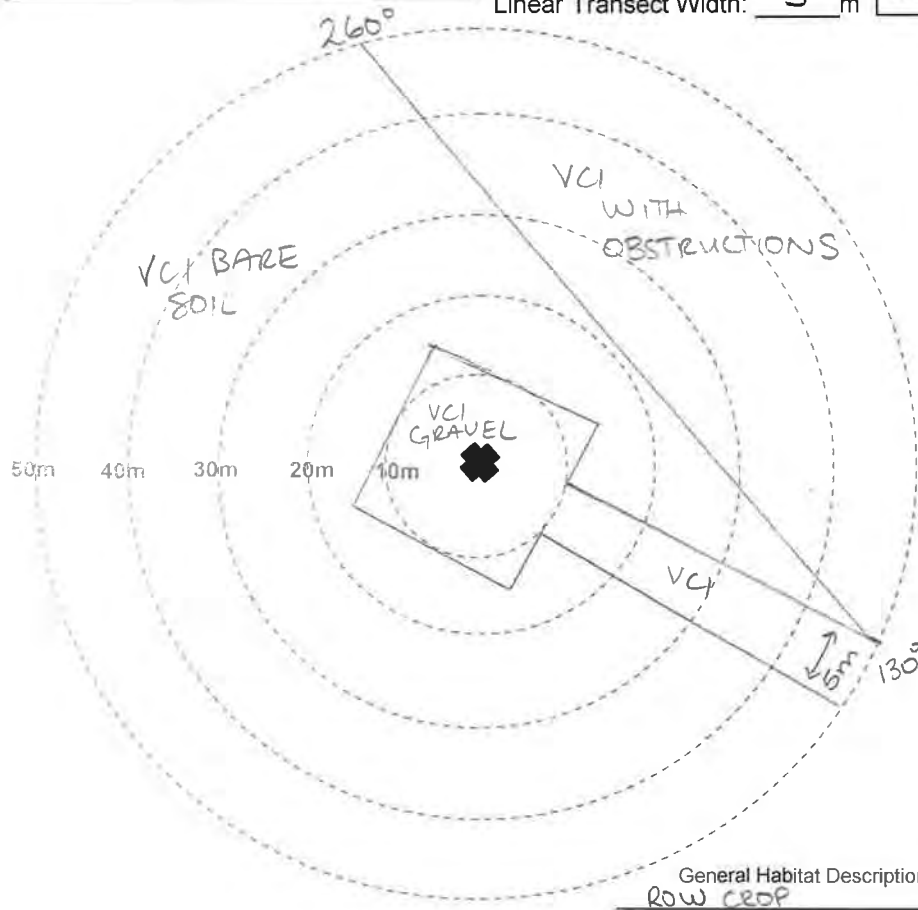
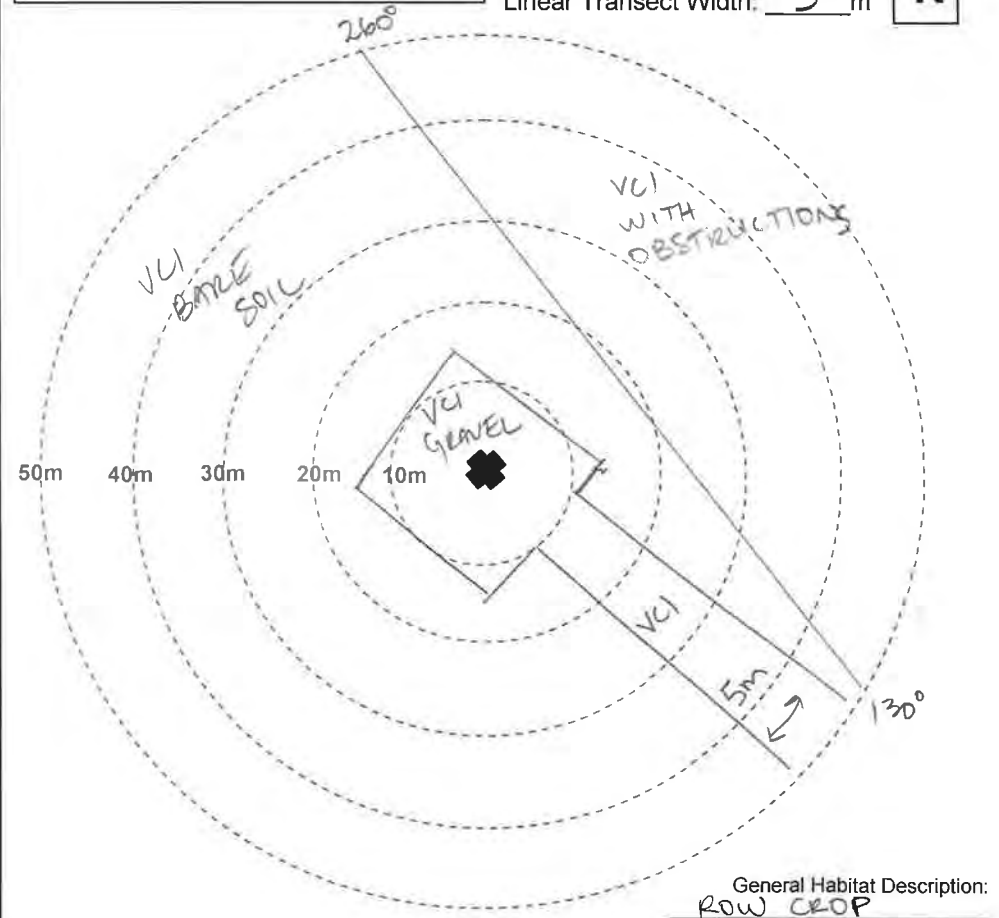


Photo Numbers (from turbine base)
Facing North: 2389
Facing East: 2390
Facing South: 2391
Facing West: 2392
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NEWF Project #: 1865C Turbine #: T44

Photo Numbers (from turbine base) Facing North: <u>2682</u> Facing East: <u>2683</u> Facing South: <u>2684</u> Facing West: <u>2685</u> (sketch habitat and visibility classes) Date (DD/MM/YY): <u>02/09/19</u> ↑ Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m N	Photo Numbers (from turbine base) Facing North: <u>2981</u> Facing East: <u>2982</u> Facing South: <u>2983</u> Facing West: <u>2984</u> (sketch habitat and visibility classes) Date (DD/MM/YY): <u>03/10/19</u> ↑ Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m N
General Habitat Description: <u>CORN CROP</u>	General Habitat Description: <u>CORN CROP</u>

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 18652 Turbine #: T44

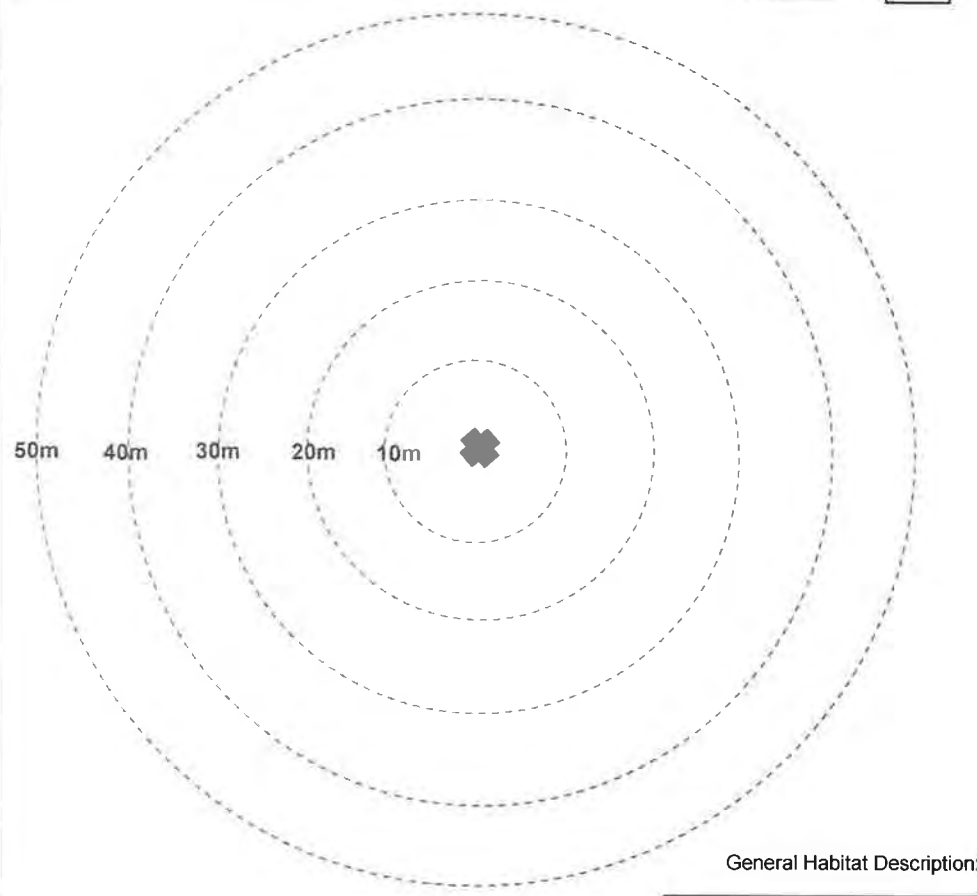
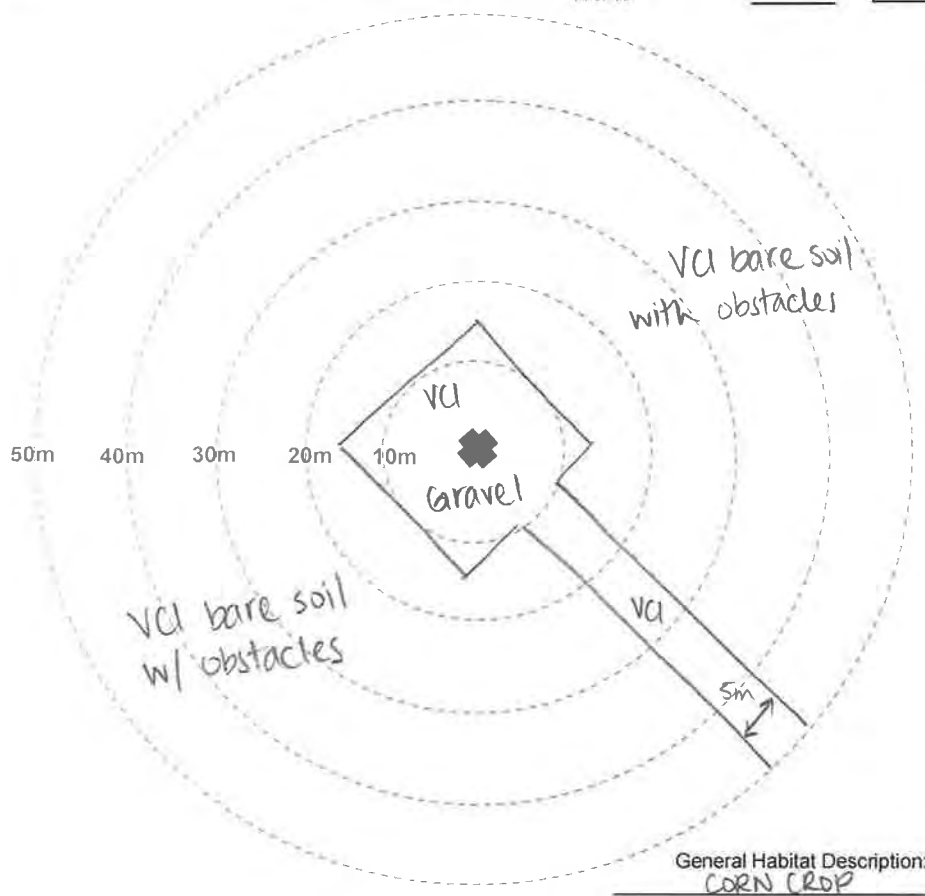
Photo Numbers (from turbine base)
Facing North: 150902
Facing East: 150912
Facing South: 150923
Facing West: 150931
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T45 Degree of Slope 0 degrees Slope Orientation — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0791
Facing East: 0792
Facing South: 0793
Facing West: 0794
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N

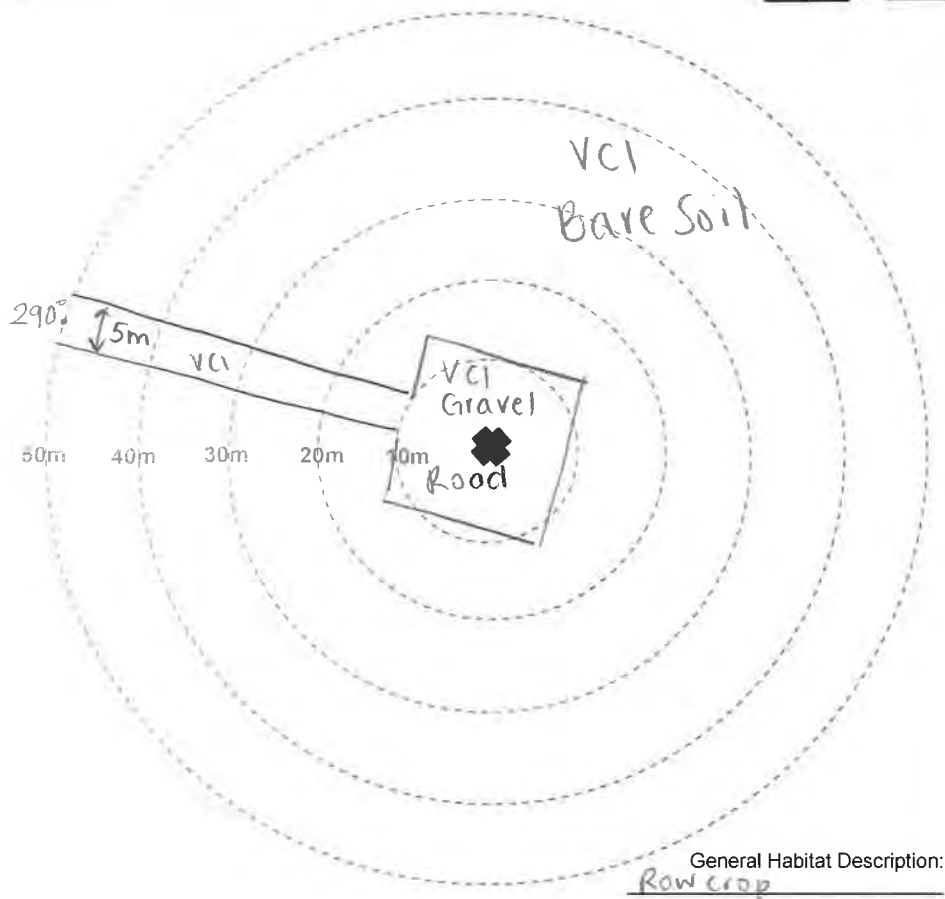
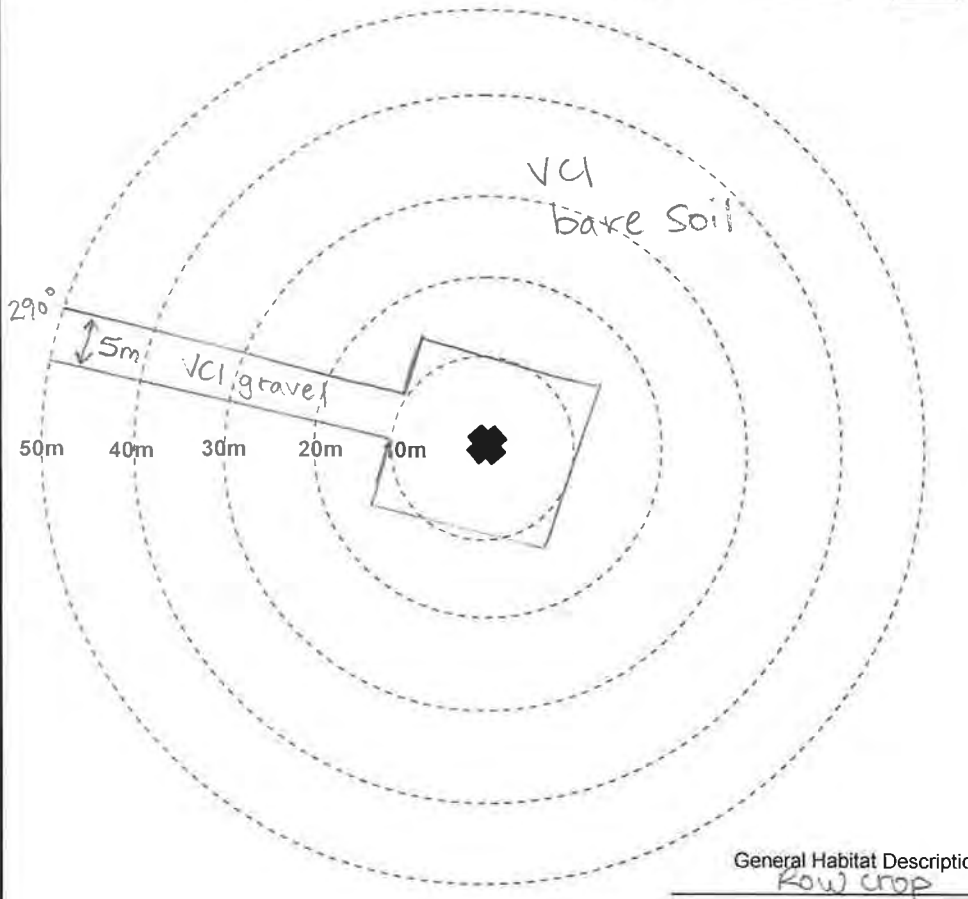


Photo Numbers (from turbine base)
Facing North: 2137
Facing East: 2138
Facing South: 2139
Facing West: 2140
(sketch habitat and visibility classes)

Date (DD/MM/YY): 10/06/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T45

Photo Numbers (from turbine base)
Facing North: 2195
Facing East: 2106
Facing South: 2197
Facing West: 2198
(sketch habitat and visibility classes)

Date (DD/MM/YY): 04/07/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N

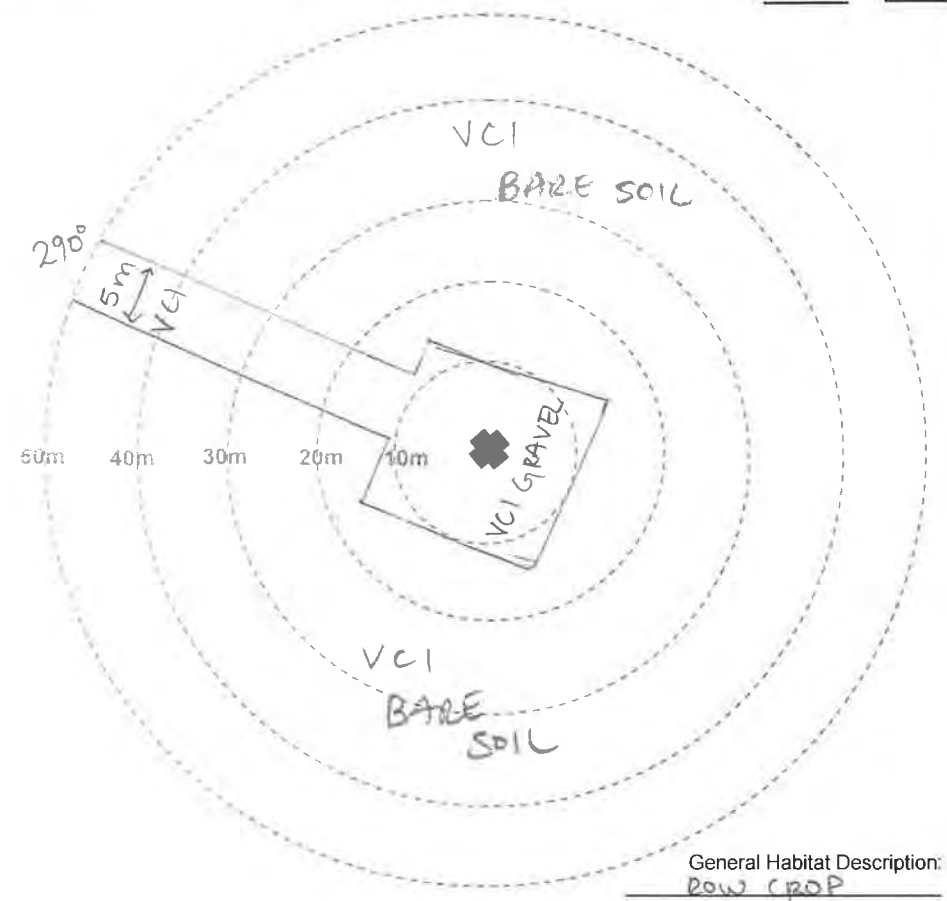


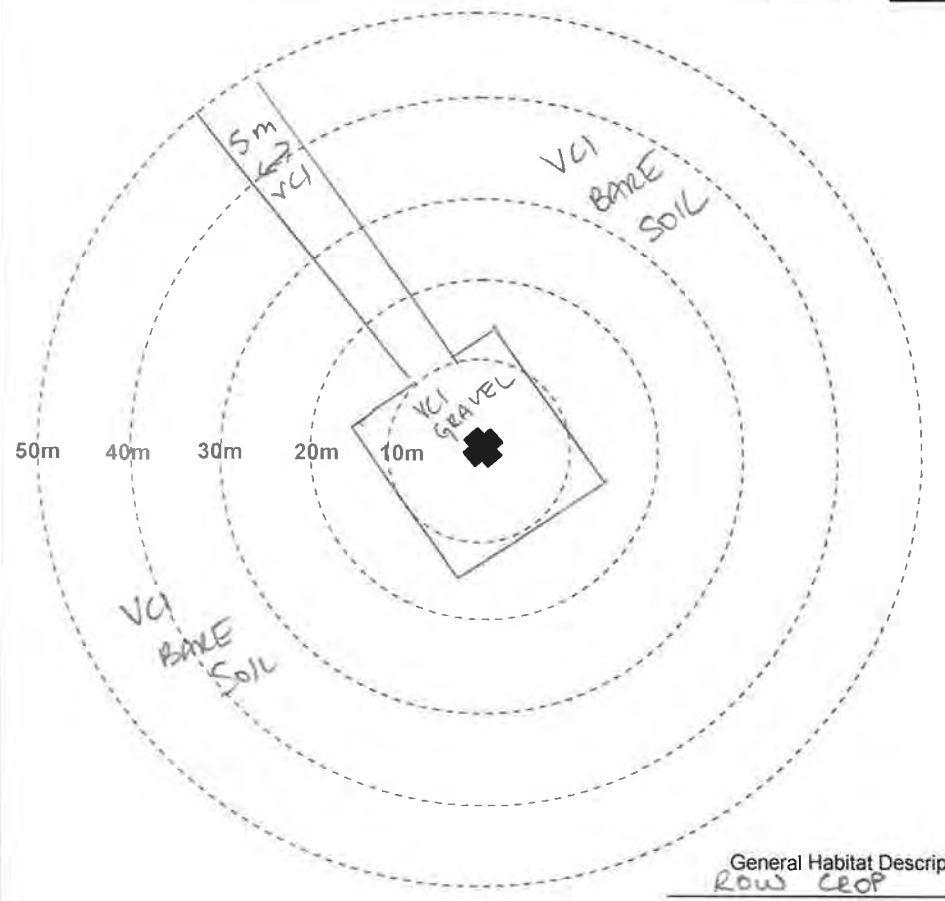
Photo Numbers (from turbine base)
Facing North: 2378
Facing East: 2379
Facing South: 2380
Facing West: 2381
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 186SL Turbine #: T45

Photo Numbers (from turbine base)
Facing North: 2675
Facing East: 2676
Facing South: 2677
Facing West: 2678
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

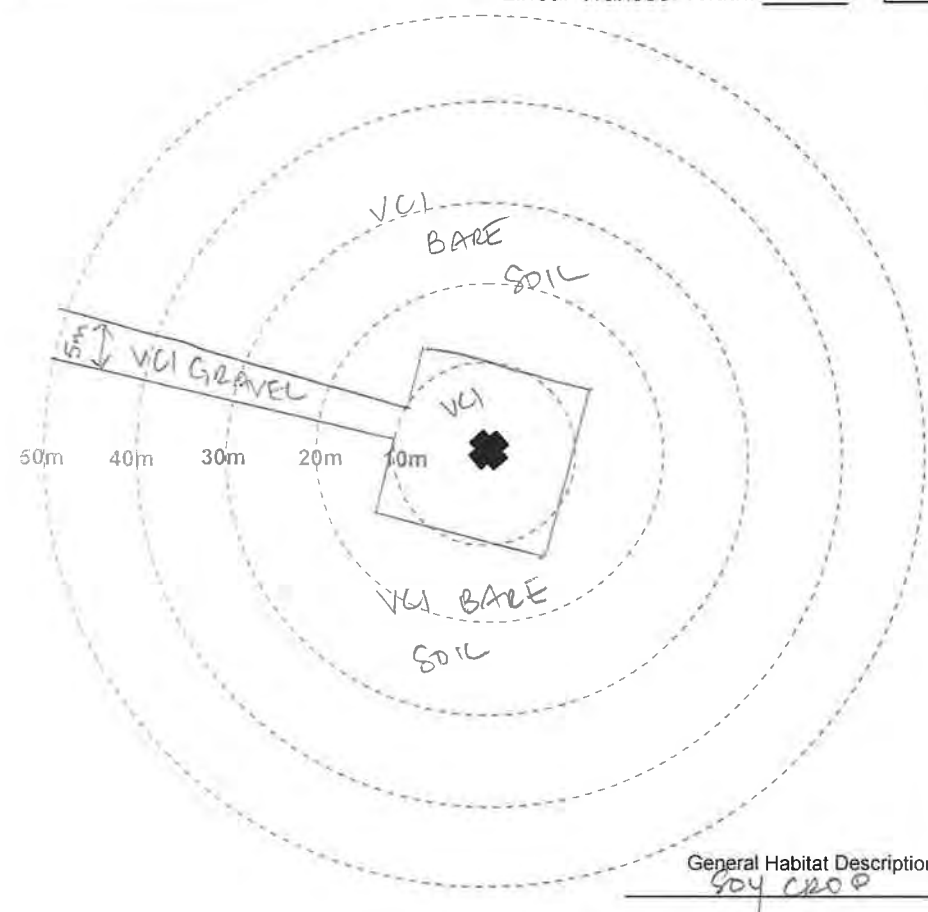
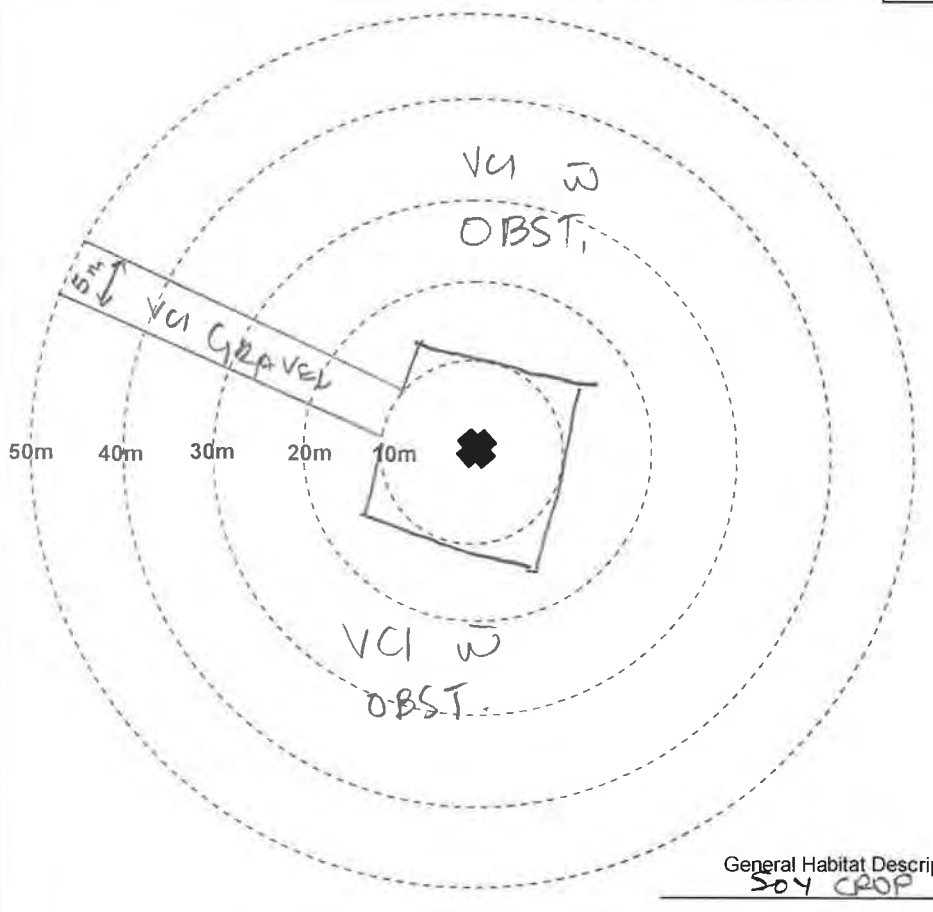


Photo Numbers (from turbine base)
Facing North: 2976
Facing East: 2977
Facing South: 2978
Facing West: 2979
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 18656 Turbine #: T45

Photo Numbers (from turbine base)
Facing North: 140154
Facing East: 140204
Facing South: 140213
Facing West: 140223
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

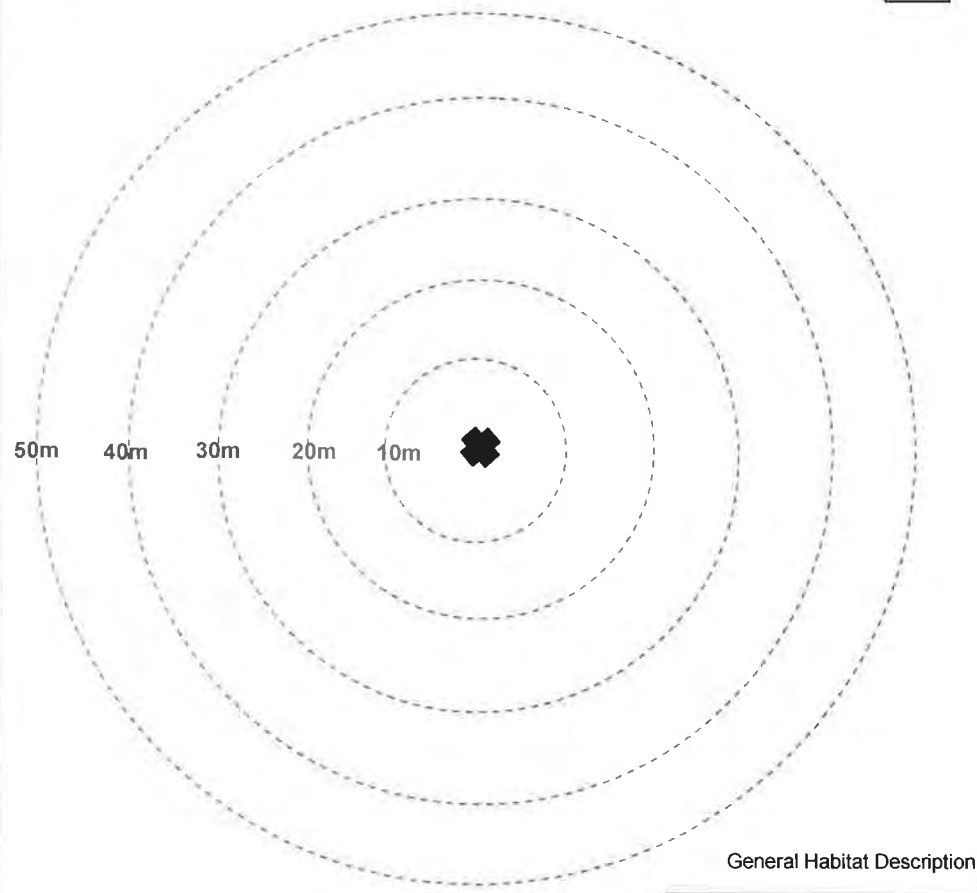
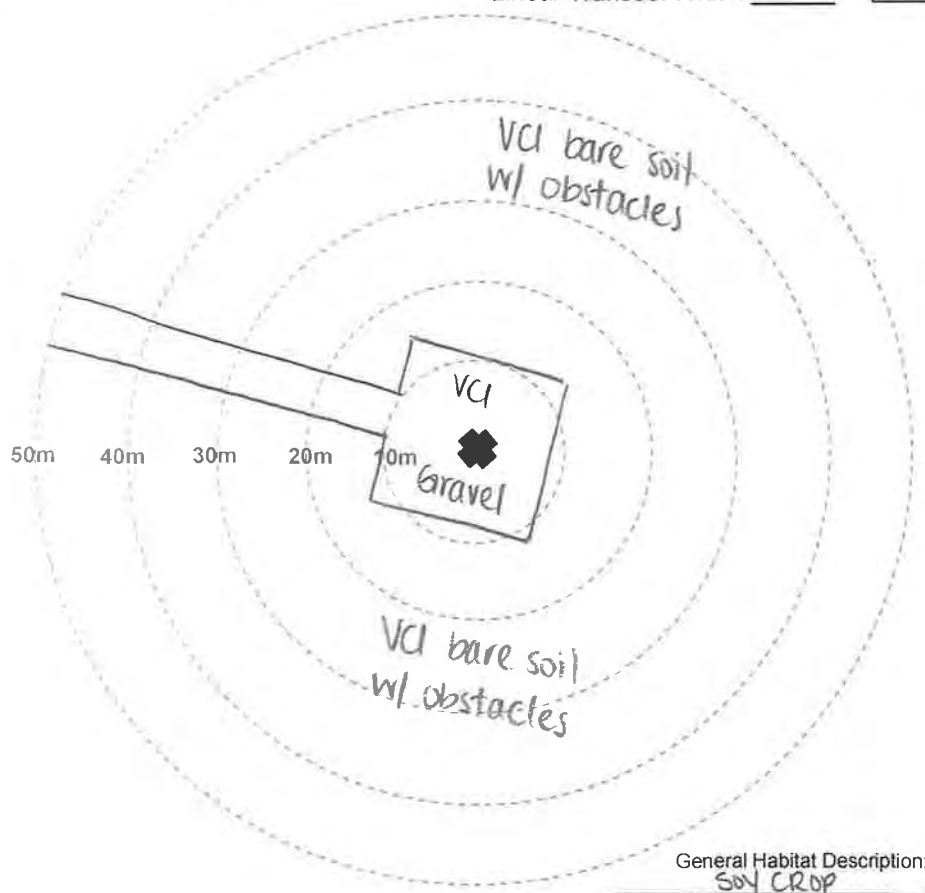
Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T57 Degree of Slope 2 degrees Slope Orientation S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0819
Facing East: 0820
Facing South: 0821
Facing West: 0822
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

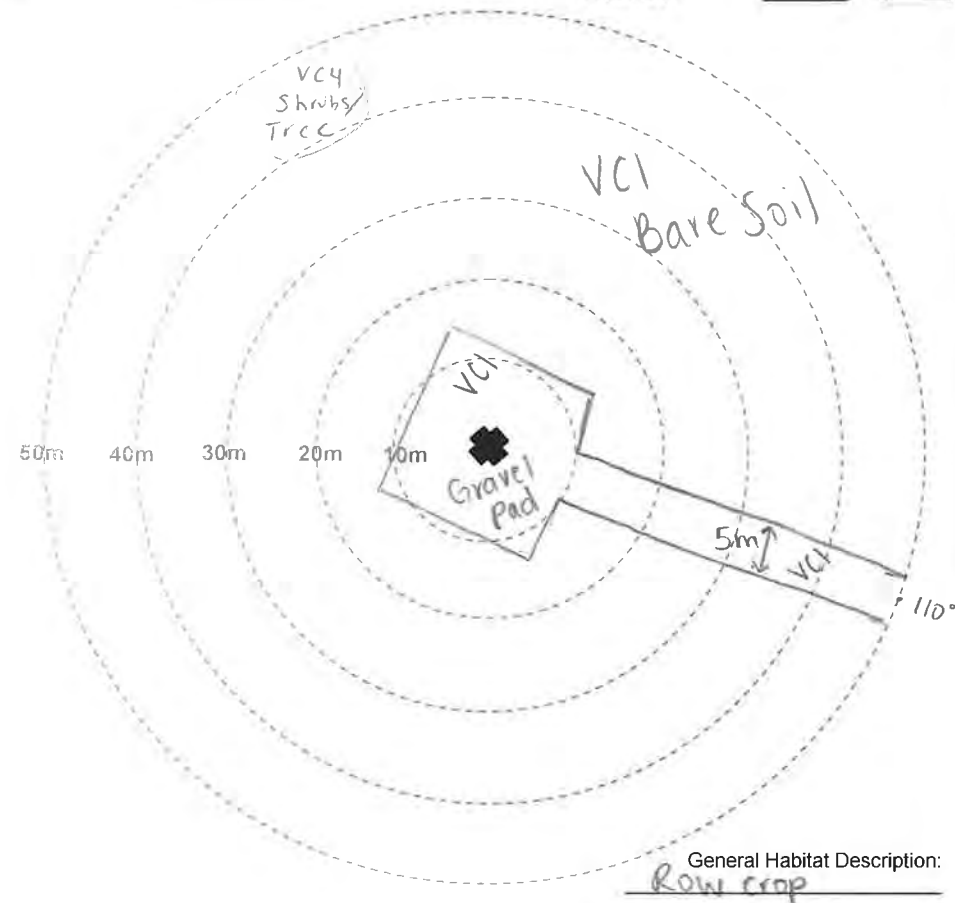
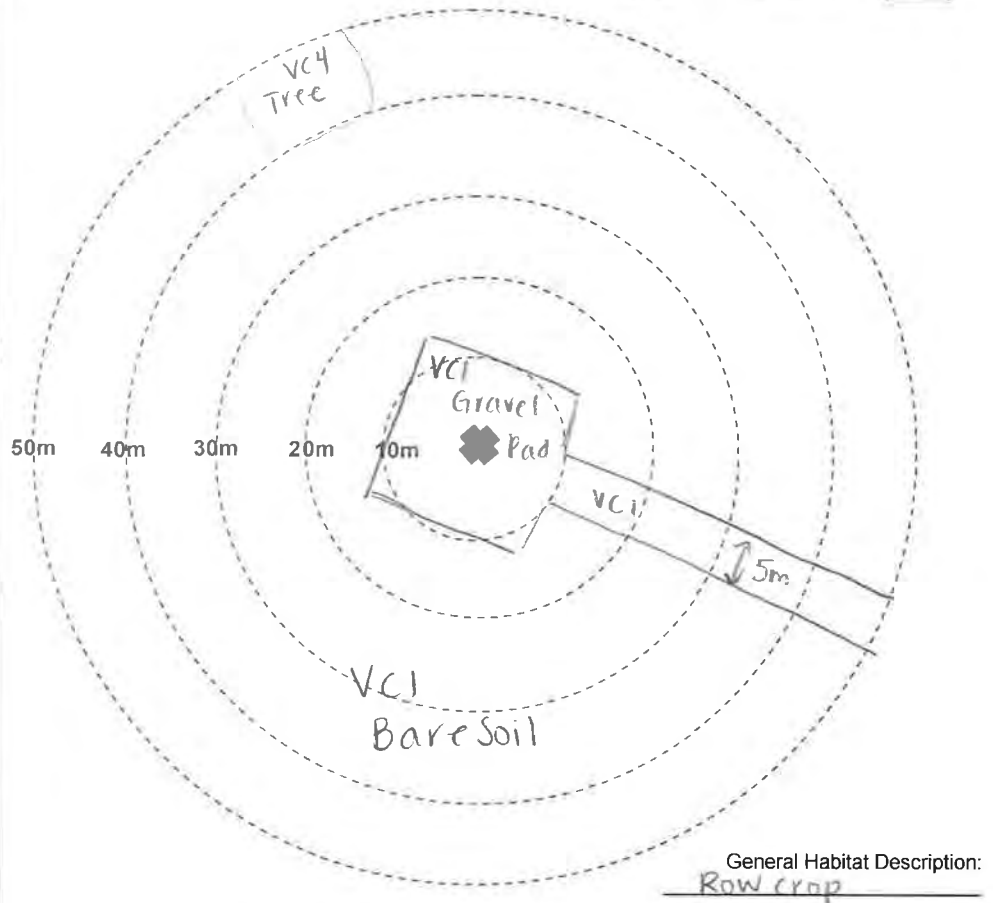


Photo Numbers (from turbine base)
Facing North: 0999
Facing East: 1000
Facing South: 1001
Facing West: 1002
(sketch habitat and visibility classes)

Date (DD/MM/YY): 07/06/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T57

Photo Numbers (from turbine base)
Facing North: 1129
Facing East: 1130
Facing South: 1131
Facing West: 1132
(sketch habitat and visibility classes)

Date (DD/MM/YY): 05/07/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

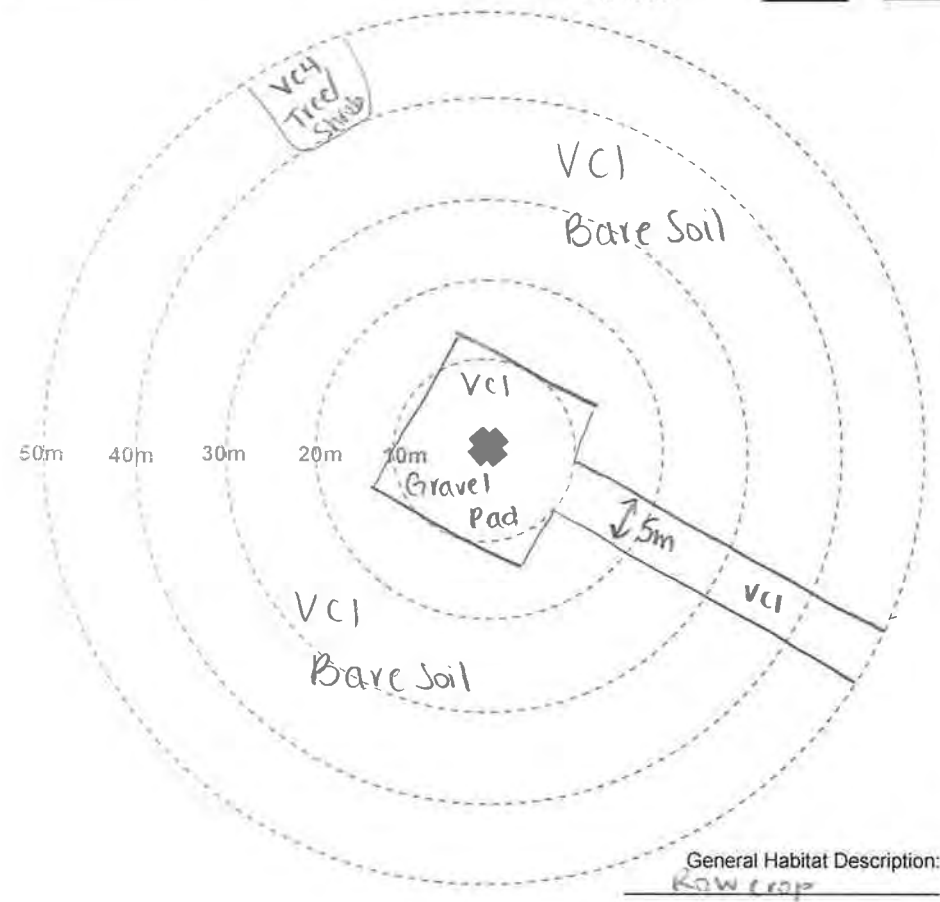
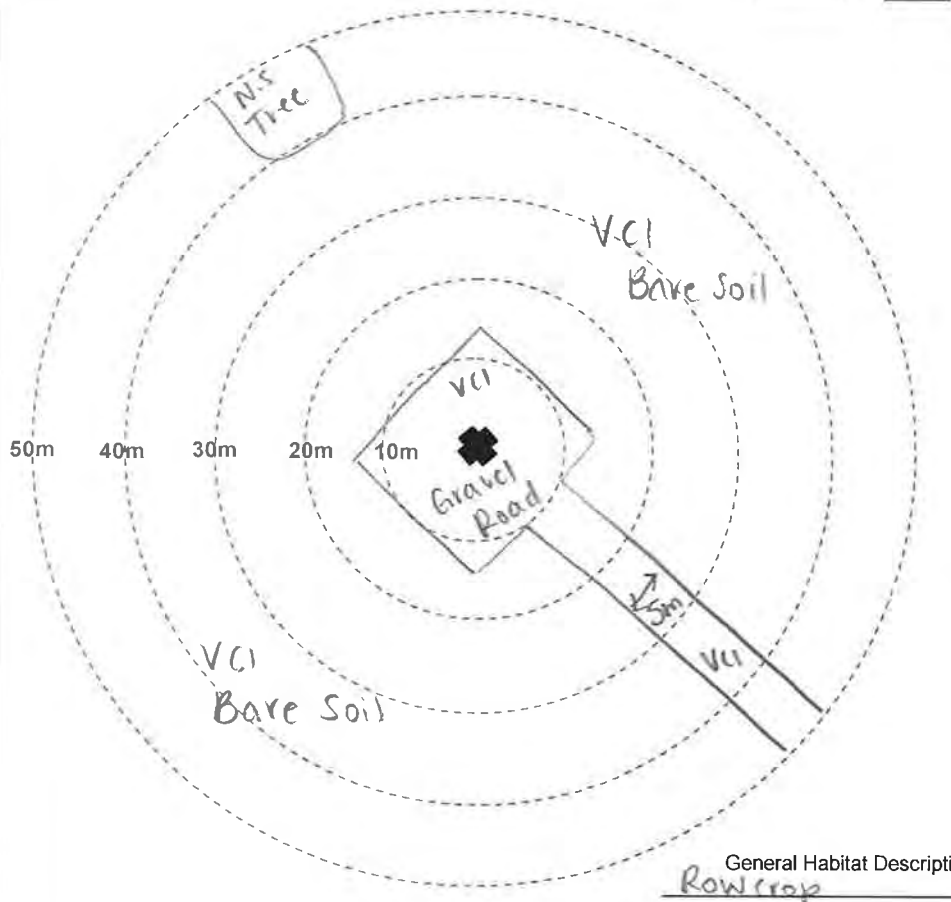


Photo Numbers (from turbine base)
Facing North: 1285
Facing East: 1286
Facing South: 1287
Facing West: 1288
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/08/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 186SC Turbine #: T57

Photo Numbers (from turbine base)
Facing North: 1538
Facing East: 1539
Facing South: 1540
Facing West: 1541
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m

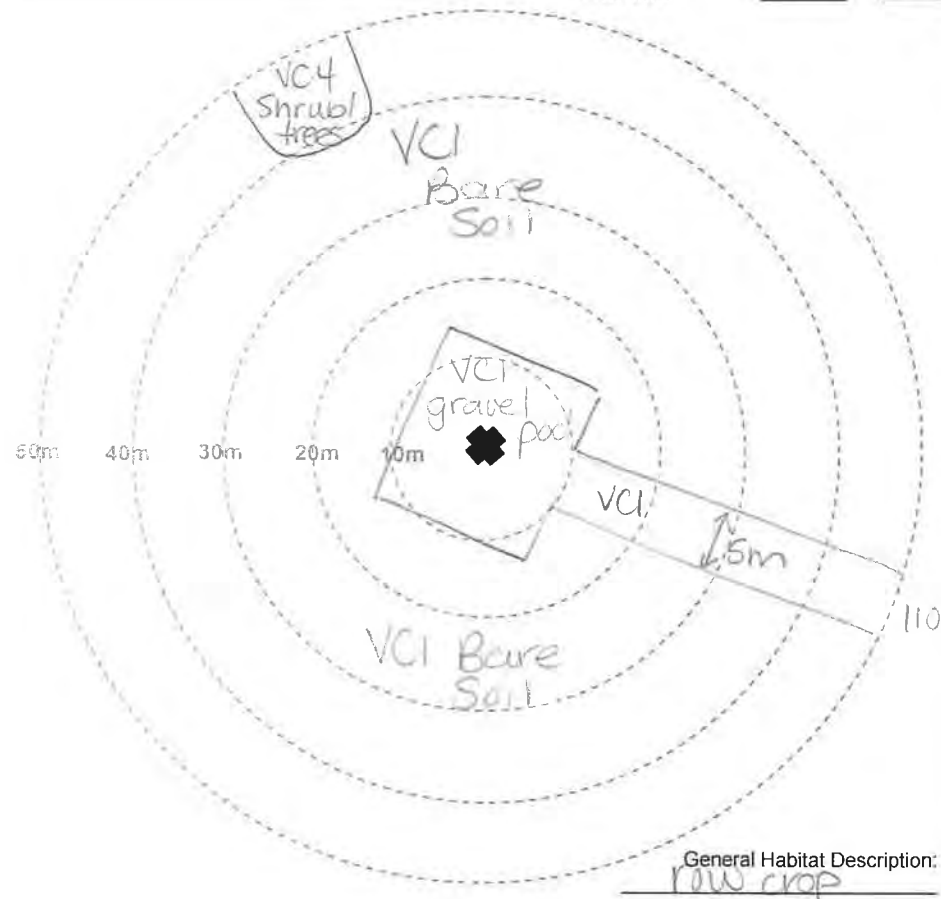
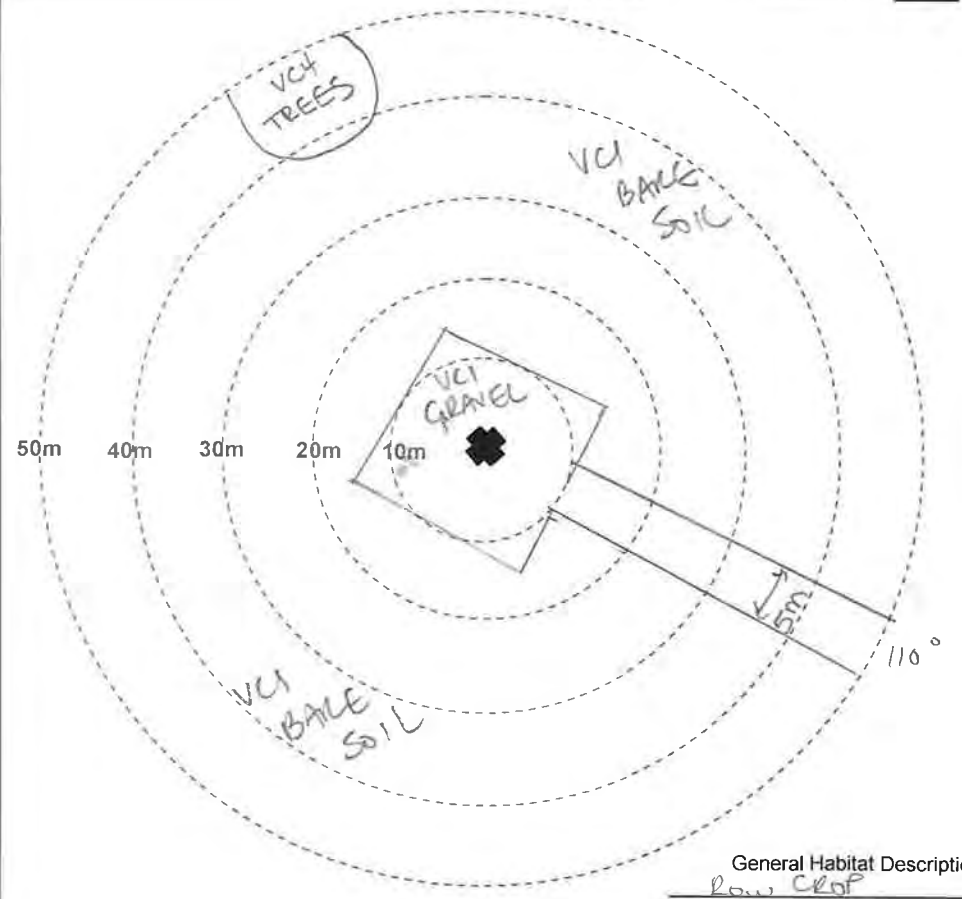


Photo Numbers (from turbine base)
Facing North: 102017
Facing East: 102028
Facing South: 102043
Facing West: 102051
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: TS7

Photo Numbers (from turbine base)
Facing North: 152009
Facing East: 152016
Facing South: 152024
Facing West: 152031
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

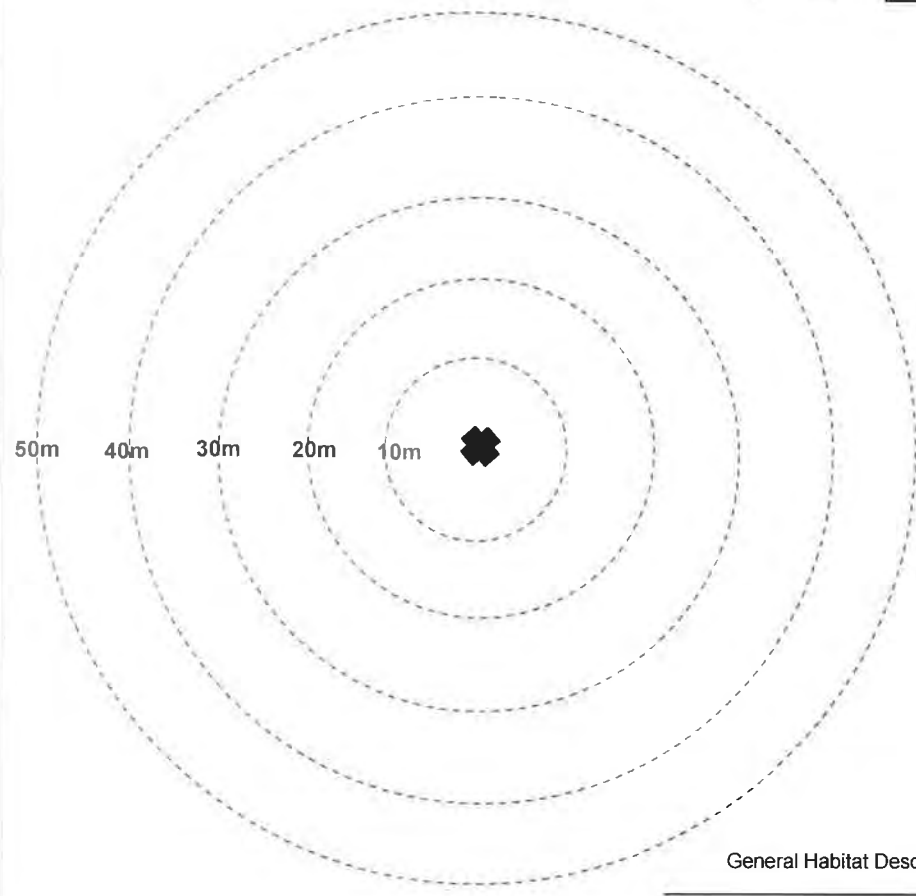
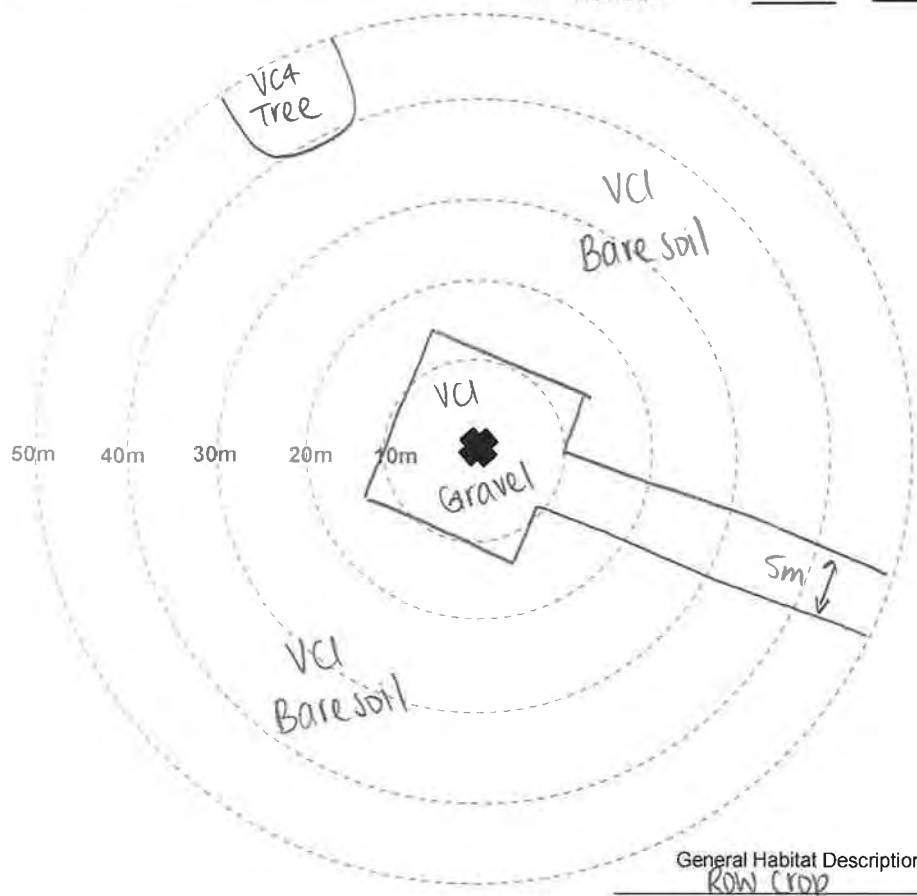


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: ____ m



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T58 Degree of Slope 1 degrees Slope Orientation SW (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0861
Facing East: 0862
Facing South: 0863
Facing West: 0864
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19

Observer: HCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

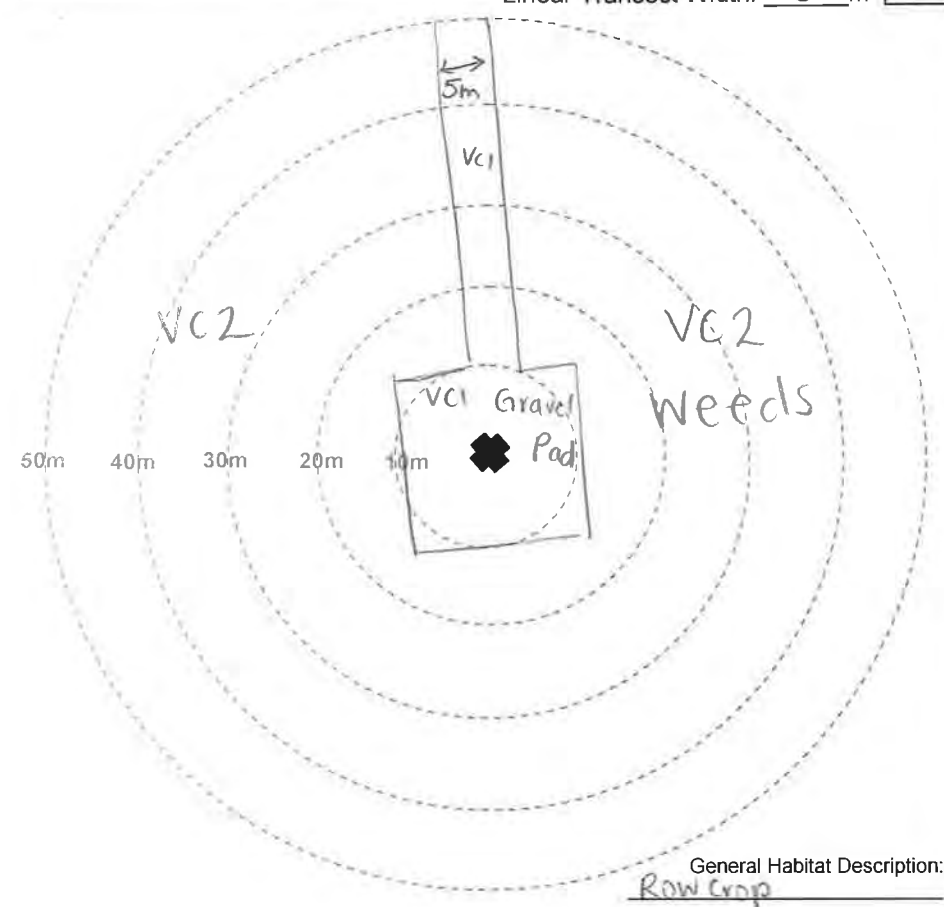


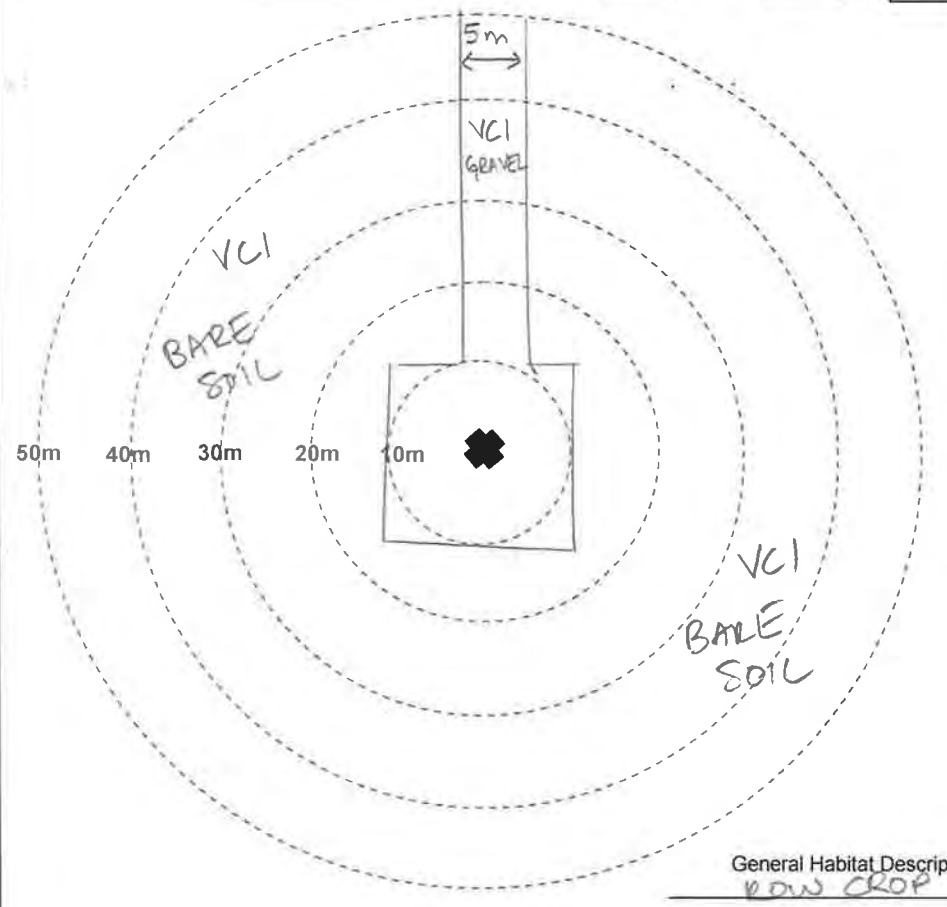
Photo Numbers (from turbine base)
Facing North: 2078
Facing East: 2079
Facing South: 2080
Facing West: 2077
(sketch habitat and visibility classes)

Date (DD/MM/YY): 11/06/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: 58

Photo Numbers (from turbine base)
Facing North: 0280
Facing East: 0281
Facing South: 0282
Facing West: 0283
(sketch habitat and visibility classes)

Date (DD/MM/YY): 05/07/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

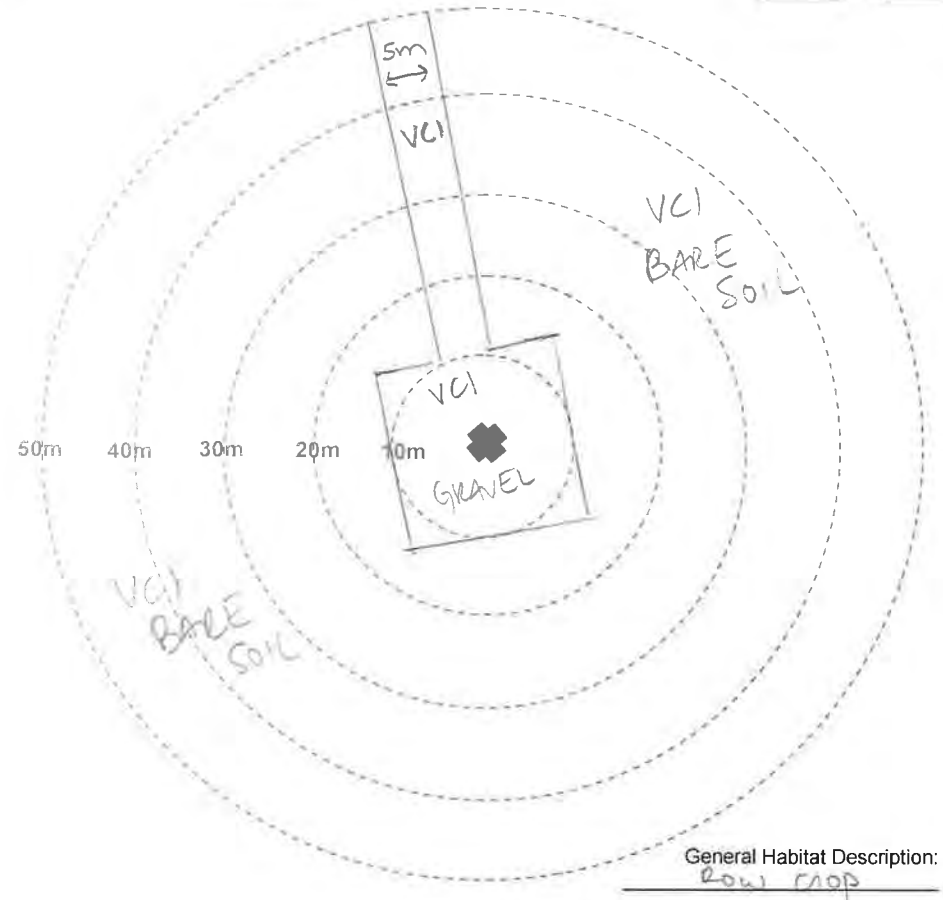
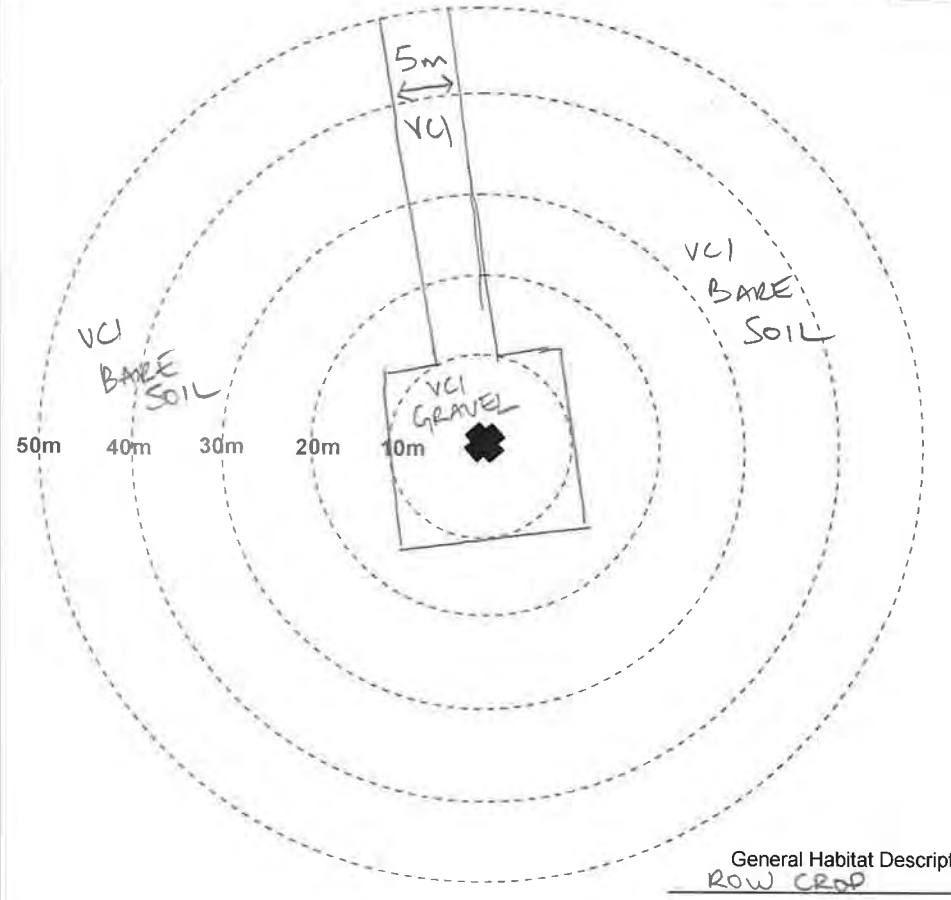


Photo Numbers (from turbine base)
Facing North: 2398
Facing East: 2399
Facing South: 2400
Facing West: 2401
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/08/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865L Turbine #: 58

Photo Numbers (from turbine base)
Facing North: 2695
Facing East: 2696
Facing South: 2697
Facing West: 2698
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

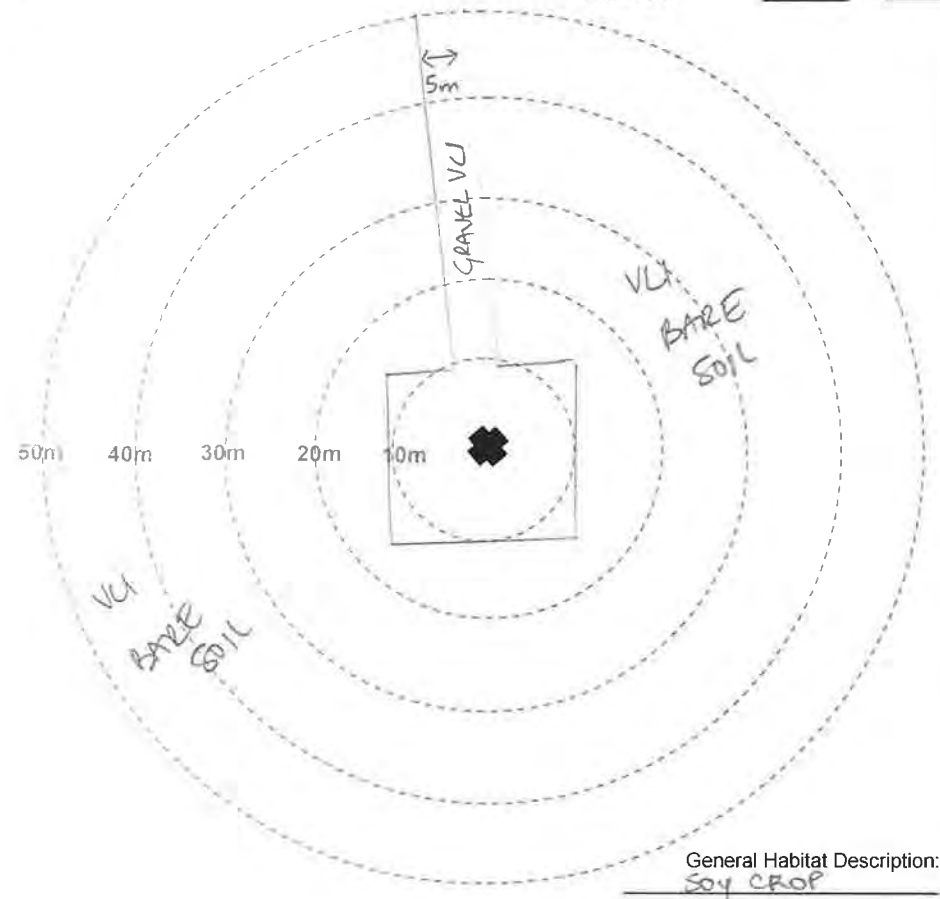
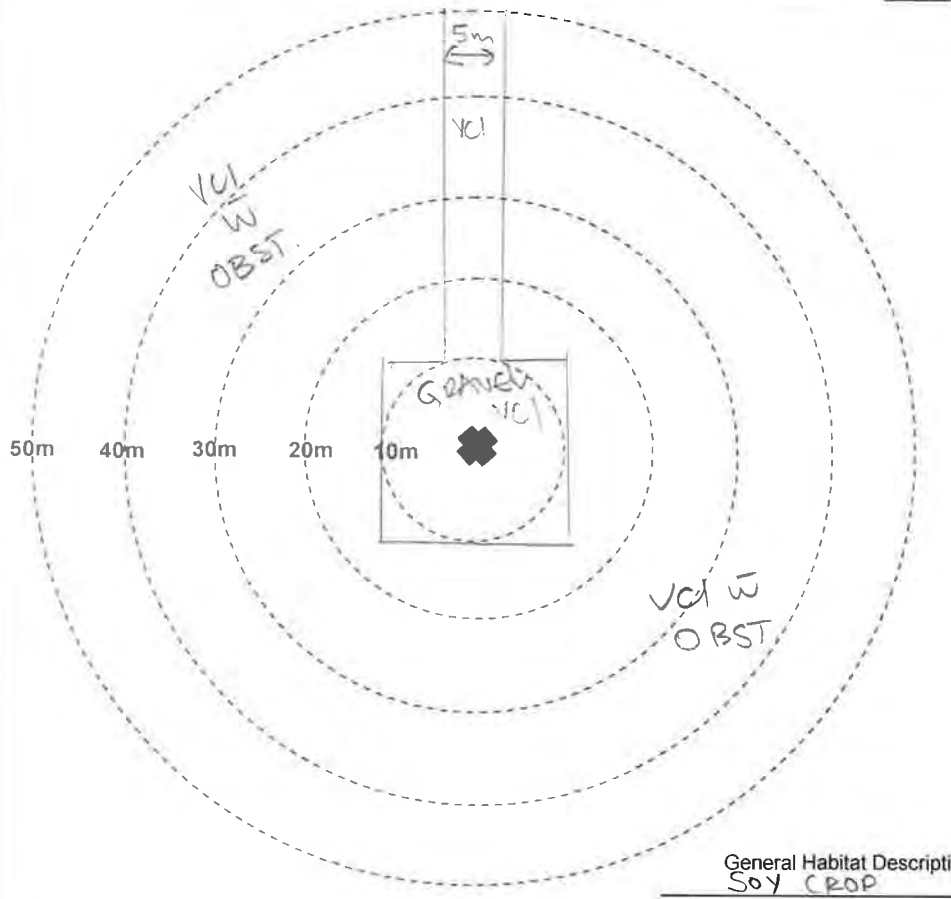


Photo Numbers (from turbine base)
Facing North: 114734
Facing East: 114745
Facing South: 114754
Facing West: 114805
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: TSB

Photo Numbers (from turbine base)
Facing North: 151224
Facing East: 151234
Facing South: 151241
Facing West: 151248
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

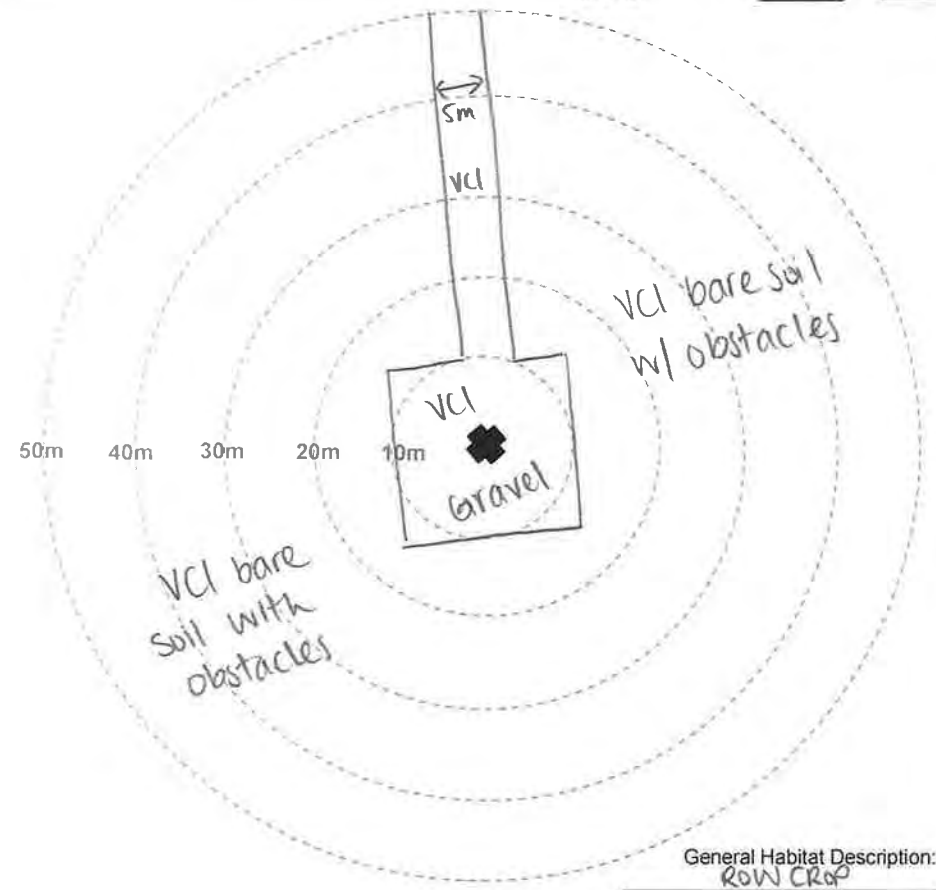
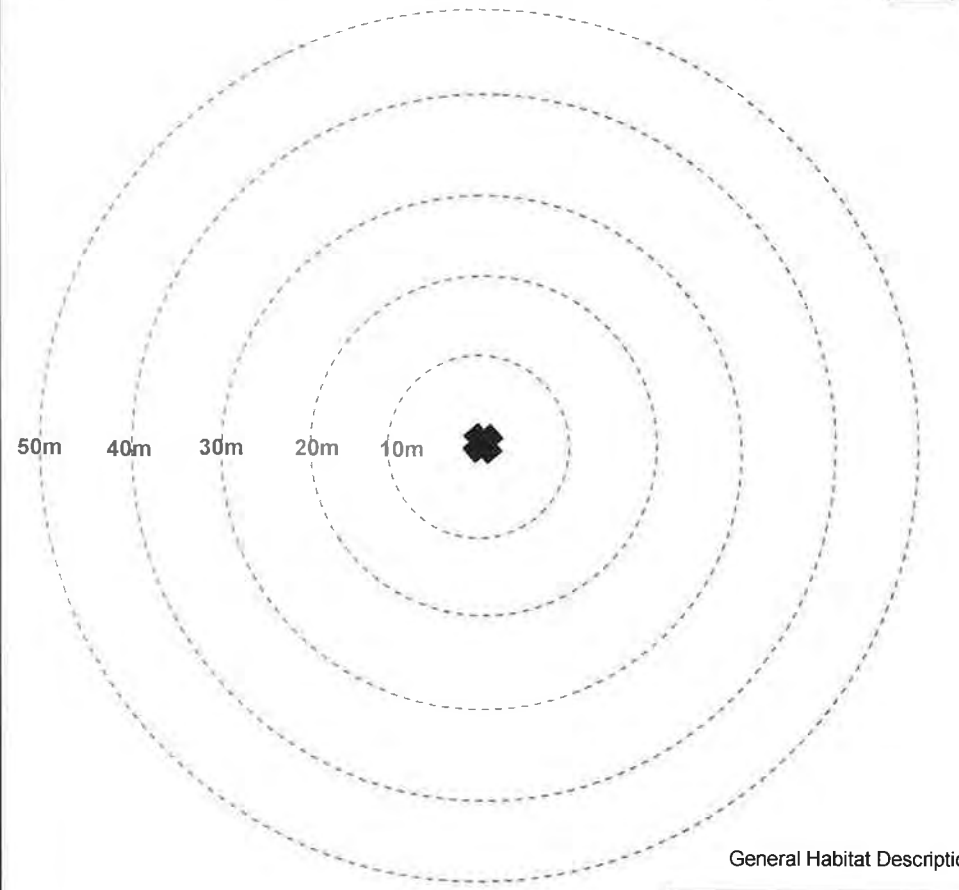


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T61 Degree of Slope 1 degrees Slope Orientation E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0805
Facing East: 0806
Facing South: 0807
Facing West: 0808
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

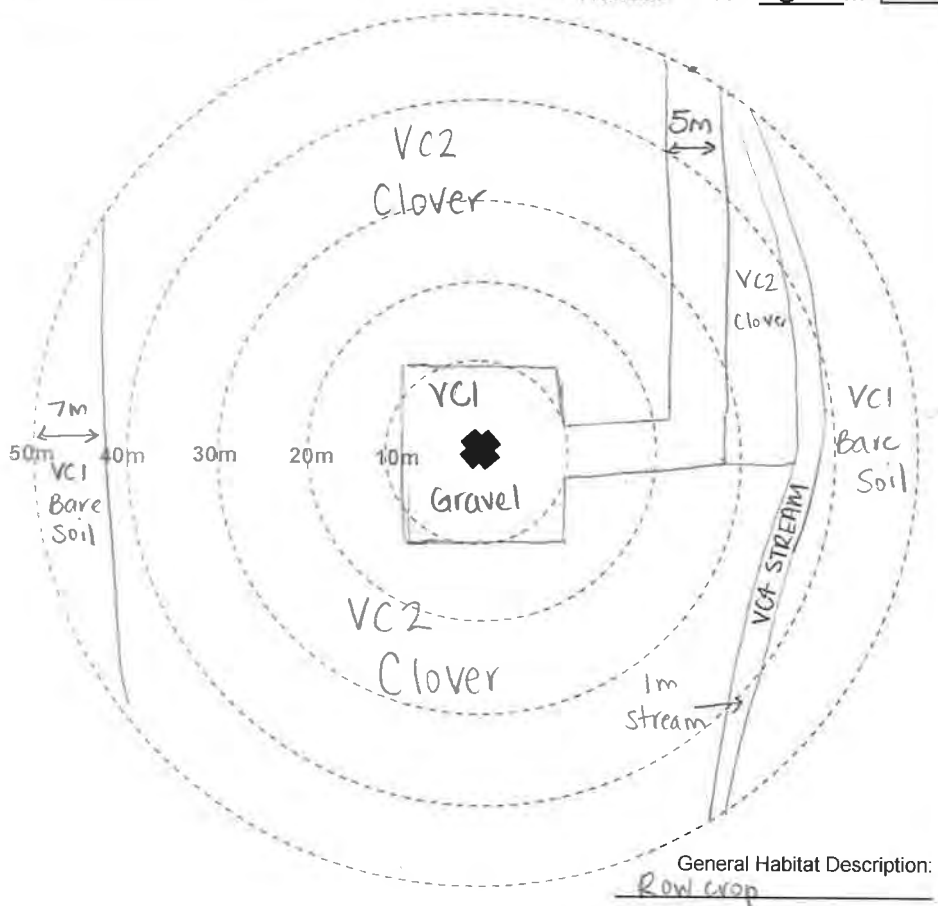
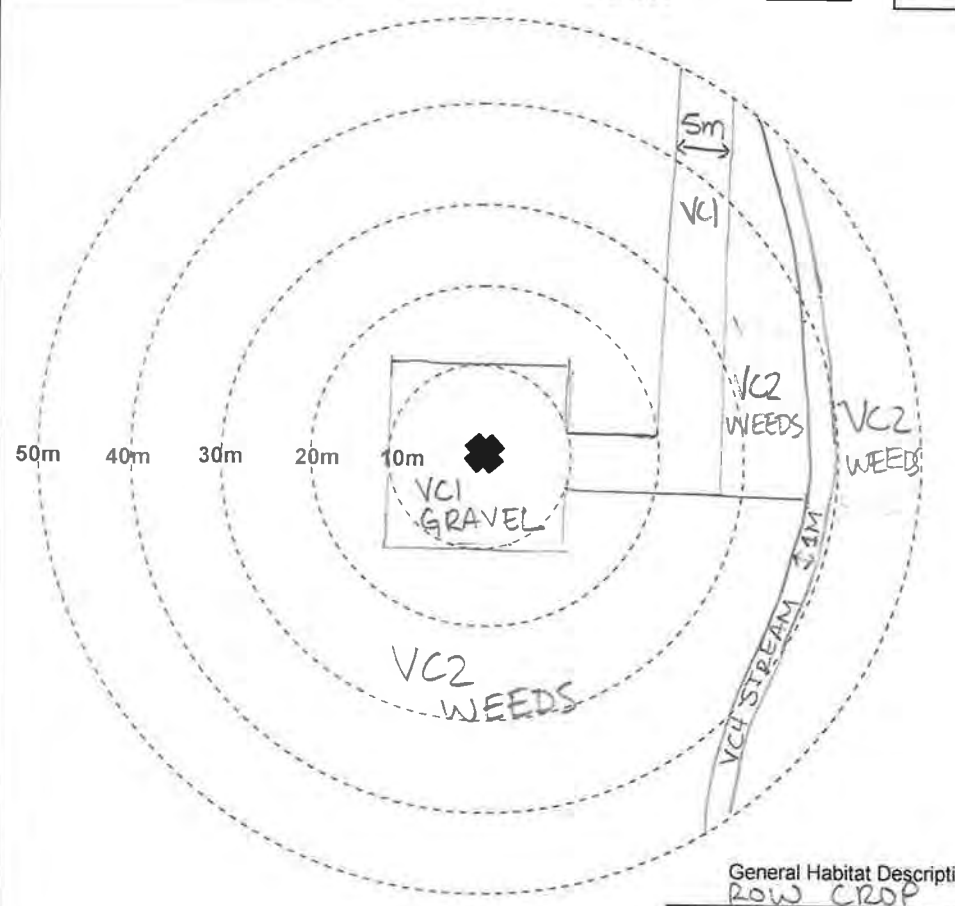


Photo Numbers (from turbine base)
Facing North: 2153
Facing East: 2154
Facing South: 2155
Facing West: 2156
(sketch habitat and visibility classes)

Date (DD/MM/YY): 10/06/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



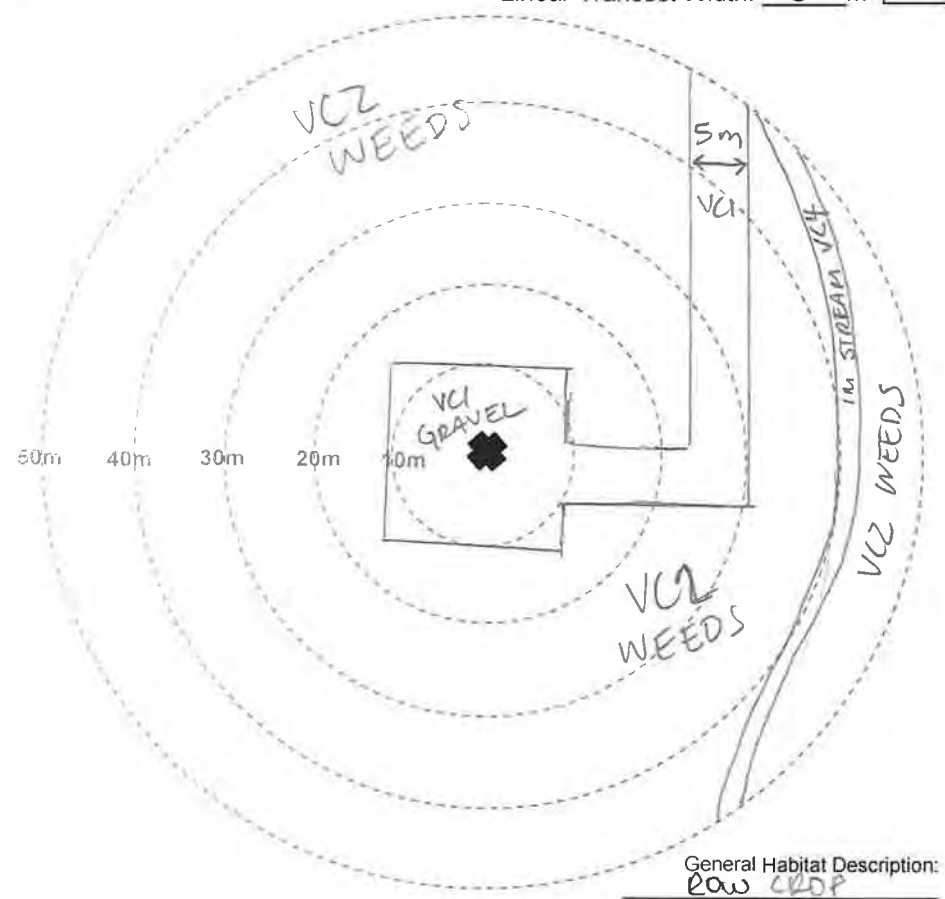
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 18656 Turbine #: 61

Photo Numbers (from turbine base)
Facing North: 2212
Facing East: 2213
Facing South: 2214
Facing West: 2215
(sketch habitat and visibility classes)

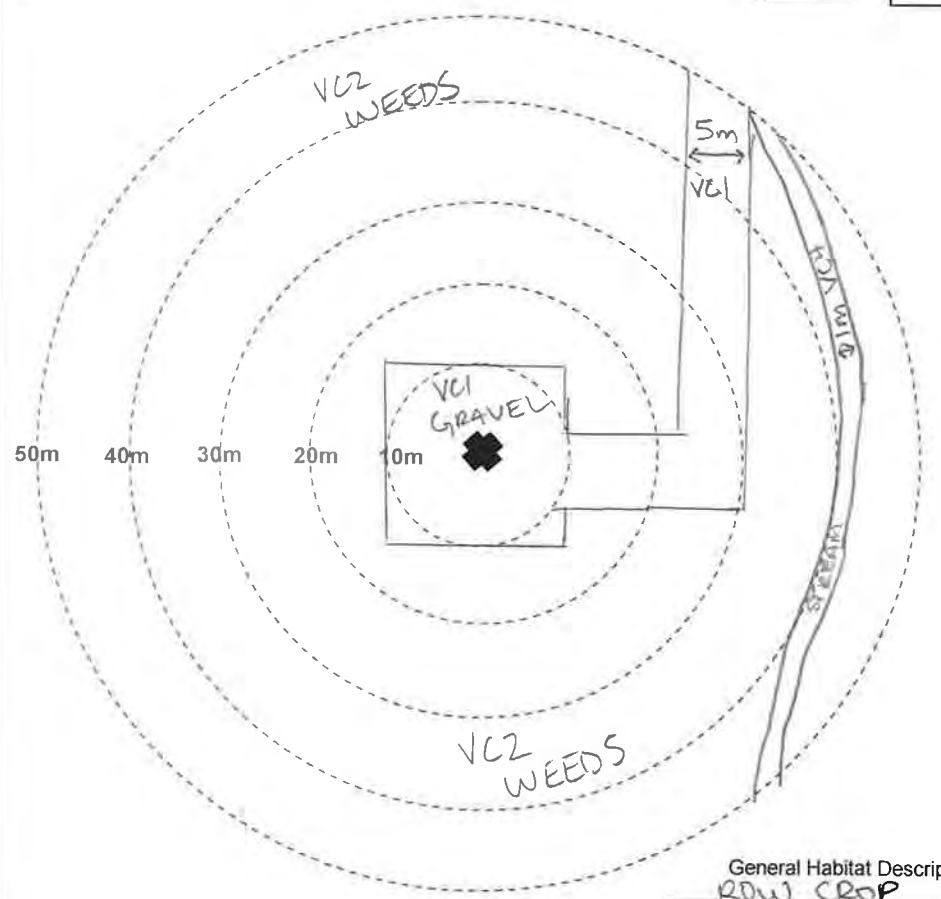
Date (DD/MM/YY): 04/07/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description:
LOW CROP

Photo Numbers (from turbine base)
Facing North: 2394
Facing East: 2395
Facing South: 2396
Facing West: 2397
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description:
LOW CROP

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NLWF

Project #: 1865C Turbine #: T61

Photo Numbers (from turbine base)
Facing North: 2686
Facing East: 2687
Facing South: 2688
Facing West: 2689
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

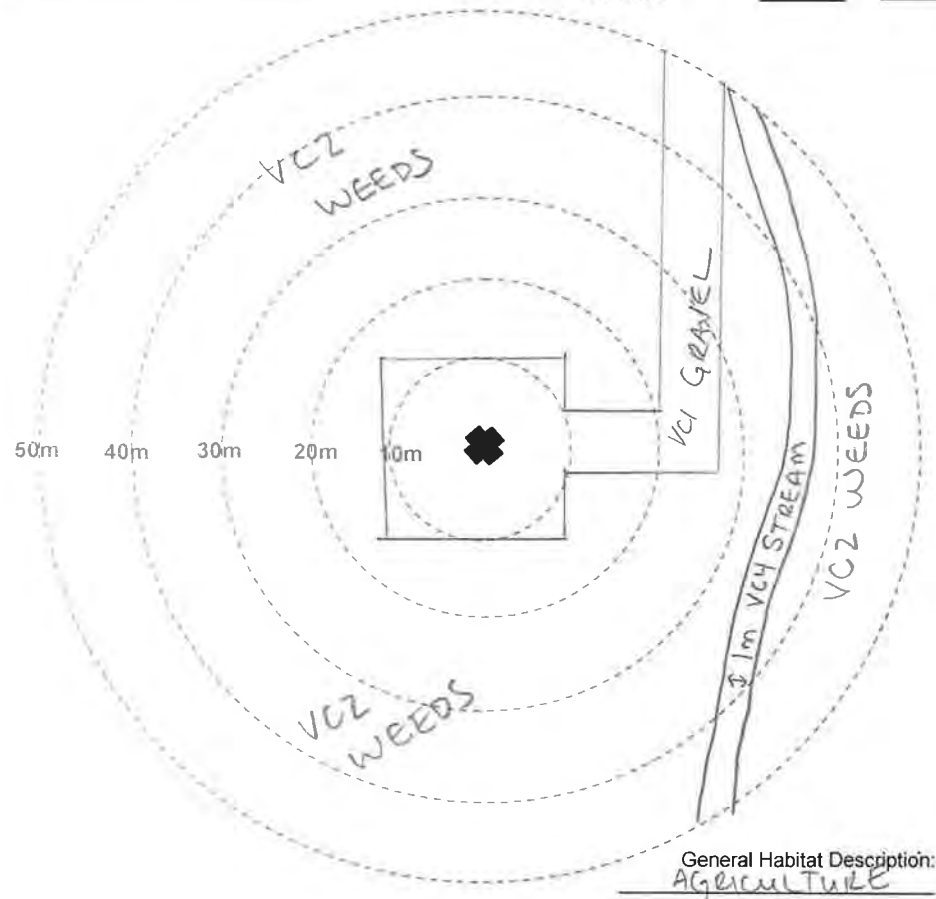
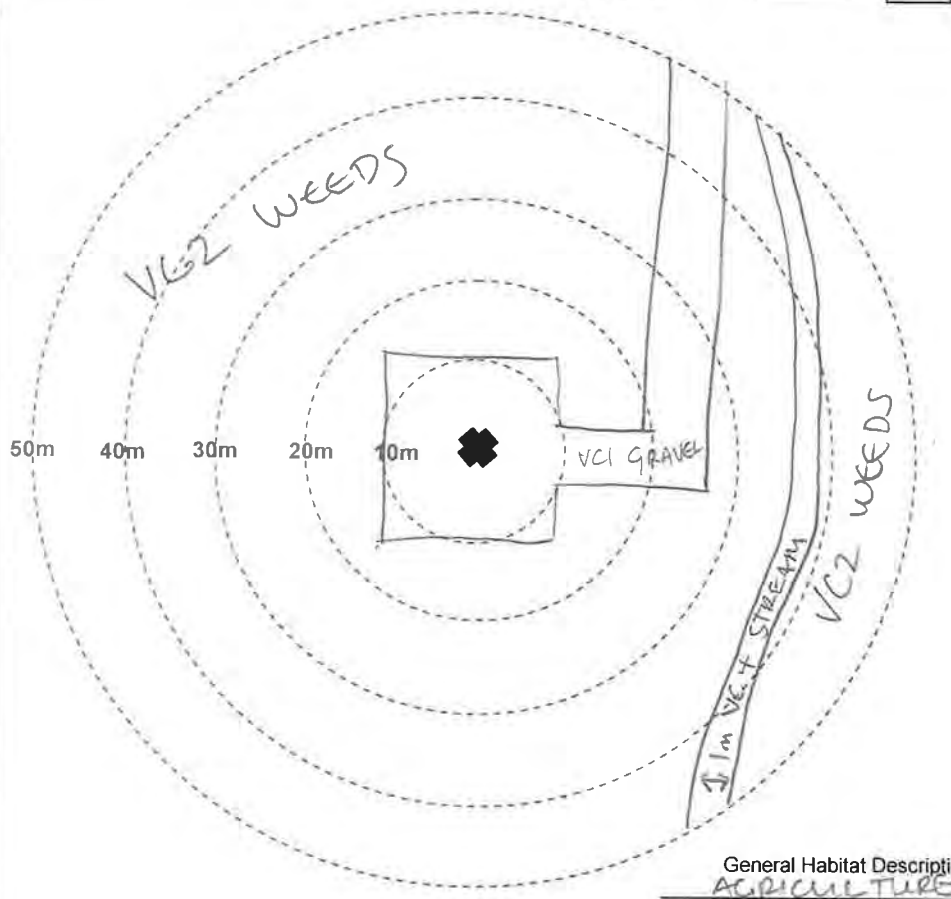


Photo Numbers (from turbine base)
Facing North: 2986
Facing East: 2987
Facing South: 2988
Facing West: 2989
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T61

Photo Numbers (from turbine base) Facing North: <u>154848</u> Facing East: <u>154902</u> Facing South: <u>154914</u> Facing West: <u>154922</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>14/11/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: _____ Facing East: _____ Facing South: _____ Facing West: _____ (sketch habitat and visibility classes)	Date (DD/MM/YY): ____/____/____ Observer: _____ Monthly/Seasonal Linear Transect Width: _____ m
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General Habitat Description: Agriculture

General Habitat Description: _____

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T62 Degree of Slope 0 degrees Slope Orientation — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0844
Facing East: 0845
Facing South: 0846
Facing West: 0847
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N

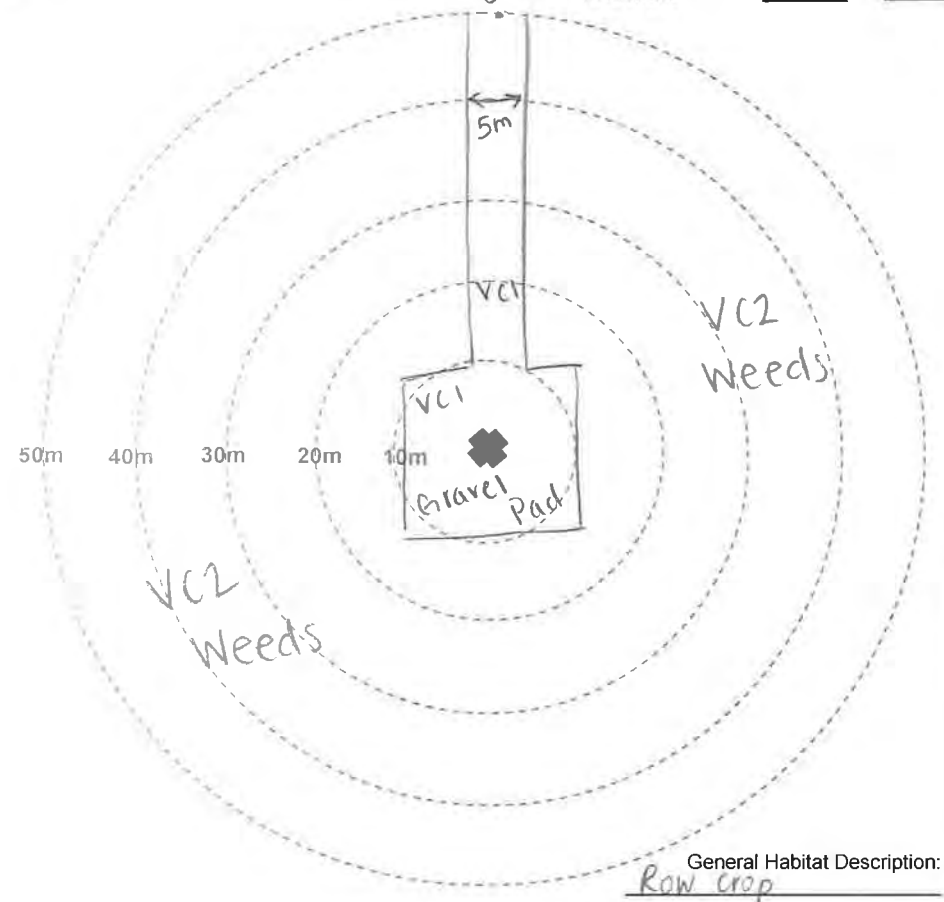
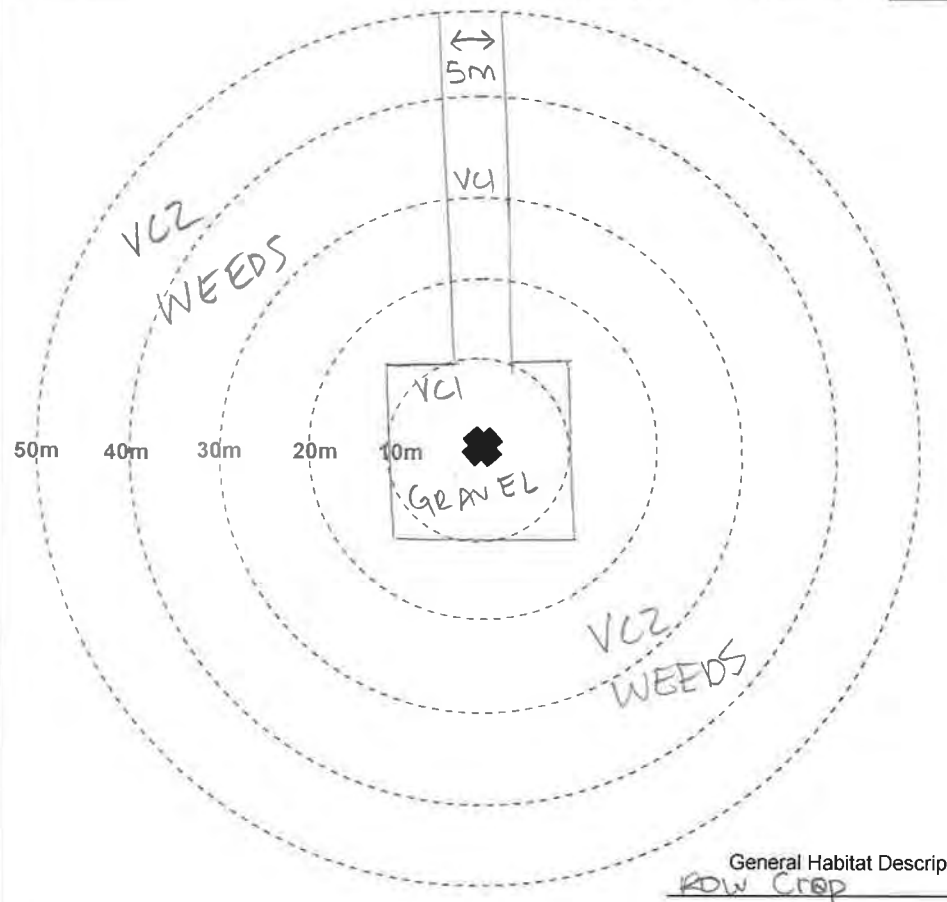


Photo Numbers (from turbine base)
Facing North: 2107
Facing East: 2108
Facing South: 2109
Facing West: 2110
(sketch habitat and visibility classes)

Date (DD/MM/YY): 11/06/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T62

Photo Numbers (from turbine base)
Facing North: 2289
Facing East: 2290
Facing South: 2291
Facing West: 2292
(sketch habitat and visibility classes)

Date (DD/MM/YY): 12/07/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

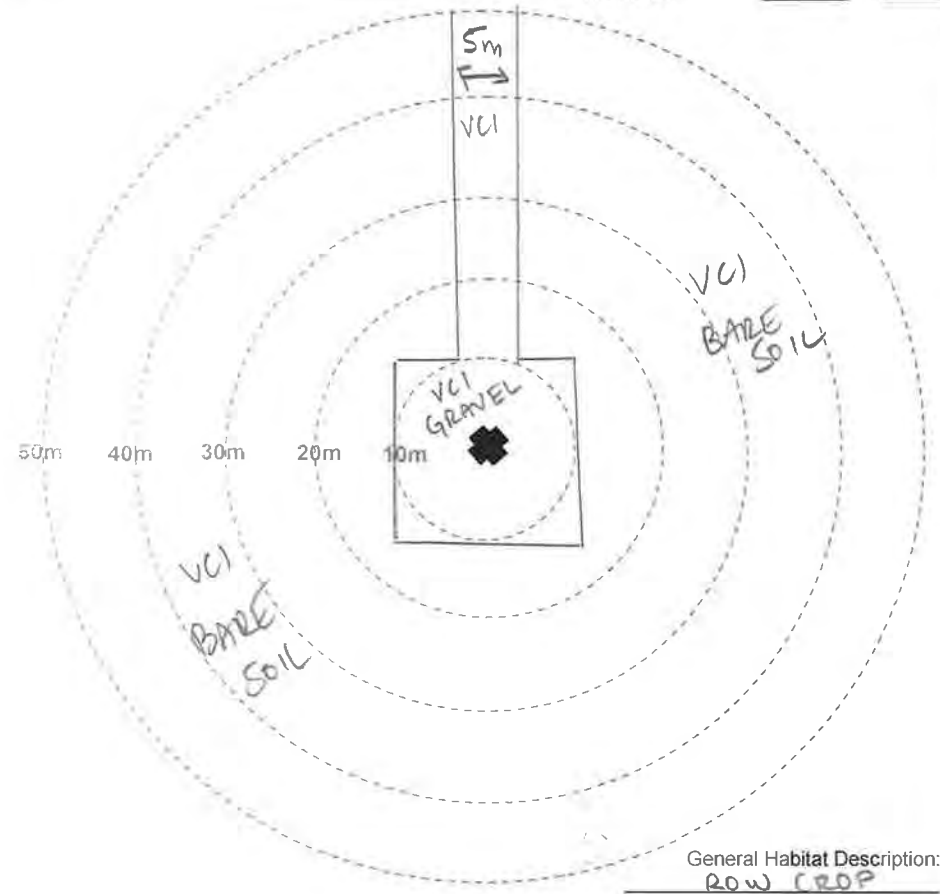
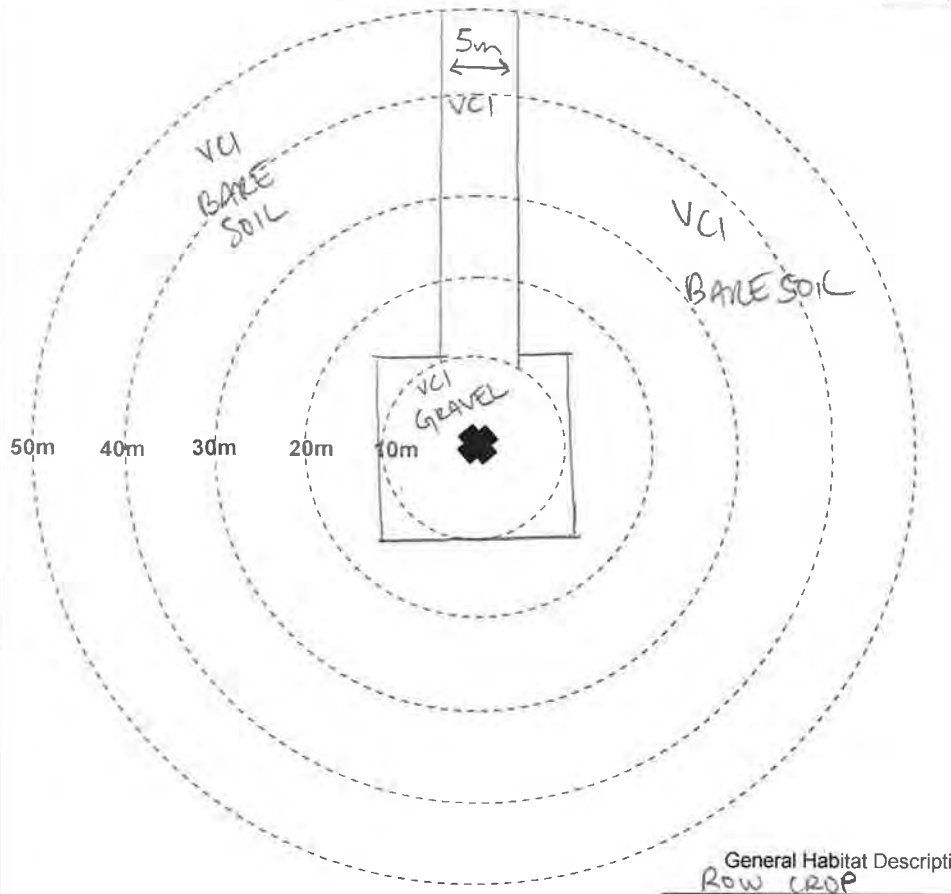


Photo Numbers (from turbine base)
Facing North: 2425
Facing East: 2426
Facing South: 2427
Facing West: 2428
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/08/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865L Turbine #: T62

Photo Numbers (from turbine base)
Facing North: 2713
Facing East: 2714
Facing South: 2715
Facing West: 2716
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

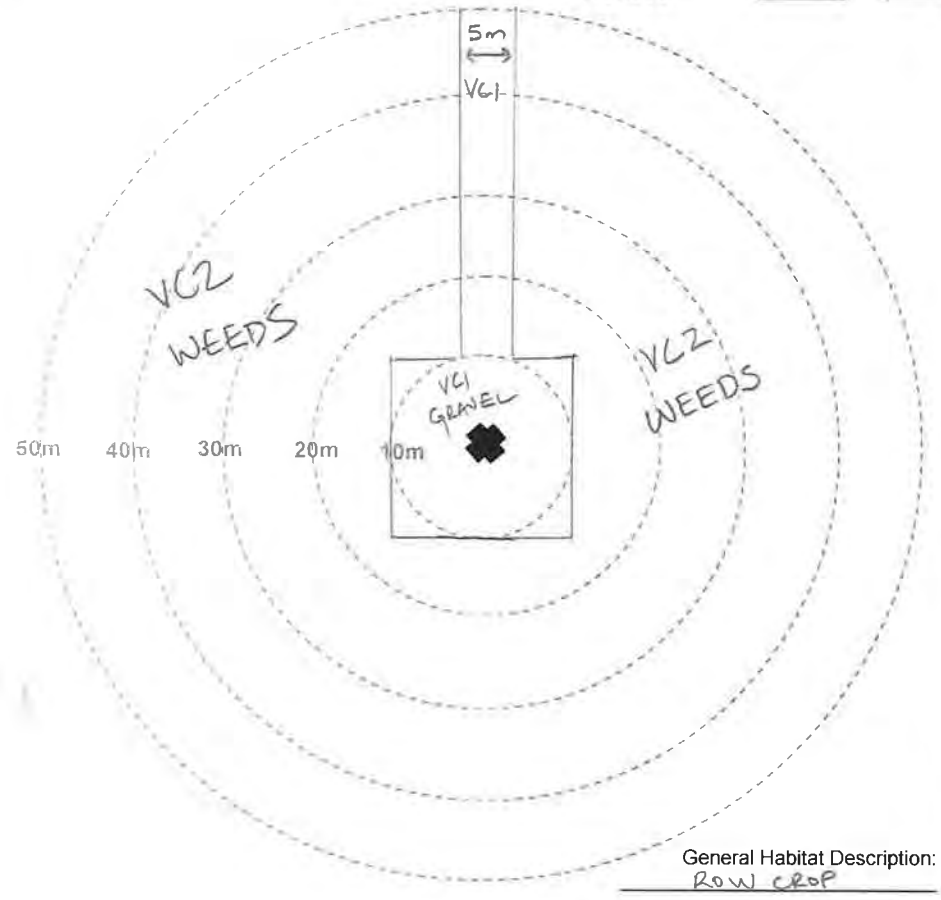
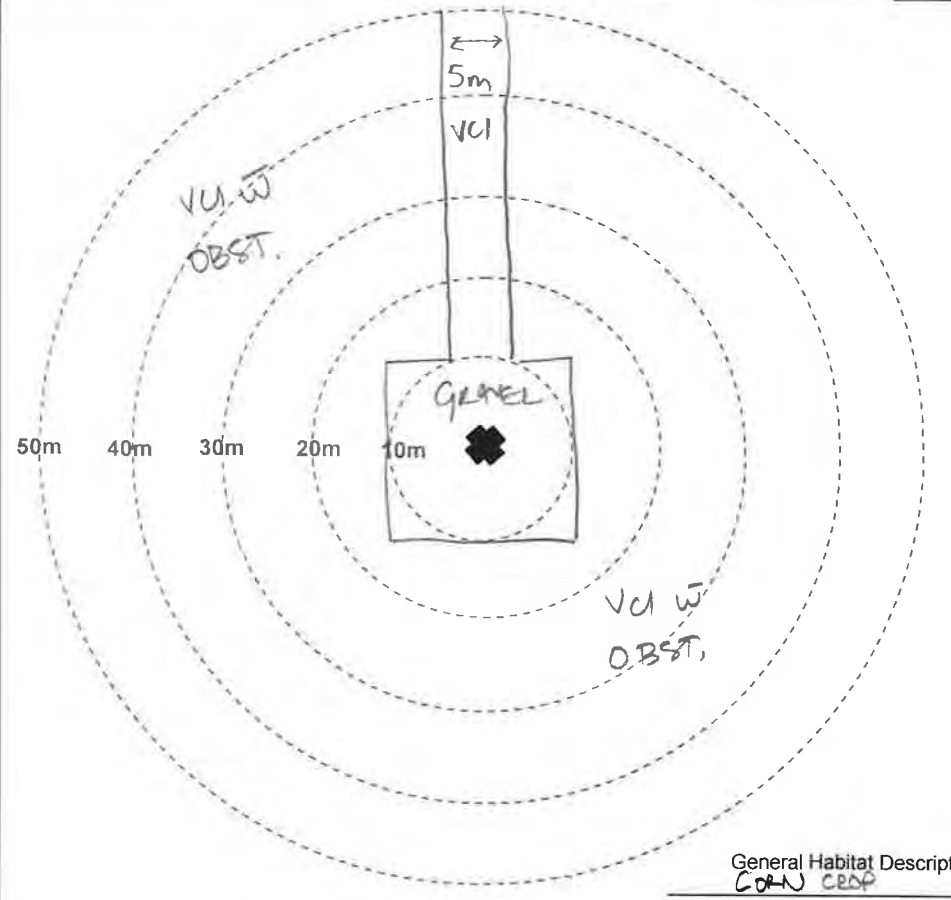


Photo Numbers (from turbine base)
Facing North: 152538
Facing East: 152550
Facing South: 152559
Facing West: 152609
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/2019
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T62

Photo Numbers (from turbine base) Facing North: <u>140027</u> Facing East: <u>140038</u> Facing South: <u>140048</u> Facing West: <u>140058</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>28/11/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: _____ Facing East: _____ Facing South: _____ Facing West: _____ (sketch habitat and visibility classes)	Date (DD/MM/YY): ____/____/____ Observer: _____ Monthly/Seasonal Linear Transect Width: _____ m
General Habitat Description: <u>CORN CROP</u>		General Habitat Description: _____	

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T63 Degree of Slope 1 degrees Slope Orientation W (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0840
Facing East: 0841
Facing South: 0842
Facing West: 0843
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N

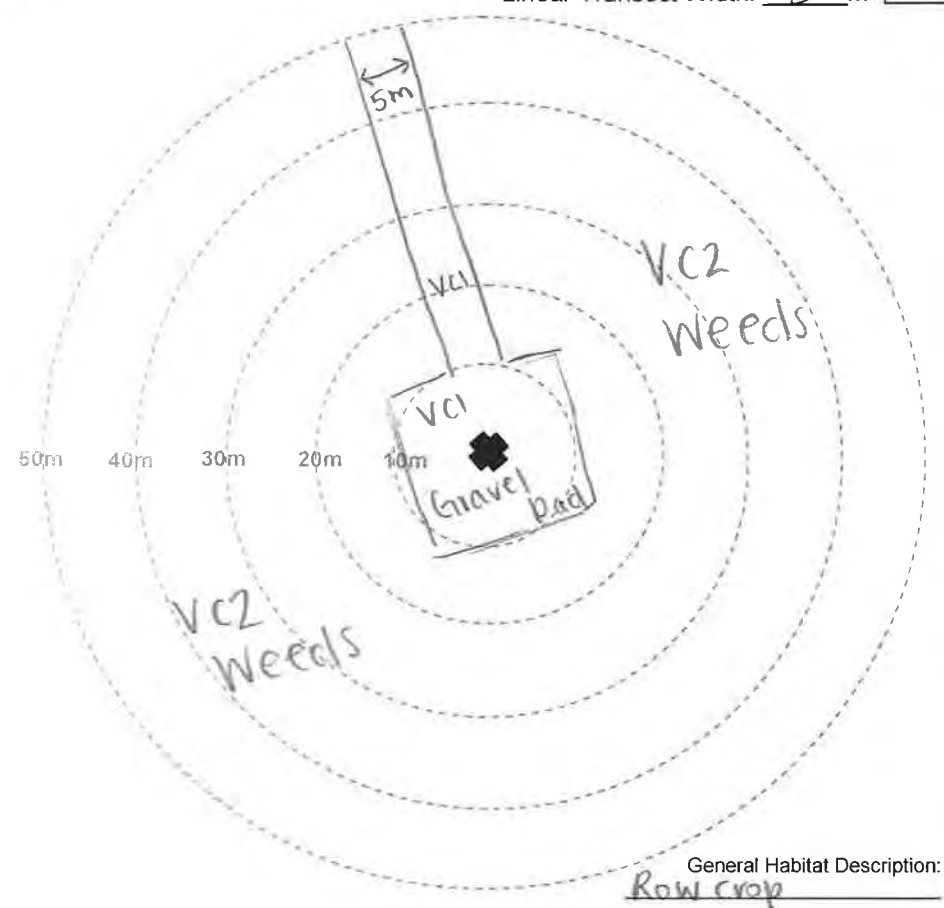
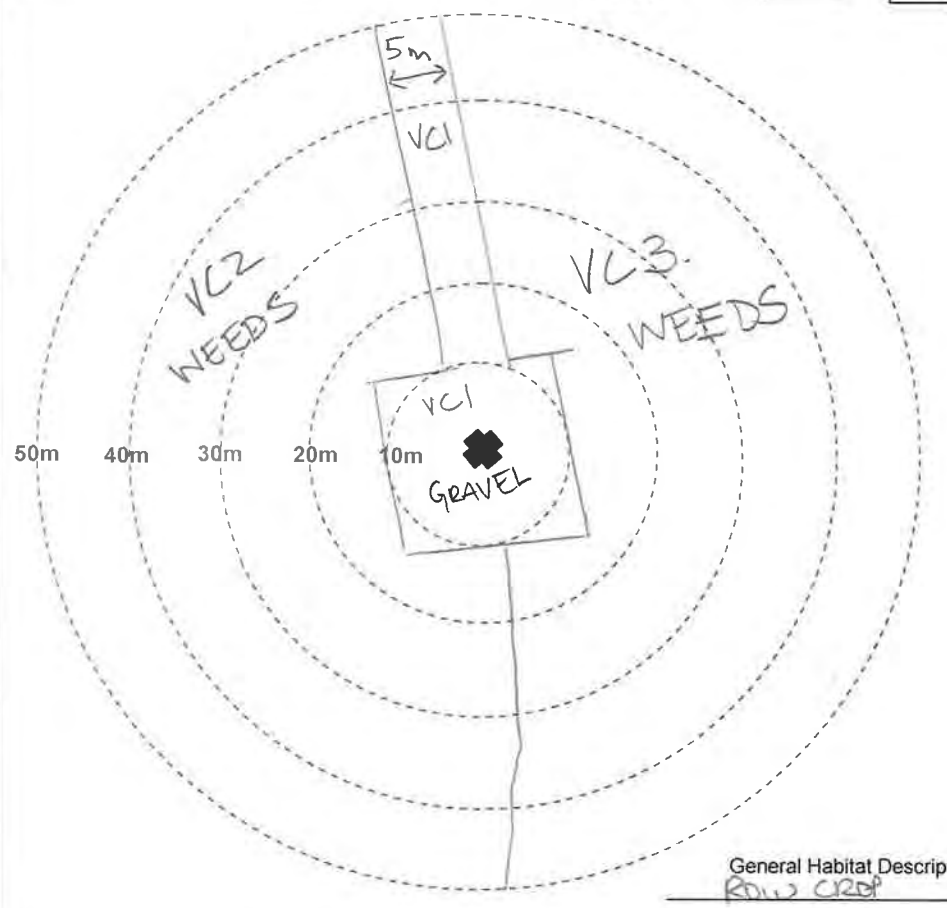


Photo Numbers (from turbine base)
Facing North: 2100
Facing East: 2101
Facing South: 2102
Facing West: 2103
(sketch habitat and visibility classes)

Date (DD/MM/YY): 11/06/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T63

Photo Numbers (from turbine base)
Facing North: 2271
Facing East: 2272
Facing South: 2273
Facing West: 2274
(sketch habitat and visibility classes)

Date (DD/MM/YY): 12/07/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N

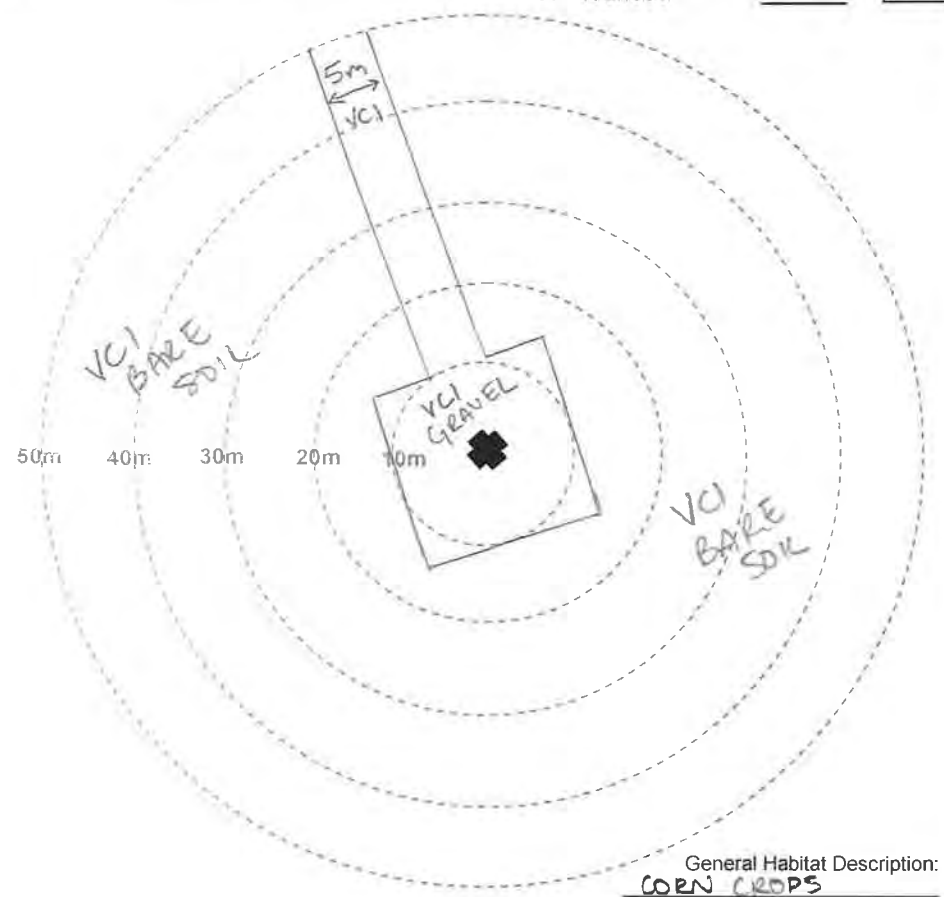


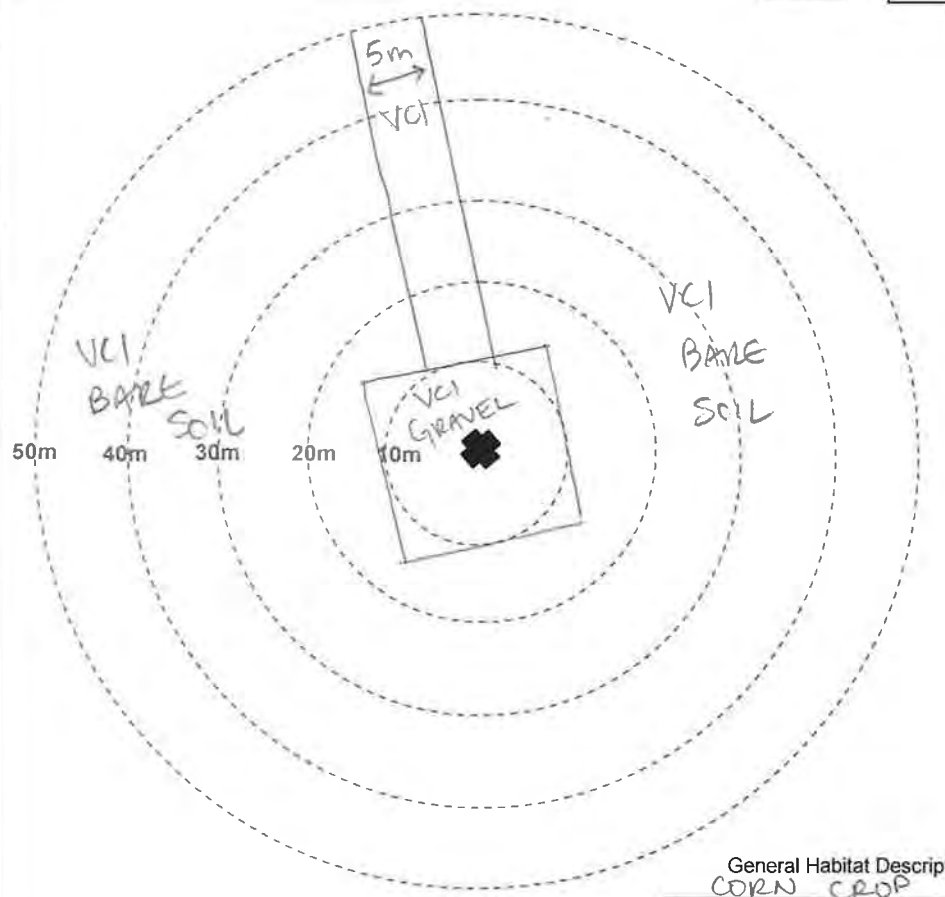
Photo Numbers (from turbine base)
Facing North: 2418
Facing East: 2419
Facing South: 2420
Facing West: 2421
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/08/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865L Turbine #: T63

Photo Numbers (from turbine base)
Facing North: 2709
Facing East: 2710
Facing South: 2711
Facing West: 2712
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N

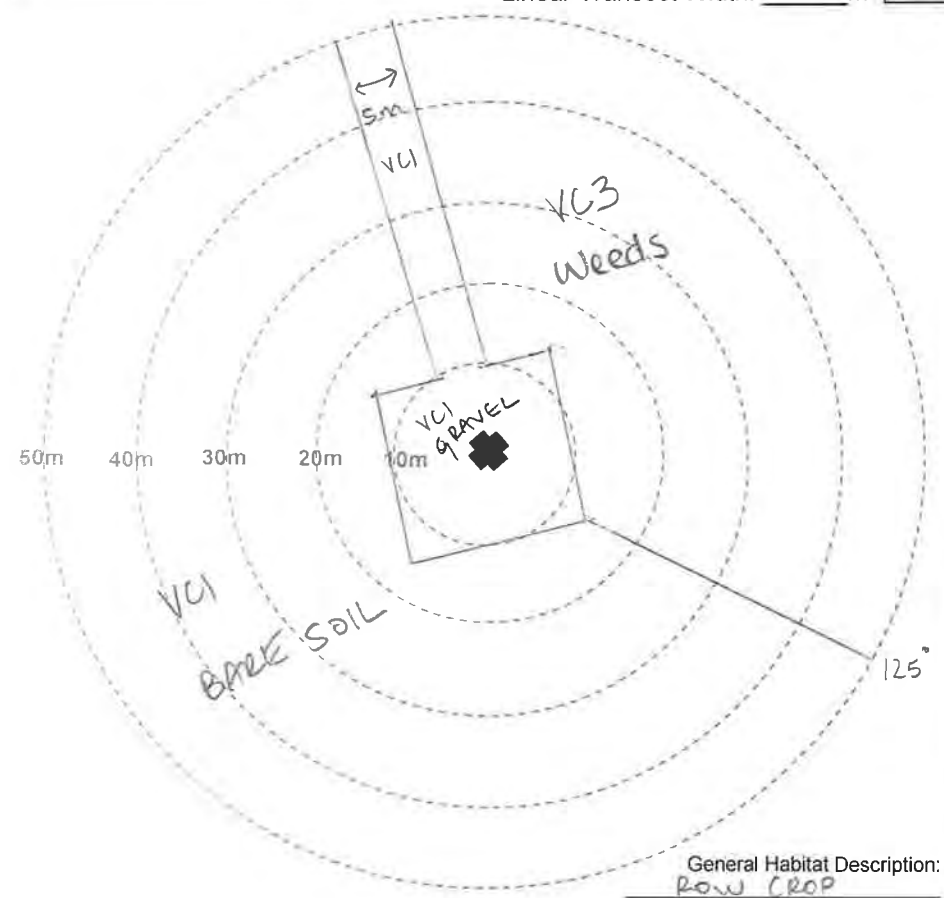


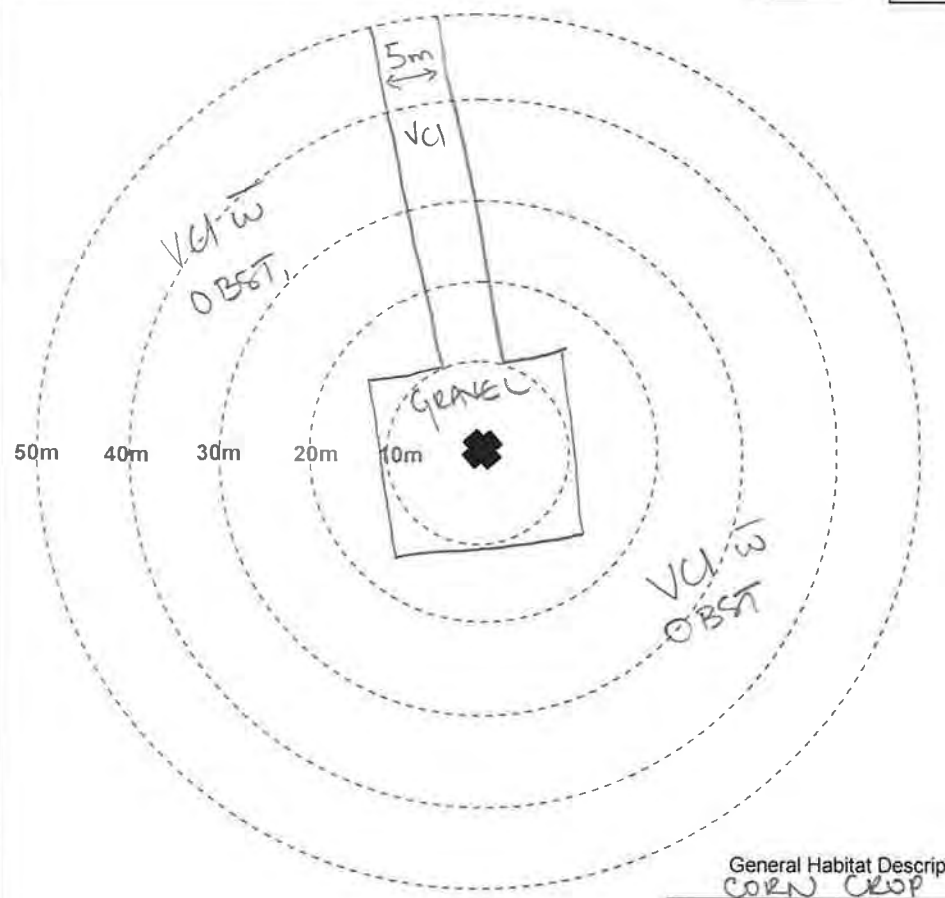
Photo Numbers (from turbine base)
Facing North: 144318
Facing East: 144328
Facing South: 144337
Facing West: 144352
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T63

Photo Numbers (from turbine base)
Facing North: 135751
Facing East: 135804
Facing South: 135813
Facing West: 135823
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

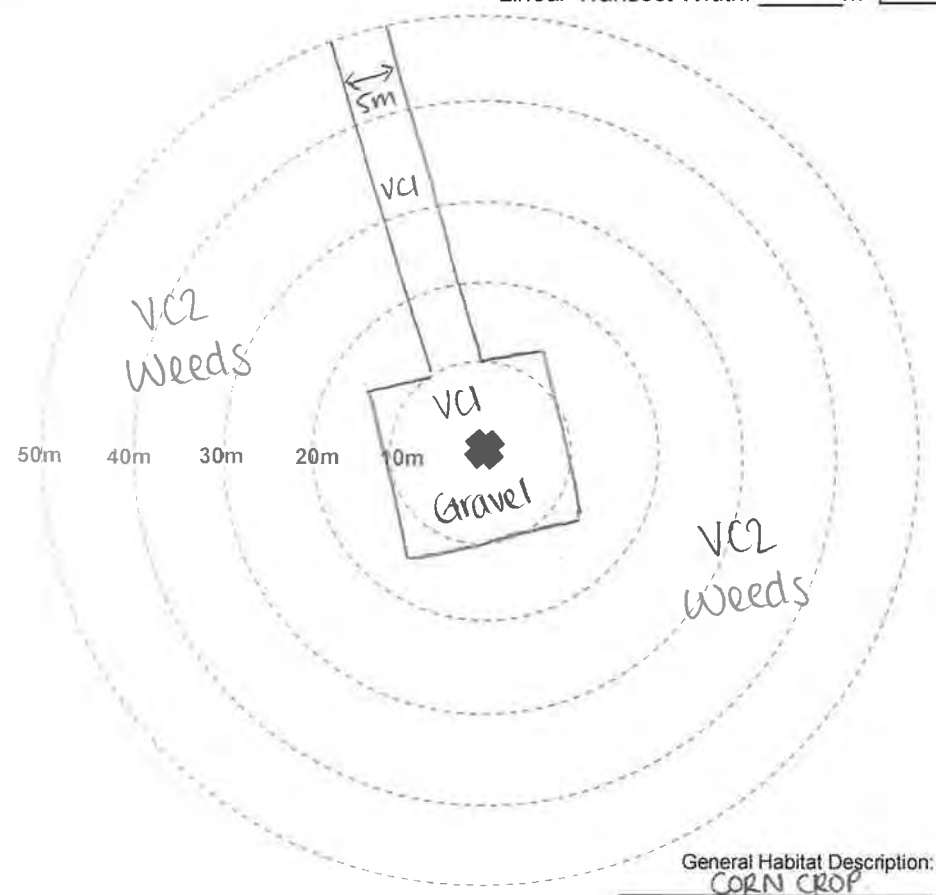
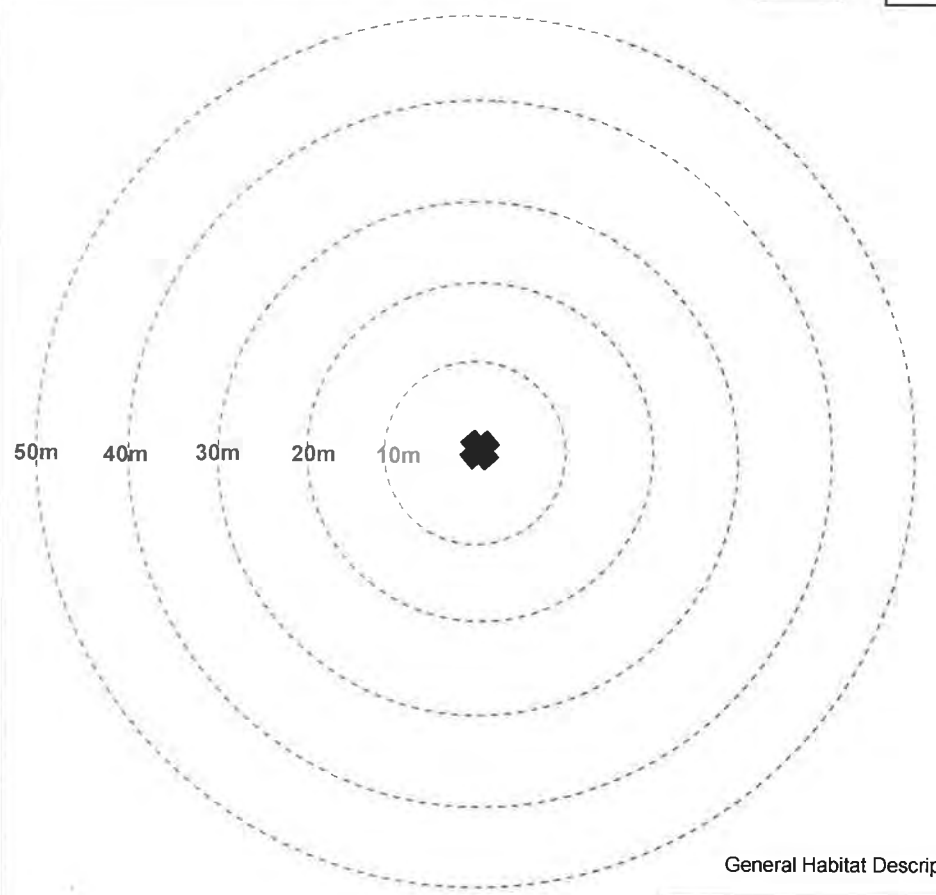


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T66 Degree of Slope 1 degrees Slope Orientation S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0772
Facing East: 0773
Facing South: 0774
Facing West: 0775
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

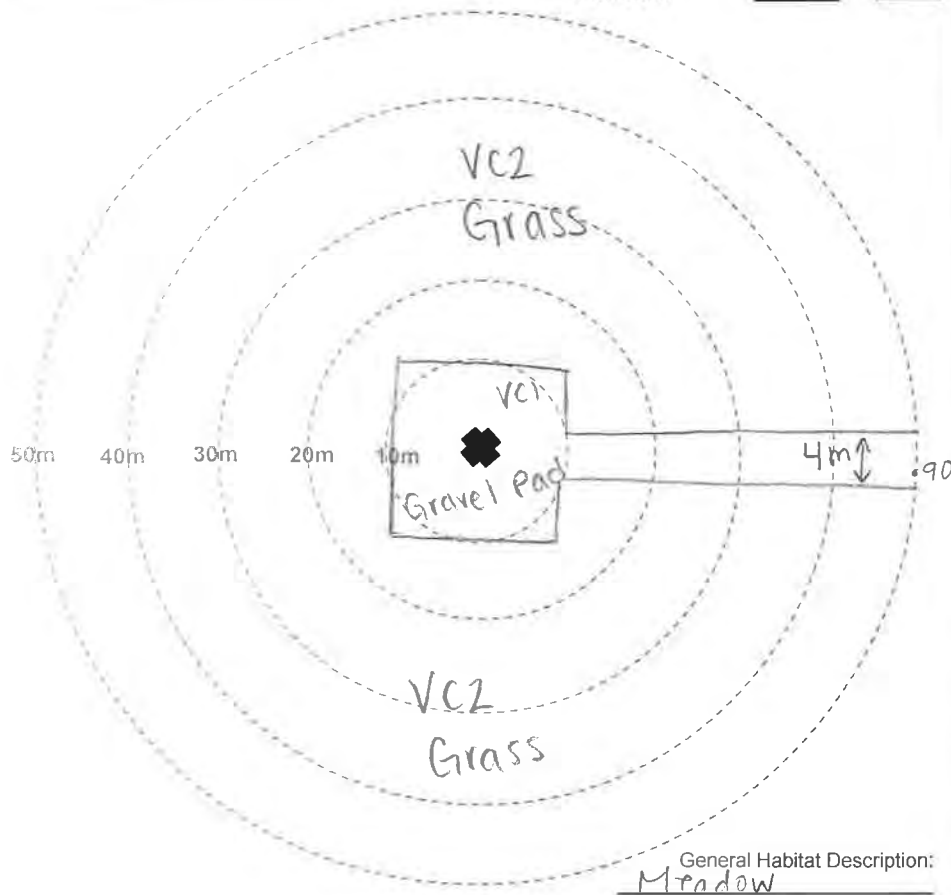
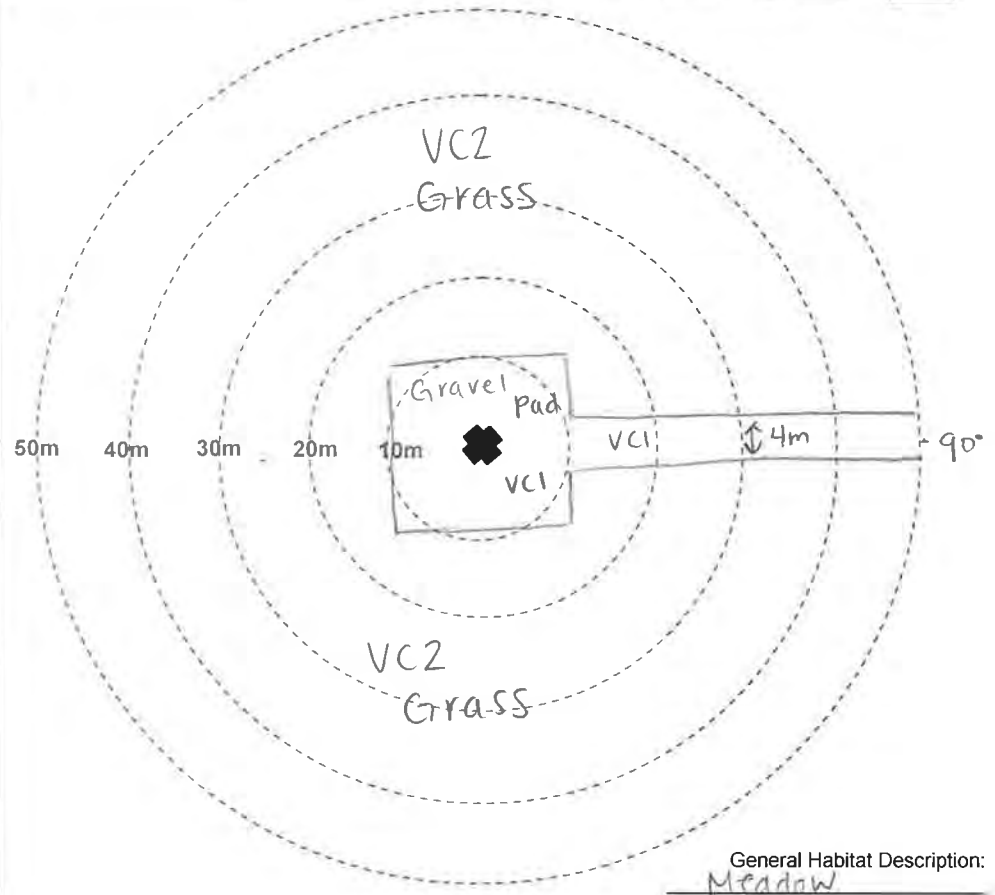


Photo Numbers (from turbine base)
Facing North: 0965
Facing East: 0966
Facing South: 0967
Facing West: 0968
(sketch habitat and visibility classes)

Date (DD/MM/YY): 06/06/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T66

Photo Numbers (from turbine base)
Facing North: 1136
Facing East: 1137
Facing South: 1138
Facing West: 1139
(sketch habitat and visibility classes)

Date (DD/MM/YY): 08/07/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

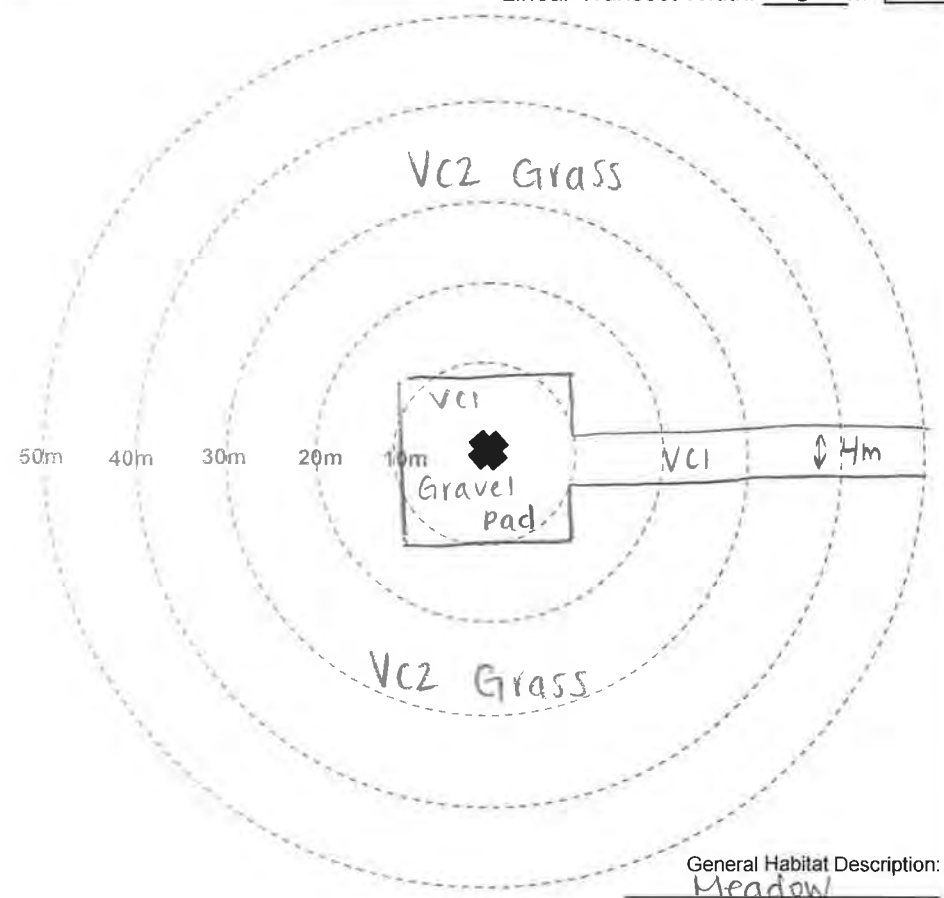


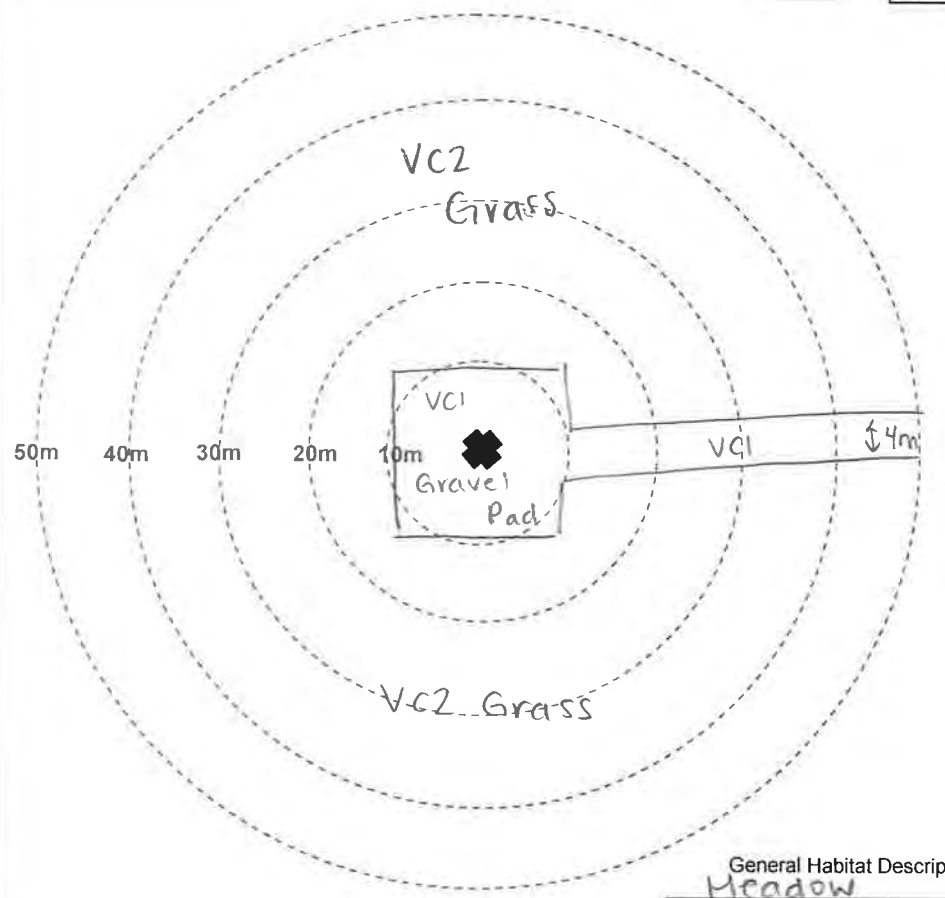
Photo Numbers (from turbine base)
Facing North: 1252
Facing East: 1253
Facing South: 1254
Facing West: 1255
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: TL66

Photo Numbers (from turbine base) Facing North: <u>1435</u> Facing East: <u>1436</u> Facing South: <u>1437</u> Facing West: <u>1438</u> (sketch habitat and visibility classes) Date (DD/MM/YY): <u>02/09/19</u> ↑ Observer: <u>BEM</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m N General Habitat Description: <u>Meadow</u>	Photo Numbers (from turbine base) Facing North: <u>2933</u> Facing East: <u>2934</u> Facing South: <u>2935</u> Facing West: <u>2936</u> (sketch habitat and visibility classes) Date (DD/MM/YY): <u>03/10/19</u> ↑ Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m N General Habitat Description: <u>MEADOW</u>
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VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T66

Photo Numbers (from turbine base) Facing North: <u>092000</u> Facing East: <u>092012</u> Facing South: <u>092024</u> Facing West: <u>092036</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>14/11/19</u> Observer: <u>EW P</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: _____ Facing East: _____ Facing South: _____ Facing West: _____ (sketch habitat and visibility classes)	Date (DD/MM/YY): ____/____/____ Observer: _____ Monthly/Seasonal Linear Transect Width: _____ m
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VC1
Gravel

VC2
Grass

VC2
Grass

General Habitat Description: Meadow

General Habitat Description: _____

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region Project #: 1865C Turbine #: T80 Degree of Slope 1 degrees Slope Orientation N (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0814
Facing East: 0815
Facing South: 0816
Facing West: 0817
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19 ↑
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m N

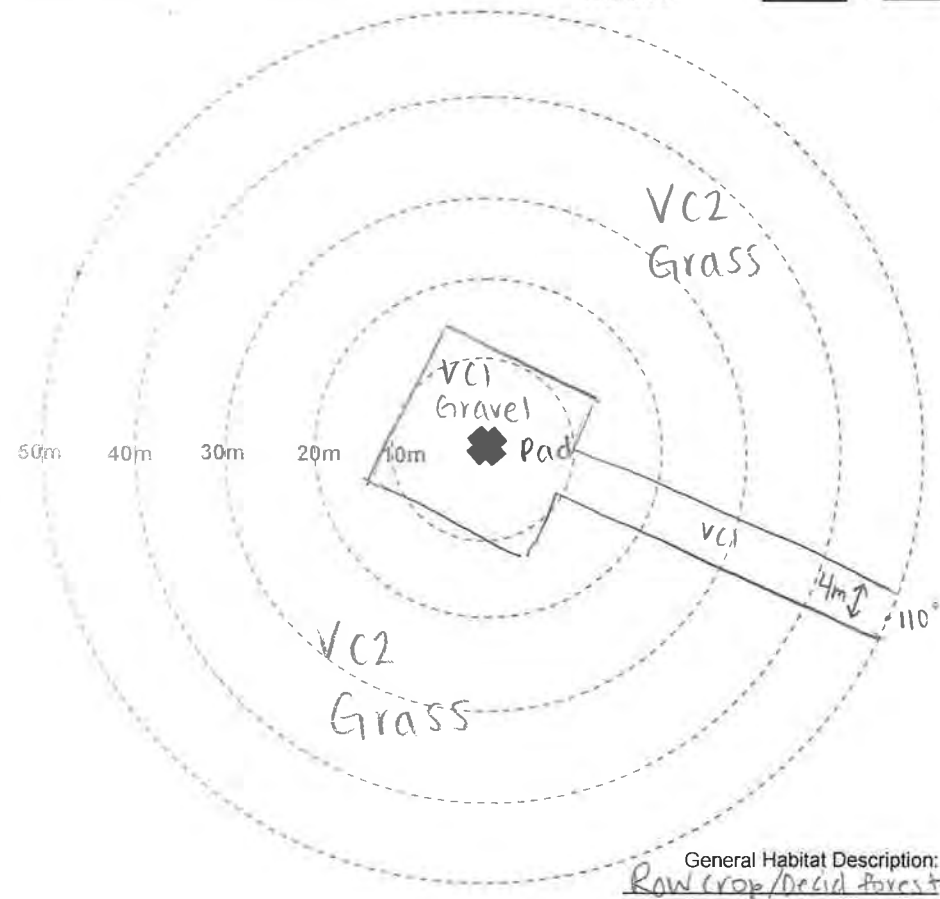
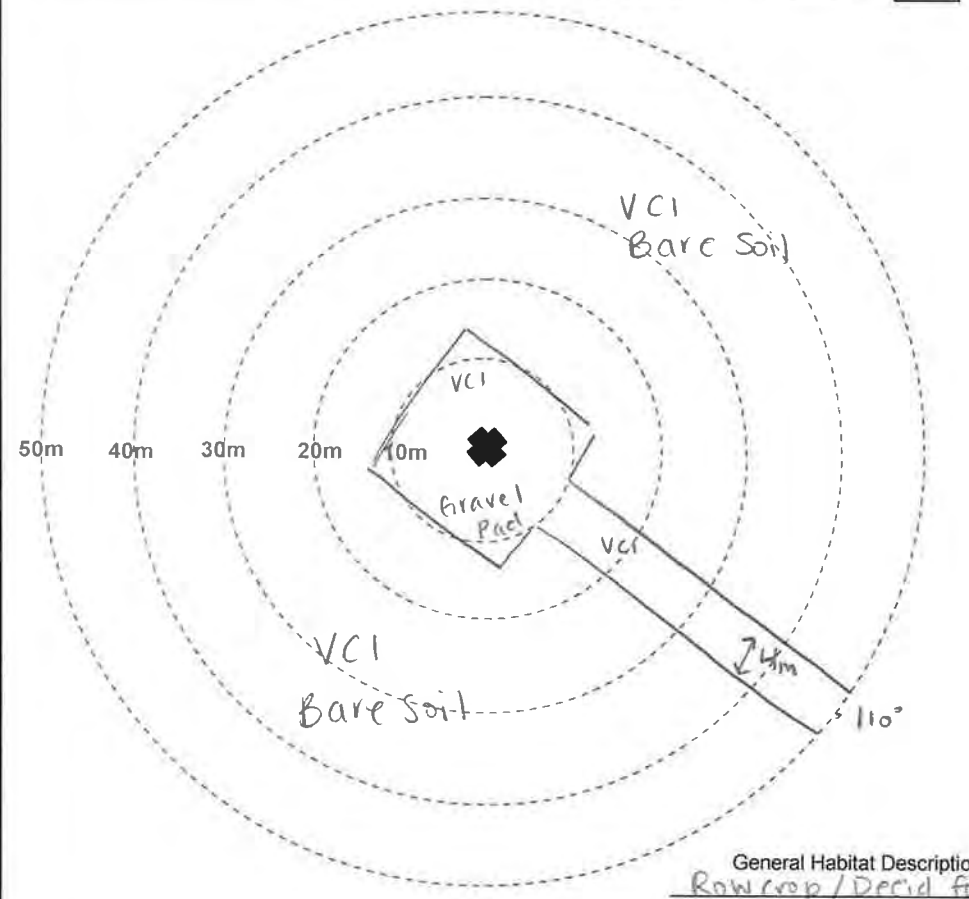


Photo Numbers (from turbine base)
Facing North: 0994
Facing East: 0995
Facing South: 0996
Facing West: 0997
(sketch habitat and visibility classes)

Date (DD/MM/YY): 07/06/19 ↑
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T80

Photo Numbers (from turbine base) Facing North: <u>1124</u> Facing East: <u>1125</u> Facing South: <u>1126</u> Facing West: <u>1127</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>05/07/19</u> Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: <u>1281</u> Facing East: <u>1282</u> Facing South: <u>1283</u> Facing West: <u>1284</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>02/08/19</u> Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m
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General Habitat Description: Row crop / decid forest

General Habitat Description: Row crop / decid forest

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 18050 Turbine #: T80

Photo Numbers (from turbine base)
Facing North: 81033
Facing East: 81046
Facing South: 81059
Facing West: 81107
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m
N

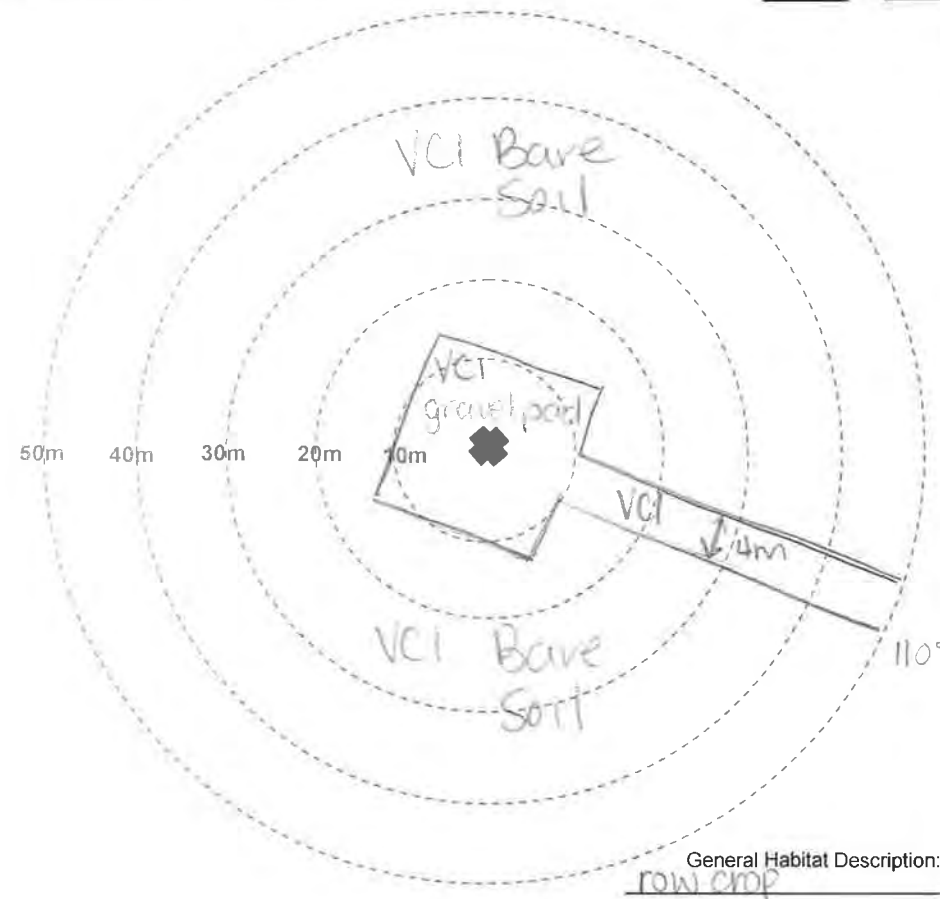
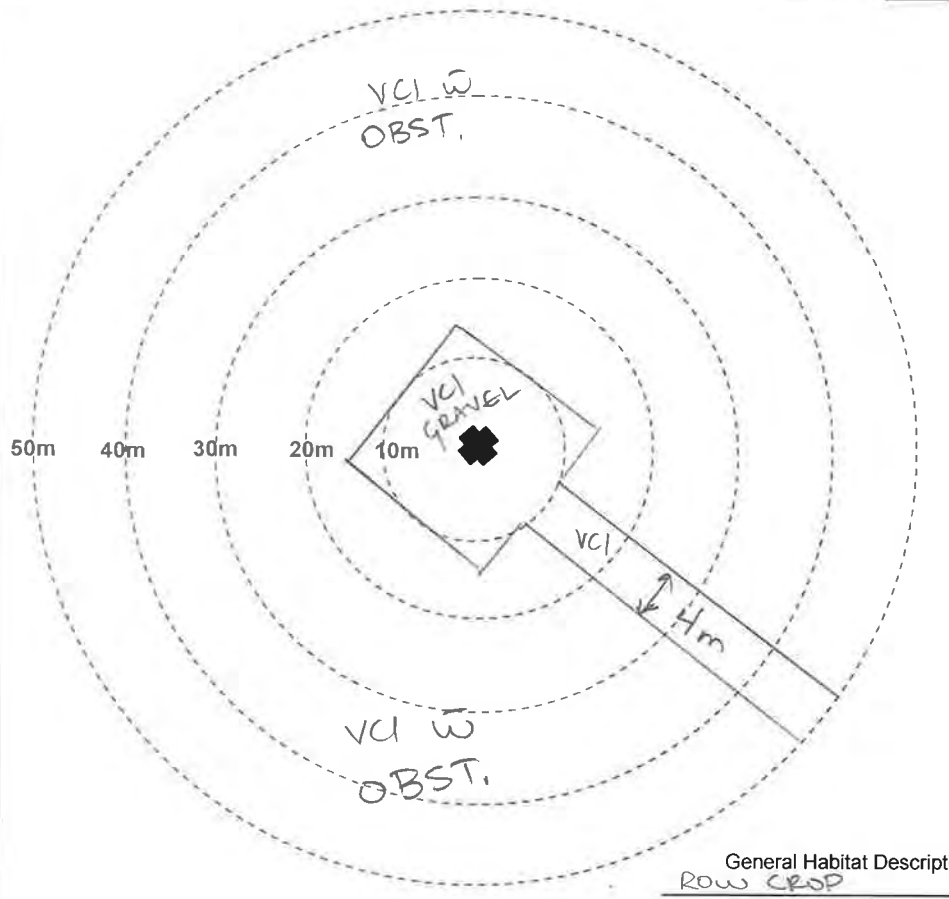


Photo Numbers (from turbine base)
Facing North: 81033
Facing East: 81046
Facing South: 81059
Facing West: 81107
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m
N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T80

Photo Numbers (from turbine base)
Facing North: 3347
Facing East: 3348
Facing South: 3349
Facing West: 3350
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19
Observer: ELWP
Monthly/Seasonal
Linear Transect Width: 5 m

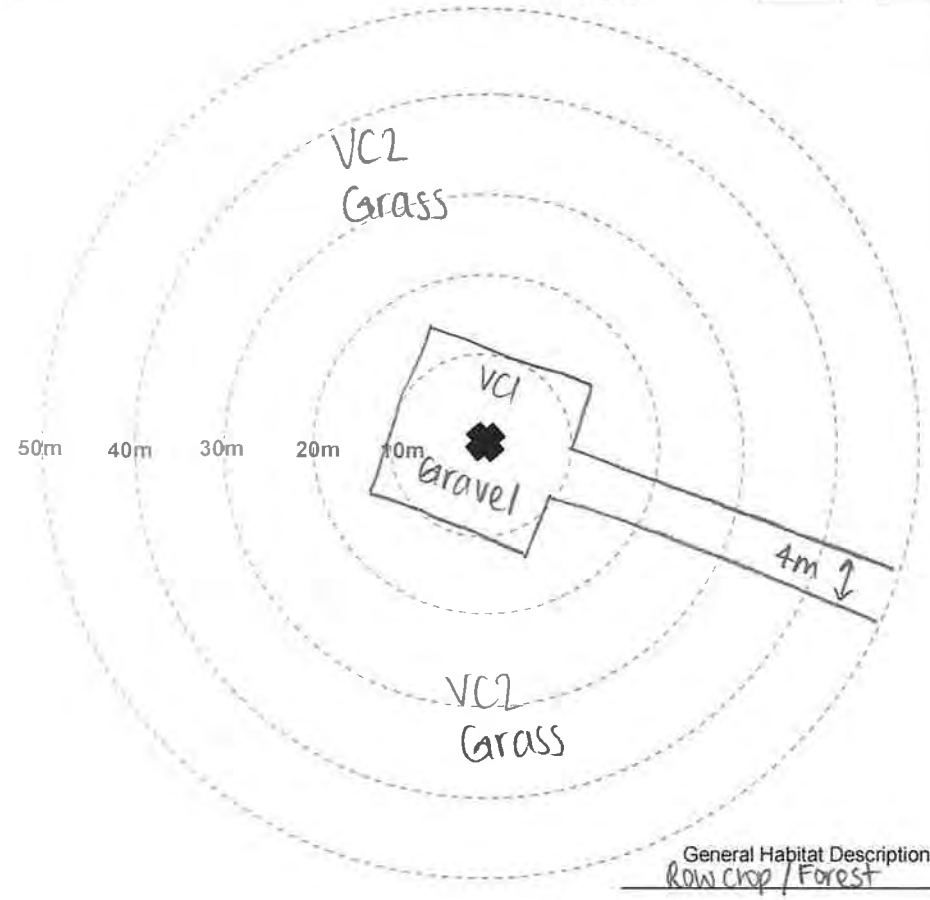
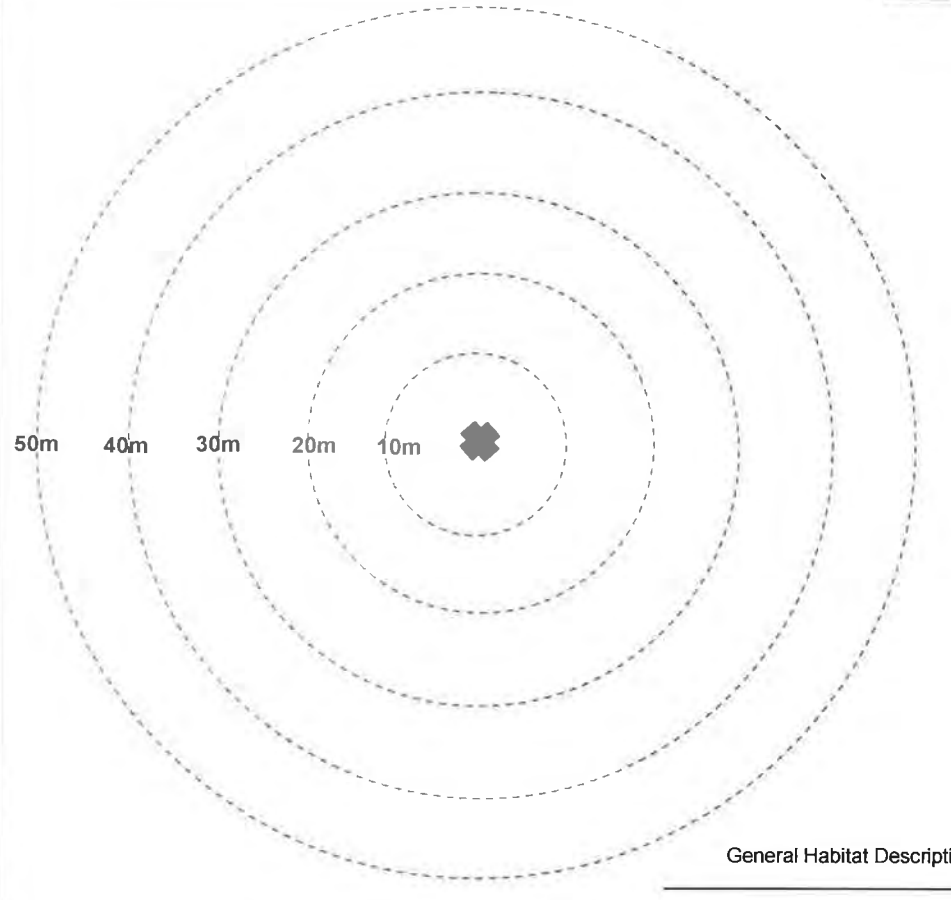


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 18b5C Turbine #: T81 Degree of Slope 1 degrees Slope Orientation S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0781
Facing East: 0782
Facing South: 0783
Facing West: 0784
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N

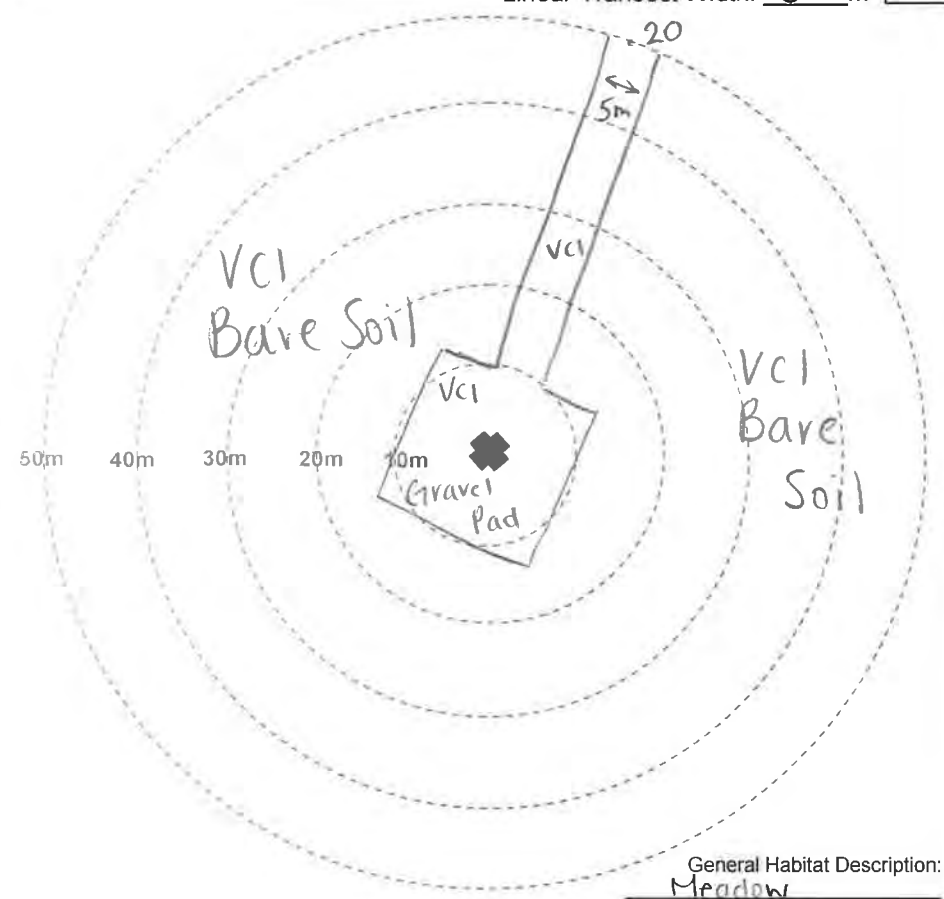
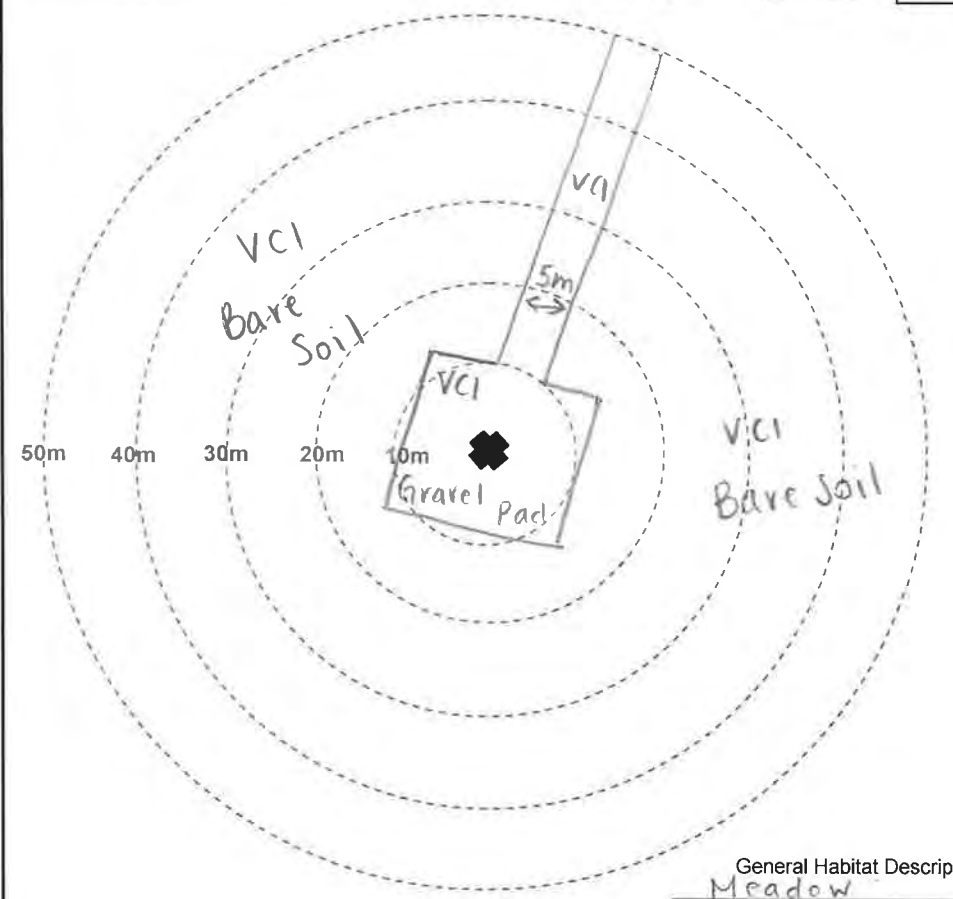


Photo Numbers (from turbine base)
Facing North: 0970
Facing East: 0971
Facing South: 0972
Facing West: 0973
(sketch habitat and visibility classes)

Date (DD/MM/YY): 06/06/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWE Project #: 18650 Turbine #: T81

Photo Numbers (from turbine base) Facing North: <u>1144</u> Facing East: <u>1145</u> Facing South: <u>1146</u> Facing West: <u>1147</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>08/07/19</u> Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: <u>1256</u> Facing East: <u>1257</u> Facing South: <u>1258</u> Facing West: <u>1259</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>01/08/19</u> Observer: <u>MCB</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m
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General Habitat Description: Meadow

General Habitat Description: Meadow

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T81

Photo Numbers (from turbine base)
Facing North: 1489
Facing East: 1490
Facing South: 1491
Facing West: 1492
(sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
Observer: BEM
Monthly/Seasonal
Linear Transect Width: 5 m
N

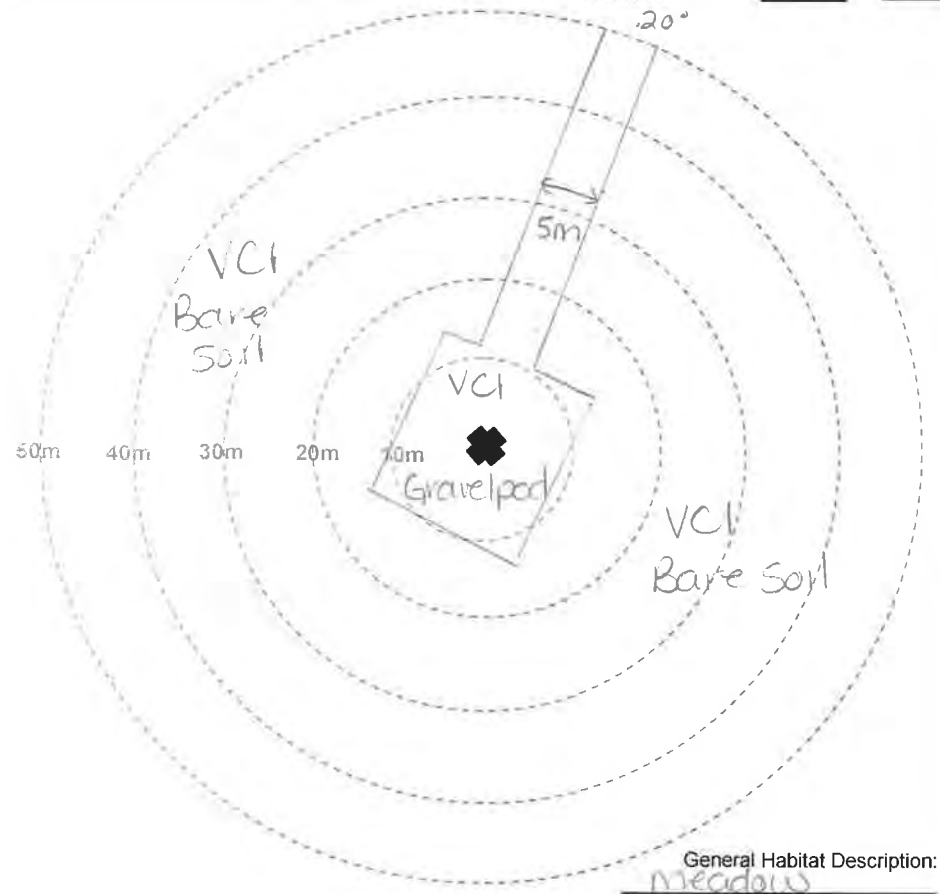
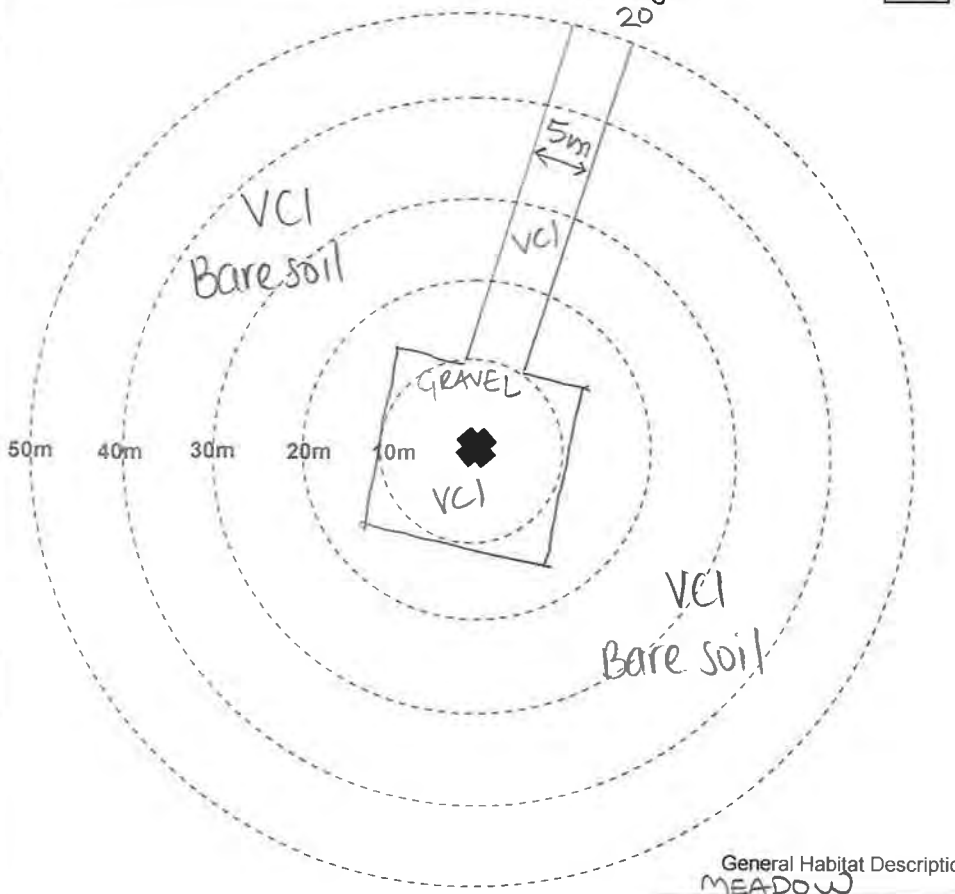


Photo Numbers (from turbine base)
Facing North: 2941
Facing East: 2942
Facing South: 2943
Facing West: 2944
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m
N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T81

Photo Numbers (from turbine base)
Facing North: 100234
Facing East: 100245
Facing South: 100254
Facing West: 100303
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

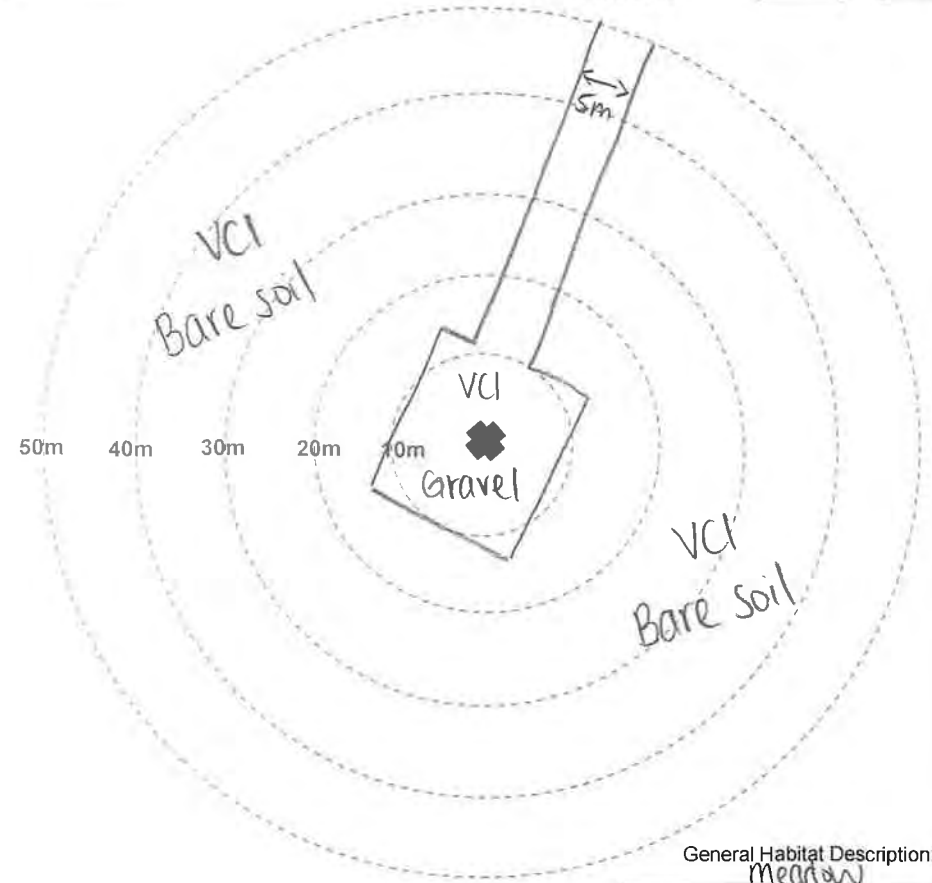
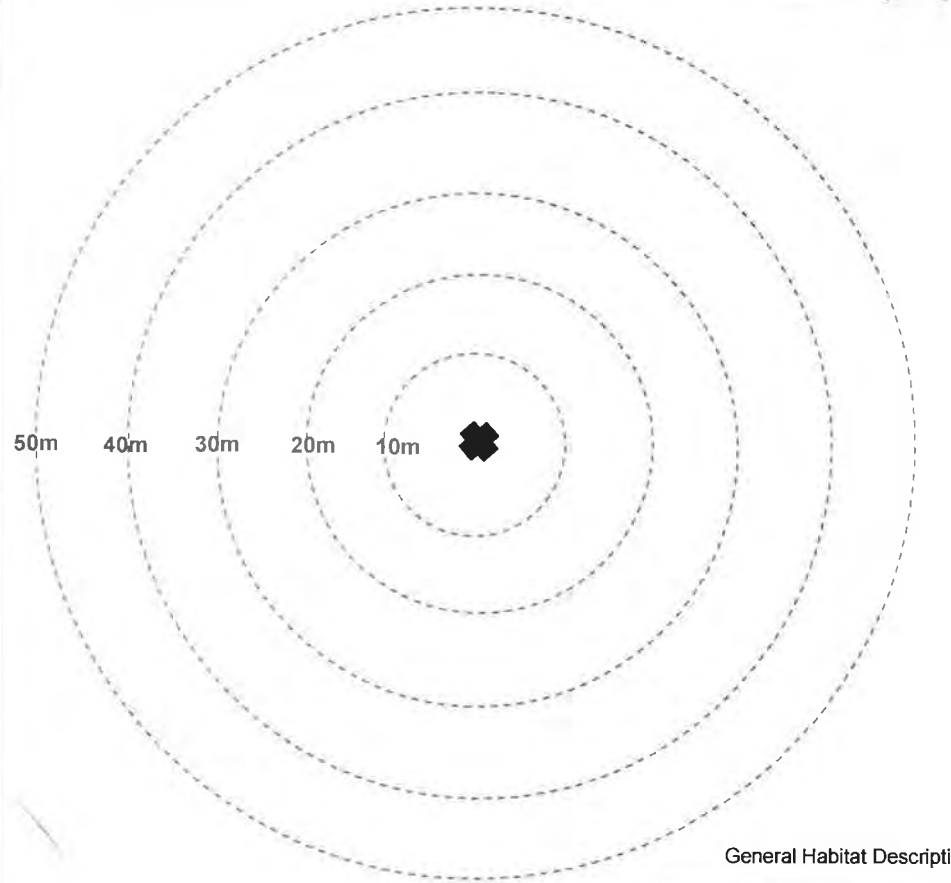


Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T94 Degree of Slope 1 degrees Slope Orientation NE (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0777
Facing East: 0778
Facing South: 0779
Facing West: 0780
(sketch habitat and visibility classes)

Date (DD/MM/YY): 13/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

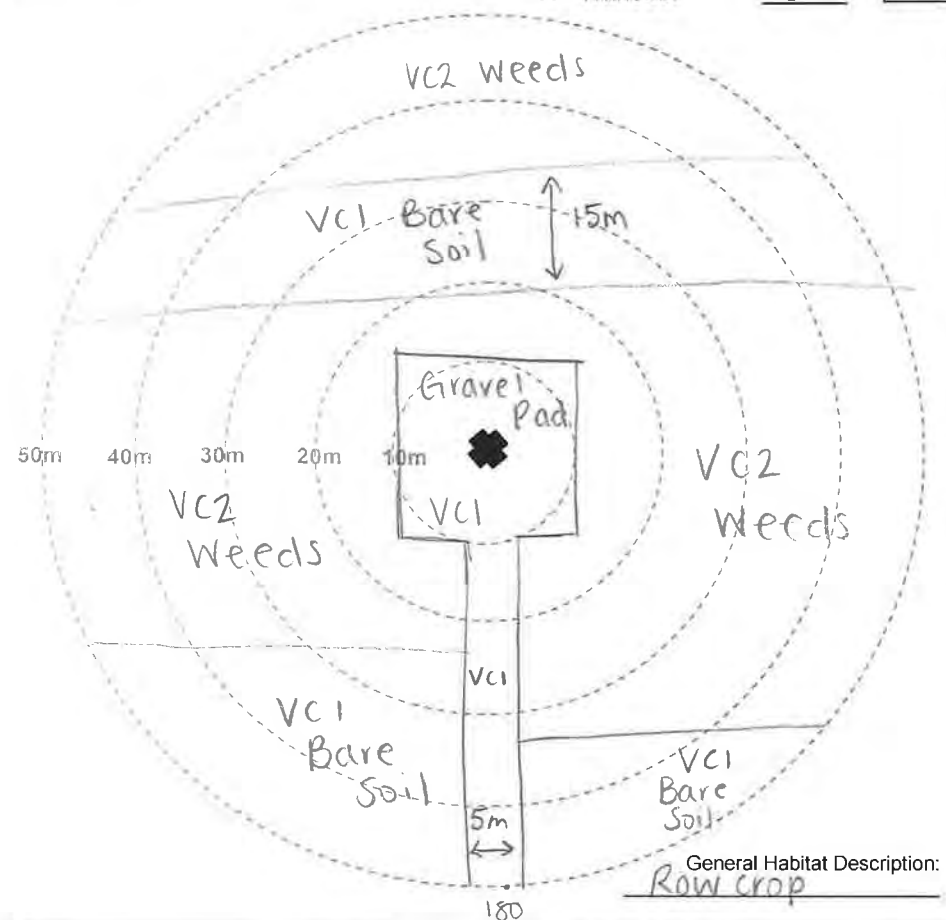


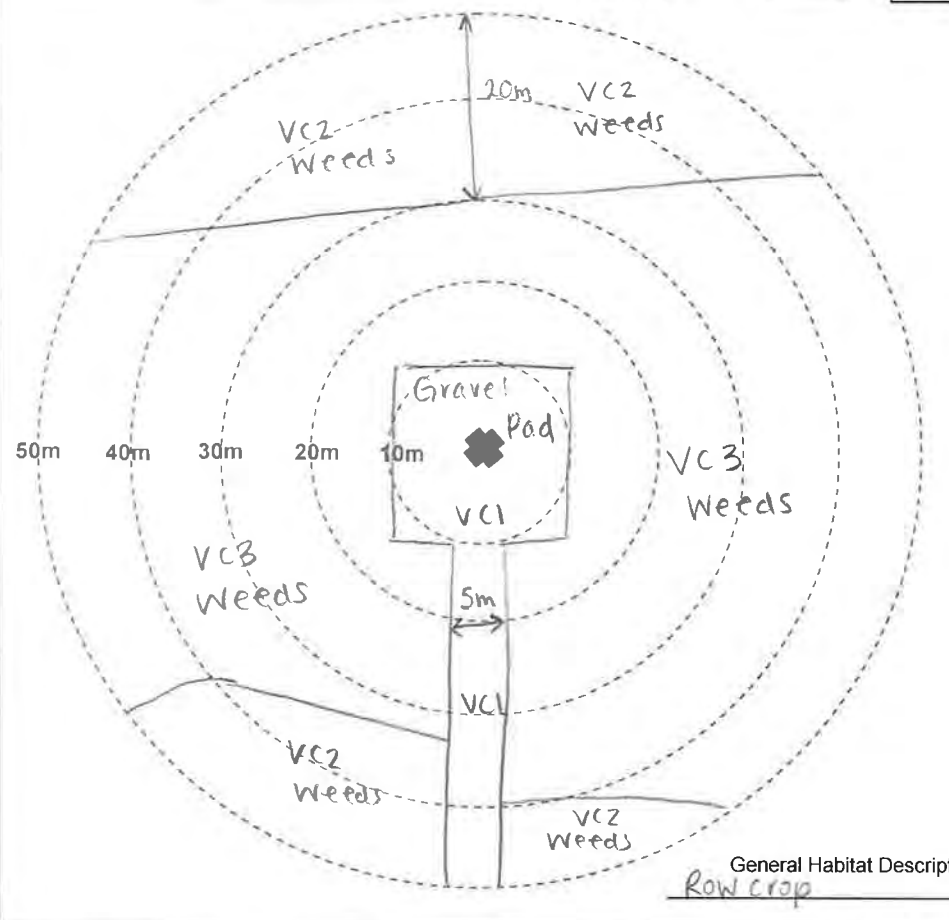
Photo Numbers (from turbine base)
Facing North: 0961
Facing East: 0962
Facing South: 0963
Facing West: 0964
(sketch habitat and visibility classes)

Date (DD/MM/YY): 06/06/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T94

Photo Numbers (from turbine base)
Facing North: 1140
Facing East: 1141
Facing South: 1142
Facing West: 1143
(sketch habitat and visibility classes)

Date (DD/MM/YY): 08/07/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

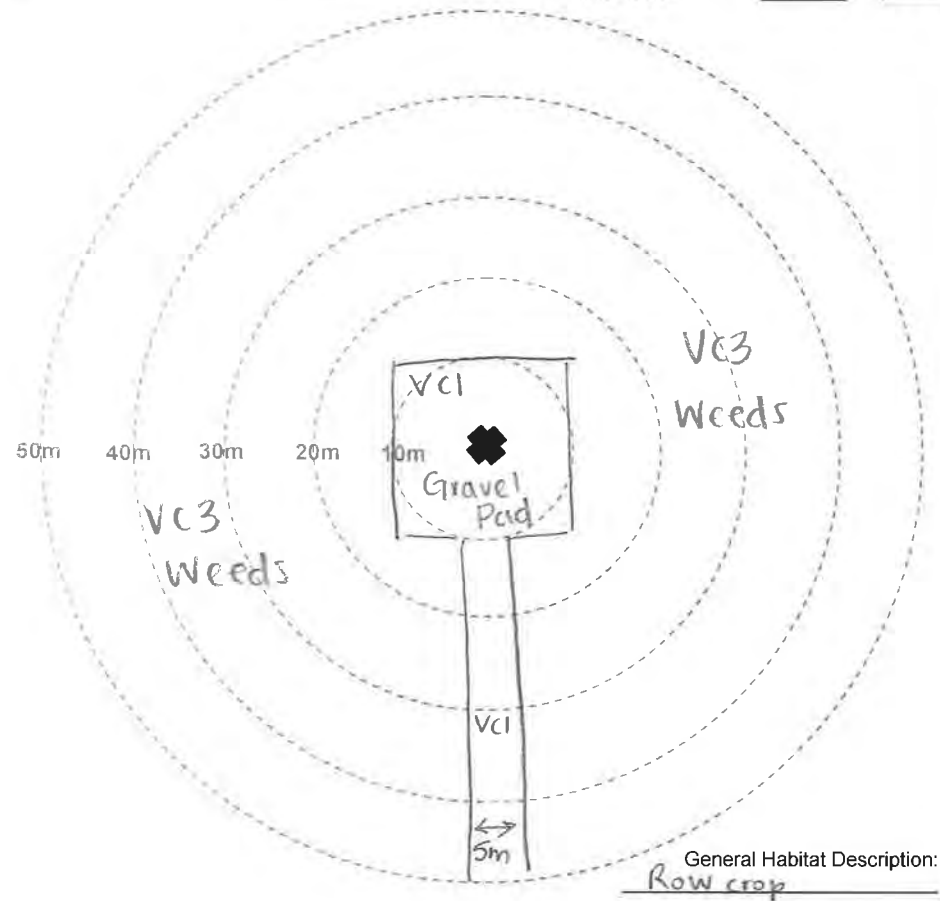
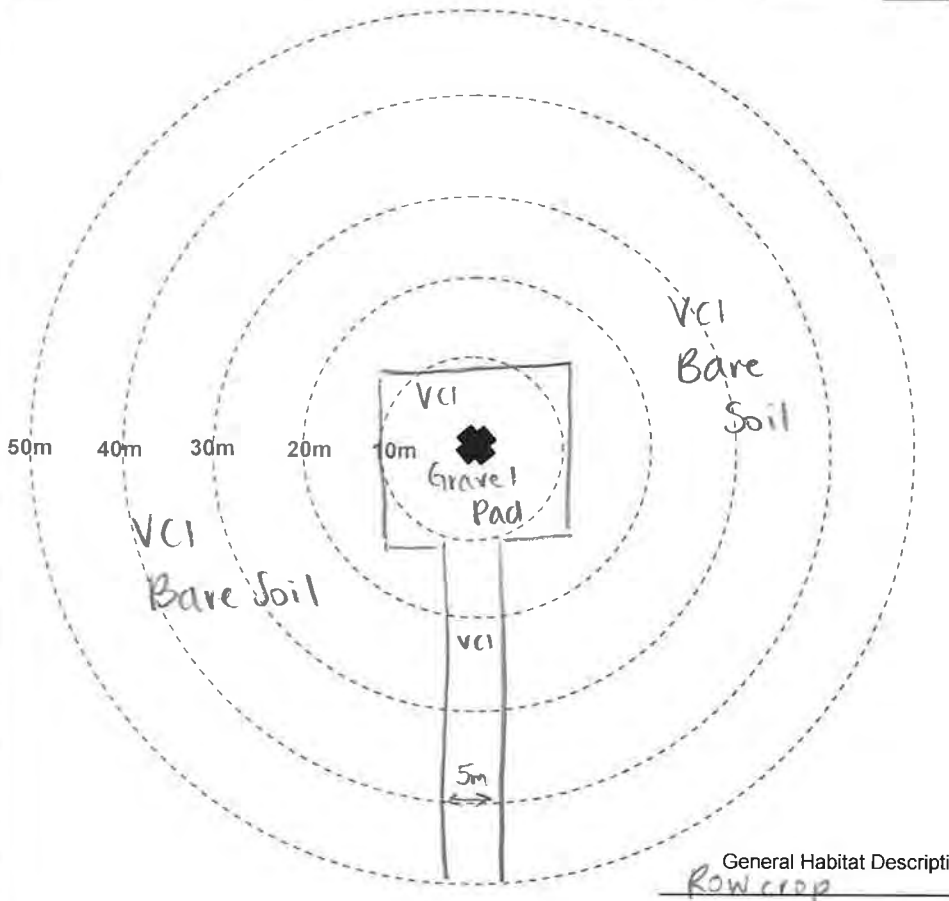


Photo Numbers (from turbine base)
Facing North: 1244
Facing East: 1245
Facing South: 1246
Facing West: 1247
(sketch habitat and visibility classes)

Date (DD/MM/YY): 01/08/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T94

Photo Numbers (from turbine base)
 Facing North: 1477
 Facing East: 1478
 Facing South: 1479
 Facing West: 1480
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19
 Observer: BEM
 Monthly/Seasonal
 Linear Transect Width: 5 m
 N

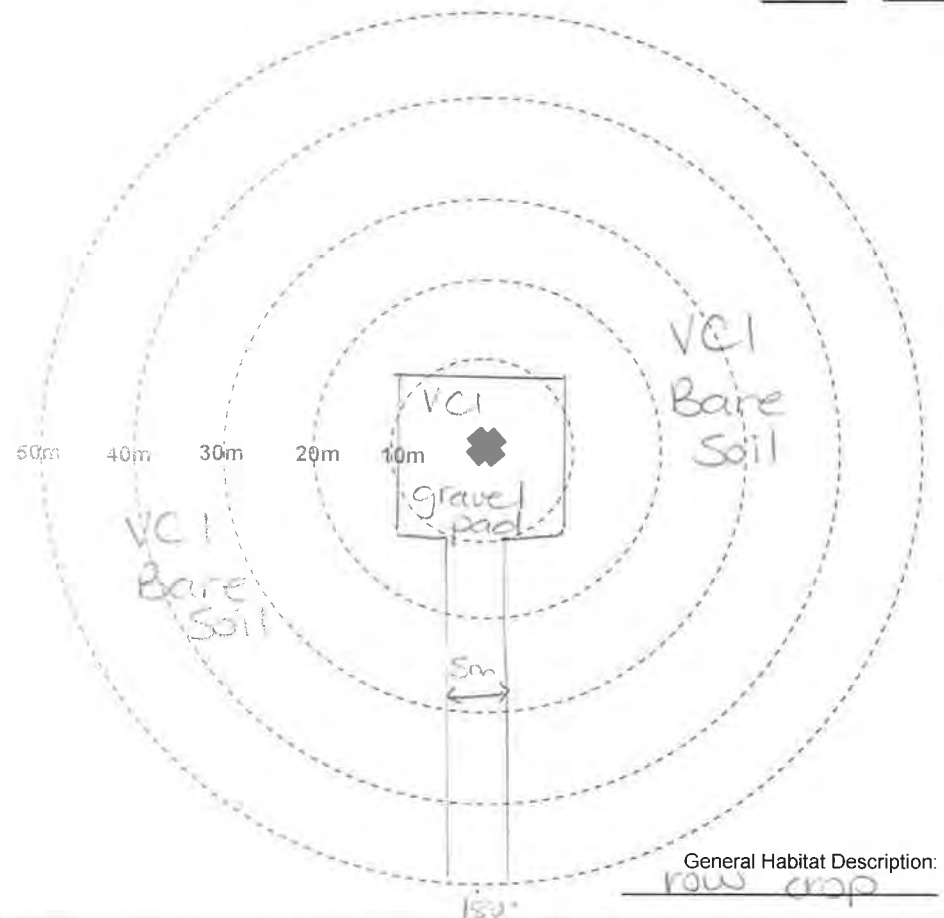
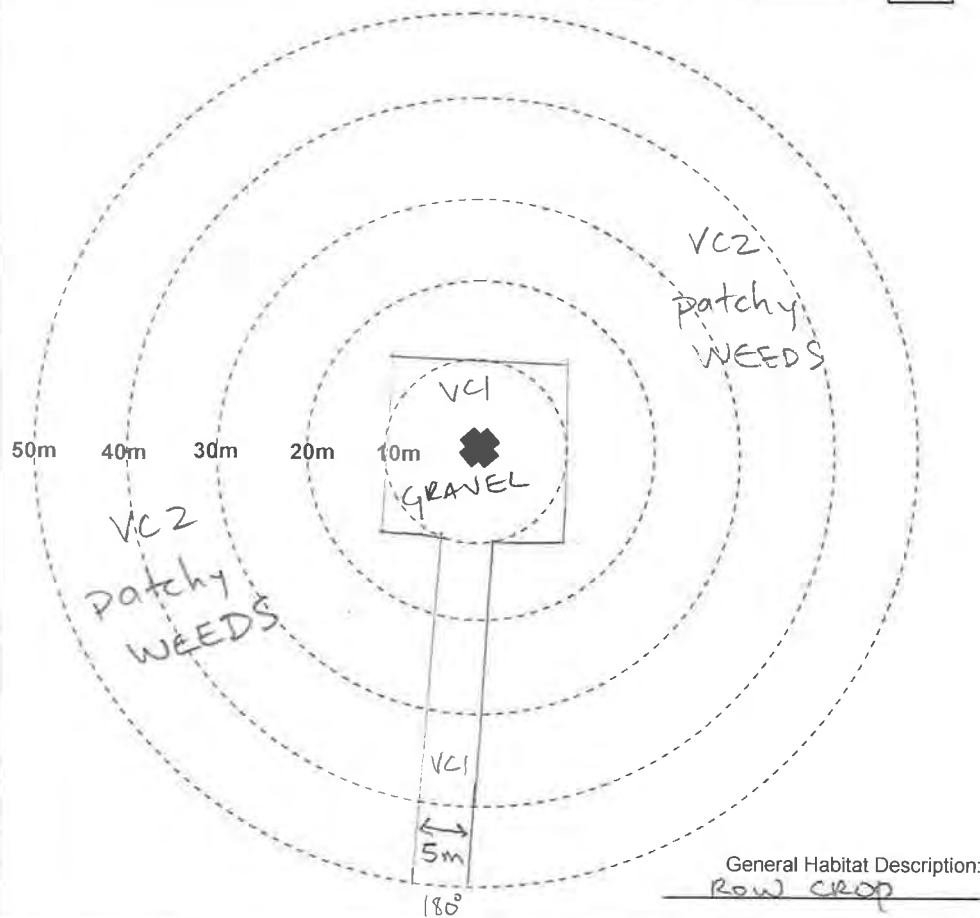


Photo Numbers (from turbine base)
 Facing North: 2937
 Facing East: 2938
 Facing South: 2939
 Facing West: 2940
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19
 Observer: EWP
 Monthly/Seasonal
 Linear Transect Width: 5 m
 N



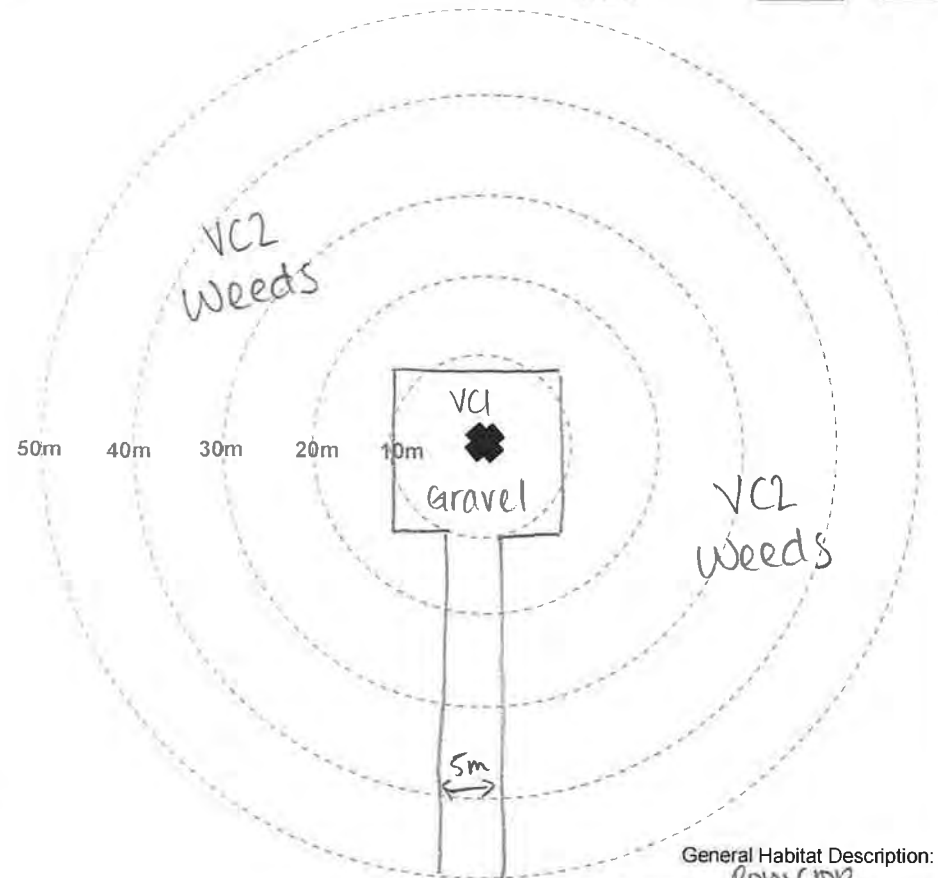
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T94

Photo Numbers (from turbine base)
Facing North: 093025
Facing East: 093038
Facing South: 093047
Facing West: 093057
(sketch habitat and visibility classes)

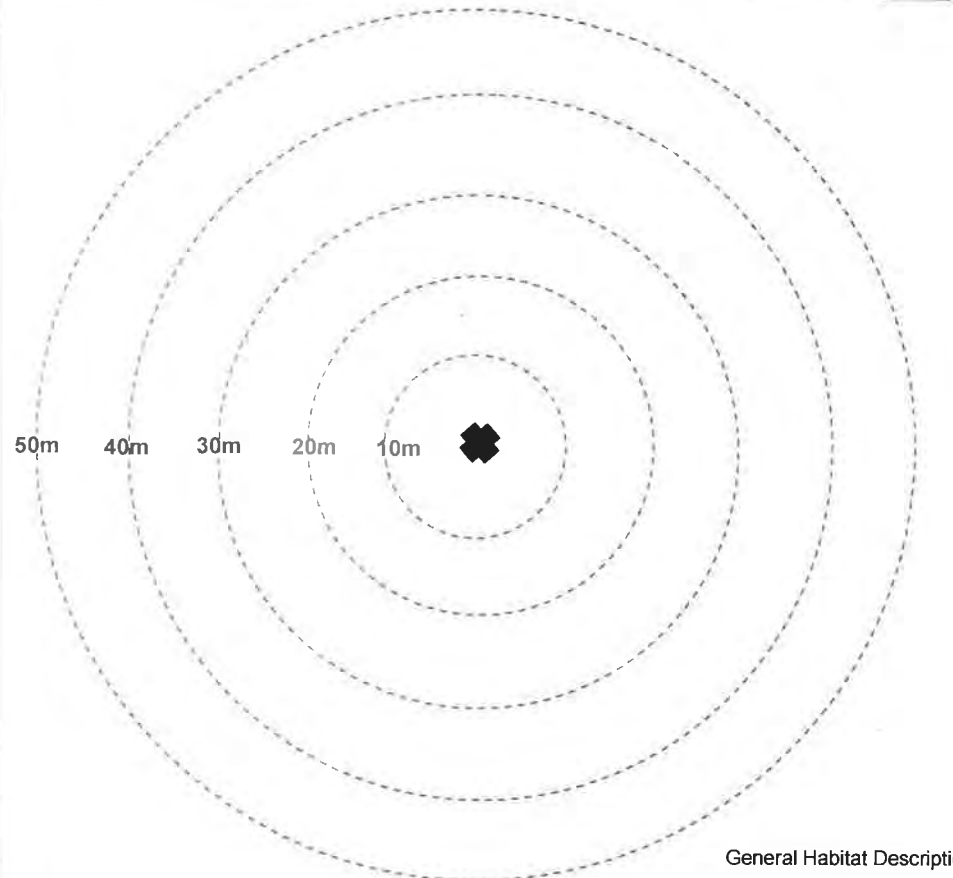
Date (DD/MM/YY): 14/11/19
Observer: ELWP
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description:
Rows Crop

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



General Habitat Description:

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T95 Degree of Slope 2 degrees Slope Orientation W (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0764
Facing East: 0765
Facing South: 0766
Facing West: 0767
(sketch habitat and visibility classes)

Date (DD/MM/YY): 09/05/19

Observer: MCB

Monthly/Seasonal
Linear Transect Width: 5 m

N

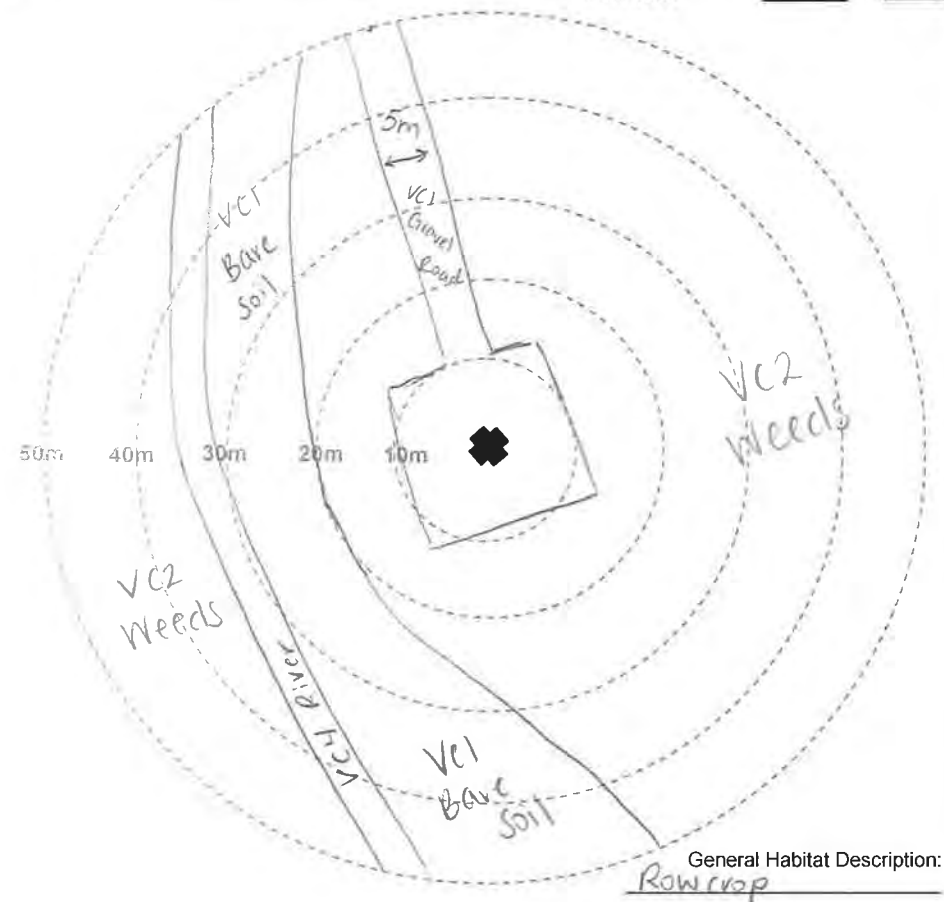


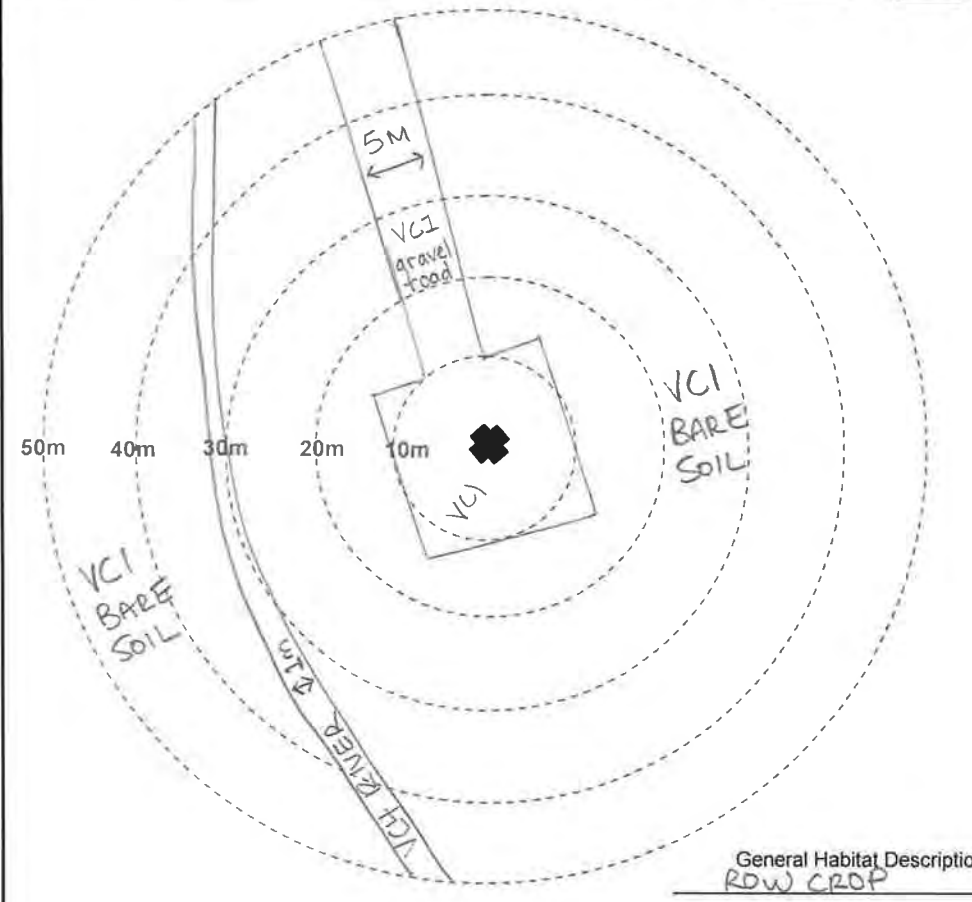
Photo Numbers (from turbine base)
Facing North: 2047
Facing East: 2048
Facing South: 2049
Facing West: 2050
(sketch habitat and visibility classes)

Date (DD/MM/YY): 10/06/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m

N



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: N RWF

Project #: 19656 Turbine #: T95

Photo Numbers (from turbine base)
Facing North: 2265
Facing East: 2266
Facing South: 2267
Facing West: 2268
(sketch habitat and visibility classes)

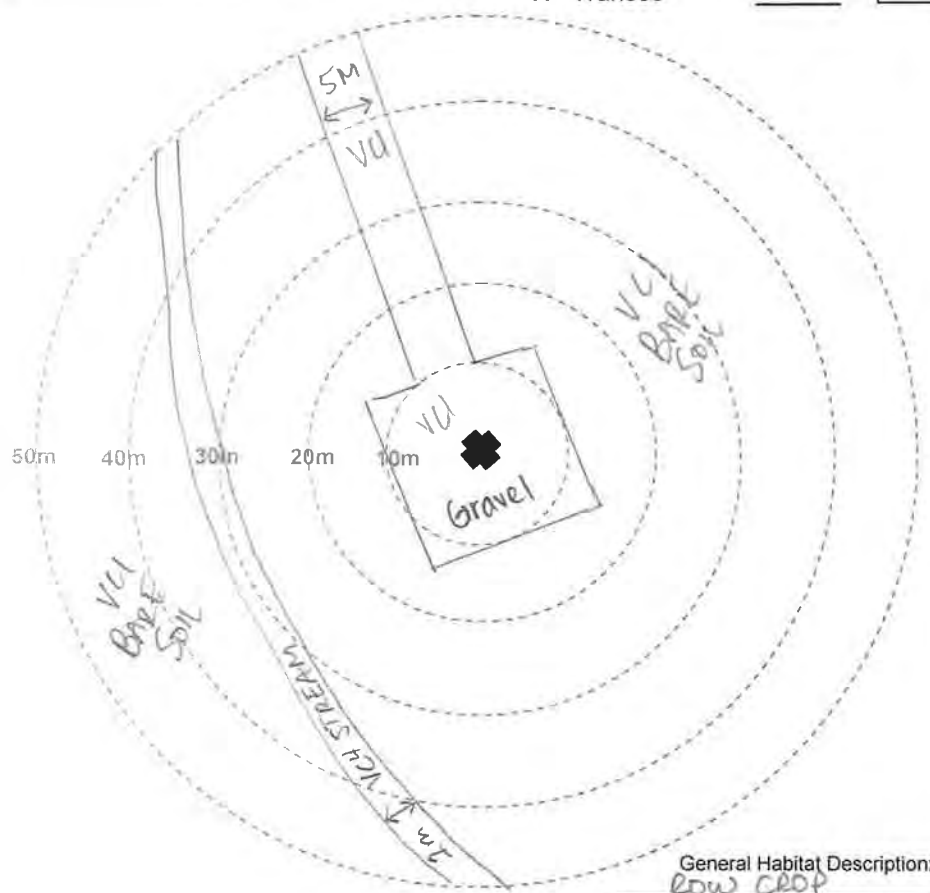
Date (DD/MM/YY): 04/07/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N



General Habitat Description:
LOW CROP

Photo Numbers (from turbine base)
Facing North: 2371
Facing East: 2372
Facing South: 2373
Facing West: 2374
(sketch habitat and visibility classes)

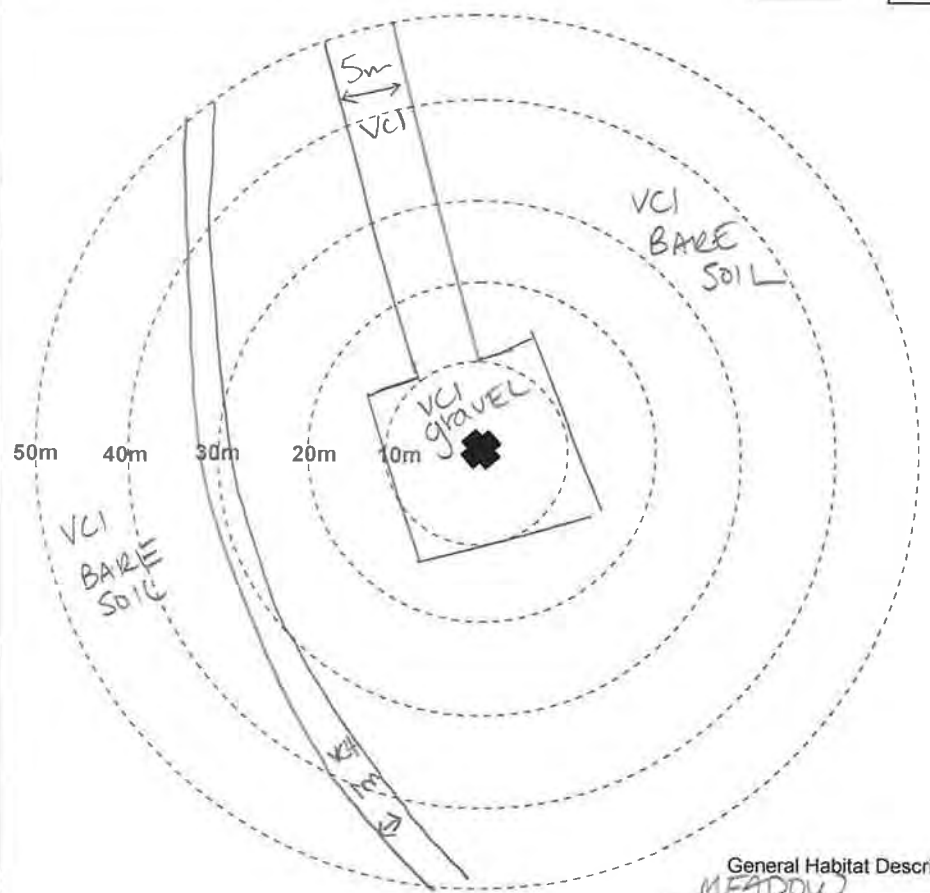
Date (DD/MM/YY): 01/08/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N



General Habitat Description:
MEADOW

VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF

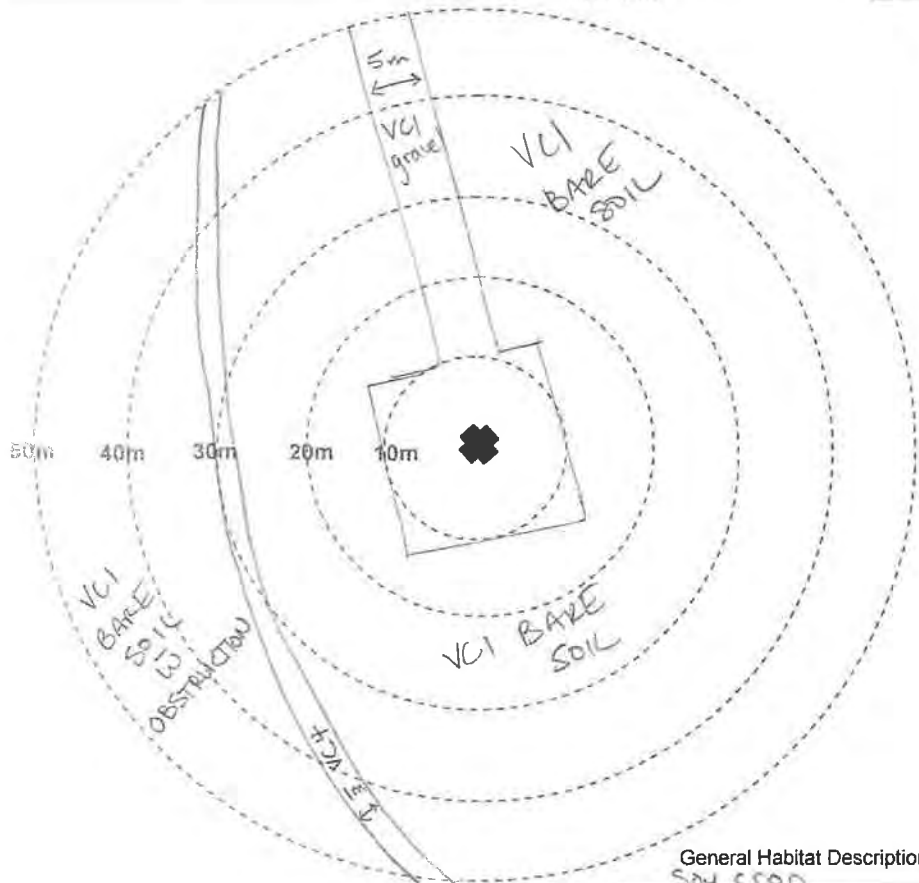
Project #: 1865L Turbine #: T95

Photo Numbers (from turbine base)
 Facing North: 2665
 Facing East: 2666
 Facing South: 2667
 Facing West: 2668
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/09/19

Observer: EWP

Monthly/Seasonal
 Linear Transect Width: 5 m



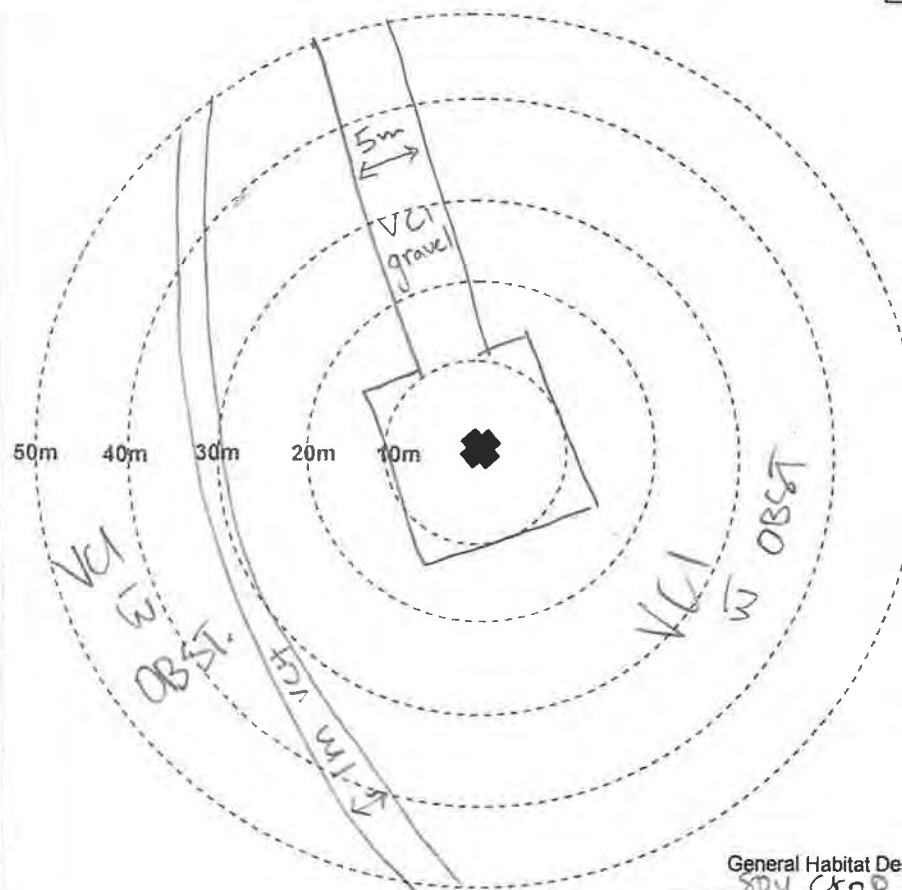
General Habitat Description:
soy crop

Photo Numbers (from turbine base)
 Facing North: 2963
 Facing East: 2964
 Facing South: 2965
 Facing West: 2966
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/10/19

Observer: EWP

Monthly/Seasonal
 Linear Transect Width: S m



General Habitat Description:
soy crop

VISIBILITY CLASSES

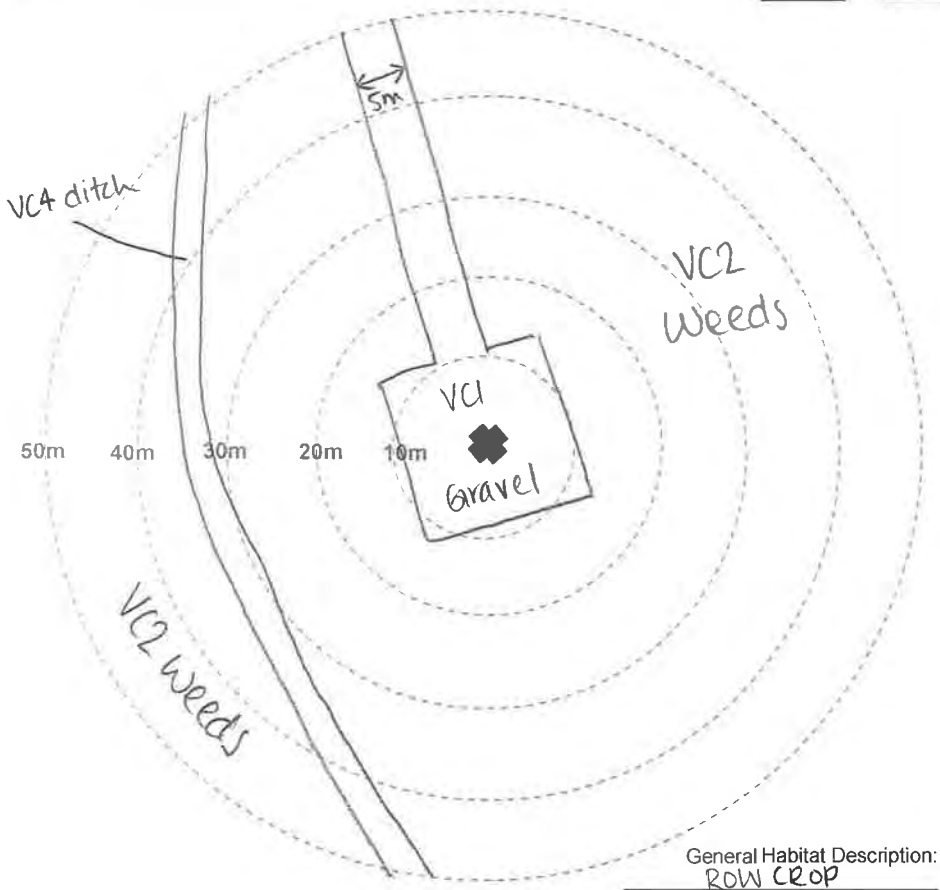
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T95

Photo Numbers (from turbine base)
Facing North: 131900
Facing East: 131910
Facing South: 131915
Facing West: 131928
(sketch habitat and visibility classes)

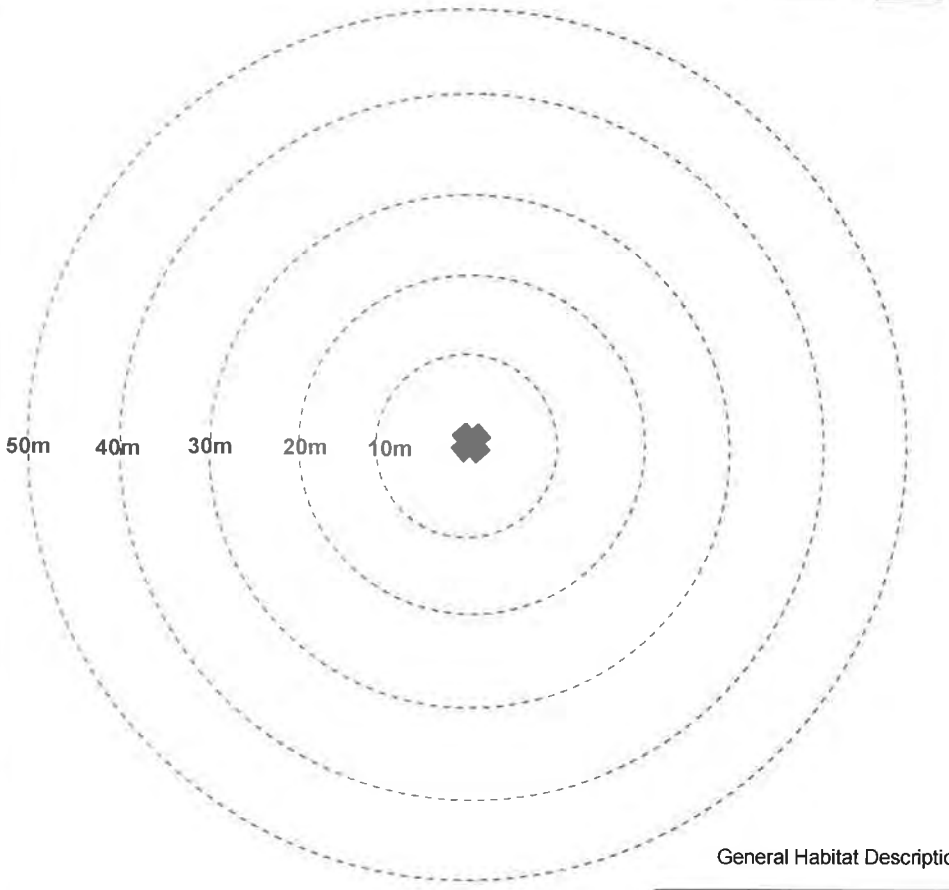
Date (DD/MM/YY): 14/11/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description:
ROW CROP

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ____/____/____
Observer: _____
Monthly/Seasonal
Linear Transect Width: _____ m



General Habitat Description:

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: Niagara Region WF Project #: 1865C Turbine #: T99 Degree of Slope 1 degrees Slope Orientation W (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 0857
Facing East: 0858
Facing South: 0859
Facing West: 0860
(sketch habitat and visibility classes)

Date (DD/MM/YY): 14/05/19
Observer: MCB
Monthly/Seasonal
Linear Transect Width: 5 m

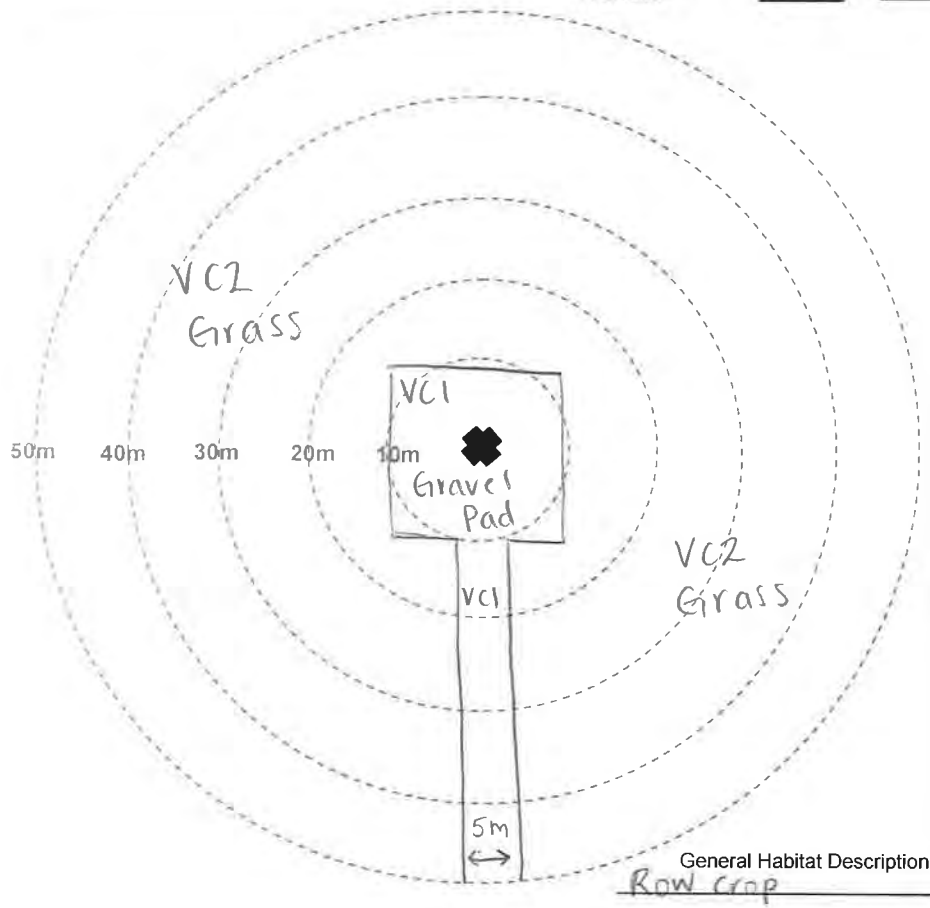
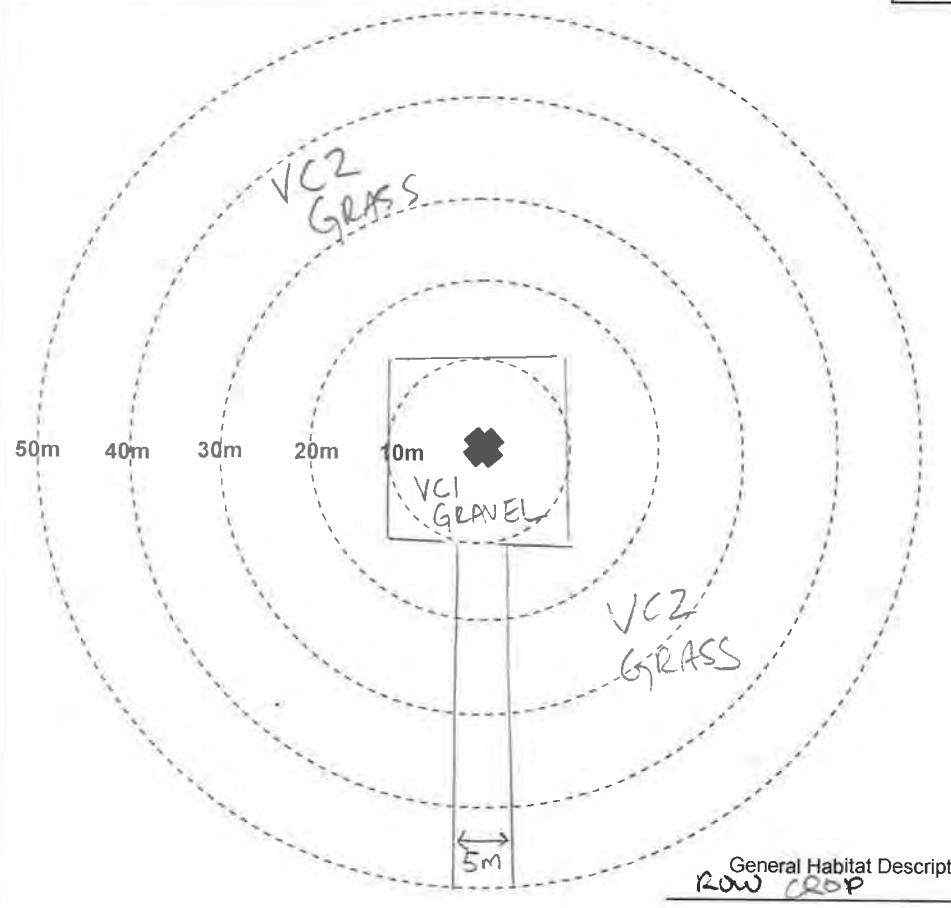


Photo Numbers (from turbine base)
Facing North: 2042
Facing East: 2043
Facing South: 2044
Facing West: 2045
(sketch habitat and visibility classes)

Date (DD/MM/YY): 11/06/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: 199

Photo Numbers (from turbine base) Facing North: <u>2277</u> Facing East: <u>2278</u> Facing South: <u>2275</u> Facing West: <u>2276</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>12/07/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m	Photo Numbers (from turbine base) Facing North: <u>2414</u> Facing East: <u>2415</u> Facing South: <u>2416</u> Facing West: <u>2417</u> (sketch habitat and visibility classes)	Date (DD/MM/YY): <u>02/08/19</u> Observer: <u>EWP</u> Monthly/Seasonal Linear Transect Width: <u>5</u> m
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General Habitat Description: Row crop

General Habitat Description: Row crop

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NWF Project #: 18656 Turbine #: T99

Photo Numbers (from turbine base)
Facing North: 2726
Facing East: 2727
Facing South: 2728
Facing West: 2729
(sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m

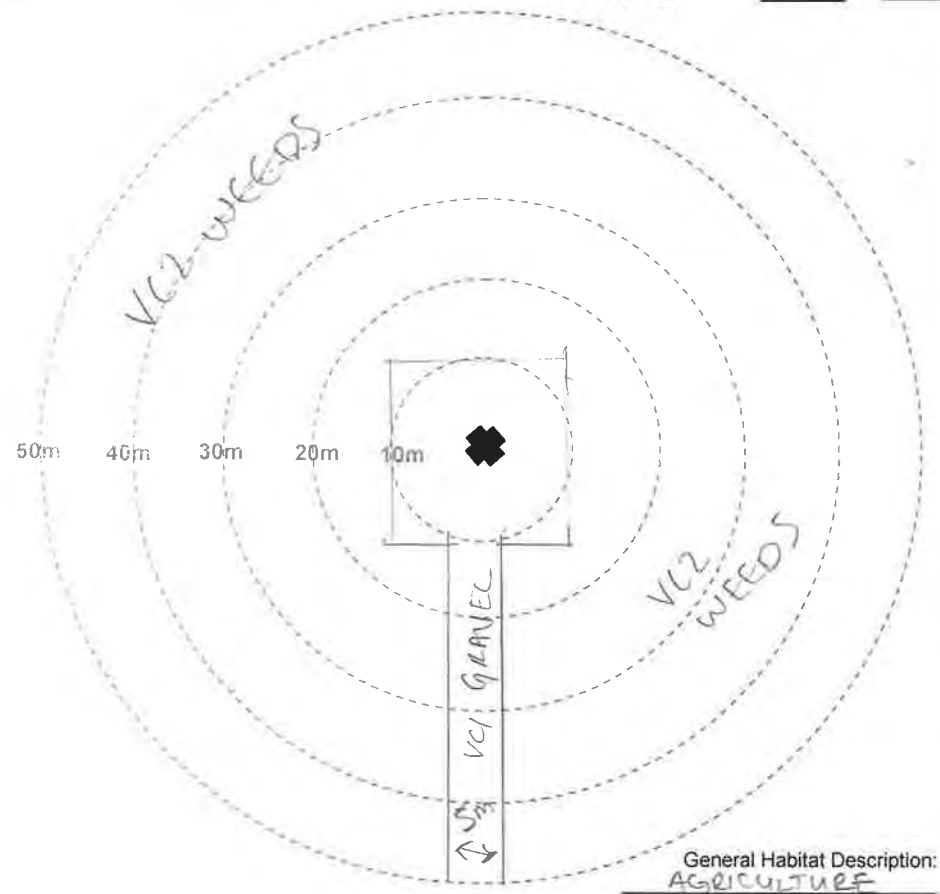
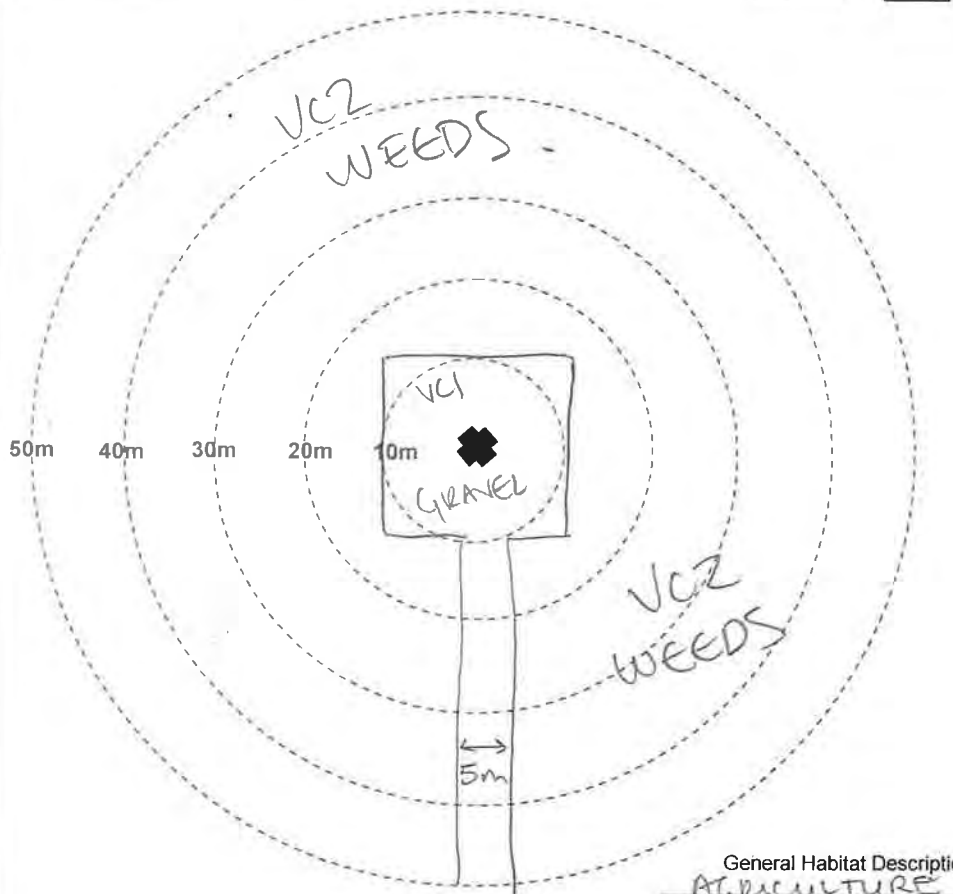


Photo Numbers (from turbine base)
Facing North: 3022
Facing East: 3023
Facing South: 3024
Facing West: 3025
(sketch habitat and visibility classes)

Date (DD/MM/YY): 08/10/19
Observer: EWP
Monthly/Seasonal
Linear Transect Width: 5 m



VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF Project #: 1865C Turbine #: T99

Photo Numbers (from turbine base)
Facing North: 134616
Facing East: 134625
Facing South: 134633
Facing West: 134642
(sketch habitat and visibility classes)

Date (DD/MM/YY): 28/11/19

Observer: EWP

Monthly/Seasonal
Linear Transect Width: 5 m



N

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

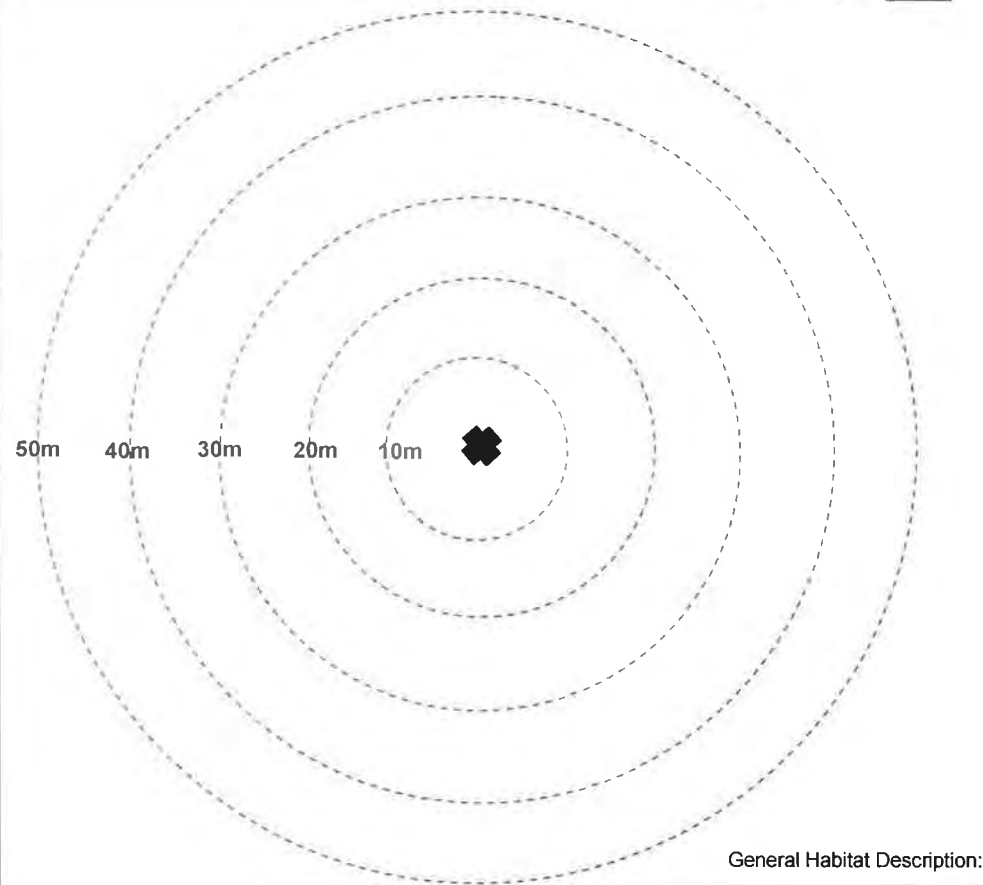
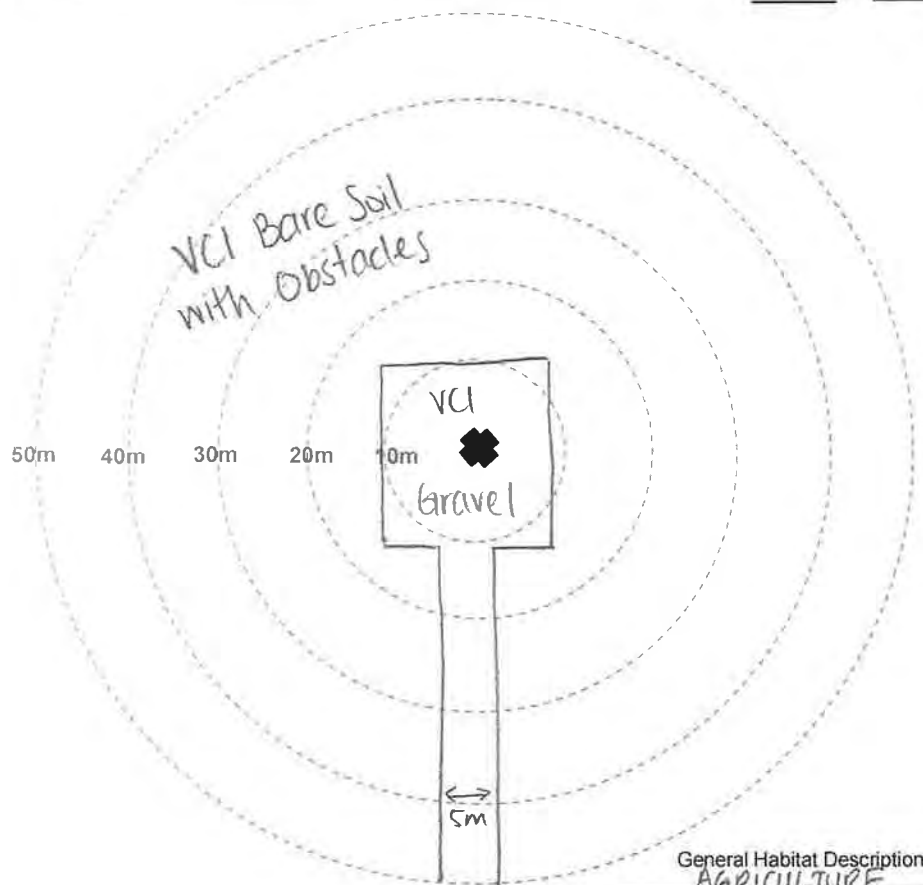
Date (DD/MM/YY): ____/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____ m



N



VISIBILITY CLASSES

Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats