



Gunn's Hill Wind Farm **2020 Post-Construction Mortality** **Monitoring Report**

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NATURAL RESOURCE SOLUTIONS INC.

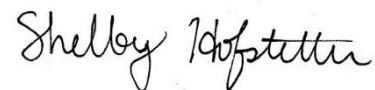
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Gunn's Hill Wind Farm
2020 Post-construction Mortality Monitoring Report

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Executive Summary

Natural Resource Solutions Inc. was retained to conduct a fourth year of post-construction monitoring at the operational Gunn's Hill Wind Farm, located within the Township of Norwich, Oxford County, Ontario. This wind energy project has a generating capacity of 18MW and consists of 10 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 fourth year of post-construction monitoring for bat mortality conducted at the Gunn's Hill Wind Farm in 2020.

This fourth year of monitoring for bat mortality was conducted as a result of exceeding the provincial threshold of 10 bats/turbine/year. As such, 2020 represents the second year of effectiveness monitoring after implementation of operational mitigation. Bird and raptor mortality data are not presented herein, as 3 years of required baseline monitoring for bird and raptor mortality have been completed (2017-2019).

During twice-weekly searches from May 1 to October 31, 2020, 28 bat mortalities were documented within the search areas around the 10 turbines. Bat mortalities of both long-distance migratory and resident species were documented, including mortalities of Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), Eastern Red Bat (*Lasiurus borealis*), and Big Brown Bat (*Eptesicus fuscus*). The first 3 species listed above are considered long-distance migratory species which over-winter outside of Ontario, and combined to account for 86% of the total bat mortality observations at the Gunn's Hill Wind Farm in 2020. Using appropriate correction factors, an estimated bat mortality rate of 4.93 bats/turbine/year (2.76 bats/MW/year) was determined for the Gunn's Hill 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 a fourth year of post-construction monitoring at the operational Gunn's Hill Wind Farm (Gunn's Hill WF), which is located within the Township of Norwich, Ontario. The Gunn's Hill WF consists of 10 operational wind energy generating turbines with a total nameplate capacity of 18MW. The project area and turbine locations can be seen on Map 1.

Post-construction monitoring at the Gunn's Hill WF in 2020 included bat mortality monitoring, searcher efficiency trials, scavenger removal trials, and visibility class mapping of substrates searched. These surveys were conducted in accordance with provincial guidelines and approval conditions of the project to assess the potential impacts of this wind energy generating facility on bats.

The purpose of this report is to provide the detailed methods and results from the fourth year of post-construction mortality monitoring conducted at the Gunn's Hill WF. It also reflects the second year of effectiveness monitoring, specific to bats, as a result of the Gunn's Hill WF previously exceeding the provincial threshold of 10 bats/turbine/year. Bird and raptor mortality data are not presented herein, as 3 years of required baseline monitoring for bird and raptor mortality has been completed (2017-2019).

For the purposes of this report, NRSI will frequently use the terms 'mortality' and 'carcass'. The term 'mortality' will refer to dead bats that were found in the vicinity of turbines at the Gunn's Hill 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

2.1.1 Sample Locations

Since the Gunn's Hill WF consists of 10 or fewer turbines, all turbines are required to be monitored (OMNR 2011). In accordance with these requirements, mortality monitoring was conducted at all 10 turbines in 2020, following the monitoring period and search frequency described below.

2.1.2 Monitoring Period and Search Frequency

The NRSI searcher conducted twice-weekly (3- and 4-day intervals) mortality monitoring at each of the 10 turbines during the entire monitoring period of May 1 to October 31, 2020.

As a result of inclement weather, turbine maintenance, or searcher illness some turbines could not be searched on the regularly scheduled date. These relatively minor 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 below in Table 1.

Table 1. Summary of Regular Search Days When Turbines Could Not be Searched (2020)

Date (2020)	Date Turbine Next Searched (2020) ¹	Turbine(s)	Rationale
August 4	August 7	T08, T10	Inclement Weather (Thunderstorms)
August 21	August 25	T02	Turbine Maintenance
September 4	September 8	T10	Turbine Maintenance
September 18	September 22	T08	Turbine Maintenance
September 22	September 25	T09	Turbine Maintenance
September 25	September 29	T03	Turbine Maintenance
October 6	October 9	T07	Turbine Maintenance
October 16	October 17	T01, T02, T03, T04, T05, T06, T07, T08, T09, T10	Illness
October 20	October 23	T04	Turbine Maintenance

¹ Due to a variety of factors which may include the duration of turbine maintenance, weather conditions, the location of the project, and/or staff restrictions, 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 around each turbine. 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 of 20 minutes per turbine throughout the entirety of the monitoring period.

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 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, condition code, estimated time since death, any apparent injuries, direction and distance from turbine base, substrate type and visibility class, and a unique mortality identification number for future reference. Specific 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 in each monitoring season. No more than 5 carcasses were placed at one time and no more than 1 carcass was placed at any single turbine during each placement event. These measures were taken to avoid 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, direction and distance from turbine base, substrate and visibility class were all noted 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 all 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, or approximately twice per week, to note any scavenging or signs of scavenger presence. Following the 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 who conducted mortality searches at the Gunn's Hill WF. Similar to scavenger removal trials, searcher efficiency trials must be conducted at least once per season, as well as on each searcher and in each visibility class that was searched during that season. In order to obtain more accurate results and to account for seasonal changes in groundcover, weather, or soil saturation, NRSI conducted monthly searcher efficiency trials 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 (class 1) with no more than 3 carcasses placed on any one date. Carcasses were placed randomly within the search radius of each of the 10 turbines at the Gunn's Hill WF. Distance and direction from turbine base, visibility class and substrate type, and UTM coordinates were recorded for each test carcass placed. Each found specimen was later compared to the total number of carcasses placed within the project area and the locations of their placement. The data sheet used for searcher efficiency trials can be seen in Appendix I.

In order to meet the understood intent of the Ministry of Natural Resources and Forestry (MNRF) guidelines (OMNR 2011) to limit searcher bias, NRSI did not physically mark carcasses at this project, as it could influence the results of the trial and alert the searcher to an ongoing searcher efficiency trial. Instead, NRSI collected detailed location information when placing the trial carcass including the UTM coordinates and distance and direction from the turbine, and also mapped the location of the carcass. All collected carcasses were compared to these detailed location and species information to distinguish between trial carcasses and actual turbine mortalities. These steps have been taken to ensure that the location of the carcass, along with species information, is well documented for future reference if there is uncertainty about whether or not an observed carcass is a turbine-related mortality or a trial carcass.

Searcher efficiency carcasses 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 varied in size from very small to moderate-sized carcasses. Bat carcasses used during searcher efficiency trials consisted of the 3 long-distance migratory species known to occur within 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 all 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 2011). Due to the potential for changing conditions, NRSI completed visibility class maps once per month from May to October 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 turbine. This mapping categorized habitats according to visibility classes recommended by the MNRF (OMNR 2011). These include visibility classes 1 through 4, in addition to areas

which may be deemed “unsearchable”, such as wooded areas, areas deemed safety hazards, or other areas where searching was not possible. Mapping of these visibility classes within each turbine’s search radius was conducted and calculated as per a repeatable methodology using a combination of these 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 order to help increase the accuracy of searcher efficiency rates and minimize the influence of the proportion of area searched on the bat mortality estimate, the majority of the 50m search radii at the turbines were maintained at visibility class 1 by occasionally plowing applicable search areas during the monitoring year (May through October), when necessary. When small and 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 2020 monitoring period. One exception was at turbine T08, where the search radius was not maintained at a low vegetation level due to landowner preferences.

Some areas were determined to be visibility classes that were not searched as part of this monitoring program (i.e visibility classes 2-4), including the majority of the search radius at T08. In these cases, the appropriate proportion of area searched was calculated and used for final mortality estimates. Visibility class maps of each turbine in each month are provided in Appendix VI.

Maintenance of the 50m search radius was only completed when necessary to maintain appropriate visibility and it also followed a strict schedule developed by NRSI 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 Gunn’s Hill WF.

3.0 Scavenger Removal Trial Results

Scavenging activity at the Gunn's Hill WF was moderate throughout the monitoring seasons, with the highest level of scavenging activity documented during the spring trial. Table 2 shows the results from each season's scavenger removal trials conducted at the Gunn's Hill 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 Gunn's Hill WF (2020)

Number of Carcasses Remaining					
Spring Trial (May/June)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	0	0	0	0
T02	1	1	0	0	0
T03	1	0	0	0	0
T04	1	1	1	1	1
T05	1	1	1	1	0
T06	1	0	0	0	0
T07	1	0	0	0	0
T08	1	0	0	0	0
T09	1	0	0	0	0
T10	1	1	0	0	0
Total	10	4	2	2	1
Summer Trial (July/August)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	1	1	1	0
T02	1	1	1	1	1
T03	1	0	0	0	0
T04	1	1	1	1	1
T05	1	1	1	1	1
T06	1	0	0	0	0
T07	1	1	1	1	1
T08	1	0	0	0	0
T09	1	1	0	0	0
T10	1	0	0	0	0
Total	10	6	5	5	4
Fall Trial (September/October)					
Turbine	Visit 0	Visit 1	Visit 2	Visit 3	Visit 4
T01	1	0	0	0	0
T02	1	0	0	0	0

Number of Carcasses Remaining					
T03	1	0	0	0	0
T04	2	2	2	1	1
T05	2	2	2	2	2
T06	2	1	1	1	1
T07	2	1	1	1	1
T08	1	1	1	1	1
T09	2	1	0	0	0
T10	1	1	1	0	0
Total	15	9	8	6	6

To address the scavenger removal rates for each of the specific monitoring periods, NRSI has used the equation recommended by the MNRF:

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

Sc: proportion of carcasses not removed by scavengers

n_{visit0} : total number of carcasses placed

$n_{visit1} - n_{visit3} \dots$: numbers of carcasses remaining on visits 1 through 3 etc.

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

$$\begin{aligned} SC_{Spring} &= (4 + 2 + 2 + 1) / (10 + 4 + 2 + 2) \\ &= 9 / 18 \\ &= \mathbf{0.50} \end{aligned}$$

$$\begin{aligned} SC_{Summer} &= (6 + 5 + 5 + 4) / (10 + 6 + 5 + 5) \\ &= 20 / 26 \\ &= \mathbf{0.77} \end{aligned}$$

$$\begin{aligned} SC_{Fall} &= (9 + 8 + 6 + 6) / (15 + 9 + 8 + 6) \\ &= 29 / 38 \\ &= \mathbf{0.76} \end{aligned}$$

The above scavenger removal rates represent the proportion of carcasses still remaining from one visit to the next. These scavenger values generally represent moderate scavenging activity throughout the year. The above scavenger removal rates will be used to calculate the estimated bat mortality rate in Section 6.0.

4.0 Searcher Efficiency Trial Results

Searcher efficiency rates at the Gunn's Hill WF were relatively high throughout the 2020 monitoring season. Results of the monthly searcher efficiency trials are summarized in Table 3 below. Details on the searcher, species, distance and direction from turbine, habitat, substrate, visibility class, UTM coordinates, and whether the carcass was found or scavenged have been provided in Appendix III.

Table 3. Results of Searcher Efficiency Trials at the Gunn's Hill WF (2020)

Searcher	Carcasses Found	Carcasses Placed	Carcasses Scavenged	Searcher Efficiency (Se)	Proportion of Turbines Searched
May 2020					
Searcher A ¹	N/A	N/A	N/A	0.80	0.30
Searcher B	8	11	1	0.80	0.70
June 2020					
Searcher B	8	11	1	0.80	1.00
July 2020					
Searcher B	8	11	1	0.80	0.89
Searcher C ¹	N/A	N/A	N/A	0.80	0.11
August 2020					
Searcher B	9	10	0	0.90	1.00
September 2020					
Searcher A ¹	N/A	N/A	N/A	0.90	0.12
Searcher B	9	10	0	0.90	0.77
Searcher C ¹	N/A	N/A	N/A	0.90	0.11
October 2020					
Searcher A	7	10	0	0.70	0.43
Searcher B	9	10	0	0.90	0.57

¹This searcher searched on no more than 3 dates in the identified month and therefore could not be properly tested for searcher efficiency following MNRf guidelines (i.e. 4 search days are required for proper testing in 1 visibility class as no more than 3 carcasses can be placed at a time). In these circumstances, the average result obtained by the regular searcher(s) in each month was used for this searcher.

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

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

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

$$SeO_{\text{May}} = 0.80 (0.30) + 0.80 (0.70) = \mathbf{0.80}$$

$$SeO_{\text{June}} = 0.80 (1.00) = \mathbf{0.80}$$

$$\begin{aligned}
 \text{SeO}_{\text{July}} &= 0.80 (0.89) + 0.80 (0.11) = \mathbf{0.80} \\
 \text{SeO}_{\text{August}} &= 0.90 (1.00) = \mathbf{0.90} \\
 \text{SeO}_{\text{September}} &= 0.90 (0.12) + 0.90 (0.77) + 0.90 (0.11) = \mathbf{0.90} \\
 \text{SeO}_{\text{October}} &= 0.70 (0.43) + 0.90 (0.57) = \mathbf{0.81}
 \end{aligned}$$

These searcher efficiency values represent relatively high searcher efficiency rates, largely due to the 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 bat mortality rate in Section 6.0.

5.0 Proportion of Area Searched

Visibility class mapping was completed every month within the 50m search radius of each of the 10 turbines in order to reflect changes in groundcover and resulting visibility classes. All visibility class maps have been provided in Appendix VI.

Visibility class mapping was used in combination with GIS software to determine the proportion of area in visibility class 1 at each turbine. During the 2020 monitoring program, NRSI biologist searched all areas of visibility class 1 only, which is reflected in the proportion of area searched (P_s) calculated for all 10 turbines during each monitoring month, as shown in Table 4. The P_s values will be used to calculate the estimated bat mortality rate in Section 6.0.

Table 4. Proportion of Area Searched at the Gunn's Hill WF (2020)

Month	Total Searched Area (m ²)	Total Search Radius (m ²)	Proportion of Area Searched (P_s)
May	74,618	78,500	0.95
June	74,990	78,500	0.96
July	71,142	78,500	0.91
August	71,142	78,500	0.91
September	74,199	78,500	0.95
October	74,199	78,500	0.95

6.0 Bat Mortality Results

6.1 Bat Mortalities

During the 2020 post-construction mortality monitoring period at the Gunn's Hill WF, searchers observed 28 bat mortalities within the 50m search radius of the turbines. Bat mortalities represented 4 different species, including the 3 long-distance migratory species, Hoary Bat, Eastern Red Bat, and Silver-haired Bat, as well as the resident species Big Brown Bat (*Eptesicus fuscus*). The most abundant species observed was Silver-haired Bat (n=15), followed by Hoary Bat (n=7), Big Brown Bat (n=4), and Eastern Red Bat (n=2). Observed mortalities of the 3 long-distance migratory bat species combined to represent 86% of all documented bat mortalities.

Detailed information regarding each bat mortality observed during mortality searches has been provided in Appendix IV.

6.2 Temporal Distribution of Bat Mortalities

Bat mortalities were observed throughout the monitoring period, but were most abundant during the month of August (46% of all bat mortalities; Figure 1). The monitoring day with the highest number of mortalities observed was August 28, 2020 (n=7).

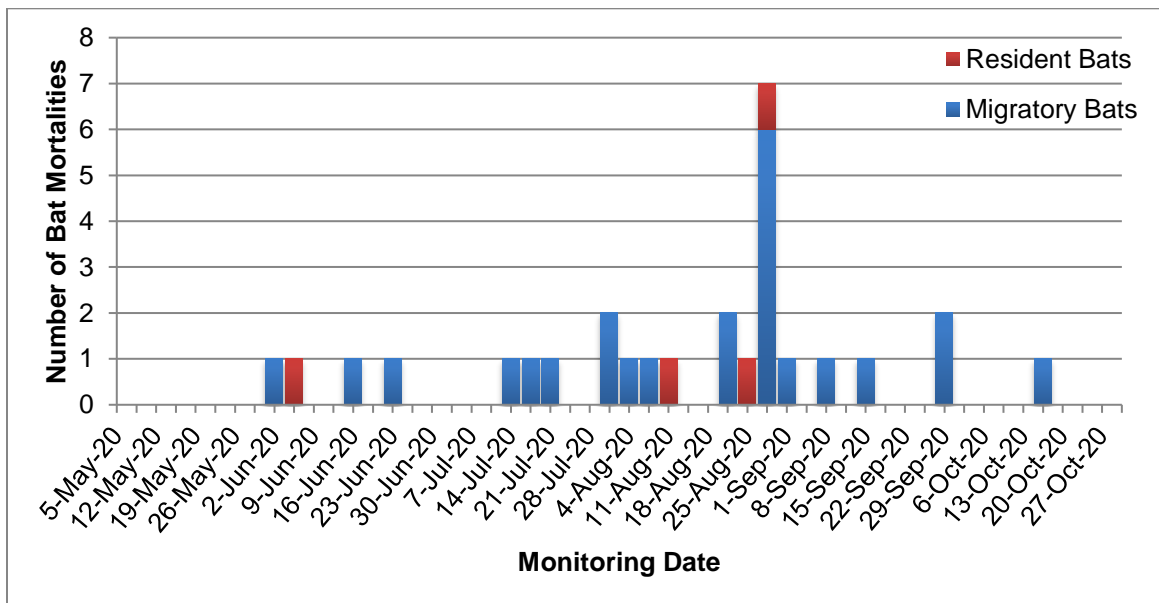


Figure 1. Bat Mortalities Observed by Date at the Gunn's Hill WF (2020)

Patterns of bat mortalities appear to be consistent with the expected migratory time periods for these species, with increases in bat mortalities during the summer. Overall, bat mortality was concentrated during the month of August, with additional mortalities concentrated in late July and early September, corresponding to the anticipated peak periods of summer swarming and migration of bats.

6.3 Spatial Distribution of Bat Mortalities

Bat mortalities were observed at each of the 10 turbines at the Gunn's Hill WF in 2020 (see Figure 2 below). The number of mortalities observed at each turbine varied, ranging from 1 to 5 mortalities per turbine.

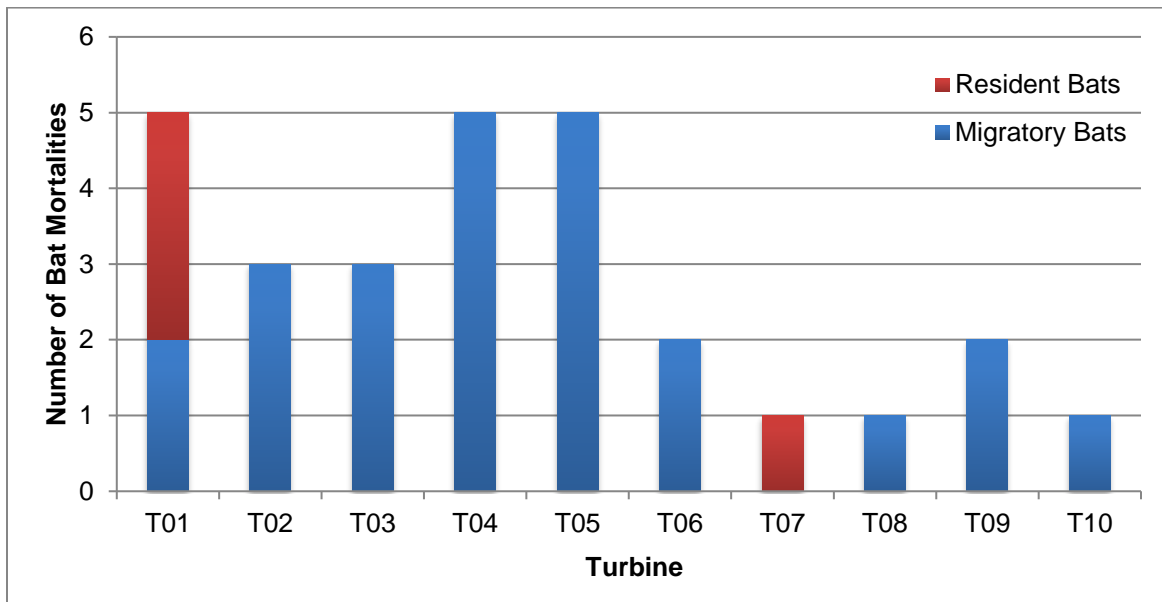


Figure 2. Bat Mortalities Observed by Turbine at the Gunn's Hill WF (2020)

Distance and direction of bat mortalities from each of the turbine bases were also documented for each observed mortality. Bat mortalities were found ranging in distance from 18m to 50m from the turbine base, and averaging a distance of approximately 33m from the turbine base. The overall distribution of mortalities by distance class can be seen in Figure 3 below. Maps identifying the location of each observed mortality by turbine are provided in Appendix V.

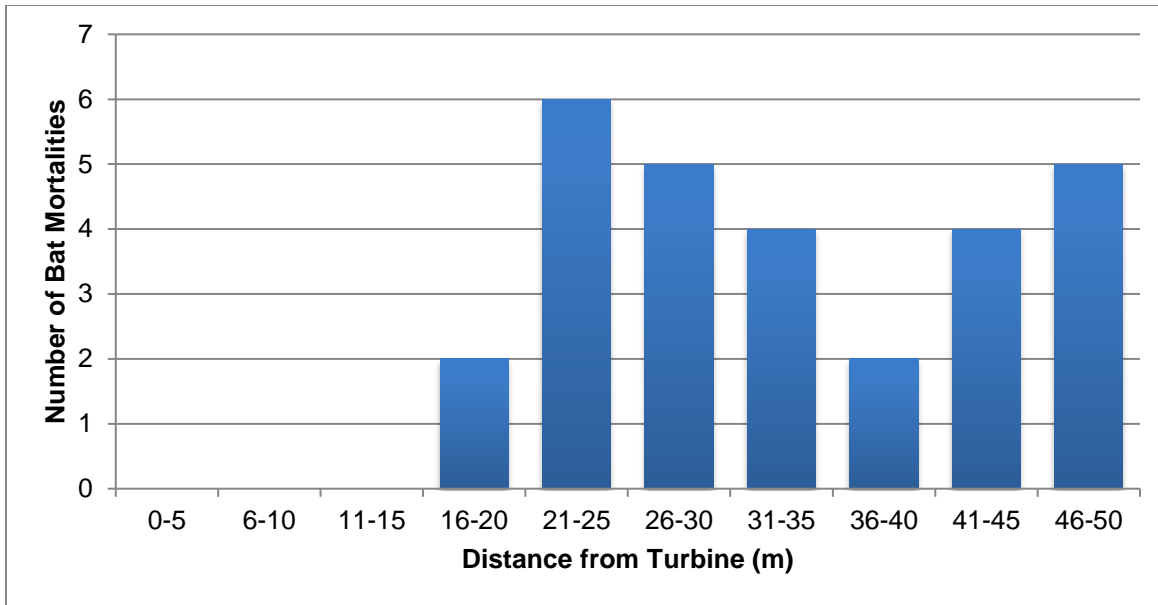


Figure 3. Bat Mortalities Observed by Distance from Turbine at the Gunn's Hill WF (2020)

6.4 Corrected (Estimated) Bat Mortality

Based on the field observations at the Gunn's Hill WF, NRSI biologists have compiled the searcher efficiency trials, scavenger removal trials, proportion of area searched, and direct mortality values in an equation that will be used to estimate the total bat mortality at the Gunn's Hill WF in 2020. The equation recommended by the MNRF is found below:

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

- C: Corrected (Estimated) Mortality Rate
- c: actual 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:

$$C_{\text{May}} = 0 / (0.80 * 0.50 * 0.95) = 0 / 0.3800 = 0.00 \text{ bats} \\ = \mathbf{0.00 \text{ bats/turbine}} \text{ (0.00 bats/MW)}$$

$$C_{\text{June}} = 4 / (0.80 \times 0.50 \times 0.96) = 4 / 0.3840 = 10.42 \text{ bats}$$

$$= \mathbf{1.04 \text{ bats/turbine}} \text{ (0.58 bats/MW)}$$

$$C_{\text{July}} = 5 / (0.80 \times 0.77 \times 0.91) = 5 / 0.5606 = 8.92 \text{ bats}$$

$$= \mathbf{0.89 \text{ bats/turbine}} \text{ (0.50 bats/MW)}$$

$$C_{\text{August}} = 13 / (0.90 \times 0.77 \times 0.91) = 13 / 0.6306 = 20.62 \text{ bats}$$

$$= \mathbf{2.06 \text{ bats/turbine}} \text{ (1.15 bats/MW)}$$

$$C_{\text{September}} = 5 / (0.90 \times 0.76 \times 0.95) = 5 / 0.6498 = 7.69 \text{ bats}$$

$$= \mathbf{0.77 \text{ bats/turbine}} \text{ (0.43 bats/MW)}$$

$$C_{\text{October}} = 1 / (0.81 \times 0.76 \times 0.95) = 1 / 0.5848 = 1.71 \text{ bats}$$

$$= \mathbf{0.17 \text{ bats/turbine}} \text{ (0.10 bats/MW)}$$

6.5 Summary

A total of 28 bat mortalities were documented at the Gunn's Hill WF in 2020. Mortalities included 3 of Ontario's long-distance migratory bat species, Hoary Bat, Silver-haired Bat, and Eastern Red Bat which represented 86% of the total bat mortalities observed. Big Brown Bat, a resident species known to over-winter in Ontario, was also observed. Bat mortalities were most abundant during the month of August, when 46% of all bat mortalities occurred, and ranged from 1 to 5 bat mortalities at each turbine.

Using the appropriate variables and recommended equations provided by the MNRF, NRSI has determined the corrected (estimated) bat mortality at the Gunn's Hill WF in 2020. Each of the corrected monthly bat mortality rates and the corrected annual bat mortality rate for the Gunn's Hill WF are provided in Table 5.

Table 5. Corrected Bat Mortality Rates Based on Mortality Monitoring at the Gunn's Hill WF (2020)

Month (2020)	Observed Bat Mortalities	Corrected Mortality (bats/turbine)	Corrected Mortality (bats/MW)
May	0	0.00	0.00
June	4	1.04	0.58
July	5	0.89	0.50
August	13	2.06	1.15
September	5	0.77	0.43
October	1	0.17	0.10
TOTAL	28	4.93	2.76

Based on the information collected during the 2020 post-construction monitoring period, the anticipated impact of this facility on bats is characterized by a corrected mortality rate of **4.93 bats/turbine/year** (2.76 bats/MW/year).

7.0 Comparative Annual Results

Mortality monitoring conducted by NRSI in 2020 represents the fourth year of post-construction monitoring conducted at the Gunn's Hill WF. This section provides a comparison of the annual post-construction bat mortality monitoring results to-date.

Table 6 below provides an abbreviated summary of total bat mortalities, monitoring periods, and corrected (estimated) mortality rates for each of the 4 years of mortality monitoring conducted to-date at the Gunn's Hill WF.

Table 6. Comparative Results of Bat Mortality Monitoring Seasons (2017-2020)

Year	Total Mortalities	Monitoring Period	Estimated Mortality Rates	
			Bats/Turbine/Year	Bats/MW/Year
2017	68	May 1 – October 31	10.81	5.99
2018	36	May 1 – October 31	9.05	5.02
2019	27	May 1 – October 31	5.94	3.29
2020	28	May 1 – October 31	4.93	2.76

Further details of the 2020 bat mortality results can be found in Section 6.0 of this report.

Although a general comparison between the 4 years of post-construction monitoring data is possible, the differences in searcher efficiency rates, scavenger removal rates, and proportion of area searched over these 4 monitoring years do not necessarily allow for a direct comparative analysis of observed mortalities between the 4 years. Local bat abundance and behaviour will also change annually based on other variables, such as weather conditions, adjacent land uses, 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 bat mortalities per turbine in 2020 decreased relative to the previous monitoring years (2017-2019).

8.0 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 for the Gunn's Hill WF have been established. The status of each threshold and confirmation of notifications, where applicable, have been described in the following sections.

8.1 Annual Bat Mortality

The annual bat mortality threshold for the Gunn's Hill WF is 10 bats/turbine/year. Based on an estimated rate of 4.93 bats/turbine/year, the Gunn's Hill WF remains below this threshold. Since the results are below the established threshold, no notification is required.

8.2 Species at Risk Mortality Event

Any Species at Risk (SAR; MECP 2020) mortality documented during post-construction mortality monitoring at the Gunn's Hill WF requires formal notification to the MNRF and the Ministry of Environment, Conservation and Parks within 24 hours (or next business day) of a confirmed species identification (Prowind Canada Inc. 2013). No provincially-listed SAR bird or bat mortalities were documented by NRSI at the Gunn's Hill WF during post-construction mortality monitoring in 2020.

9.0 Summary and Conclusions

NRSI was retained to conduct post-construction monitoring at the operational Gunn's Hill WF. The Gunn's Hill WF consists of 10 operational wind energy generating turbines with a total nameplate capacity of 18MW.

Post-construction monitoring at the Gunn's Hill WF in 2020 included bat mortality monitoring and corresponding searcher efficiency trials, scavenger removal trials, and visibility class mapping that are used to calculate an estimated mortality rate. These surveys were conducted to assess the potential impacts of this wind energy generating facility on bats. Monitoring in 2020 also represents the second year of effectiveness monitoring, specific to bats, which is required as a result of exceeding the provincial threshold during a previous monitoring year. Bird and raptor mortality data were not presented herein, as 3 years of required baseline monitoring for bird and raptor mortality have been completed (2017-2019).

A total of 28 bat mortalities were documented during the 2020 mortality monitoring period at the Gunn's Hill WF. Long-distance migratory bat species were the most commonly observed mortalities at the project. Based on the number of observed bat mortalities, searcher efficiency rates, scavenger removal rates, proportion of area searched, and equations recommended by the MNRF, an annual corrected (estimated) bat mortality rate of **4.93 bats/turbine/year** (2.76 bats/MW/year) has been determined for the Gunn's Hill WF. The estimated bat mortality rate is below the provincial threshold level of 10 bats/turbine/year established by the MNRF guidelines.

10.0 References

Ministry of Environment, Conservation and Parks (MECP). 2020. Species at Risk in Ontario (SARO). Available at: <https://www.ontario.ca/page/species-risk-ontario>










Ontario Ministry of Natural Resources (OMNR). 2011. Bats and Bat Habitats: Guidelines for Wind Power Projects. First edition. July 2011.

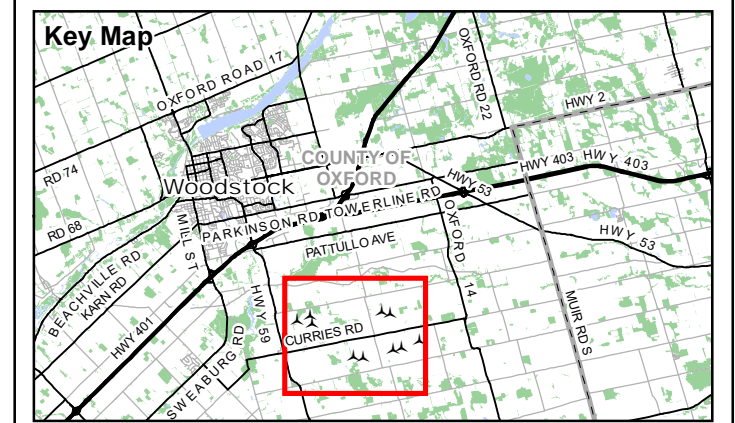
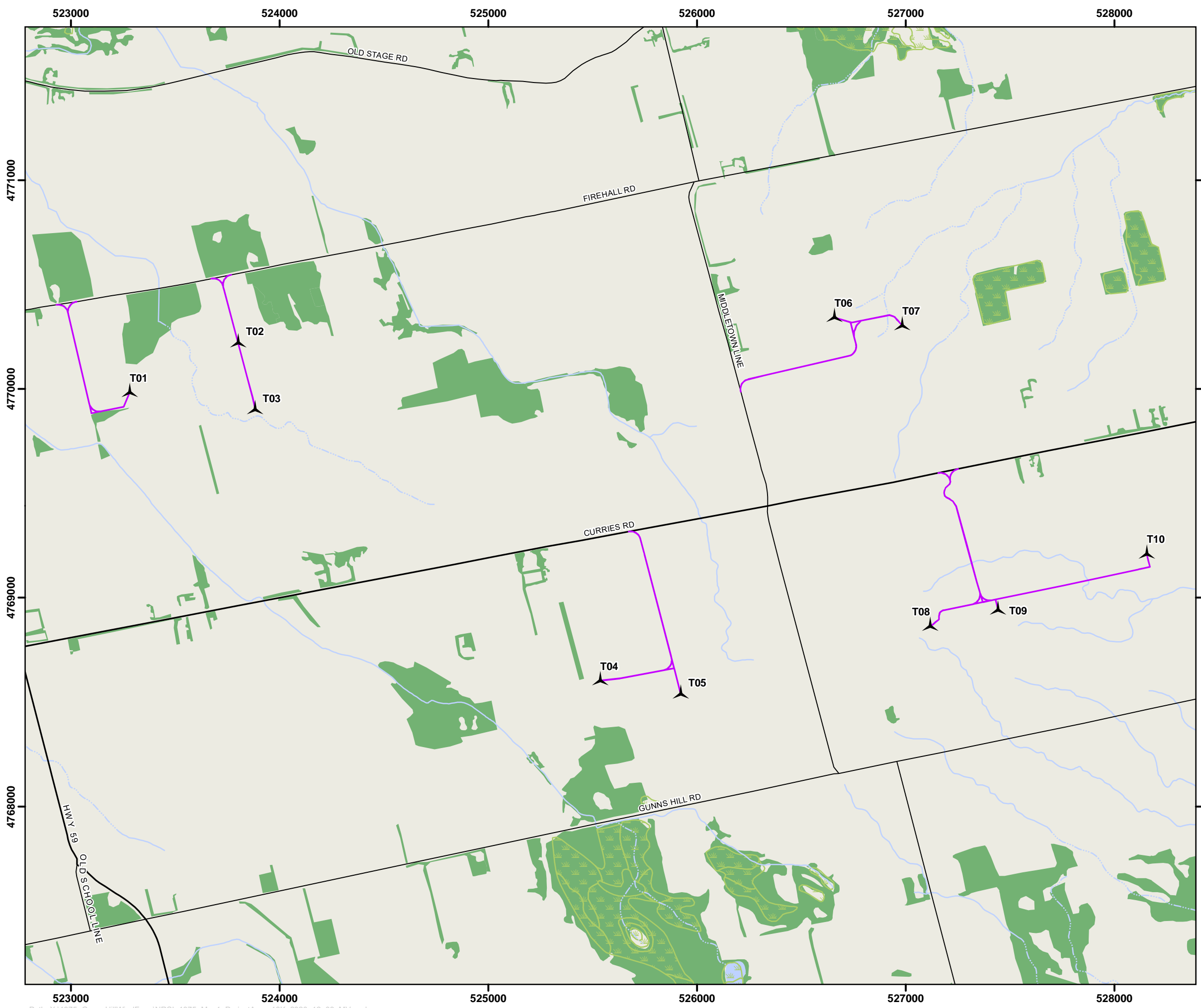
Prowind Canada Inc. 2013. Gunn's Hill Wind Farm - Post-construction Environmental Effects Monitoring Plan: Birds and Bats. June 2013.

Maps

Gunn's Hill Wind Farm Project Area

Legend

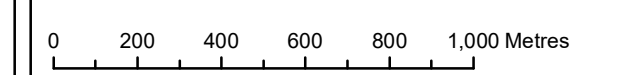
-  Turbine
-  Access Road
-  Primary Road
-  Secondary Road
-  Permanent Watercourse
-  Intermittent Watercourse
-  Water Body
-  Wetland
-  Wooded Area



NATURAL RESOURCE SOLUTIONS INC.
 Aquatic, Terrestrial and Wetland Biologists

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. Data provided by MNR © Copyright: Queen's Printer Ontario.

Project: 1875 Date: December 3, 2020	NAD83 - UTM Zone 17 Size: 11x17" 1:18,000
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Appendix I
Post-construction Monitoring Data Sheets

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
X	X	X	X	X	X	X	X	X	X
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

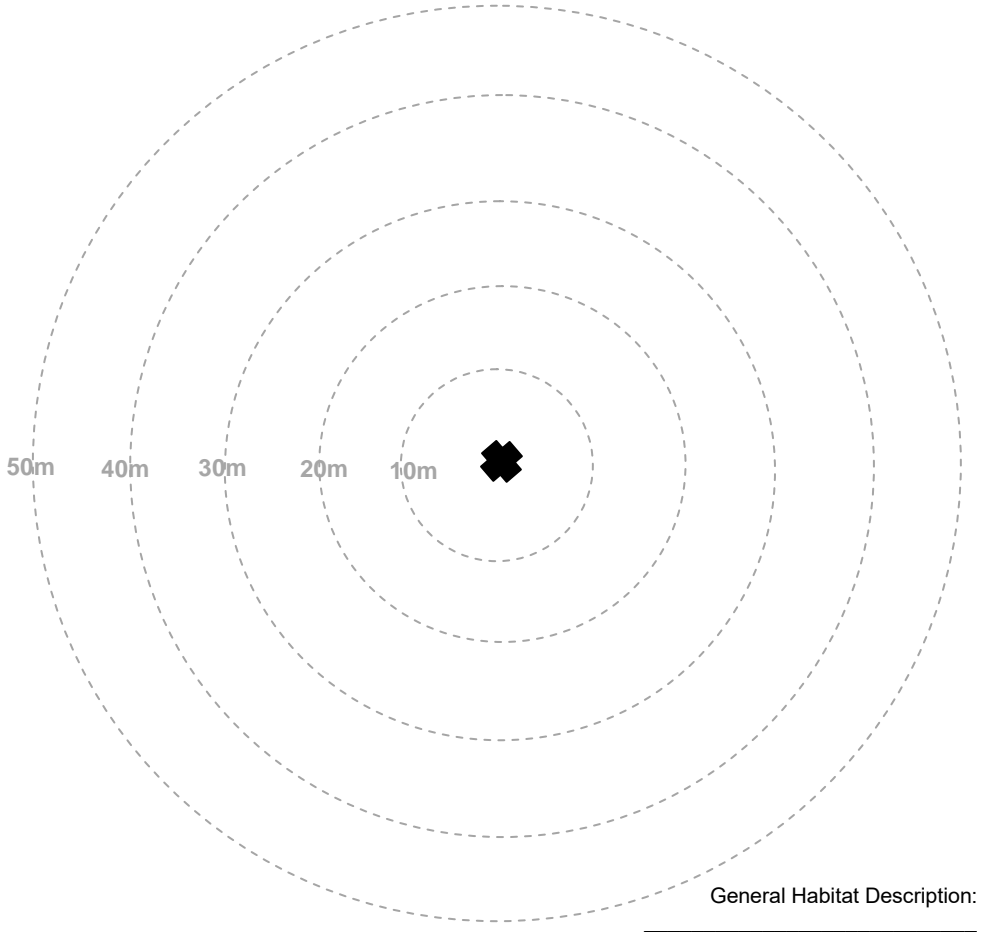
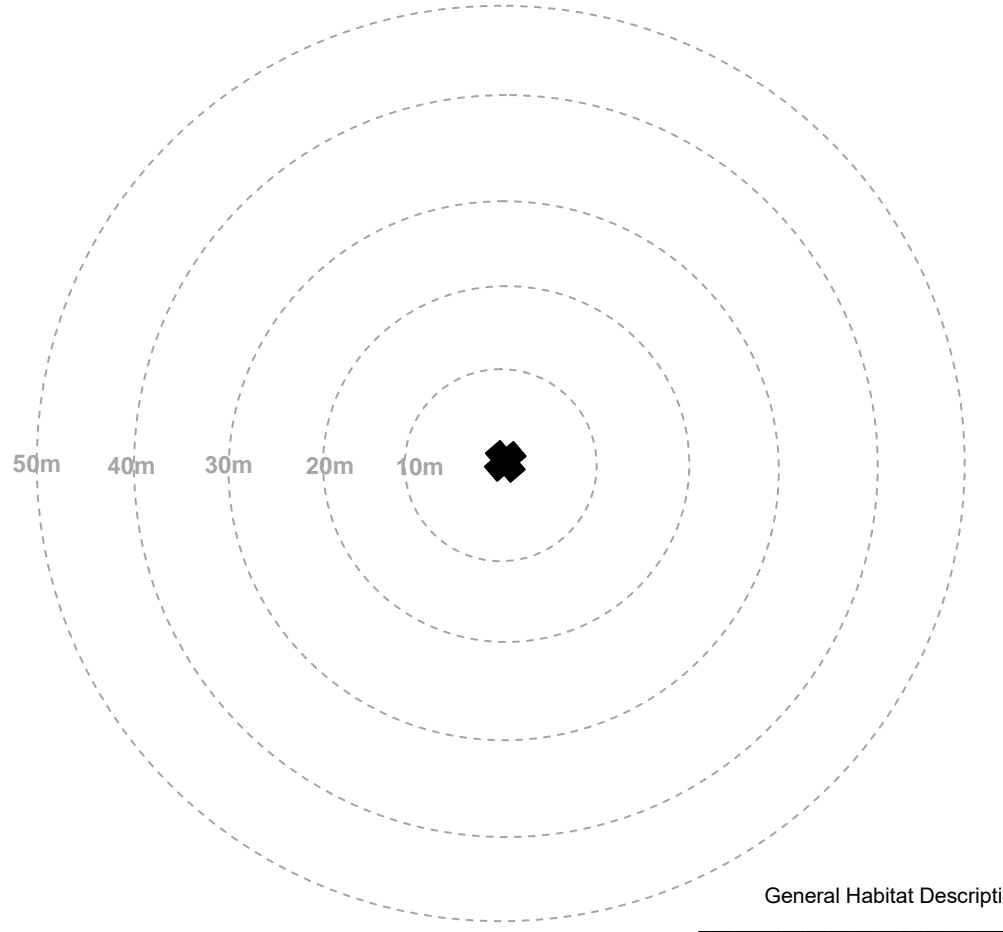


Photo Numbers (from turbine base)
 Facing North: _____
 Facing East: _____
 Facing South: _____
 Facing West: _____
 (sketch habitat and visibility classes)

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

Appendix II
Scavenger Removal Trial Results

Appendix II
 1875D Gunn's Hill Wind Farm
 Scavenger Removal Trial Results 2020

Spring (May/June) 2020 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM (Zone 17T)		Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
					Easting	Northing						
1	T03	Northern Parula	8	340	523873	4769905	1	Day 0	08-May-20	Y	Carcass placed	Searcher A
								Day 4	12-May-20	N	Carcass removed	Searcher B
								Day 7	15-May-20	N	N/A	Searcher B
								Day 11	19-May-20	N	N/A	Searcher B
								Day 14	22-May-20	N	N/A	Searcher B
2	T04	Silver-haired Bat	33	145	525555	4768575	1	Day 0	08-May-20	Y	Carcass placed	Searcher A
								Day 4	12-May-20	Y	None	Searcher B
								Day 7	15-May-20	Y	None	Searcher B
								Day 11	19-May-20	Y	None	Searcher B
								Day 14	22-May-20	Y	None	Searcher B
3	T07	Hoary Bat	41	230	526952	4770271	1	Day 0	08-May-20	Y	Carcass placed	Searcher A
								Day 4	12-May-20	N	Carcass removed	Searcher B
								Day 7	15-May-20	N	N/A	Searcher B
								Day 11	19-May-20	N	N/A	Searcher B
								Day 14	22-May-20	N	N/A	Searcher B
4	T09	Veery	29	310	527413	4768957	1	Day 0	08-May-20	Y	Carcass placed	Searcher A
								Day 4	12-May-20	N	Carcass removed	Searcher B
								Day 7	15-May-20	N	N/A	Searcher B
								Day 11	19-May-20	N	N/A	Searcher B
								Day 14	22-May-20	N	N/A	Searcher B
5	T01	Hoary Bat	19	270	523261	4769976	1	Day 0	15-May-20	Y	Carcass placed	Searcher B
								Day 4	19-May-20	N	Carcass removed; raccoon tracks nearby	Searcher B
								Day 7	22-May-20	N	N/A	Searcher B
								Day 11	26-May-20	N	N/A	Searcher B
								Day 14	29-May-20	N	N/A	Searcher B
6	T02	Veery	50	160	523816	4770166	1	Day 0	02-Jun-20	Y	Carcass placed	Searcher B
								Day 3	05-Jun-20	Y	None	Searcher B
								Day 7	09-Jun-20	N	Carcass removed	Searcher B
								Day 10	12-Jun-20	N	N/A	Searcher B
								Day 14	16-Jun-20	N	N/A	Searcher B
7	T05	Yellow-billed Cuckoo	13	310	525911	4768550	1	Day 0	02-Jun-20	Y	Carcass placed	Searcher B
								Day 3	05-Jun-20	Y	None	Searcher B
								Day 7	09-Jun-20	Y	None	Searcher B
								Day 10	12-Jun-20	Y	Only feathers remaining	Searcher B
								Day 14	16-Jun-20	N	Carcass removed	Searcher B
8	T06	Silver-haired Bat	24	150	526662	4770314	1	Day 0	02-Jun-20	Y	Carcass placed	Searcher B
								Day 3	05-Jun-20	N	Carcass removed	Searcher B
								Day 7	09-Jun-20	N	N/A	Searcher B
								Day 10	12-Jun-20	N	N/A	Searcher B
								Day 14	16-Jun-20	N	N/A	Searcher B
9	T08	Eastern Red Bat	9	80	527121	4768866	1	Day 0	02-Jun-20	Y	Carcass placed	Searcher B
								Day 3	05-Jun-20	N	Carcass removed	Searcher B
								Day 7	09-Jun-20	N	N/A	Searcher B
								Day 10	12-Jun-20	N	N/A	Searcher B
								Day 14	16-Jun-20	N	N/A	Searcher B
10	T10	Eastern Red Bat	33	30	528160	4769241	1	Day 0	02-Jun-20	Y	Carcass placed	Searcher B
								Day 3	05-Jun-20	Y	None	Searcher B
								Day 7	09-Jun-20	N	Carcass removed	Searcher B
								Day 10	12-Jun-20	N	N/A	Searcher B
								Day 14	16-Jun-20	N	N/A	Searcher B

Summer (July/August) 2020 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM (Zone 17T)		Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
					Eastings	Northing						
1	T02	Blue Jay	26	70	523821	4770224	1	Day 0	07-Jul-20	Y	Carcass placed	Searcher B
								Day 3	10-Jul-20	Y	Carcass moved approximately 3m	Searcher B
								Day 7	14-Jul-20	Y	No further signs	Searcher B
								Day 10	17-Jul-20	Y	No further signs	Searcher B
								Day 14	21-Jul-20	Y	No further signs	Searcher C
2	T03	Fox Sparrow	50	10	523880	4769952	1	Day 0	07-Jul-20	Y	Carcass placed	Searcher B
								Day 3	10-Jul-20	N	Carcass removed	Searcher B
								Day 7	14-Jul-20	N	N/A	Searcher B
								Day 10	17-Jul-20	N	N/A	Searcher B
								Day 14	21-Jul-20	N	N/A	Searcher C
3	T05	Hoary Bat	6	340	525912	4768540	1	Day 0	07-Jul-20	Y	Carcass placed	Searcher B
								Day 3	10-Jul-20	Y	None	Searcher B
								Day 7	14-Jul-20	Y	None	Searcher B
								Day 10	17-Jul-20	Y	None	Searcher B
								Day 14	21-Jul-20	Y	None	Searcher C
4	T06	Hoary Bat	14	10	526655	4770353	1	Day 0	07-Jul-20	Y	Carcass placed	Searcher B
								Day 3	10-Jul-20	N	Carcass removed	Searcher B
								Day 7	14-Jul-20	N	N/A	Searcher B
								Day 10	17-Jul-20	N	N/A	Searcher B
								Day 14	21-Jul-20	N	N/A	Searcher C
5	T07	Silver-haired Bat	34	20	526988	4770335	1	Day 0	07-Jul-20	Y	Carcass placed	Searcher B
								Day 3	10-Jul-20	Y	None	Searcher B
								Day 7	14-Jul-20	Y	None	Searcher B
								Day 10	17-Jul-20	Y	None	Searcher B
								Day 14	21-Jul-20	Y	None	Searcher C
6	T01	Northern Flicker	47	230	523245	4769950	1	Day 0	04-Aug-20	Y	Carcass placed	Searcher B
								Day 3	07-Aug-20	Y	Carcass moved approximately 7m	Searcher B
								Day 7	11-Aug-20	Y	Only feathers remaining	Searcher B
								Day 10	14-Aug-20	Y	No further signs	Searcher B
								Day 14	18-Aug-20	N	Carcass removed	Searcher B
7	T04	European Starling	6	110	525540	4768600	1	Day 0	04-Aug-20	Y	Carcass placed	Searcher B
								Day 3	07-Aug-20	Y	None	Searcher B
								Day 7	11-Aug-20	Y	None	Searcher B
								Day 10	14-Aug-20	Y	None	Searcher B
								Day 14	18-Aug-20	Y	None	Searcher B
8	T09	Silver-haired Bat	28	85	527465	4768950	1	Day 0	04-Aug-20	Y	Carcass placed	Searcher B
								Day 3	07-Aug-20	Y	None	Searcher B
								Day 7	11-Aug-20	N	Carcass removed	Searcher B
								Day 10	14-Aug-20	N	N/A	Searcher B
								Day 14	18-Aug-20	N	N/A	Searcher B
9	T08	Hoary Bat	13	40	527123	4768882	1	Day 0	07-Aug-20	Y	Carcass placed	Searcher B
								Day 4	11-Aug-20	N	Carcass removed	Searcher B
								Day 7	14-Aug-20	N	N/A	Searcher B
								Day 11	18-Aug-20	N	N/A	Searcher B
								Day 14	21-Aug-20	N	N/A	Searcher B
10	T10	Eastern Red Bat	30	10	528151	4769174	1	Day 0	07-Aug-20	Y	Carcass placed	Searcher B
								Day 4	11-Aug-20	N	Carcass removed	Searcher B
								Day 7	14-Aug-20	N	N/A	Searcher B
								Day 11	18-Aug-20	N	N/A	Searcher B
								Day 14	21-Aug-20	N	N/A	Searcher B

Fall (September/October) 2020 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM (Zone 17T)		Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
					Easting	Northing						
1	T02	Silver-haired Bat	31	340	523778	4770243	1	Day 0	01-Sep-20	Y	Carcass placed	Searcher B
								Day 3	04-Sep-20	N	Carcass removed	Searcher B
								Day 7	08-Sep-20	N	N/A	Searcher C
								Day 10	11-Sep-20	N	N/A	Searcher B
								Day 14	15-Sep-20	N	N/A	Searcher B
2	T03	Hoary Bat	47	340	523858	4769938	1	Day 0	01-Sep-20	Y	Carcass placed	Searcher B
								Day 3	04-Sep-20	N	Carcass removed	Searcher B
								Day 7	08-Sep-20	N	N/A	Searcher C
								Day 10	11-Sep-20	N	N/A	Searcher B
								Day 14	15-Sep-20	N	N/A	Searcher B
3	T07	Hoary Bat	6	335	526981	4770338	1	Day 0	01-Sep-20	Y	Carcass placed	Searcher B
								Day 3	04-Sep-20	N	Carcass removed	Searcher B
								Day 7	08-Sep-20	N	N/A	Searcher C
								Day 10	11-Sep-20	N	N/A	Searcher B
								Day 14	15-Sep-20	N	N/A	Searcher B
4	T09	Ovenbird	21	290	527418	4768946	1	Day 0	01-Sep-20	Y	Carcass placed	Searcher B
								Day 3	04-Sep-20	Y	None	Searcher B
								Day 7	08-Sep-20	N	Carcass removed	Searcher C
								Day 10	11-Sep-20	N	N/A	Searcher B
								Day 14	15-Sep-20	N	N/A	Searcher B
5	T10	Common Grackle	14	270	528142	4769220	1	Day 0	01-Sep-20	Y	Carcass placed	Searcher B
								Day 3	04-Sep-20	Y	None	Searcher B
								Day 7	08-Sep-20	Y	None	Searcher C
								Day 10	11-Sep-20	N	Carcass removed	Searcher B
								Day 14	15-Sep-20	N	N/A	Searcher B
6	T01	Savannah Sparrow	40	140	523309	4769953	1	Day 0	22-Sep-20	Y	Carcass placed	Searcher B
								Day 3	25-Sep-20	N	Carcass removed	Searcher B
								Day 7	29-Sep-20	N	N/A	Searcher A
								Day 10	02-Oct-20	N	N/A	Searcher B
								Day 14	06-Oct-20	N	N/A	Searcher A
7	T04	Red-eyed Vireo	36	30	525554	4768636	1	Day 0	22-Sep-20	Y	Carcass placed	Searcher B
								Day 3	25-Sep-20	Y	None	Searcher B
								Day 7	29-Sep-20	Y	Carcass moved	Searcher A
								Day 10	02-Oct-20	Y	No further signs	Searcher B
								Day 14	06-Oct-20	Y	No further signs	Searcher A
8	T05	Silver-haired Bat	22	85	525944	4768540	1	Day 0	22-Sep-20	Y	Carcass placed	Searcher B
								Day 3	25-Sep-20	Y	None	Searcher B
								Day 7	29-Sep-20	Y	None	Searcher A
								Day 10	02-Oct-20	Y	None	Searcher B
								Day 14	06-Oct-20	Y	None	Searcher A
9	T06	Hoary Bat	14	185	526656	4770326	1	Day 0	22-Sep-20	Y	Carcass placed	Searcher B
								Day 3	25-Sep-20	N	Carcass removed	Searcher B
								Day 7	29-Sep-20	N	N/A	Searcher A
								Day 10	02-Oct-20	N	N/A	Searcher B
								Day 14	06-Oct-20	N	N/A	Searcher A
10	T08	Silver-haired Bat	9	80	527121	4768867	1	Day 0	22-Sep-20	Y	Carcass placed	Searcher B
								Day 3	25-Sep-20	Y	None	Searcher B
								Day 7	29-Sep-20	Y	None	Searcher A
								Day 10	02-Oct-20	Y	None	Searcher B
								Day 14	06-Oct-20	Y	None	Searcher A
11	T04	Hoary Bat	29	290	525504	4768611	1	Day 0	16-Oct-20	Y	Carcass placed	Searcher A
								Day 4	20-Oct-20	Y	None	Searcher A
								Day 7	23-Oct-20	Y	None	Searcher B
								Day 11	27-Oct-20	N	Carcass removed; claw marks in soil	Searcher A
								Day 14	30-Oct-20	N	N/A	Searcher B
12	T05	Black-throated Blue Warbler	34	25	525928	4768571	1	Day 0	16-Oct-20	Y	Carcass placed	Searcher A
								Day 4	20-Oct-20	Y	None	Searcher A
								Day 7	23-Oct-20	Y	None	Searcher B
								Day 11	27-Oct-20	Y	None	Searcher A
								Day 14	30-Oct-20	Y	None	Searcher B

Fall (September/October) 2020 Scavenger Removal Trial (continued)

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM (Zone 17T)		Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
					Easting	Northing						
13	T06	Silver-haired Bat	5	240	526654	4770334	1	Day 0	16-Oct-20	Y	Carcass placed	Searcher A
								Day 4	20-Oct-20	Y	None	Searcher A
								Day 7	23-Oct-20	Y	None	Searcher B
								Day 11	27-Oct-20	Y	None	Searcher A
								Day 14	30-Oct-20	Y	None	Searcher B
14	T07	Hoary Bat	15	90	526995	4770300	1	Day 0	16-Oct-20	Y	Carcass placed	Searcher A
								Day 4	20-Oct-20	Y	None	Searcher A
								Day 7	23-Oct-20	Y	None	Searcher B
								Day 11	27-Oct-20	Y	None	Searcher A
								Day 14	30-Oct-20	Y	None	Searcher B
15	T09	Northern Flicker	44	300	527399	4768957	1	Day 0	16-Oct-20	Y	Carcass placed	Searcher A
								Day 4	20-Oct-20	N	Carcass removed; coyote tracks nearby	Searcher A
								Day 7	23-Oct-20	N	N/A	Searcher B
								Day 11	27-Oct-20	N	N/A	Searcher A
								Day 14	30-Oct-20	N	N/A	Searcher B

Appendix III
Searcher Efficiency Trial Results

Appendix III
1875D Gunn's Hill Wind Farm
Searcher Efficiency Trial Results 2020

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM (Zone 17T)		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
15-May-20	Searcher B	1	T01	Veery	36	160	Bare soil	1	523291	4769944	N	Y
		2	T02	Hoary Bat	19	185	Bare soil	1	523792	4770195	N	N
		3	T03	Common Grackle	50	50	Bare soil	1	523909	4769934	N	N
19-May-20	Searcher B	4	T01	Silver-haired Bat	35	260	Bare soil	1	523244	4769970	Y	-
		5	T04	Golden-crowned Kinglet	21	185	Bare soil	1	525531	4768580	Y	-
		6	T05	Upland Sandpiper	45	330	Bare soil	1	525891	4768575	Y	-
22-May-20	Searcher B	7	T06	Eastern Red Bat	38	140	Bare soil	1	526676	4770309	Y	-
		8	T07	Veery	13	40	Bare soil	1	526987	4770314	Y	-
		9	T10	Tree Swallow	5	240	Gravel	1	528145	4769199	Y	-
26-May-20	Searcher B	10	T08	Gray Catbird	35	300	Bare soil	1	527069	4768903	Y	-
		11	T09	Hoary Bat	42	25	Bare soil	1	527445	4768983	Y	-
5-Jun-20	Searcher B	1	T08	Silver-haired Bat	17	280	Bare soil	1	527103	4768075	Y	-
		2	T09	Fox Sparrow	37	50	Bare soil	1	527455	4768977	Y	-
		3	T10	Silver-haired Bat	30	110	Bare soil	1	528185	4769200	N	Y
9-Jun-20	Searcher B	4	T02	Hoary Bat	35	90	Bare soil	1	523827	4770224	Y	-
		5	T03	Blackpoll Warbler	45	290	Bare soil	1	523843	4769906	Y	-
		6	T06	Golden-crowned Kinglet	7	350	Gravel	1	526651	4770347	N	N
16-Jun-20	Searcher B	7	T01	Silver-haired Bat	13	280	Bare soil	1	523263	4769980	Y	-
		8	T04	Blue Jay	24	20	Bare soil	1	525544	4768634	Y	-
		9	T05	Hoary Bat	47	230	Bare soil	1	525879	4768511	Y	-
19-Jun-20	Searcher B	10	T07	Fox Sparrow	16	20	Bare soil	1	526988	4770309	Y	-
		11	T10	Magnolia Warbler	43	50	Bare soil	1	528181	4769242	N	N
10-Jul-20	Searcher B	1	T01	Silver-haired Bat	9	210	Gravel	1	523275	4769968	Y	-
		2	T02	Horned Lark	45	40	Bare soil	1	523816	4770256	N	N
		3	T03	Swainson's Thrush	32	275	Bare soil	1	523844	4769891	Y	-
14-Jul-20	Searcher B	4	T04	Hoary Bat	22	5	Bare soil	1	525529	4768626	Y	-
		5	T05	Silver-haired Bat	43	220	Bare soil	1	525889	4768504	N	N
		6	T09	European Starling	34	120	Bare soil	1	527471	4768931	Y	-
17-Jul-20	Searcher B	7	T06	Ovenbird	17	320	Bare soil	1	526656	4770339	Y	-
		8	T07	Yellow-rumped Warbler	41	25	Bare soil	1	526985	4770346	Y	-
		9	T08	Hoary Bat	6	130	Gravel	1	527122	4768864	N	Y
28-Jul-20	Searcher B	10	T08	Cedar Waxwing	20	50	Bare soil	1	527126	4768885	Y	-
		11	T10	Hoary Bat	23	145	Bare soil	1	528165	4769190	Y	-
7-Aug-20	Searcher B	1	T01	Silver-haired Bat	46	260	Bare soil	1	523238	4769954	Y	-
		2	T02	Northern Cardinal	18	310	Bare soil	1	523777	4770220	Y	-
		3	T03	Savannah Sparrow	26	200	Bare soil	1	523872	4769872	Y	-
18-Aug-20	Searcher B	4	T04	Horned Lark	43	10	Bare soil	1	525529	4768647	N	N
		5	T05	Silver-haired Bat	22	110	Bare soil	1	525937	4768531	Y	-
		6	T09	Ovenbird	16	320	Bare soil	1	527420	4768950	Y	-
21-Aug-20	Searcher B	7	T06	Ovenbird	36	200	Bare soil	1	526654	4770307	Y	-
		8	T07	Silver-haired Bat	42	60	Bare soil	1	527015	4770325	Y	-
		9	T10	Winter Wren	4	355	Gravel	1	528152	4769211	Y	-
25-Aug-20	Searcher B	10	T08	Hoary Bat	21	40	Bare soil	1	527129	4768885	Y	-
4-Sep-20	Searcher B	1	T04	Hoary Bat	33	230	Bare soil	1	523515	4768575	Y	-
		2	T05	Golden-crowned Kinglet	15	200	Bare soil	1	525917	4768525	Y	-
		3	T07	American Robin	24	25	Bare soil	1	526985	4770325	Y	-
11-Sep-20	Searcher B	4	T02	Swainson's Thrush	46	310	Bare soil	1	523758	4770245	Y	-
		5	T03	Tennessee Warbler	14	250	Bare soil	1	523867	4769890	Y	-
		6	T06	Silver-haired Bat	25	170	Bare soil	1	526666	4770317	Y	-
15-Sep-20	Searcher B	7	T08	Winter Wren	9	80	Gravel	1	527114	4768879	Y	-
		8	T09	Hoary Bat	41	290	Bare soil	1	527396	4768948	Y	-
		9	T10	Red-eyed Vireo	30	350	Bare soil	1	528137	4769237	Y	-
18-Sep-20	Searcher B	10	T01	Silver-haired Bat	33	60	Bare soil	1	523312	4769996	N	N
2-Oct-20	Searcher B	1	T01	Blue Jay	36	230	Bare soil	1	523249	4769956	Y	-
		2	T02	Yellow Warbler	19	350	Bare soil	1	523787	4770233	Y	-
		3	T03	Silver-haired Bat	30	85	Bare soil	1	523910	4769906	Y	-
9-Oct-20	Searcher B	4	T04	American Robin	45	35	Bare soil	1	525548	4768648	Y	-
		5	T05	Black-throated Blue Warbler	42	280	Bare soil	1	525873	4768536	Y	-
		6	T09	Silver-haired Bat	14	145	Bare soil	1	527448	4768928	N	N
17-Oct-20	Searcher B	7	T06	Yellow Warbler	21	345	Bare soil	1	526652	4770361	Y	-
		8	T08	Northern Flicker	39	330	Bare soil	1	527089	4768901	Y	-
		9	T10	Hoary Bat	9	35	Gravel	1	528157	4769209	Y	-
23-Oct-20	Searcher B	10	T07	Eastern Red Bat	46	125	Bare soil	1	527022	4770281	Y	-
6-Oct-20	Searcher A	1	T02	Rock Pigeon	33	200	Bare soil	1	528781	4770181	Y	-
		2	T03	Black-capped Chickadee	48	40	Bare soil	1	528902	4769943	Y	-
		3	T10	Hoary Bat	23	220	Bare soil	1	528140	4769190	Y	-
13-Oct-20	Searcher A	4	T01	Silver-haired Bat	41	280	Bare soil	1	523233	4769979	N	N
		5	T08	Black-and-white Warbler	18	280	Bare soil	1	527097	4768868	N	N
		6	T09	Tree Swallow	12	330	Bare soil	1	527427	4768947	Y	-
20-Oct-20	Searcher A	7	T05	Common Yellowthroat	16	40	Bare soil	1	525924	4768546	Y	-
		8	T06	Eastern Red Bat	34	20	Bare soil	1	526668	4770374	N	N
		9	T07	Chestnut-sided Warbler	5	320	Gravel	1	526976	4770300	Y	-
27-Oct-20	Searcher A	10	T04	Hoary Bat	22	155	Bare soil	1	525543	4768586	Y	-

Appendix IV
Bat Mortalities

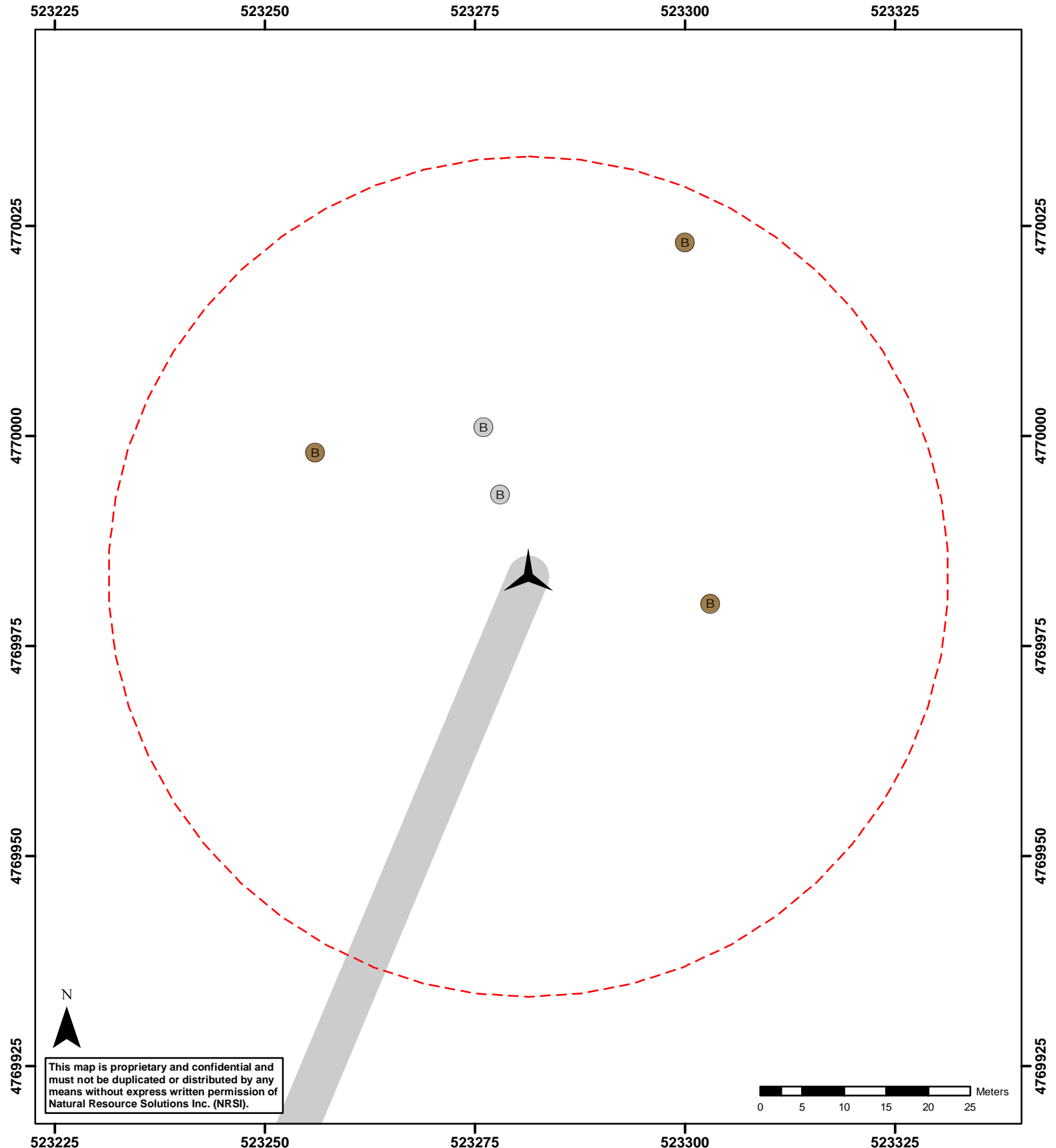
**Appendix IV
1875D Gunn's Hill WF
2020 Bat Mortalities**

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

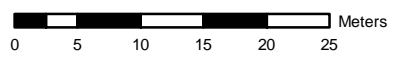
Condition Code: I Injured or dying
 F Freshly dead
 E Early decomposition
 M Moderate decomposition
 A Advanced decomposition
 C Complete decomposition
 S Scavenged

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp. (°C)	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
2-Jun-20	T04	11:00	11:20	N	4	20	30	None	2	S	Silver-haired Bat	1875-020620-T04-01	43	U	525516	4768621	23	310	M	84	None apparent	Bare soil	1
5-Jun-20	T07	11:40	12:00	N	3	24	100	Fog	1	SW	Big Brown Bat	1875-050620-T07-01	46	U	527004	4770281	27	135	F	12	Abdominal laceration	Bare soil	1
16-Jun-20	T08	12:50	13:10	N	4	25	0	None	1	E	Silver-haired Bat	1875-160620-T08-01	42	M	527094	4768868	18	270	F	16	None apparent	Bare soil	1
23-Jun-20	T05	11:25	11:45	N	4	20	100	Rain	1	S	Silver-haired Bat	1875-230620-T05-01	42	M	525962	4768540	46	100	E	36	Abdominal laceration	Bare soil	1
14-Jul-20	T06	12:10	12:30	N	4	25	50	None	1	N	Hoary Bat	1875-140720-T06-01	55	U	526654	4770389	46	0	A	160	None apparent	Bare soil	1
17-Jul-20	T04	10:15	10:35	N	3	25	10	None	1	W	Eastern Red Bat	1875-170720-T04-01	40	U	525498	4768625	44	300	F	16	None apparent	Bare soil	1
21-Jul-20	T05	11:50	12:10	N	4	23	90	None	1	NE	Eastern Red Bat	1875-210720-T05-01	42	M	525925	4768578	39	6	M	84	None apparent	Bare soil	1
31-Jul-20	T03	9:35	9:55	N	3	27	5	None	2	E	Hoary Bat	1875-310720-T03-01	57	M	523883	4769933	41	10	F	12	Laceration	Bare soil	1
31-Jul-20	T09	12:50	13:10	N	3	27	5	None	2	E	Hoary Bat	1875-310720-T09-01	56	U	527457	4768945	24	70	S	60	Only wings, one leg, and tail remaining	Bare soil	1
4-Aug-20	T02	9:55	10:15	N	4	20	100	Fog	1	N	Hoary Bat	1875-040820-T02-01	54	M	523769	4770236	33	310	E	36	None apparent	Bare soil	1
7-Aug-20	T03	9:35	9:55	N	3	20	5	None	1	E	Hoary Bat	1875-070820-T03-01	58	F	523847	4769937	50	315	F	12	None apparent	Bare soil	1
11-Aug-20	T01	9:35	9:55	N	4	23	100	None	2	W	Big Brown Bat	1875-110820-T01-01	47	F	523256	4769998	30	340	F	15	Back laceration	Bare soil	1
21-Aug-20	T04	10:30	10:50	N	3	25	30	None	1	W	Silver-haired Bat	1875-210820-T04-01	43	F	525584	4768590	50	105	F	16	Broken right wing	Bare soil	1
21-Aug-20	T06	11:45	12:05	N	3	25	30	None	1	W	Silver-haired Bat	1875-210820-T06-01	43	F	526686	4770345	30	100	F	16	Laceration	Bare soil	1
25-Aug-20	T01	8:15	8:35	N	4	25	100	None	2	NW	Big Brown Bat	1875-250820-T01-01	46	U	523300	4770023	44	35	F	15	Abdominal laceration (only head, right wing, and partial abdomen remaining)	Bare soil	1
28-Aug-20	T01	12:20	12:40	N	3	20	100	Rain	1	E	Silver-haired Bat	1875-280820-T01-01	43	F	523276	4770001	22	0	F	18	Broken right wing	Bare soil	1
28-Aug-20	T01	12:20	12:40	N	3	20	100	Rain	1	E	Silver-haired Bat	1875-280820-T01-02	40	M	523278	4769993	19	350	F	18	Back laceration	Bare soil	1
28-Aug-20	T01	12:20	12:40	N	3	20	100	Rain	1	E	Big Brown Bat	1875-280820-T01-03	43	M	523303	4769980	21	85	E	36	Laceration	Bare soil	1
28-Aug-20	T02	13:15	13:35	N	3	20	100	Rain	1	E	Silver-haired Bat	1875-280820-T02-01	42	F	523784	4770241	26	350	F	16	None apparent	Bare soil	1
28-Aug-20	T04	14:30	14:50	N	3	20	100	Rain	1	E	Silver-haired Bat	1875-280820-T04-01	43	M	525523	4768641	38	350	F	18	Abdominal laceration	Bare soil	1
28-Aug-20	T05	15:30	15:50	N	3	20	100	Rain	1	E	Silver-haired Bat	1875-280820-T05-01	40	M	525933	4768560	24	30	E	36	Abdominal laceration	Gravel	1
28-Aug-20	T05	15:30	15:50	N	3	20	100	Rain	1	E	Hoary Bat	1875-280820-T05-02	54	M	525937	4768544	22	75	E	36	Abdominal laceration	Bare soil	1
1-Sep-20	T10	12:10	12:30	N	4	25	100	None	1	S	Silver-haired Bat	1875-010920-T10-01	40	F	528124	4769234	33	305	F	12	None apparent	Bare soil	1
8-Sep-20	T02	9:50	10:10	N	4	15	100	Rain	3	NE	Silver-haired Bat	1875-080920-T02-01	44	F	523764	4770222	31	294	F	12	None apparent	Bare soil	1
15-Sep-20	T09	11:20	11:40	N	4	5	0	None	1	SE	Hoary Bat	1875-150920-T09-01	59	F	527457	4768895	46	160	F	16	None apparent	Bare soil	1
29-Sep-20	T03	9:24	9:44	N	7	13	75	None	4	W	Silver-haired Bat	1875-290920-T03-01	42	M	523867	4769925	29	345	E	36	None apparent	Bare soil	1
29-Sep-20	T05	10:55	11:15	N	4	13	75	None	4	W	Silver-haired Bat	1875-290920-T05-01	41	M	525906	4768570	32	345	E	36	None apparent	Bare soil	1
17-Oct-20	T04	10:40	11:00	N	4	10	0	None	2	W	Silver-haired Bat	1875-171020-T04-01	41	U	525509	4768641	42	310	M	84	Laceration	Bare soil	1






Appendix V
Locations of Bat Mortalities



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Legend

-  Turbine
-  Big Brown Bat
-  Search Radius (50m)
-  Silver-haired Bat
-  Access Road

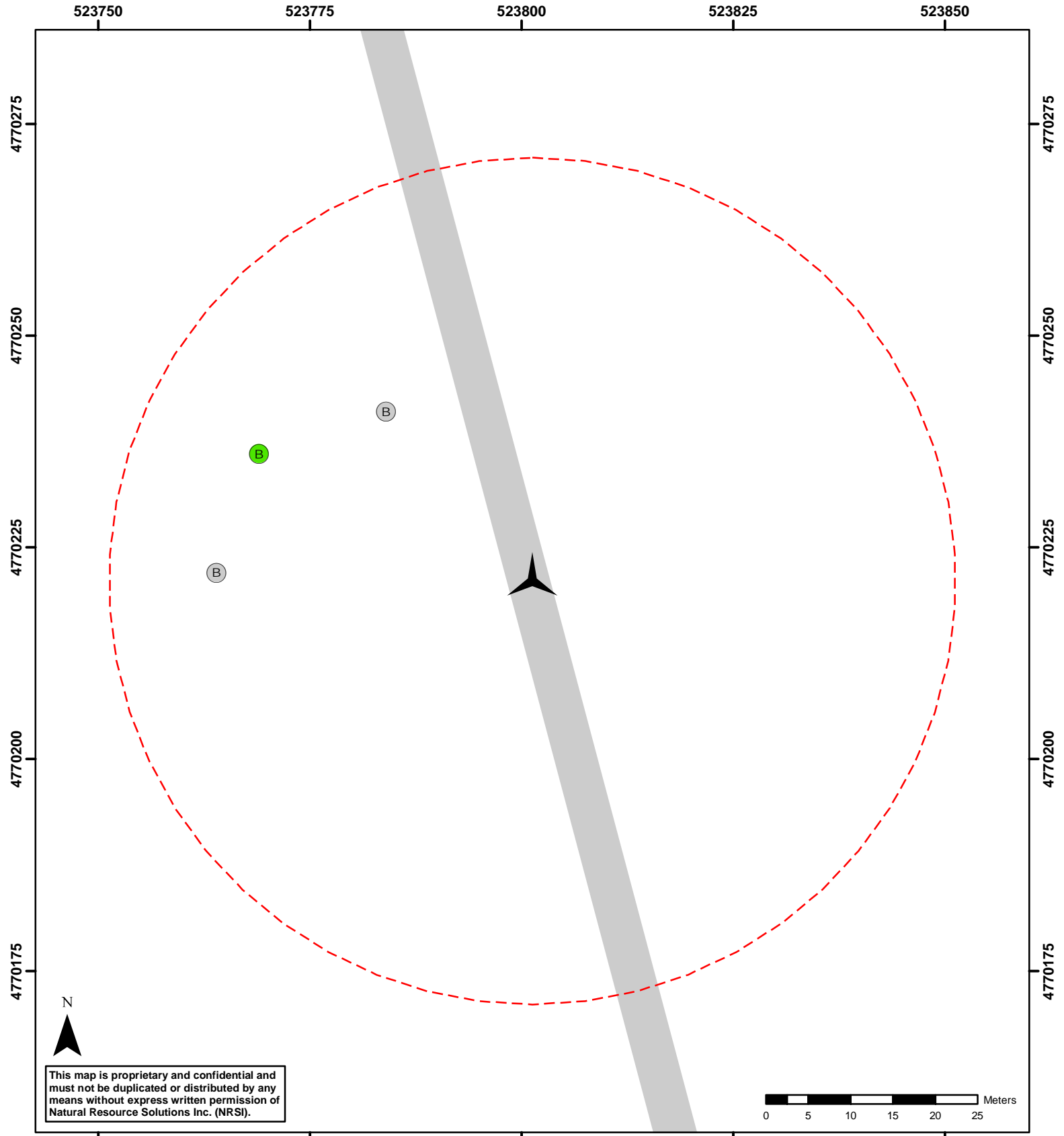
Appendix V

Gunn's Hill WF

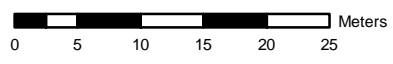
Turbine 01 Mortalities 2020

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: December 8, 2020 Project: 1875D
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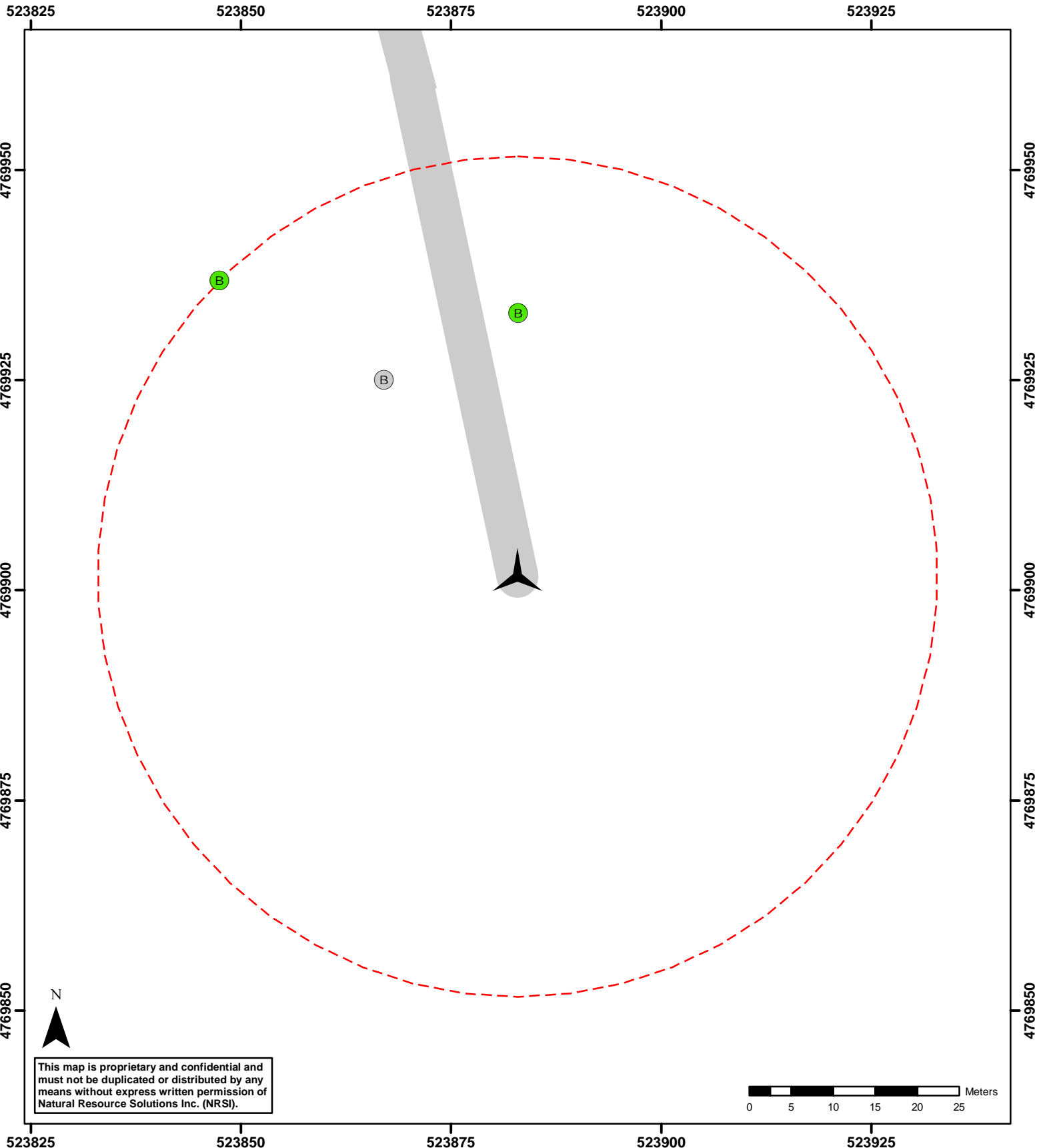
- Legend**
- Turbine
 - Search Radius (50m)
 - Access Road
 - Hoary Bat
 - Silver-haired Bat

Appendix V
Gunn's Hill WF
Turbine 02 Mortalities 2020

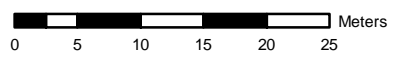
NAD83 - UTM Zone 17
 Scale: 1:600 (8.5x11")

Date: December 8, 2020
 Project: 1875D










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Legend


-  Turbine
-  Search Radius (50m)
-  Access Road
-  Hoary Bat
-  Silver-haired Bat

Appendix V

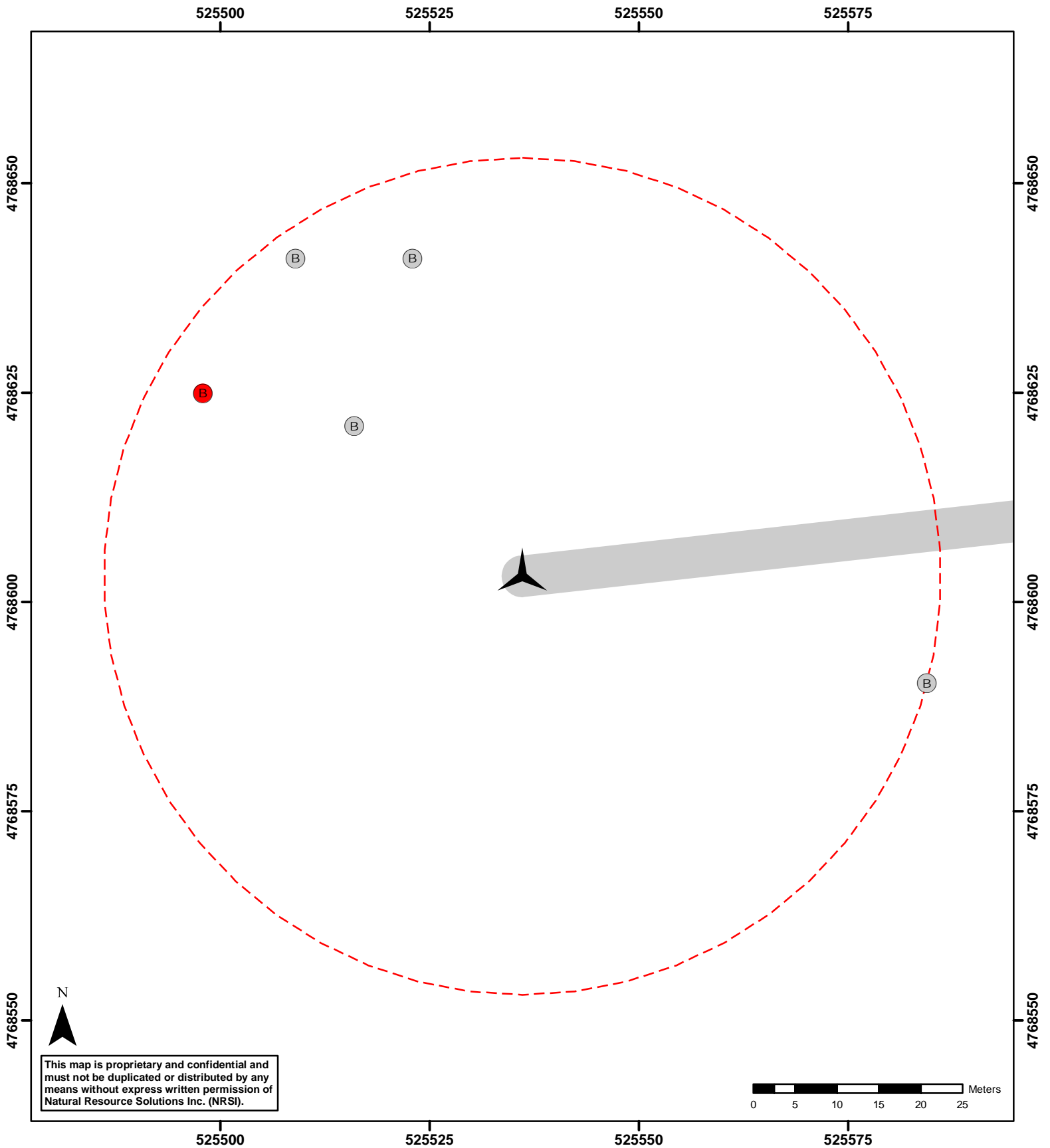
Gunn's Hill WF

Turbine 03 Mortalities 2020

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: December 8, 2020 Project: 1875D
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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists



Legend Turbine Search Radius (50m) Access Road		Eastern Red Bat Silver-haired Bat	
Appendix V Gunn's Hill WF Turbine 04 Mortalities 2020		NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: December 8, 2020 Project: 1875D
NATURAL RESOURCE SOLUTIONS INC. <small>Aquatic, Terrestrial and Wetland Biologists</small>			

525875

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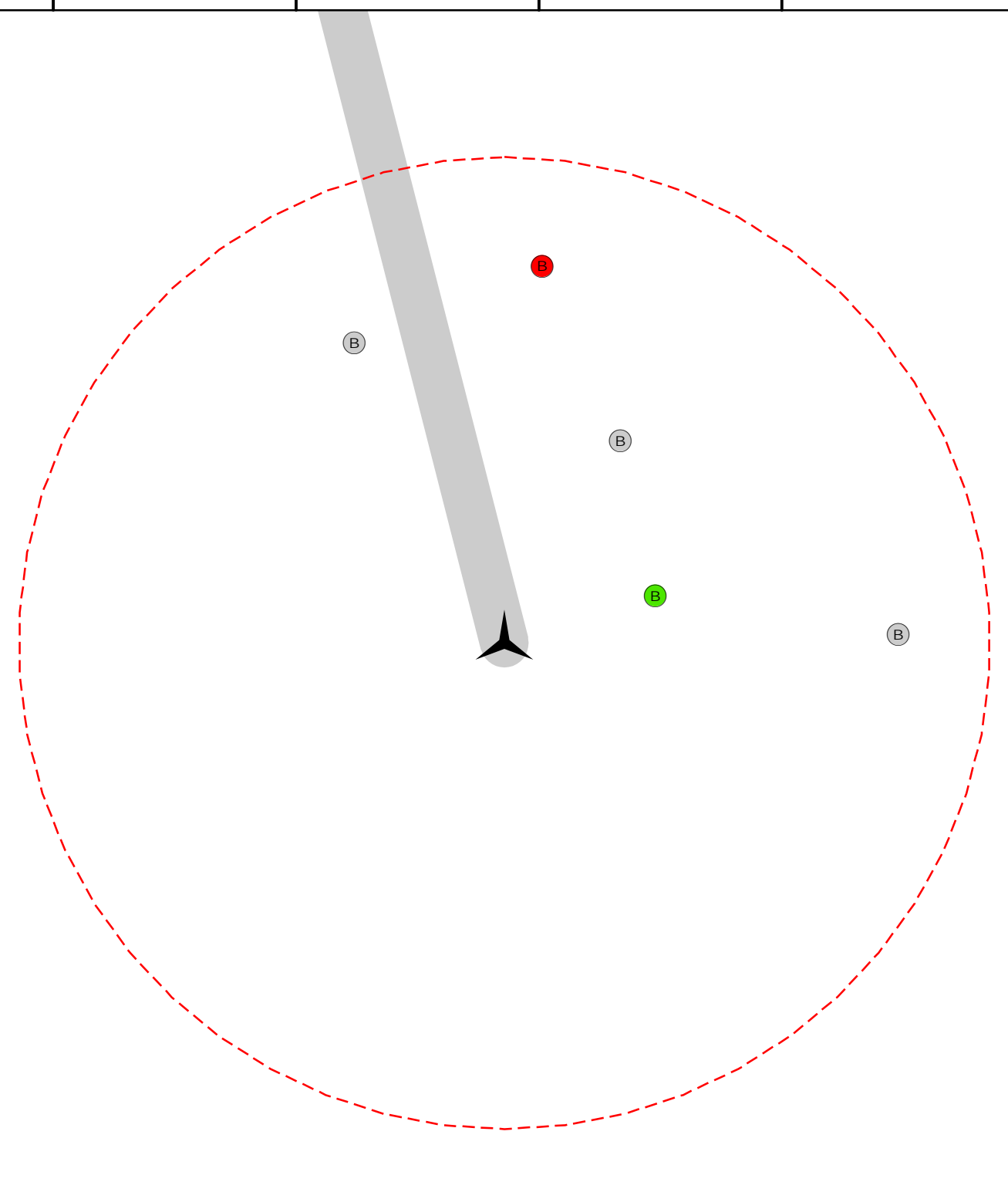
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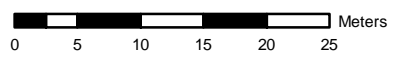
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Legend

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

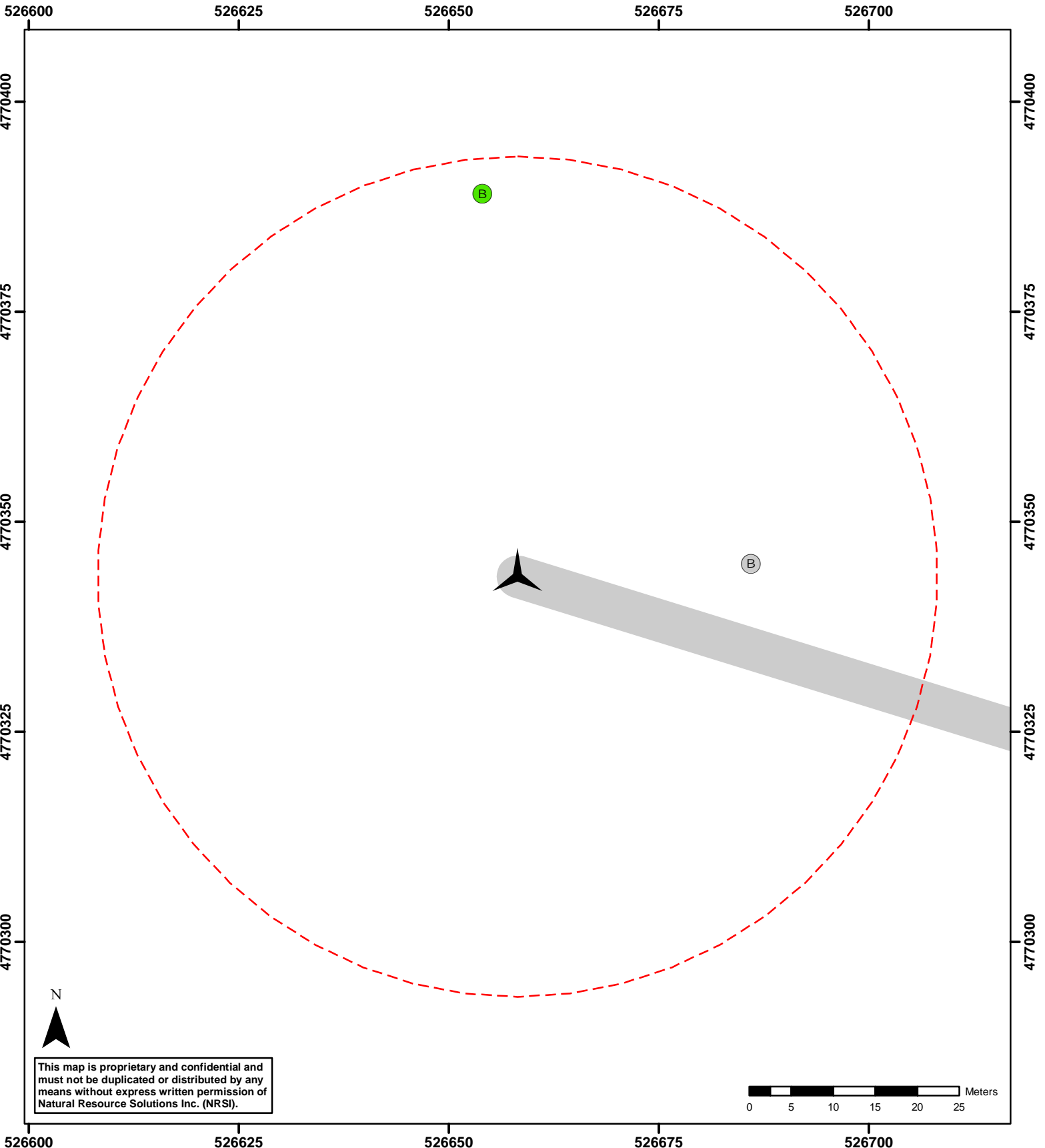
Appendix V

Gunn's Hill WF
Turbine 05 Mortalities 2020

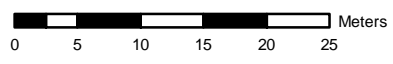
NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: December 8, 2020
Project: 1875D










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Legend


-  Turbine
-  Search Radius (50m)
-  Access Road
-  Hoary Bat
-  Silver-haired Bat

Appendix V

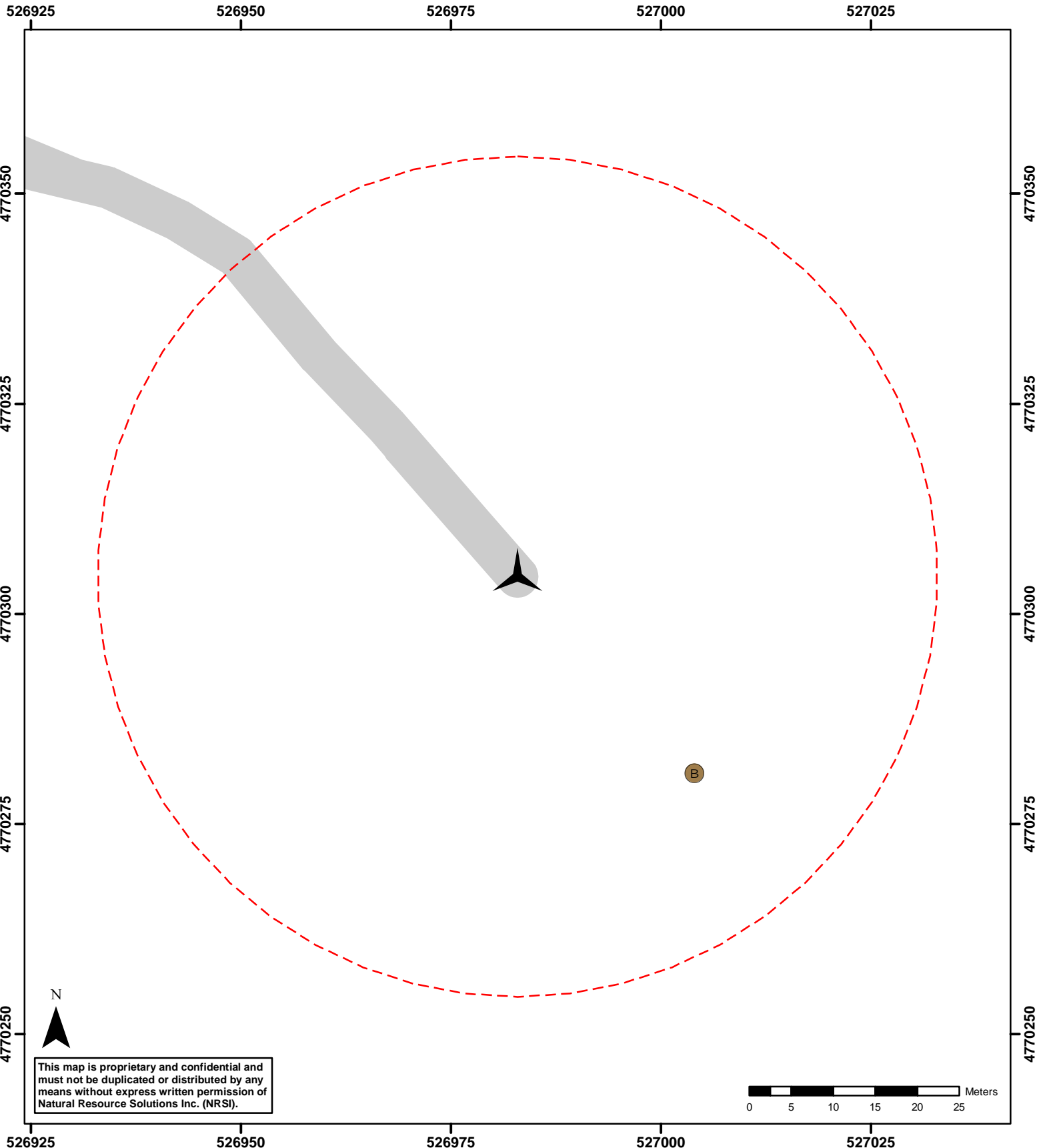
Gunn's Hill WF

Turbine 06 Mortalities 2020

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: December 8, 2020 Project: 1875D
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Legend


-  Turbine
-  Big Brown Bat
-  Search Radius (50m)
-  Access Road

Appendix V

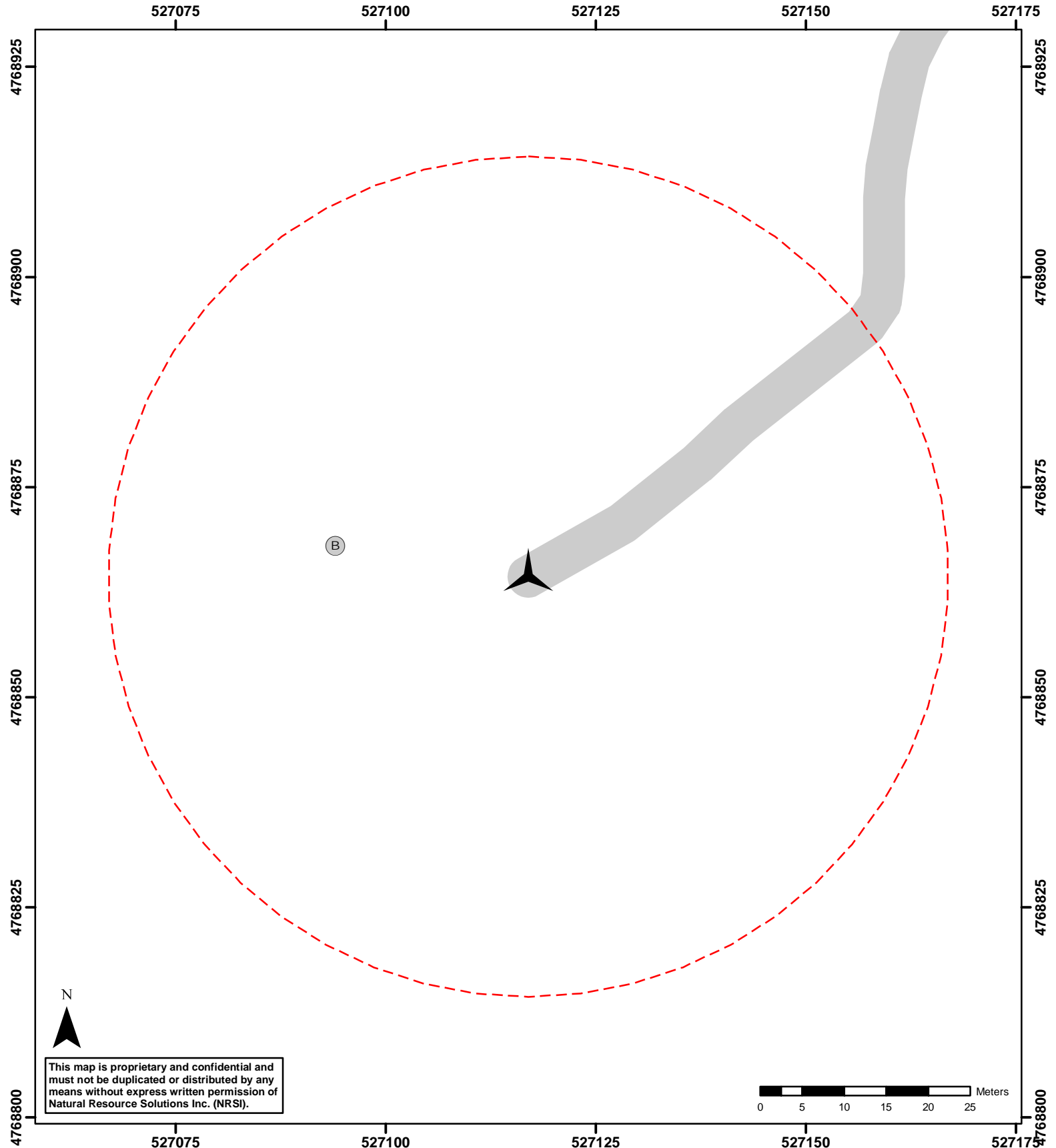
Gunn's Hill WF

Turbine 07 Mortalities 2020

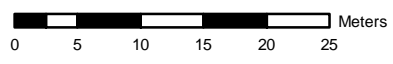
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Aquatic, Terrestrial and Wetland Biologists



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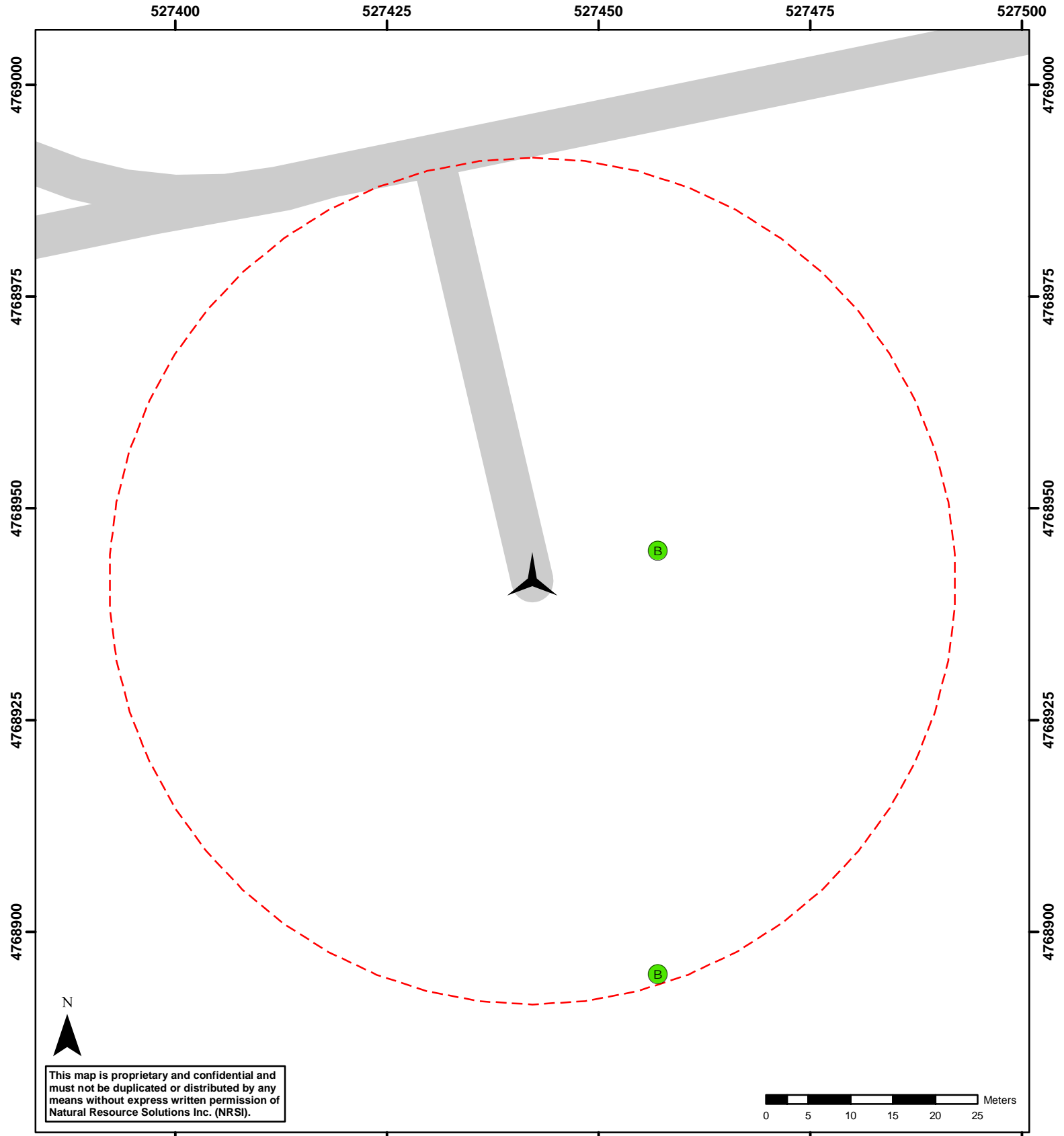
- Legend**
-  Turbine
 -  Search Radius (50m)
 -  Access Road
 -  Silver-haired Bat

Appendix V
Gunn's Hill WF
Turbine 08 Mortalities 2020

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






Date: December 8, 2020
 Project: 1875D

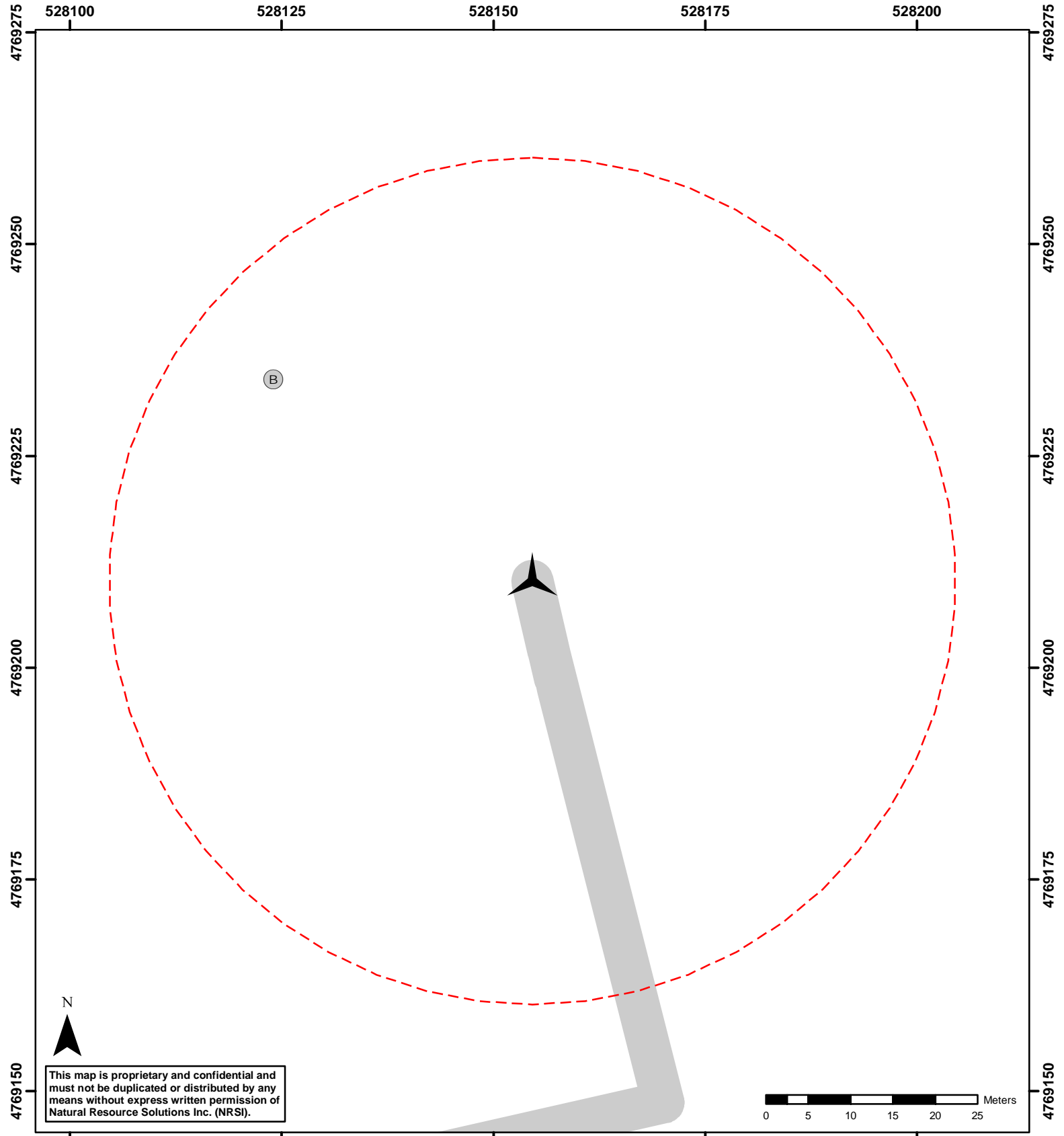




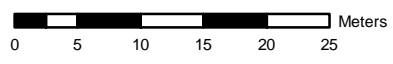
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<p>Legend</p> <ul style="list-style-type: none">  Turbine  Hoary Bat  Search Radius (50m)  Access Road 		<p>Appendix V</p> <p style="text-align: center;">Gunn's Hill WF</p> <p style="text-align: center;">Turbine 09 Mortalities 2020</p>	
<p>NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")</p>		<p>Date: December 8, 2020 Project: 1875D</p>	
 <p>NATURAL RESOURCE SOLUTIONS INC. Aquatic, Terrestrial and Wetland Biologists</p>			



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Legend

-  Turbine
-  Silver-haired Bat
-  Search Radius (50m)
-  Access Road

Appendix V

Gunn's Hill WF
Turbine 10 Mortalities 2020

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

Date: December 8, 2020
 Project: 1875D



Appendix VI
Visibility Class Mapping

Visibility Class Map

Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T01 Degree of Slope 0 degrees Slope Orientation N/A (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 5673
 Facing East: 5674
 Facing South: 5675
 Facing West: 5676
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 12/05/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m

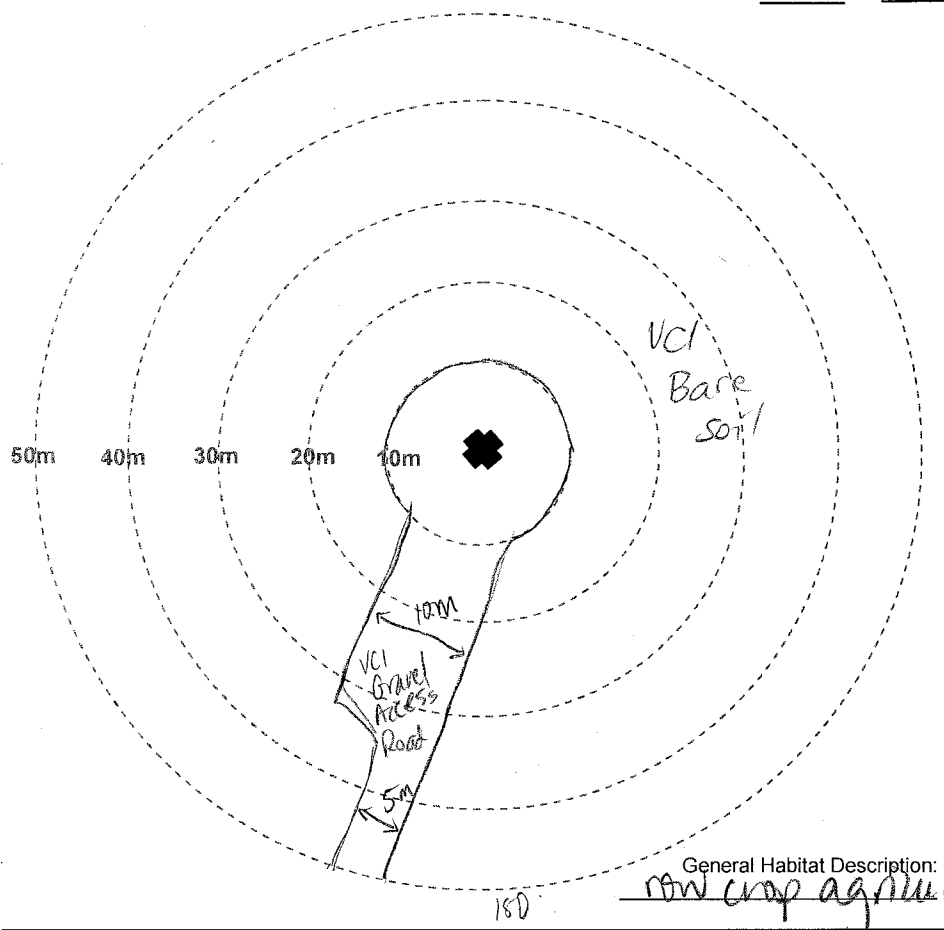
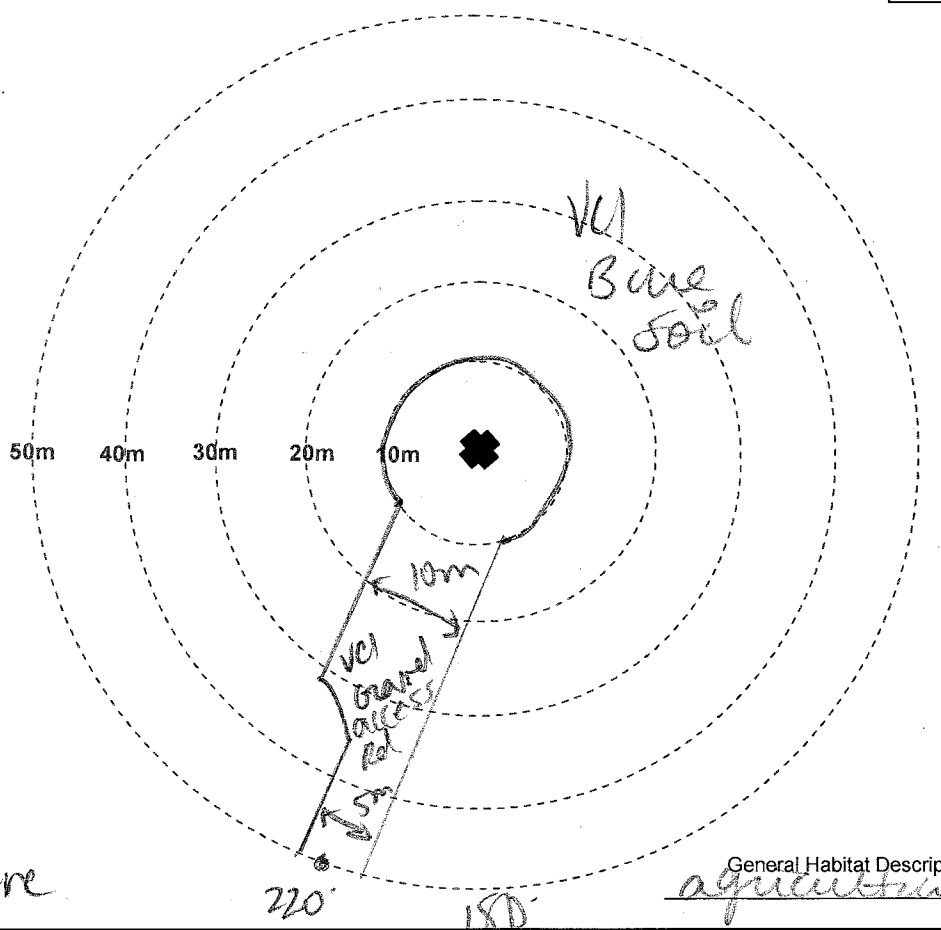


Photo Numbers (from turbine base)
 Facing North: 5842
 Facing East: 5843
 Facing South: 5844
 Facing West: 5845
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/06/20
 Observer: MES
 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

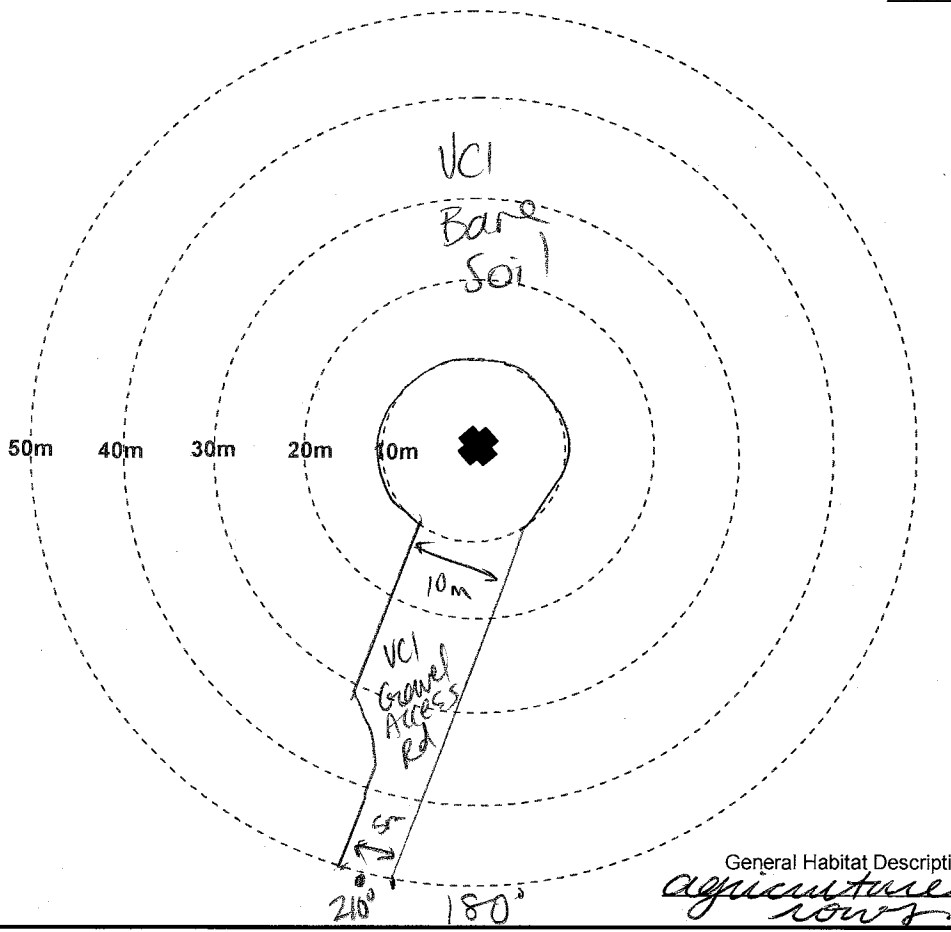
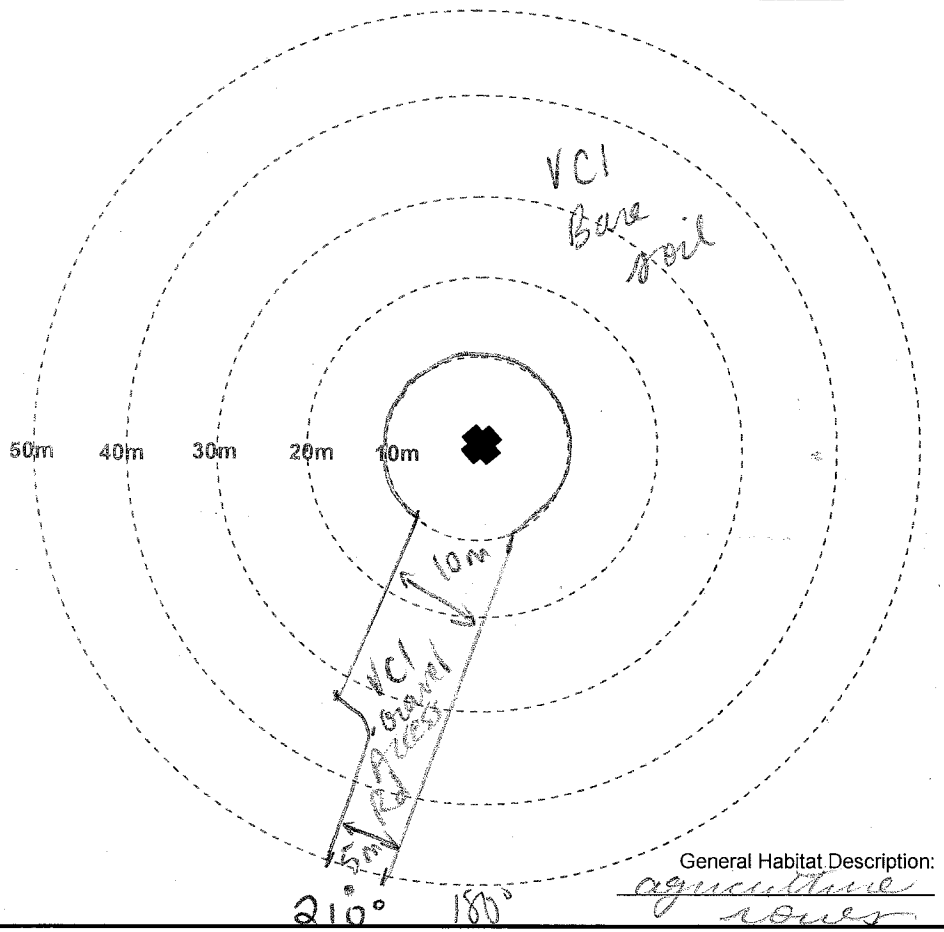
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T01 Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 6033
 Facing East: 6034
 Facing South: 6035
 Facing West: 6036
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/07/20 ↑
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 6169
 Facing East: 6170
 Facing South: 6171
 Facing West: 6172
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/08/20 ↑
 Observer: MES
 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: Gunn's Hill WF Project #: 187SD Turbine #: T01

Photo Numbers (from turbine base)
 Facing North: 6391
 Facing East: 6392
 Facing South: 6393
 Facing West: 6394
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 01/09/20 ↑

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m ↑

N

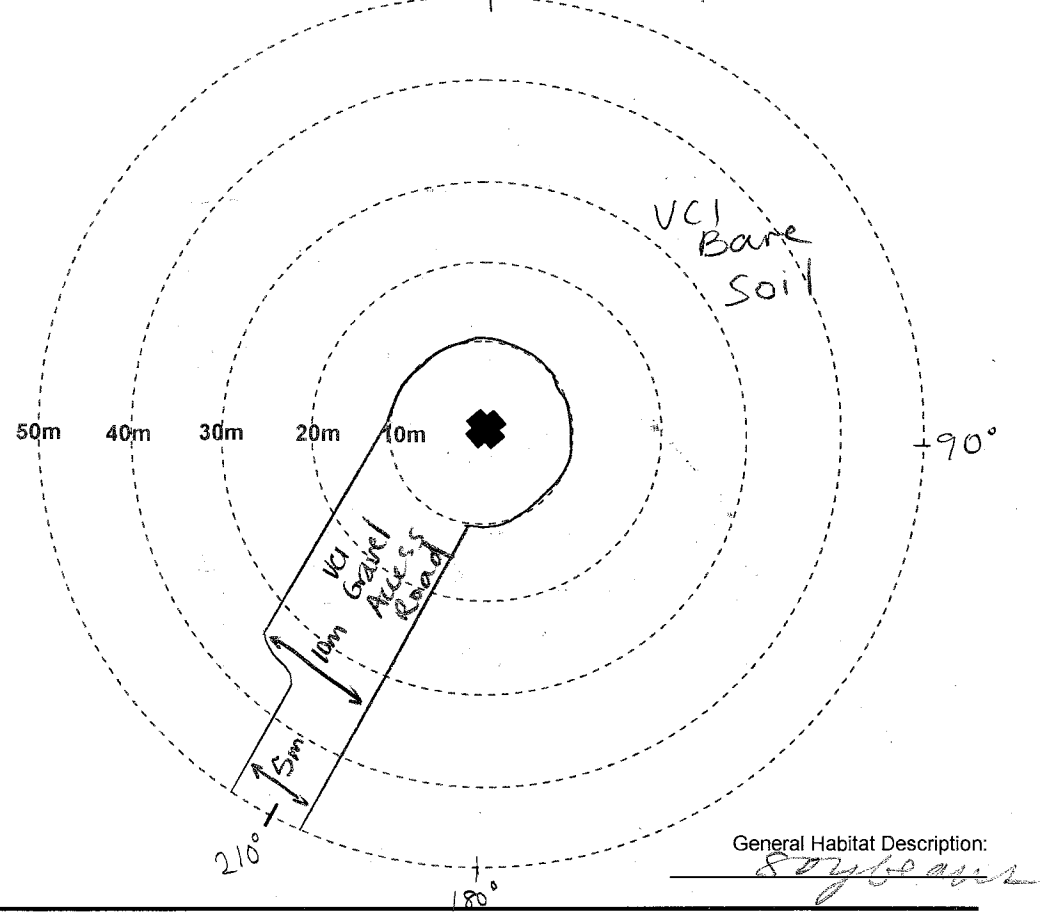
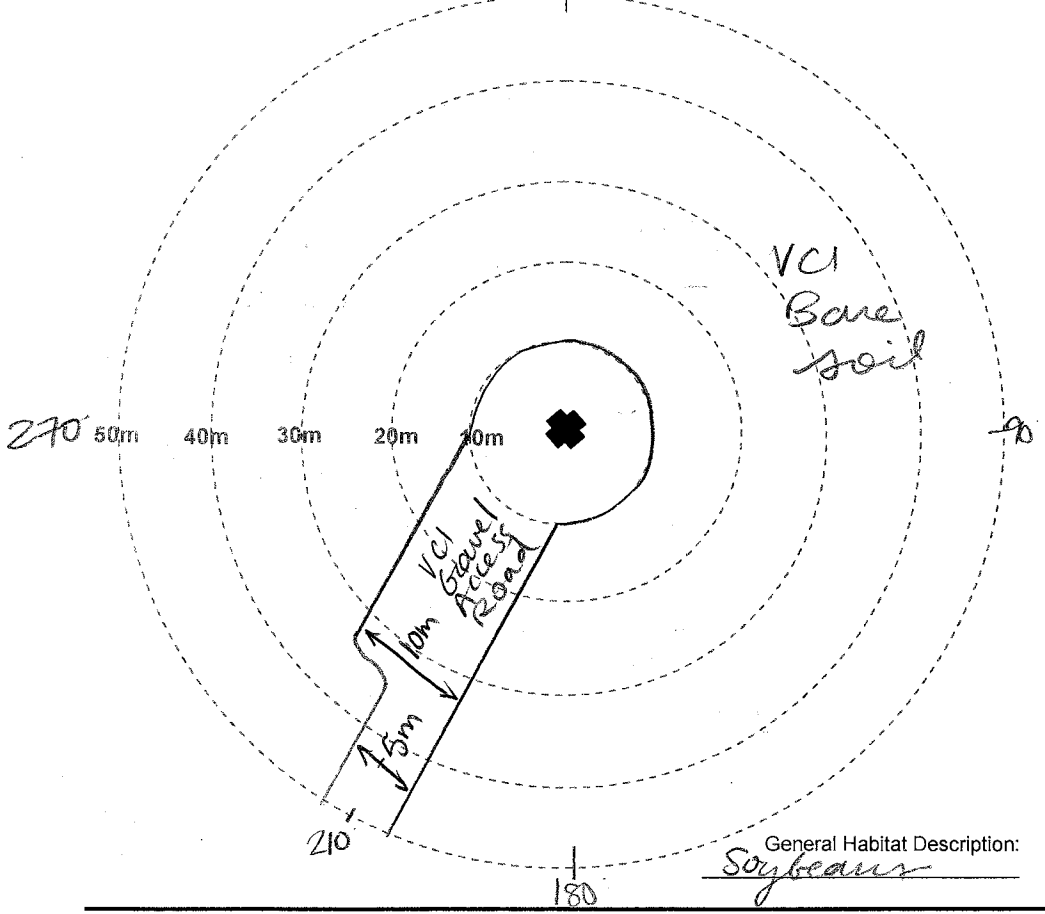
Photo Numbers (from turbine base)
 Facing North: 6569
 Facing East: 6570
 Facing South: 6571
 Facing West: 6572
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/10/20 ↑

Observer: MES

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

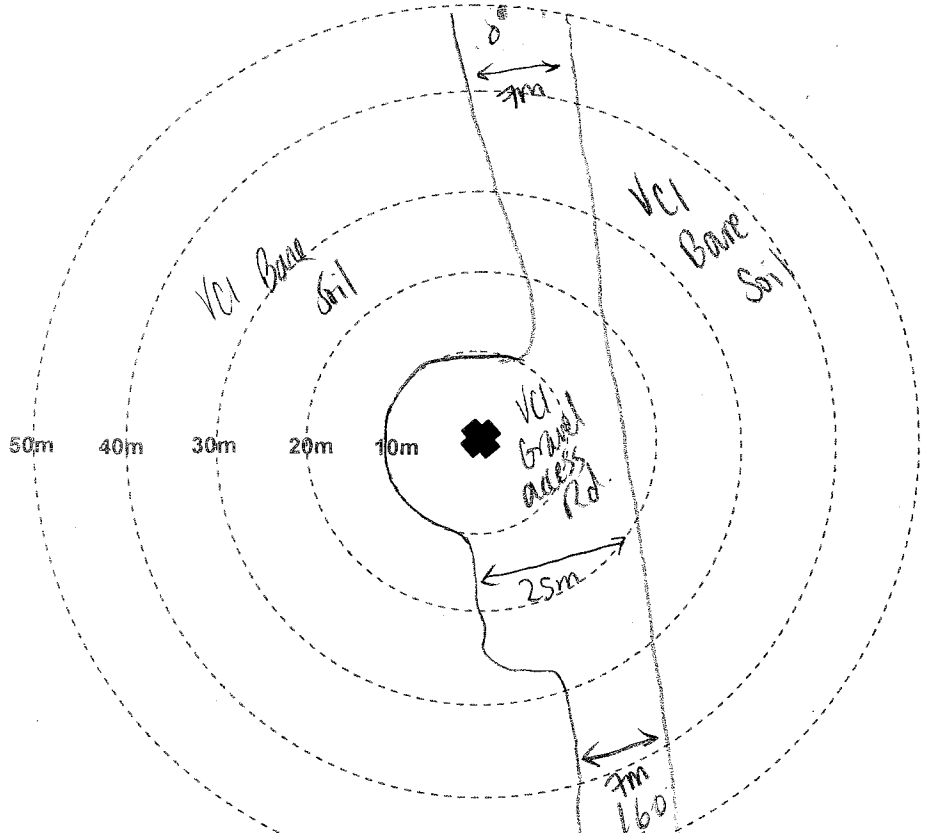
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T02 Degree of Slope 0 Slope Orientation N/A

Photo Numbers (from turbine base)
 Facing North: 5678
 Facing East: 5679
 Facing South: 5680
 Facing West: 5681
 (sketch habitat and visibility classes)

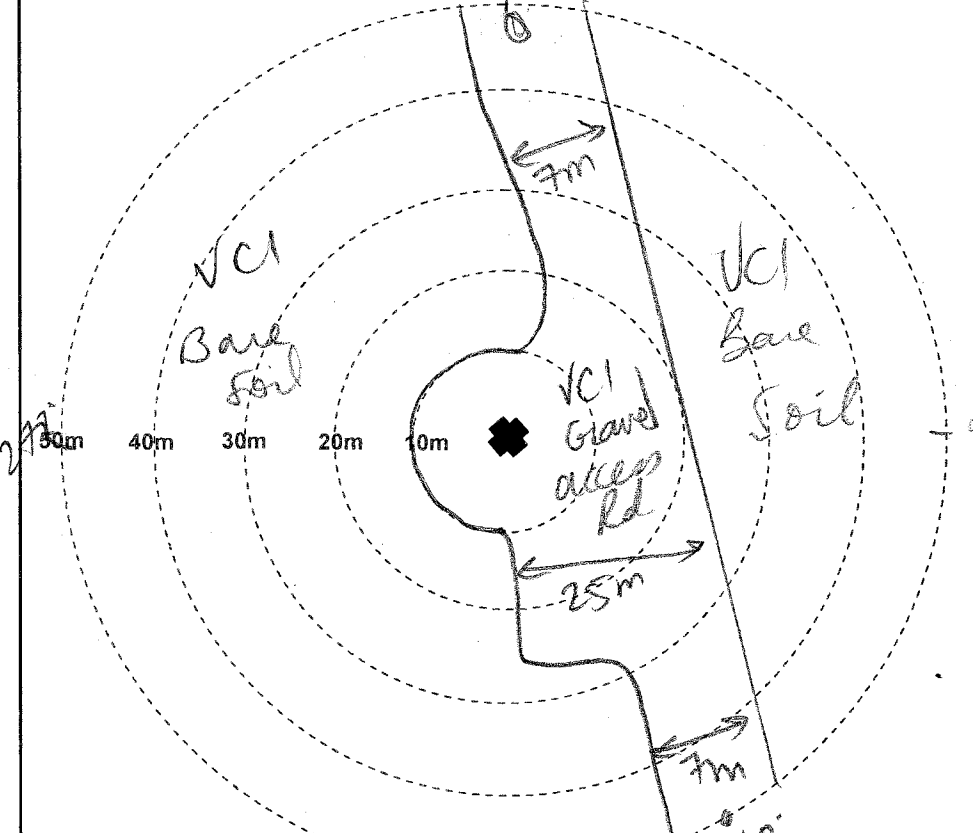
Date (DD/MM/YY): 12/05/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 5846
 Facing East: 5847
 Facing South: 5848
 Facing West: 5849
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/06/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**



General Habitat Description:
low crop agriculture



General Habitat Description:
agriculture

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

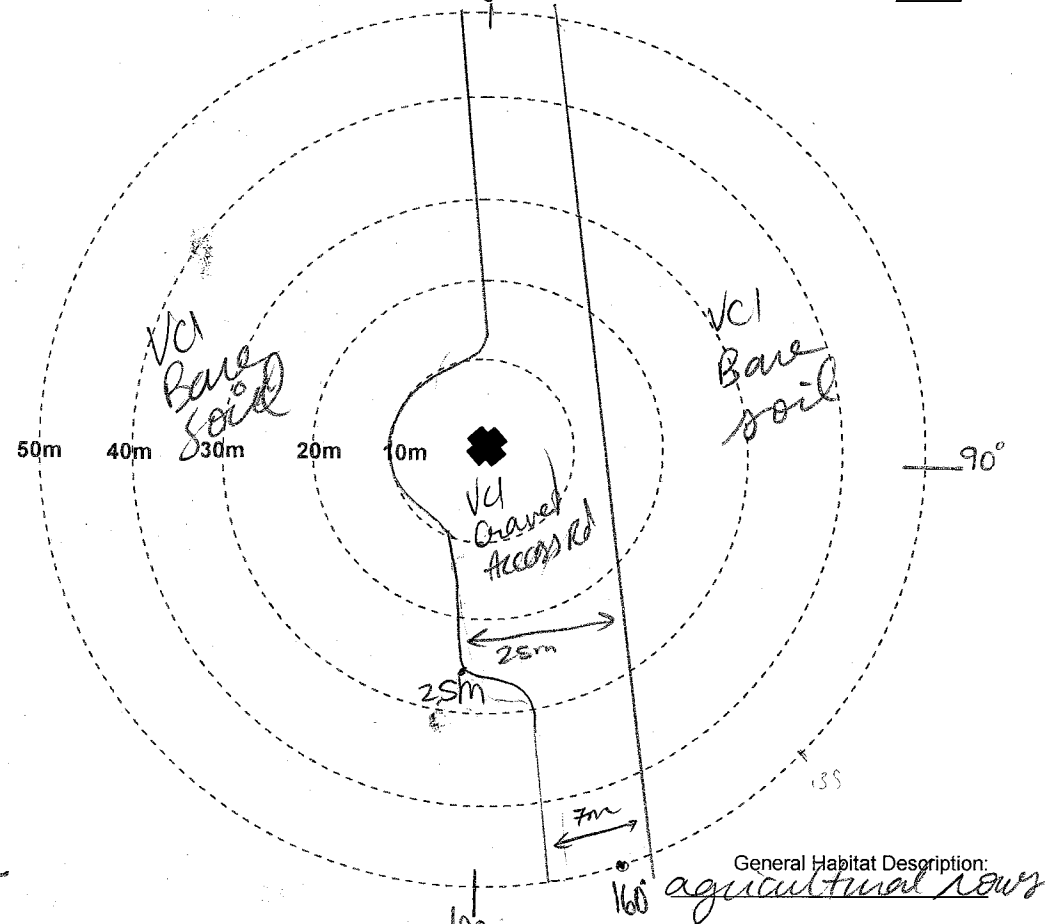
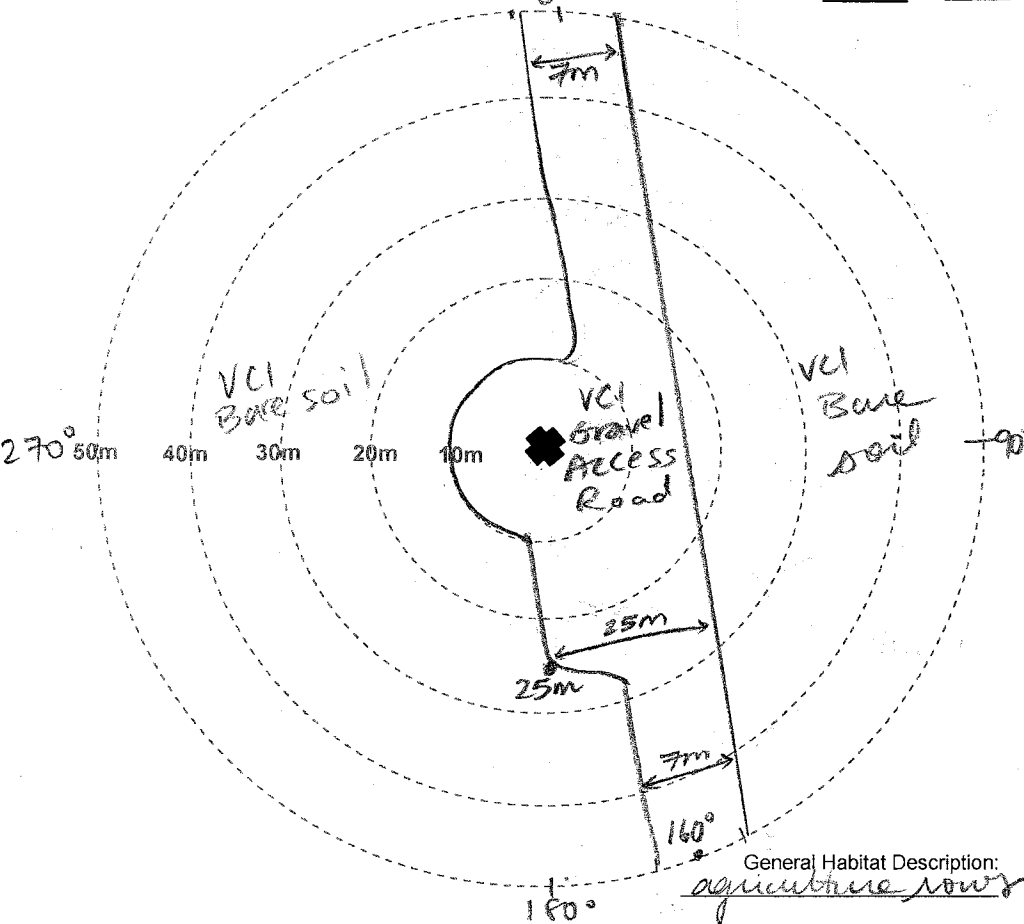
Project Name: Gunn's Hill WF Project #: 1845D Turbine #: T02 Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 6037
 Facing East: 6038
 Facing South: 6039
 Facing West: 6040
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/09/20 ↑
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m ↑
 N

Photo Numbers (from turbine base)
 Facing North: 6174
 Facing East: 6175
 Facing South: 6176
 Facing West: 6177
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/08/20 ↑
 Observer: MES
 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: Gunn's Hill WF Project #: 1875D Turbine #: TO 2

Photo Numbers (from turbine base)
 Facing North: 6396
 Facing East: 6397
 Facing South: 6398
 Facing West: 6399
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 01/09/20

Observer: MES

Monthly/Seasonal Linear Transect Width: 5 m

↑
N

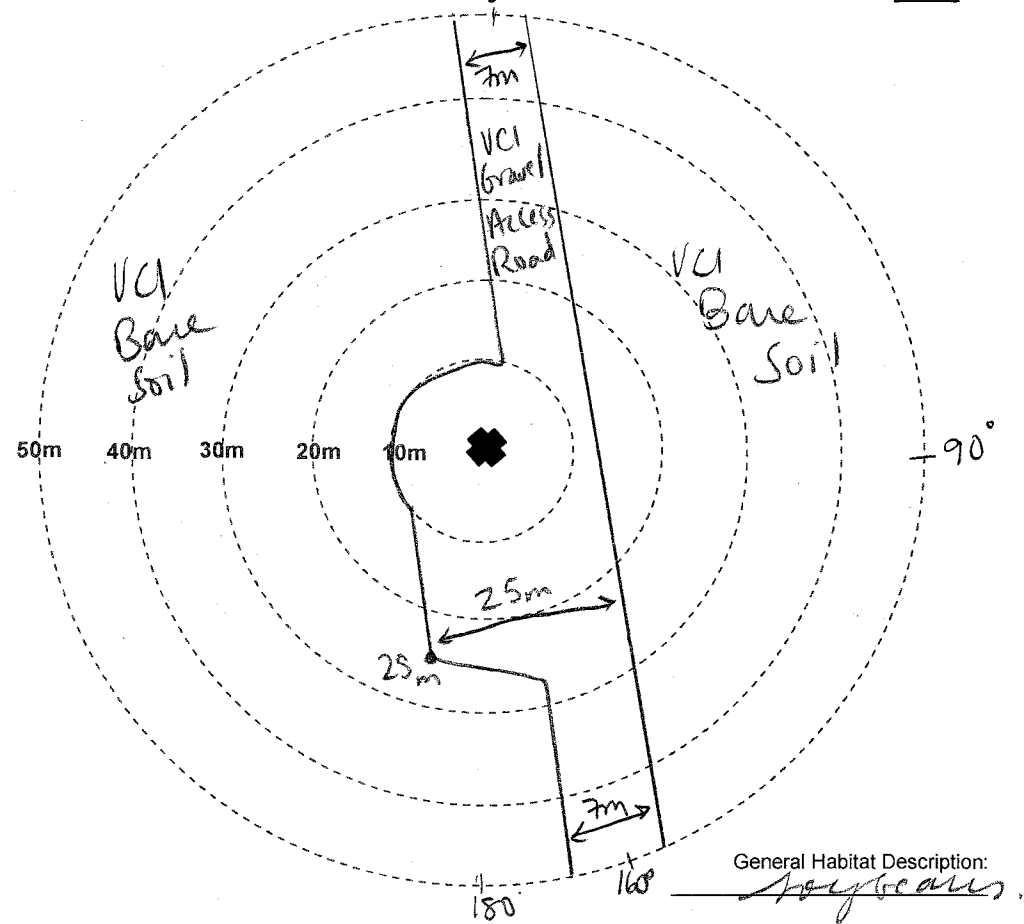
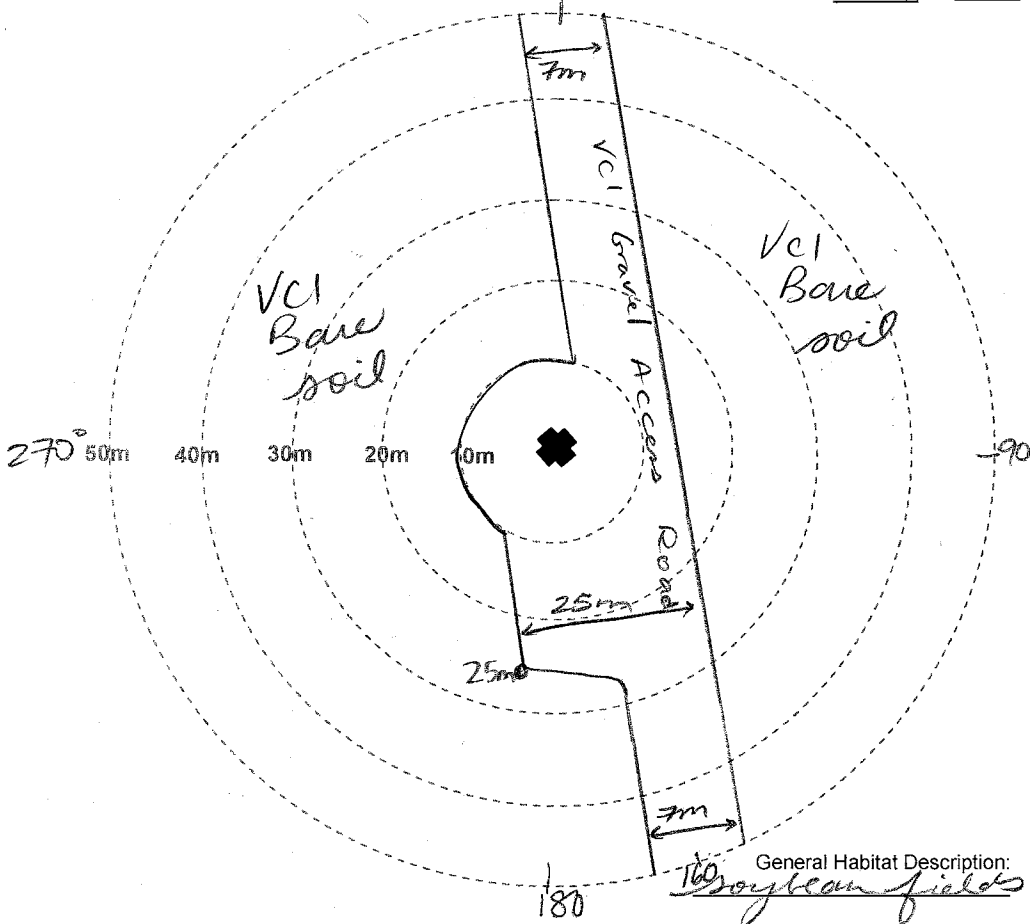
Photo Numbers (from turbine base)
 Facing North: 6573
 Facing East: 6574
 Facing South: 6575
 Facing West: 6576
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/10/20

Observer: MES

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: Gunn's Hill WF Project #: 1875D Turbine #: T03 Degree of Slope 0 Slope Orientation N/A

Photo Numbers (from turbine base)
 Facing North: 5682
 Facing East: 5683
 Facing South: 5684
 Facing West: 5685
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 12/05/20 ↑

Observer: MES

Monthly/Seasonal Linear Transect Width: 5 m ↑

N

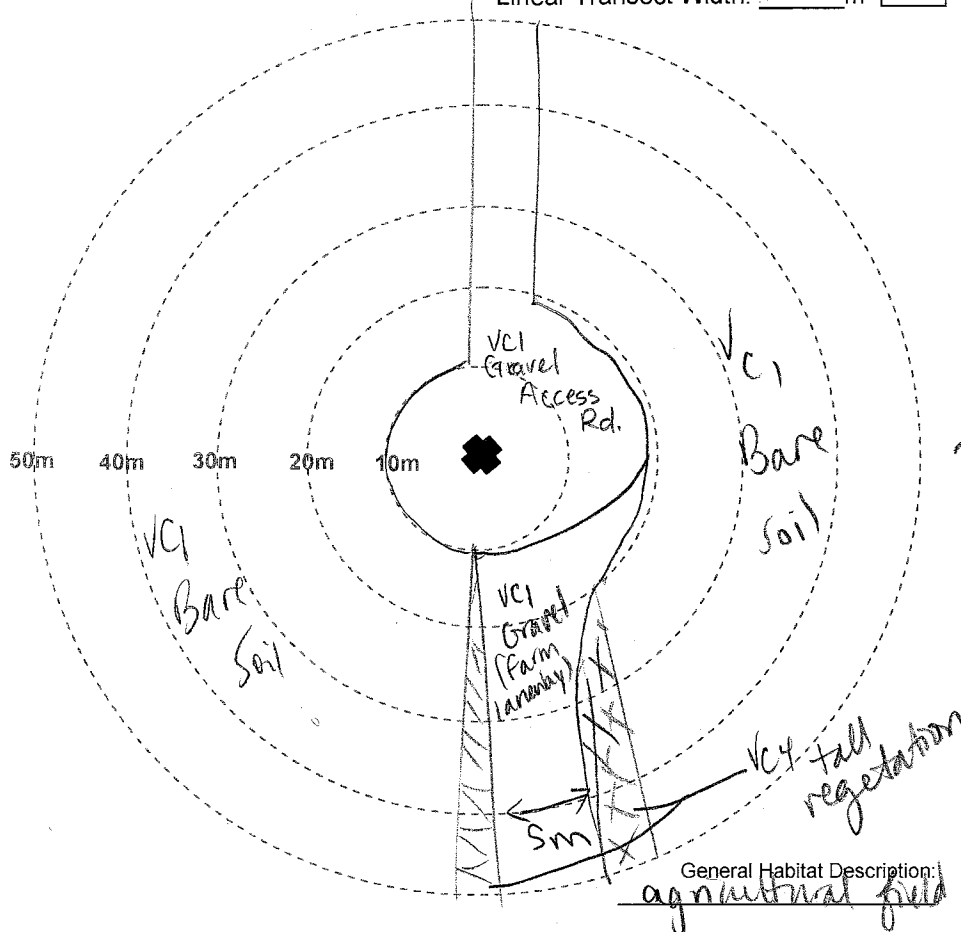


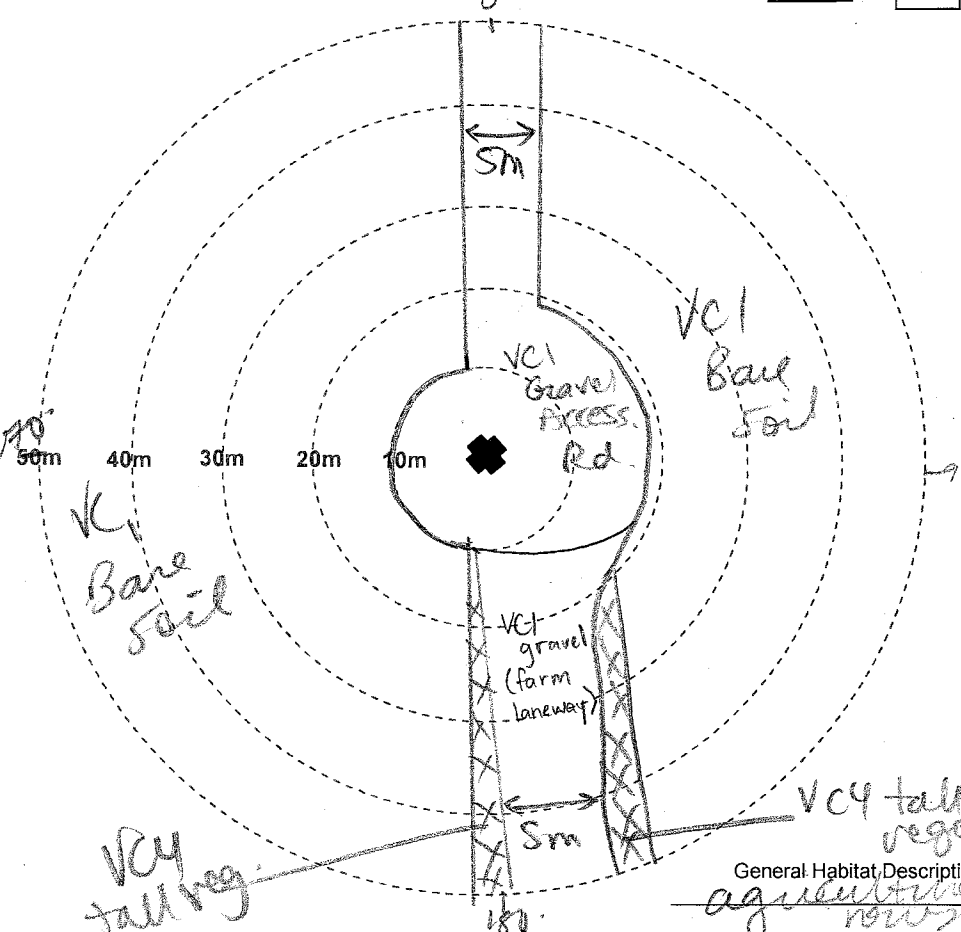
Photo Numbers (from turbine base)
 Facing North: 5851
 Facing East: 5852
 Facing South: 5853
 Facing West: 5854
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/06/20 ↑

Observer: MES

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: Gunn's Hill WF Project #: 1875D Turbine #: T03 Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 6041
 Facing East: 6042
 Facing South: 6043
 Facing West: 6044
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/07/20

Observer: MES

Monthly/Seasonal Linear Transect Width: 10 m

N ↑

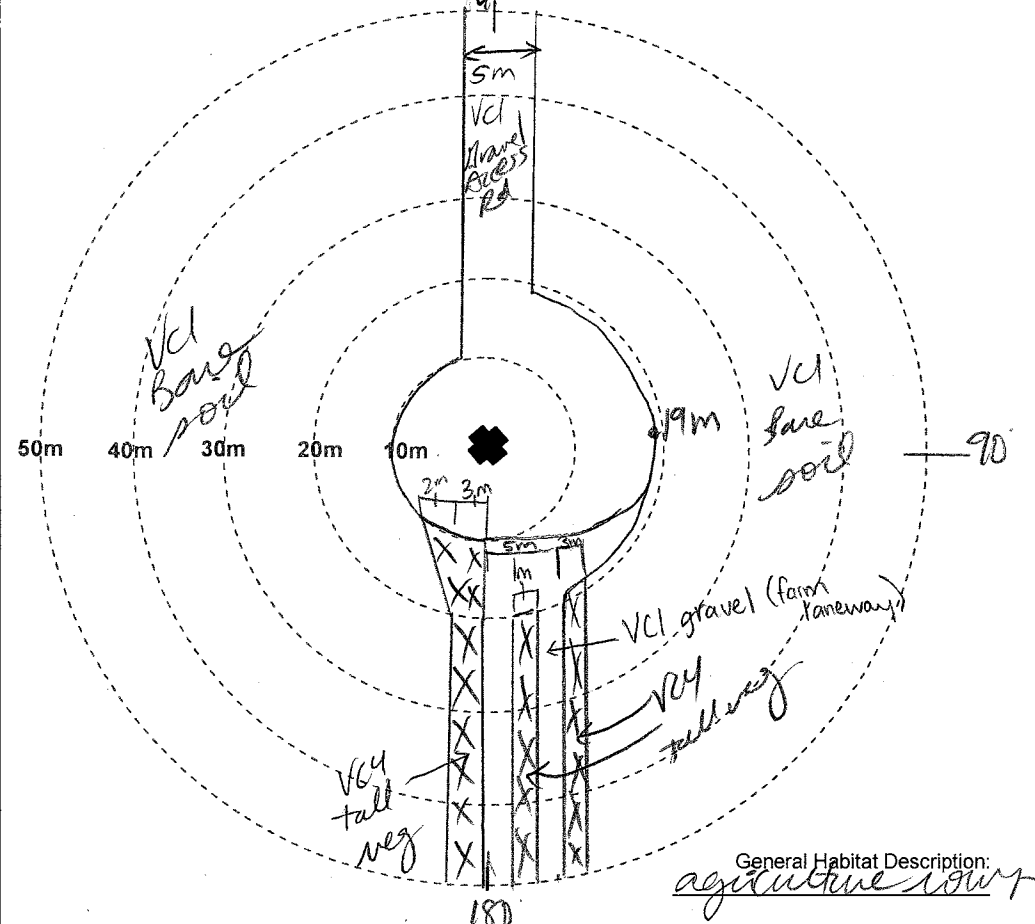
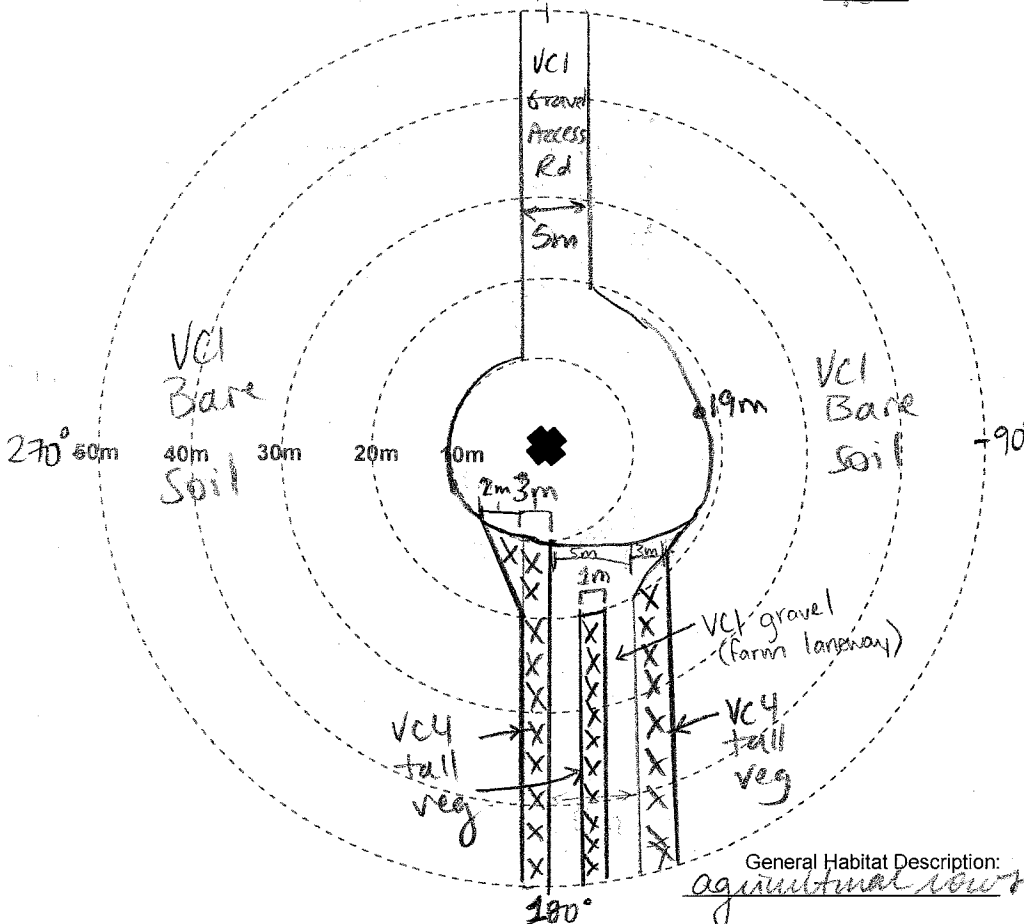
Photo Numbers (from turbine base)
 Facing North: 6181
 Facing East: 6182
 Facing South: 6183
 Facing West: 6184
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/08/20

Observer: MES

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: Gunn's Hill WF Project #: 187SD Turbine #: T03

Photo Numbers (from turbine base)
 Facing North: 6400
 Facing East: 6401
 Facing South: 6402
 Facing West: 6403
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 01/09/20

Observer: MES

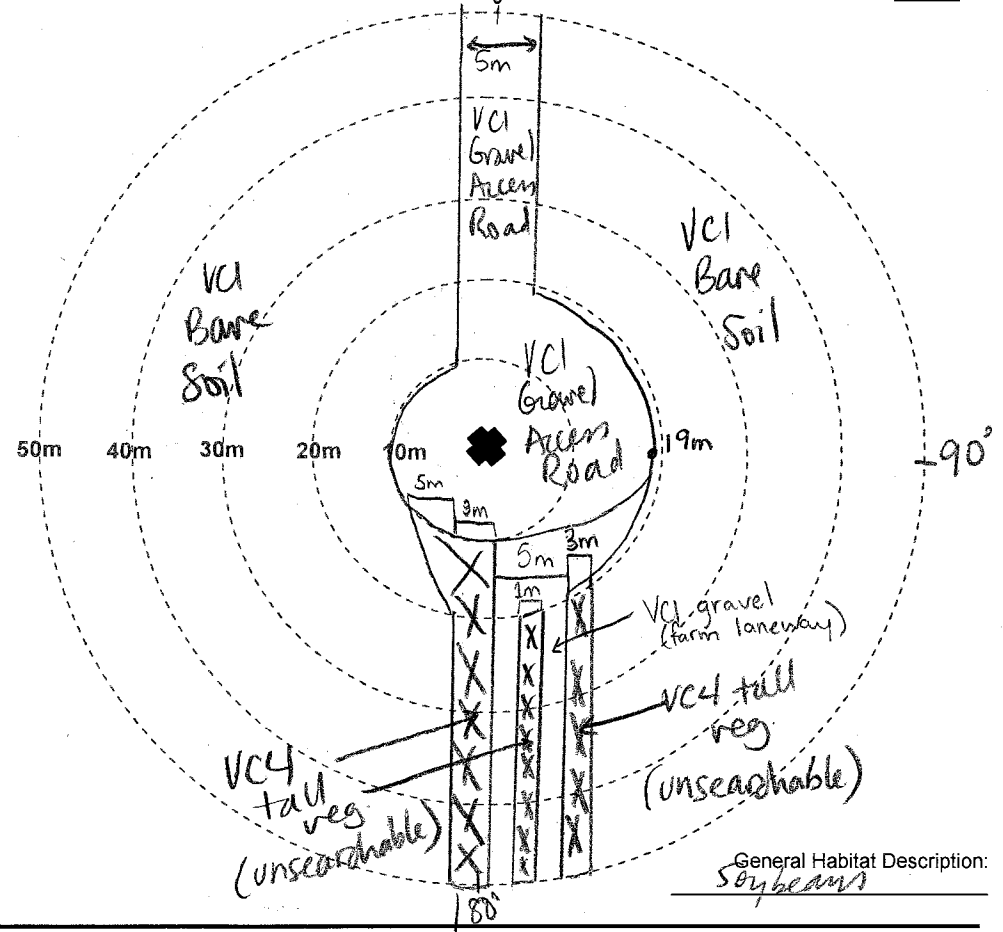
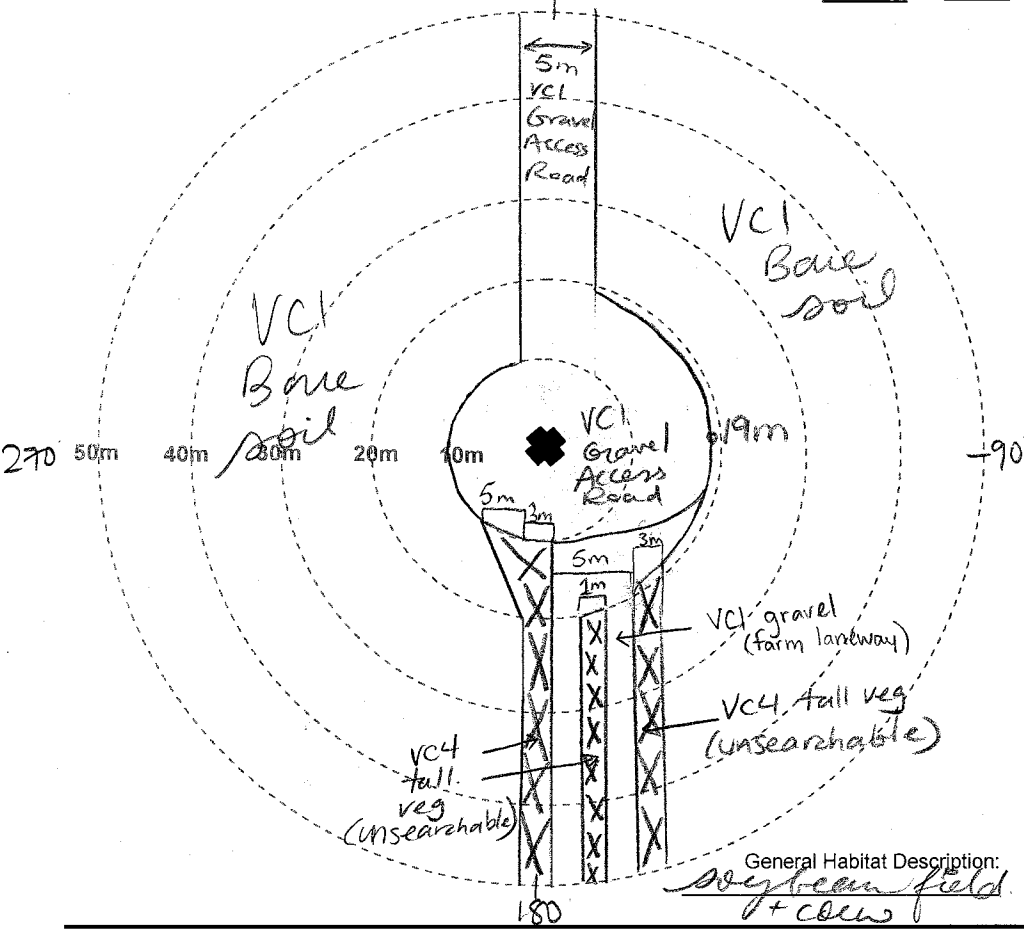
Monthly/Seasonal
 Linear Transect Width: 5m **N**

Photo Numbers (from turbine base)
 Facing North: 6577
 Facing East: 6578
 Facing South: 6579
 Facing West: 6580
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/10/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5m **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

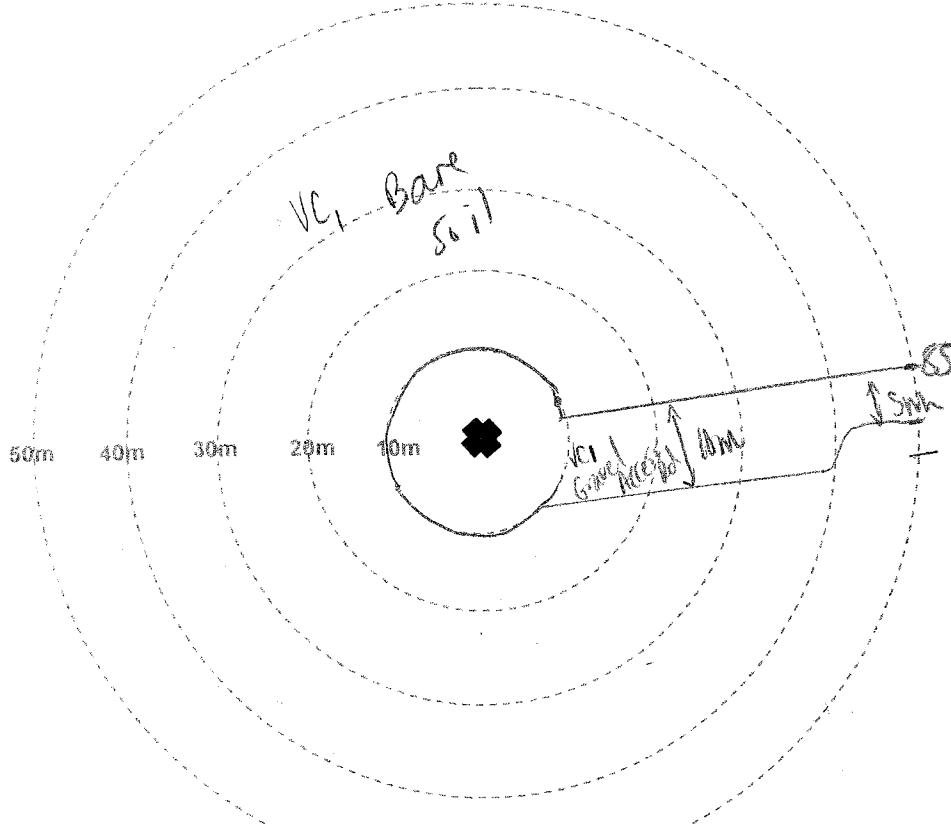
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T04 Degree of Slope 2 degrees Slope Orientation SE (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 5688
 Facing East: 5689
 Facing South: 5690
 Facing West: 5691
 (sketch habitat and visibility classes)

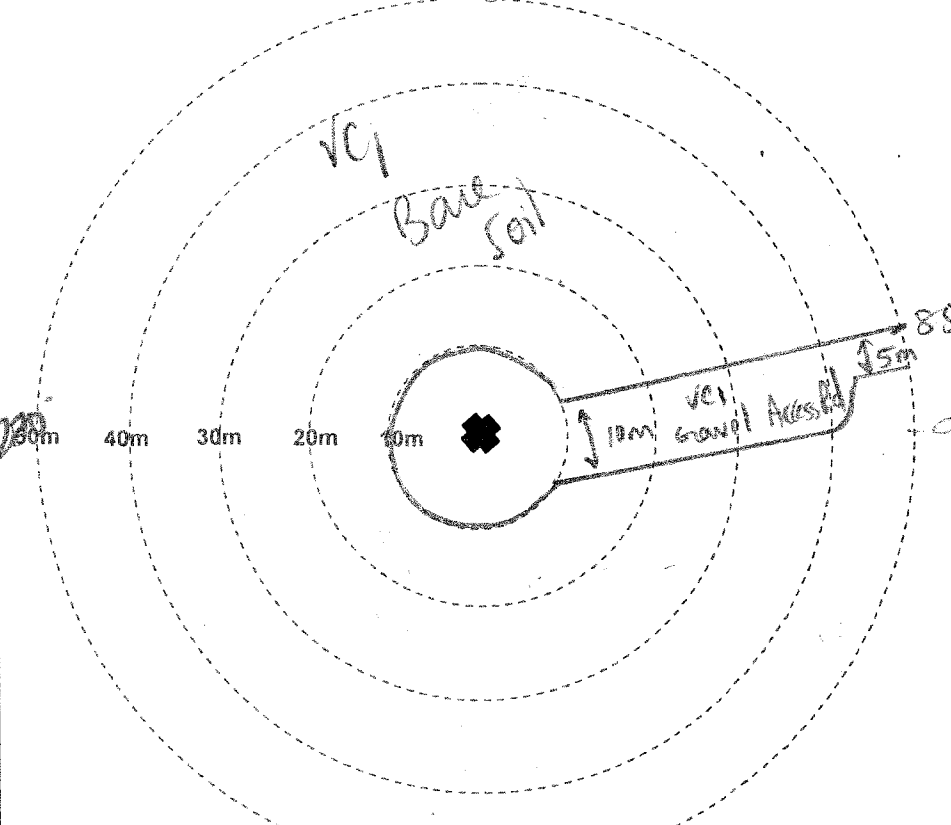
Date (DD/MM/YY): 12/05/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 5862
 Facing East: 5863
 Facing South: 5864
 Facing West: 5865
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/06/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**



General Habitat Description: agricultural field



General Habitat Description: agriculture

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

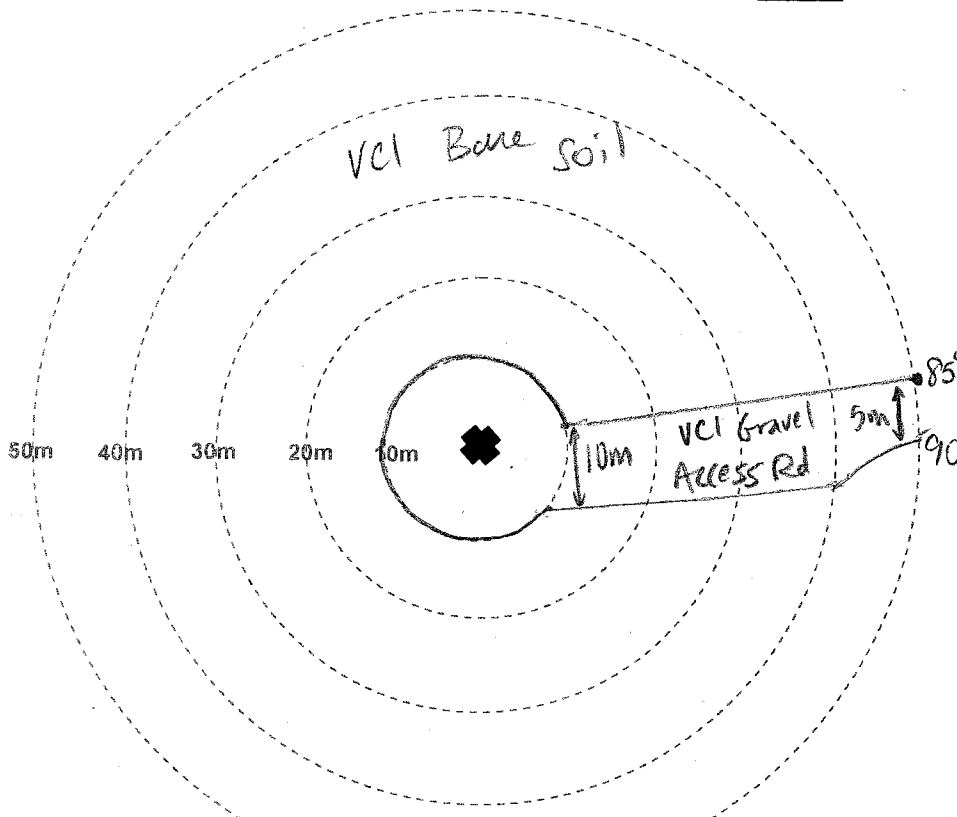
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T04 Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 6045
 Facing East: 6046
 Facing South: 6047
 Facing West: 6048
 (sketch habitat and visibility classes)

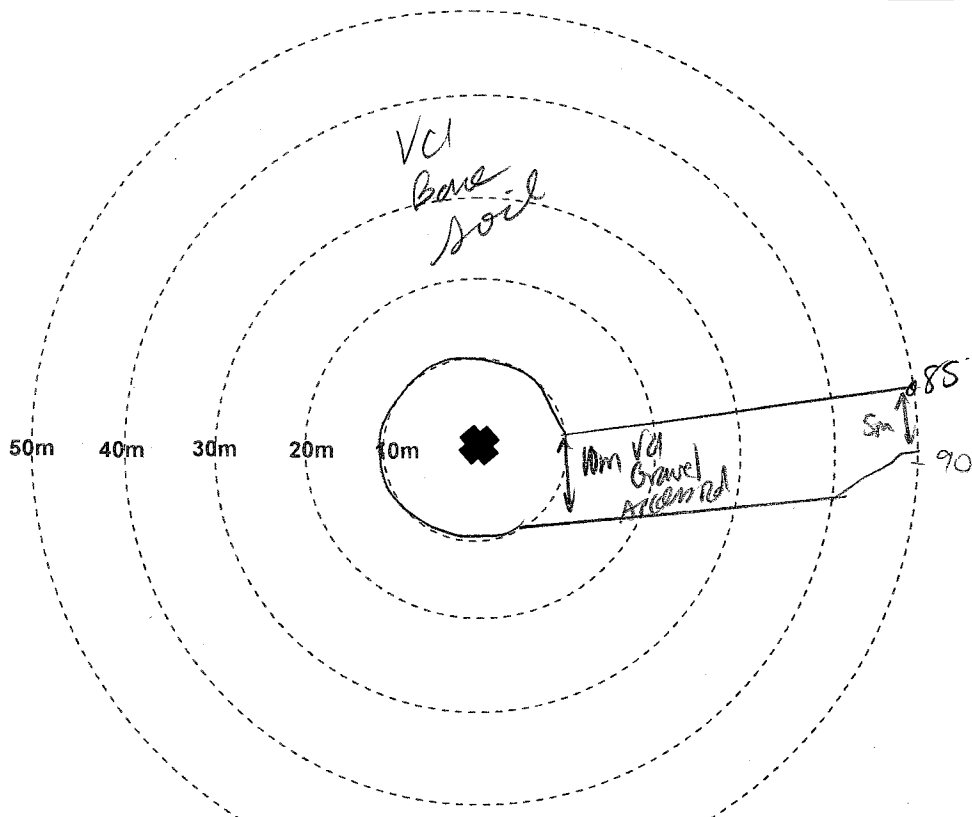
Date (DD/MM/YY): 08/07/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 6185
 Facing East: 6186
 Facing South: 6187
 Facing West: 6188
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/08/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**



General Habitat Description:
agriculture now



General Habitat Description:
agriculture now

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: Gunn's Hill WF Project #: 1875D Turbine #: T04

Photo Numbers (from turbine base)
 Facing North: 6465
 Facing East: 6406
 Facing South: 6407
 Facing West: 6408
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 01/09/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m

↑
N

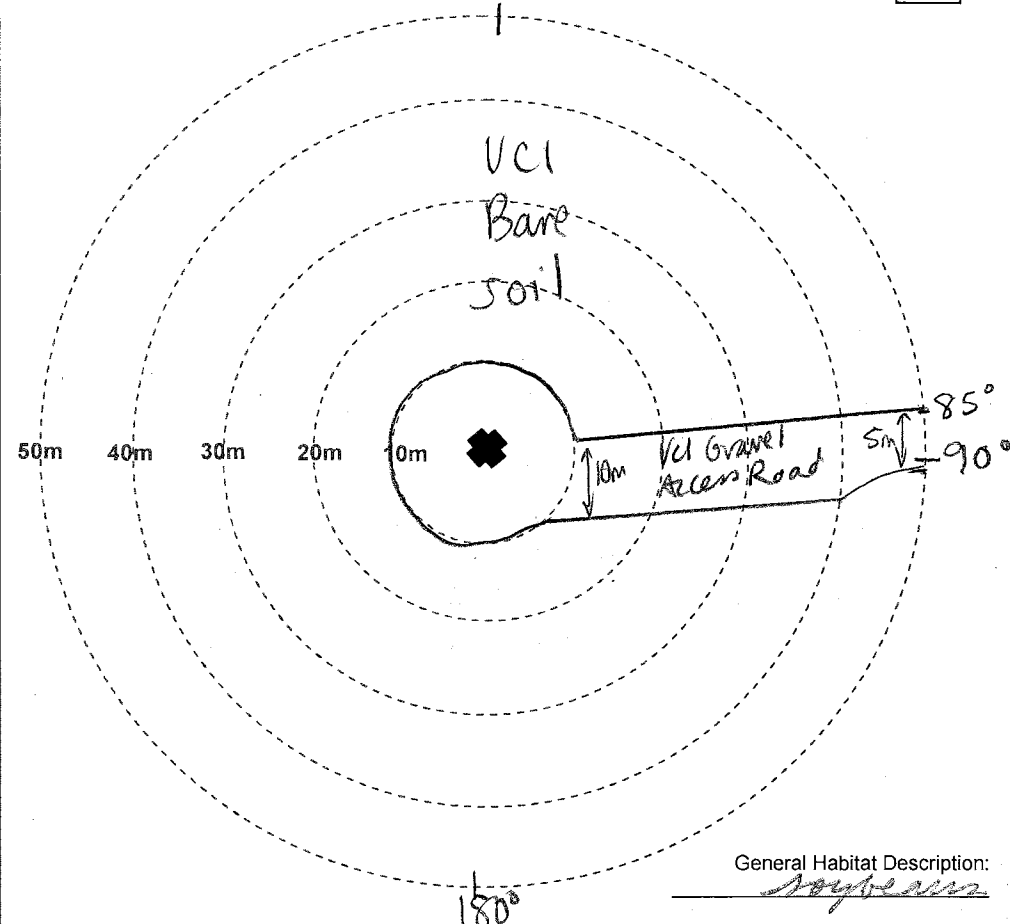
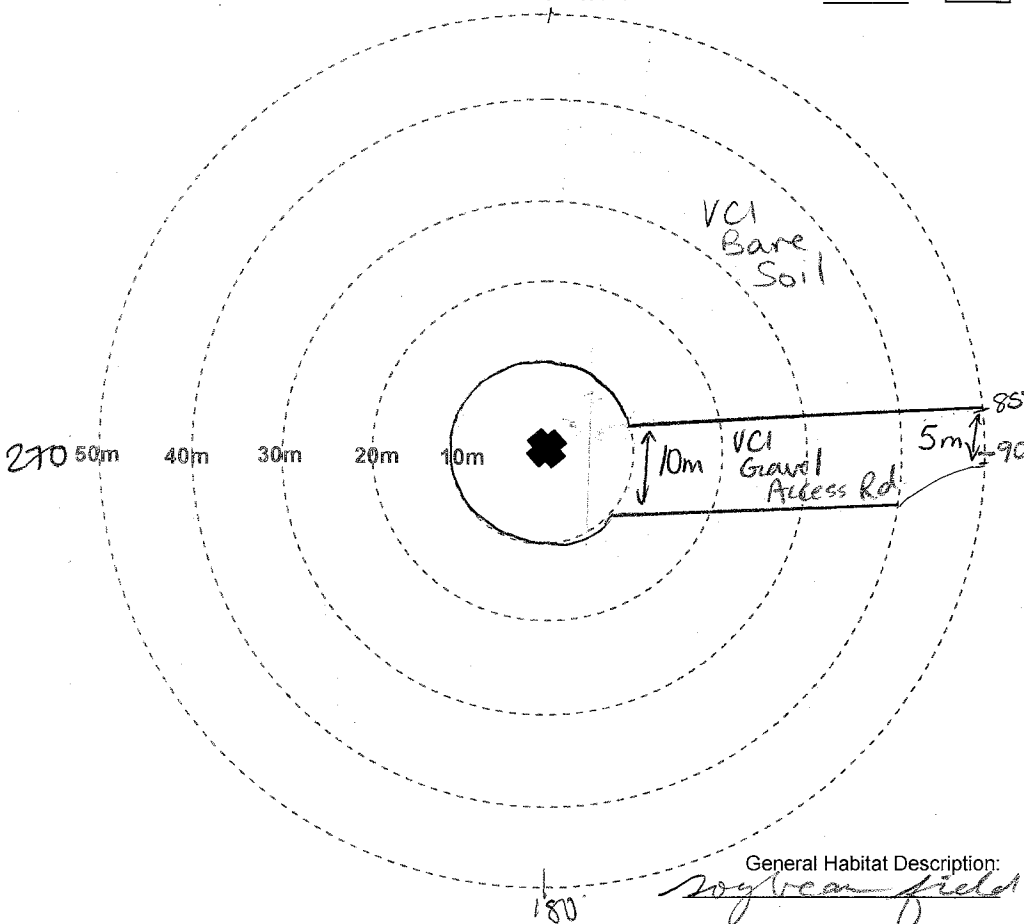
Photo Numbers (from turbine base)
 Facing North: 6582
 Facing East: 6583
 Facing South: 6584
 Facing West: 6585
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/10/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m

↑
N



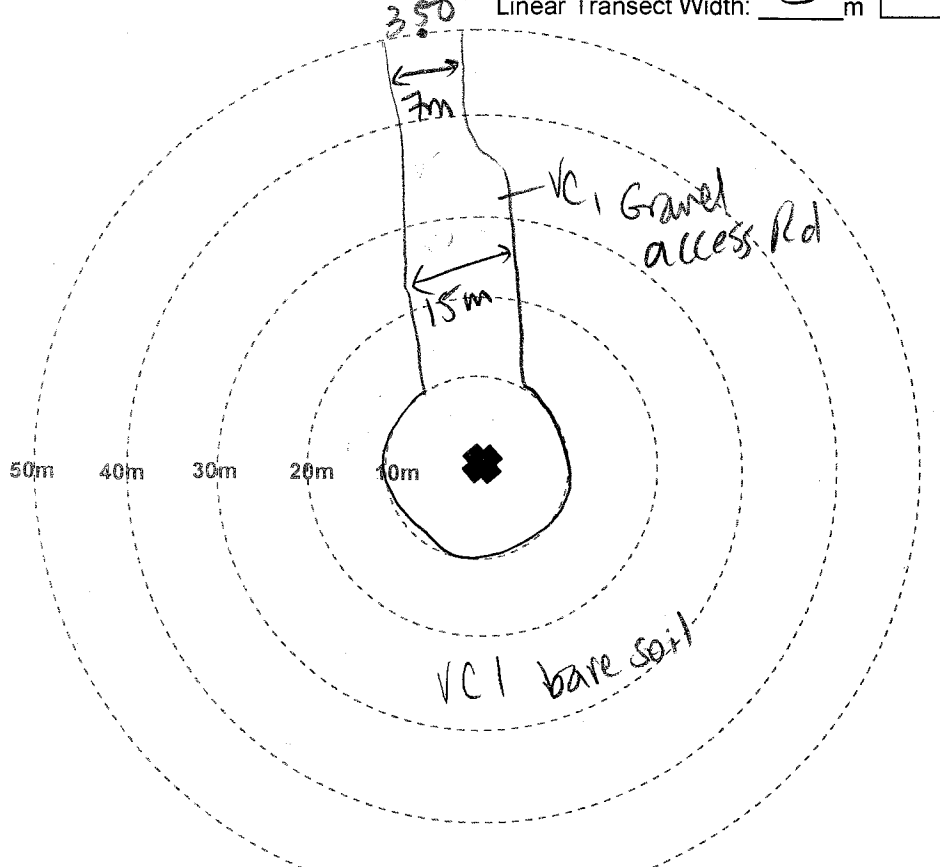
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable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

Visibility Class Map

Project Name: Gunn's Hill WF Project #: 1875P Turbine #: T05 Degree of Slope 2 Slope Orientation S

Photo Numbers (from turbine base)
 Facing North: 5693
 Facing East: 5694
 Facing South: 5695
 Facing West: 5696
 (sketch habitat and visibility classes)

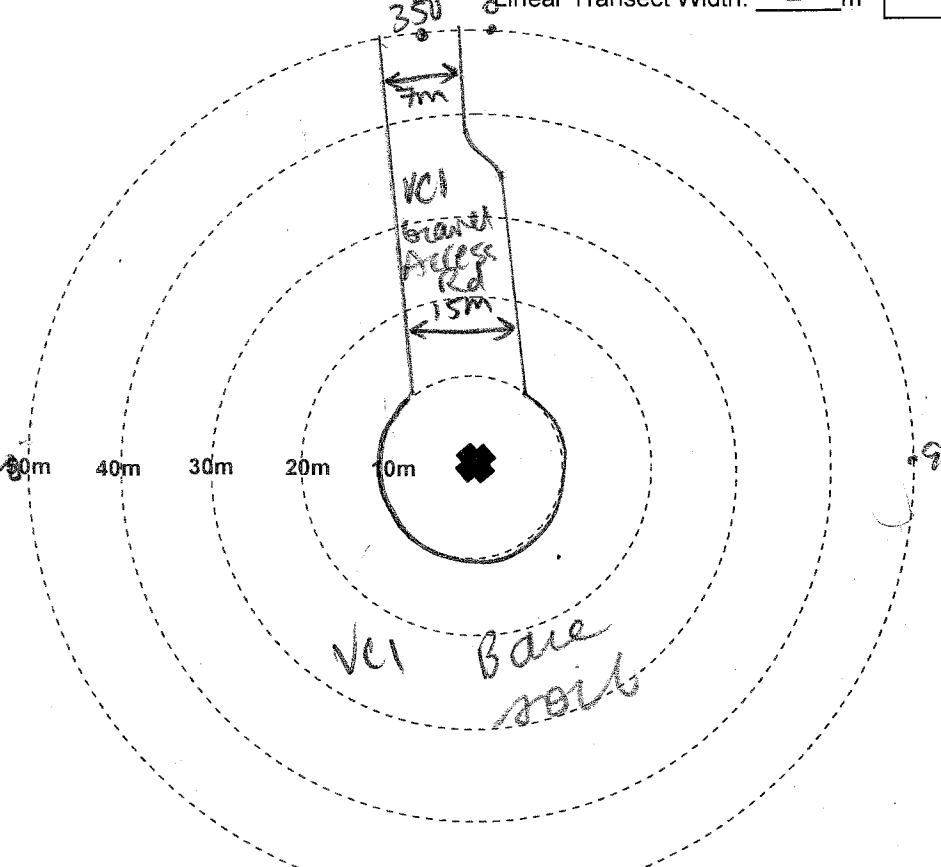
Date (DD/MM/YY): 12/05/20
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m **N**



General Habitat Description: agricultural field

Photo Numbers (from turbine base)
 Facing North: 5869
 Facing East: 5870
 Facing South: 5871
 Facing West: 5872
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/04/20
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m **N**



General Habitat Description: agriculture

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: Gunnis Hill W/F Project #: 1875D Turbine #: T05

Photo Numbers (from turbine base)
 Facing North: 6049
 Facing East: 6050
 Facing South: 6051
 Facing West: 6052
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 03/07/20

Observer: MES

Monthly/Seasonal Linear Transect Width: 5 m

↑
N

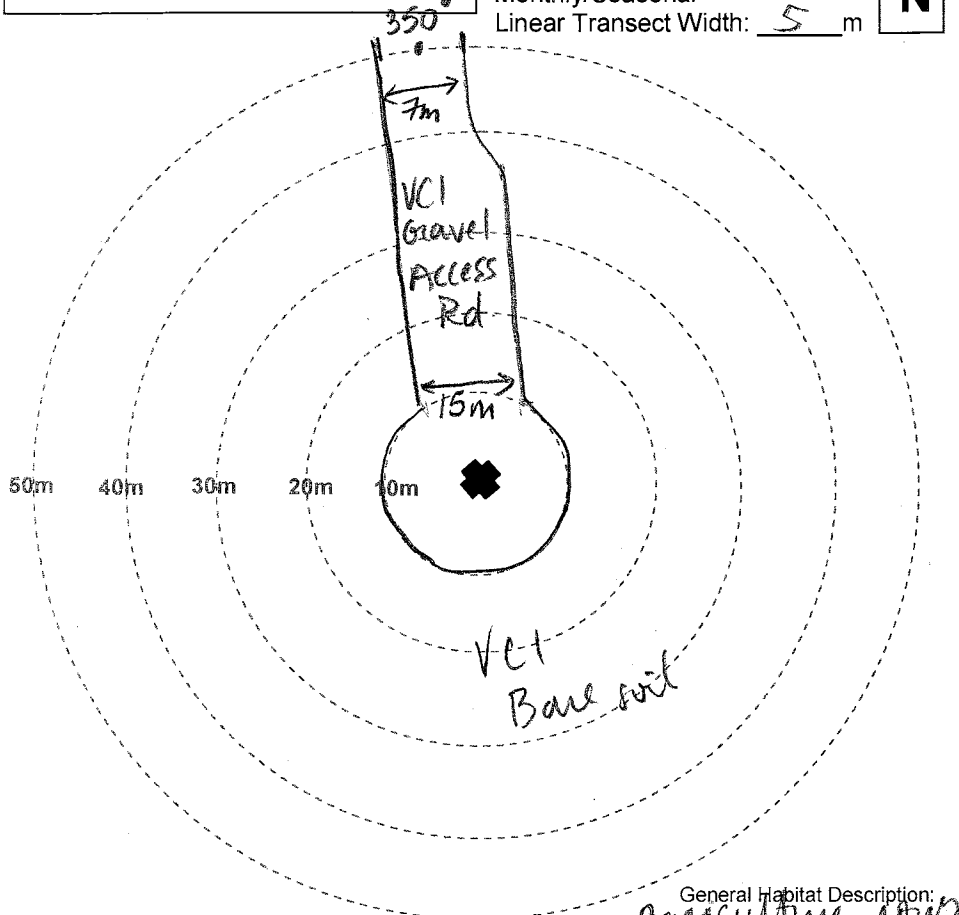


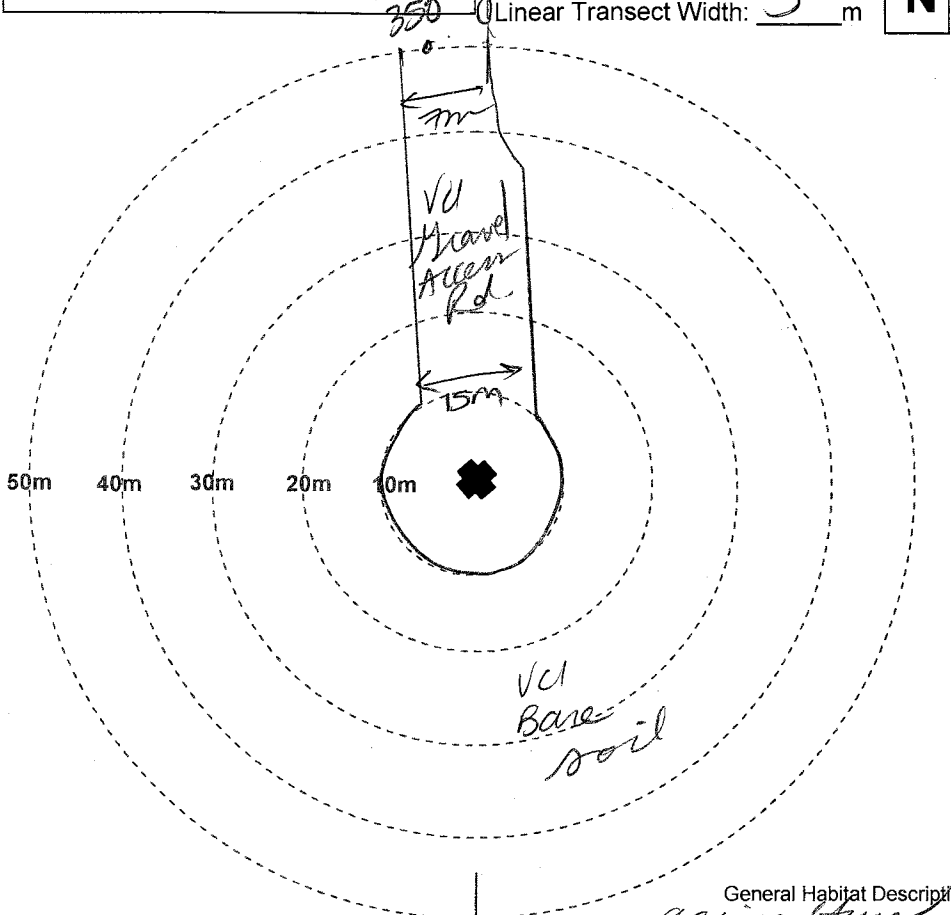
Photo Numbers (from turbine base)
 Facing North: 6190
 Facing East: 6191
 Facing South: 6192
 Facing West: 6193
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/08/20

Observer: MES

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

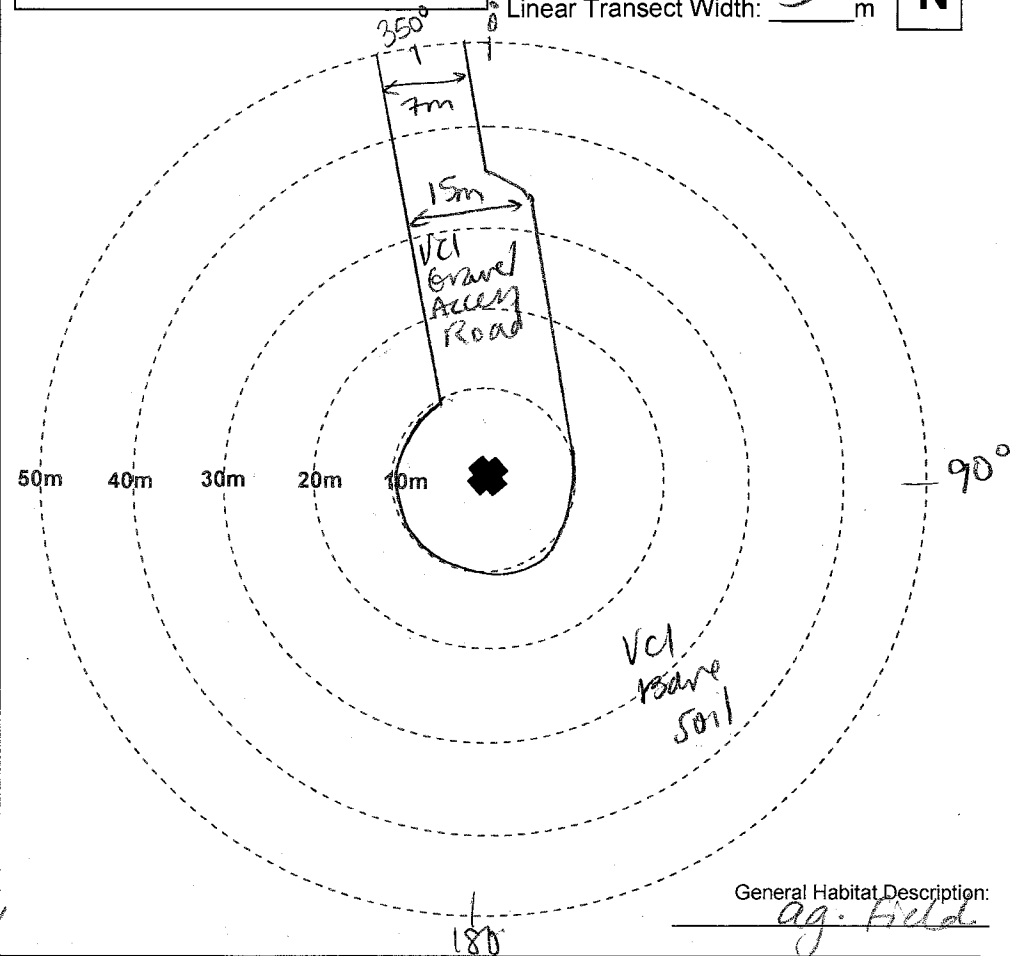
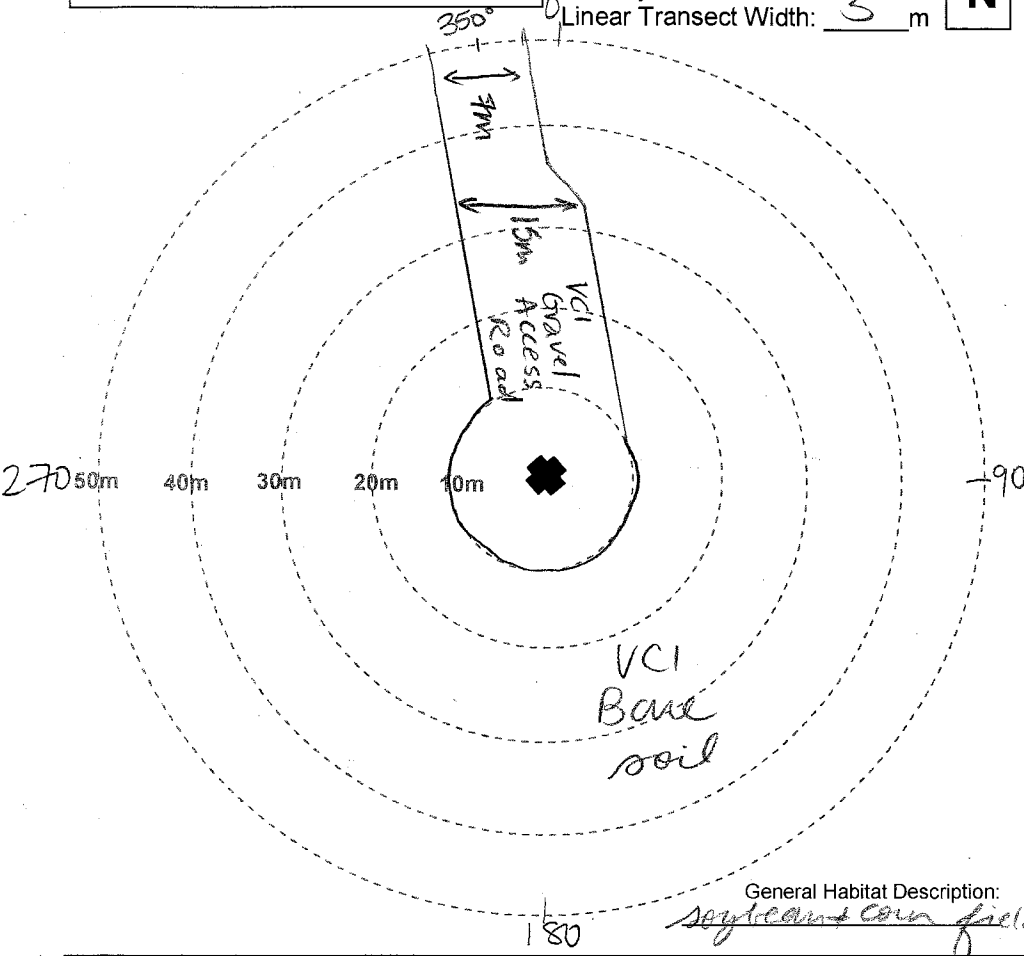
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T05 Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 6409
 Facing East: 6410
 Facing South: 6411
 Facing West: 6412
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 01/09/20 ↑
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m ↑
 N

Photo Numbers (from turbine base)
 Facing North: 6587
 Facing East: 6588
 Facing South: 6589
 Facing West: 6590
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 02/10/20 ↑
 Observer: MES
 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

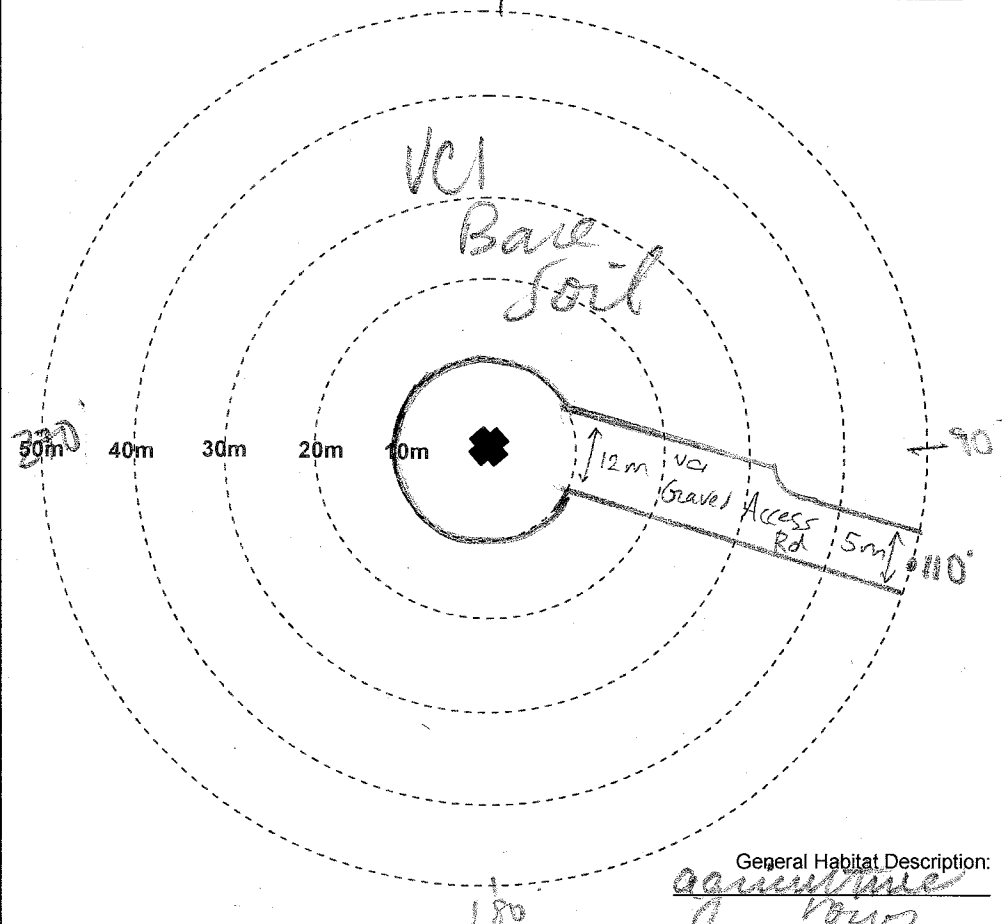
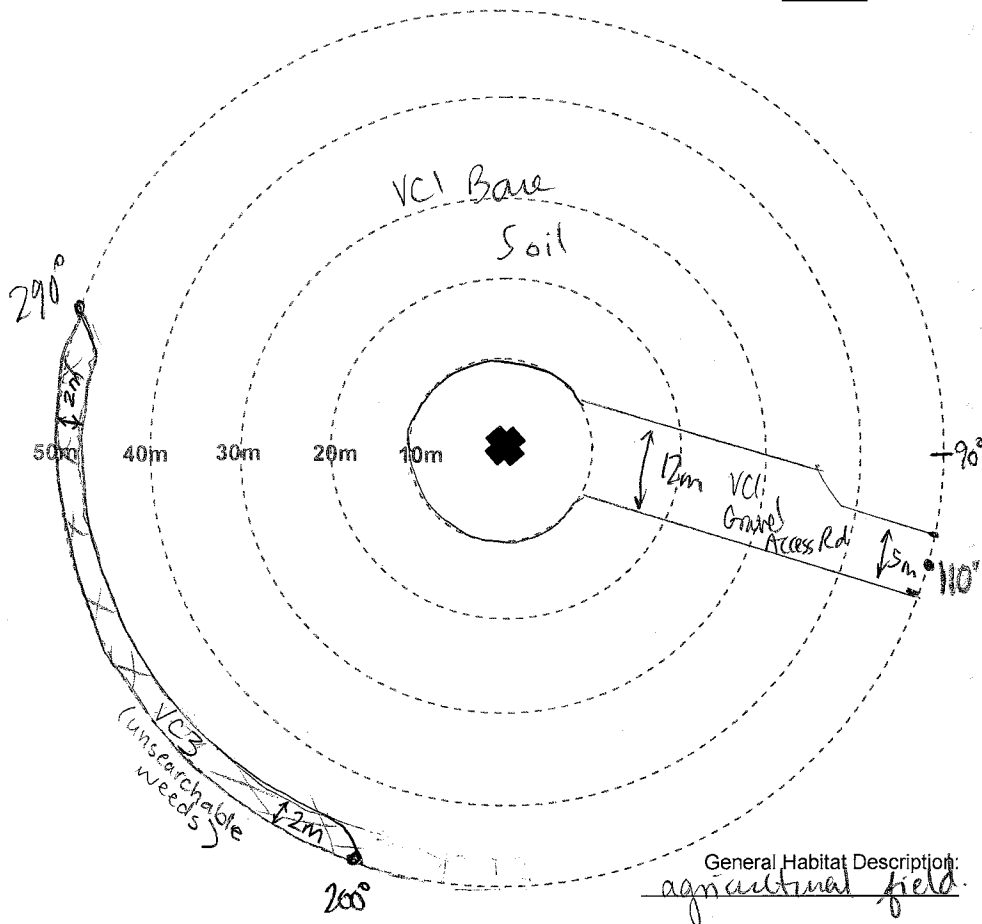
Project Name: Gunn's Hill WF Project #: 187SD Turbine #: T06 Degree of Slope 2 degrees Slope Orientation NE (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 5936
 Facing East: 5937
 Facing South: 5938
 Facing West: 5939
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 15/05/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 5915
 Facing East: 5916
 Facing South: 5917
 Facing West: 5918
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 05/06/20
 Observer: MES
 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

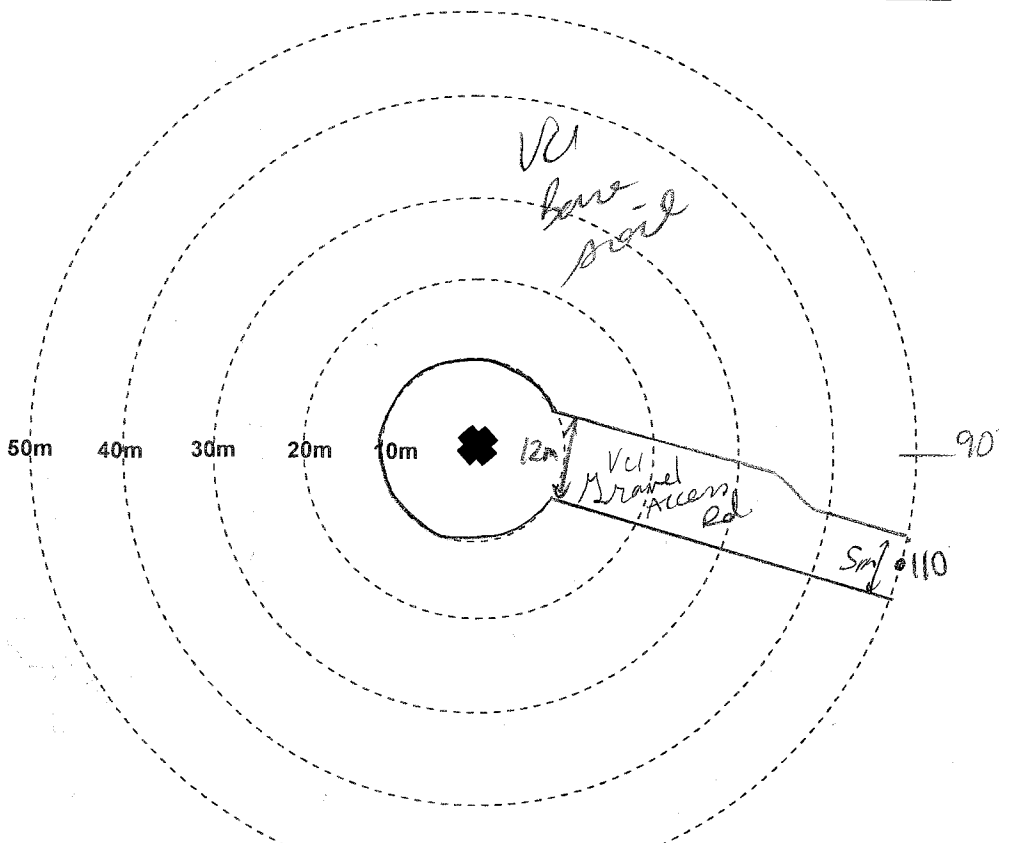
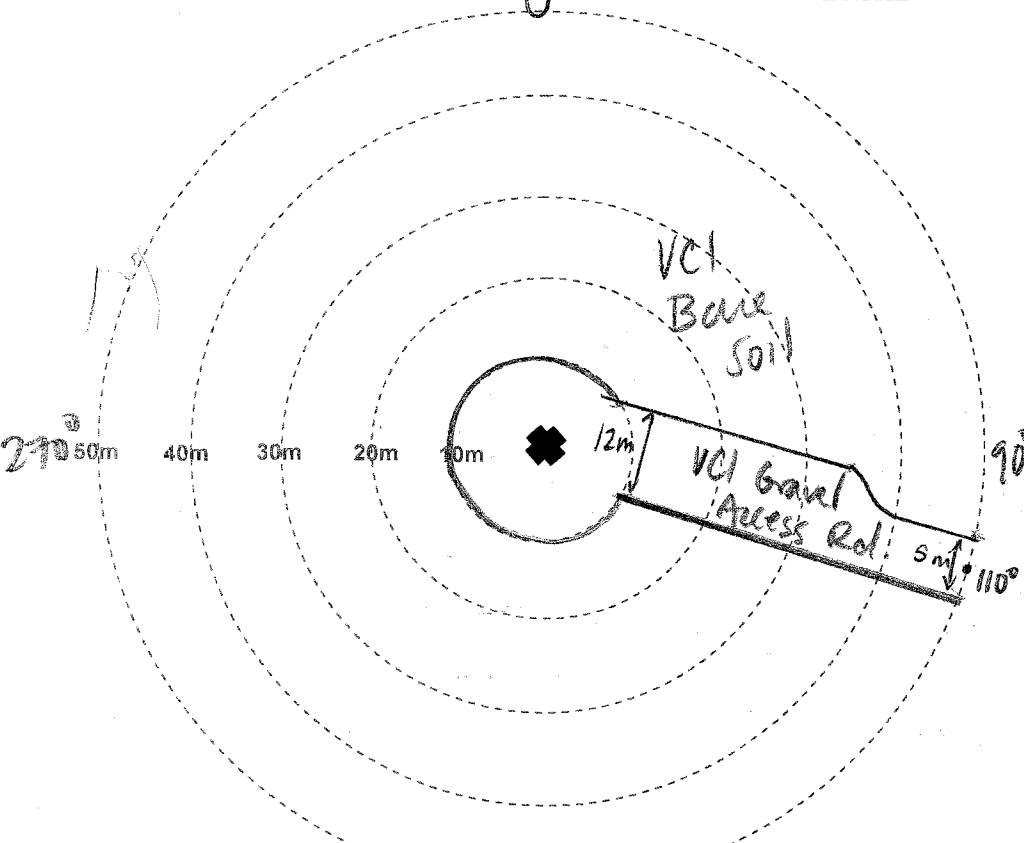
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T06

Photo Numbers (from turbine base)
 Facing North: 6099
 Facing East: 6100
 Facing South: 6101
 Facing West: 6102
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/07/20
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 6241
 Facing East: 6242
 Facing South: 6243
 Facing West: 6244
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/10/20
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m **N**



General Habitat Description: agriculture low

General Habitat Description: agriculture low

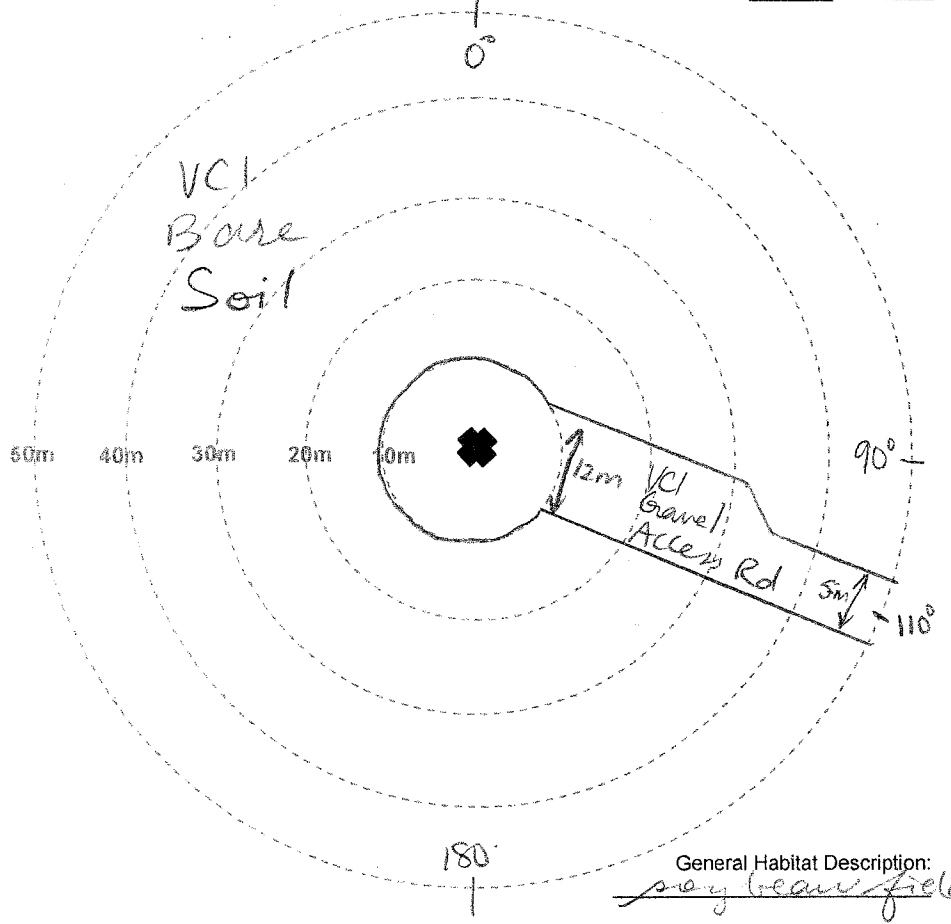
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable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

Visibility Class Map

Project Name: Gunn's Hill WF Project #: 187SD Turbine #: T06 Degree of Slope _____ degrees Slope Orientation _____ (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 6453
 Facing East: 6454
 Facing South: 6455
 Facing West: 6456
 (sketch habitat and visibility classes)

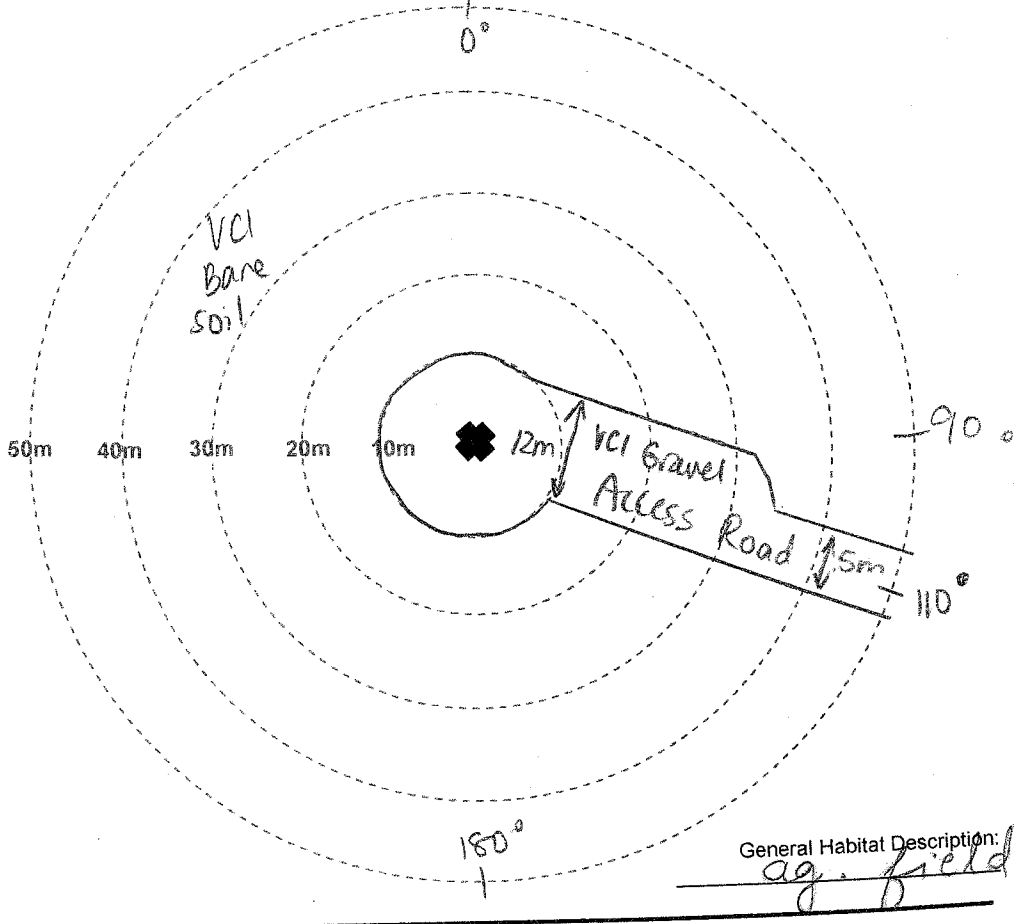
Date (DD/MM/YY): 09/10/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**



General Habitat Description: dry heath field

Photo Numbers (from turbine base)
 Facing North: 6623
 Facing East: 6624
 Facing South: 6625
 Facing West: 6626
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 09/10/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**



General Habitat Description: ag. field

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: Gunn's Hill WF Project #: 1875D Turbine #: T07 Degree of Slope 2 Slope Orientation SW

Photo Numbers (from turbine base)
 Facing North: 5740
 Facing East: 5741
 Facing South: 5742
 Facing West: 5743
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 15/05/20 ↑

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m ↑

N

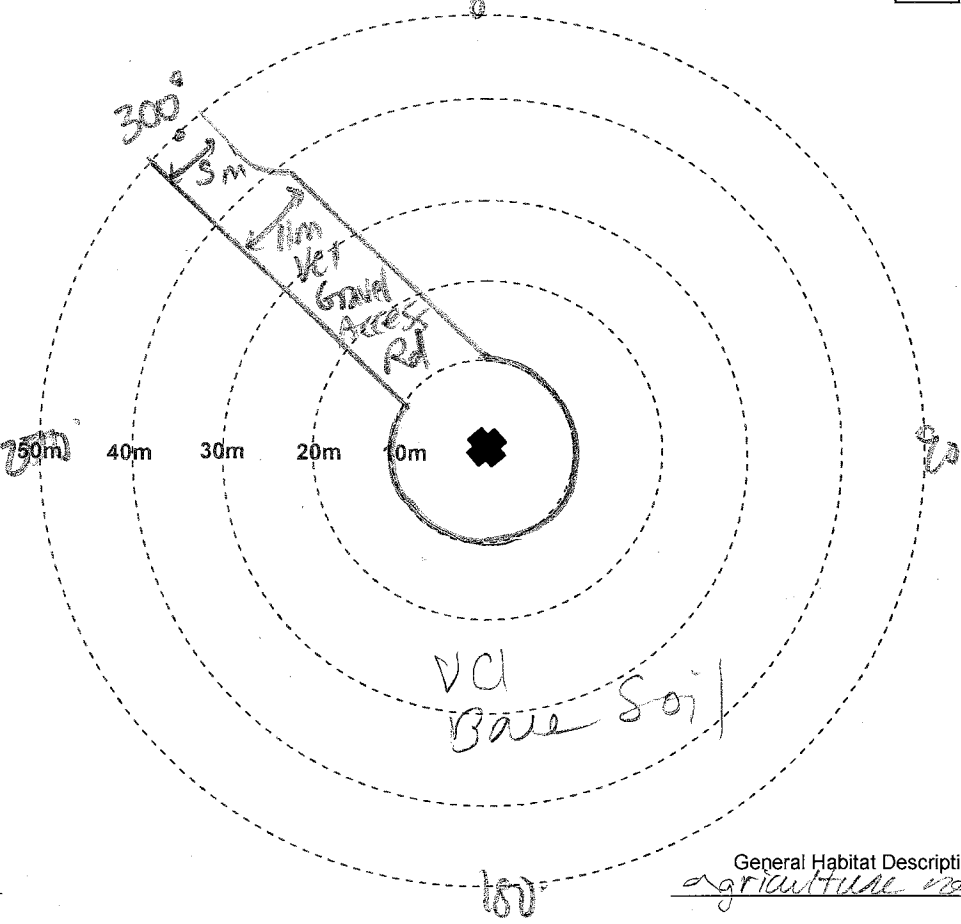
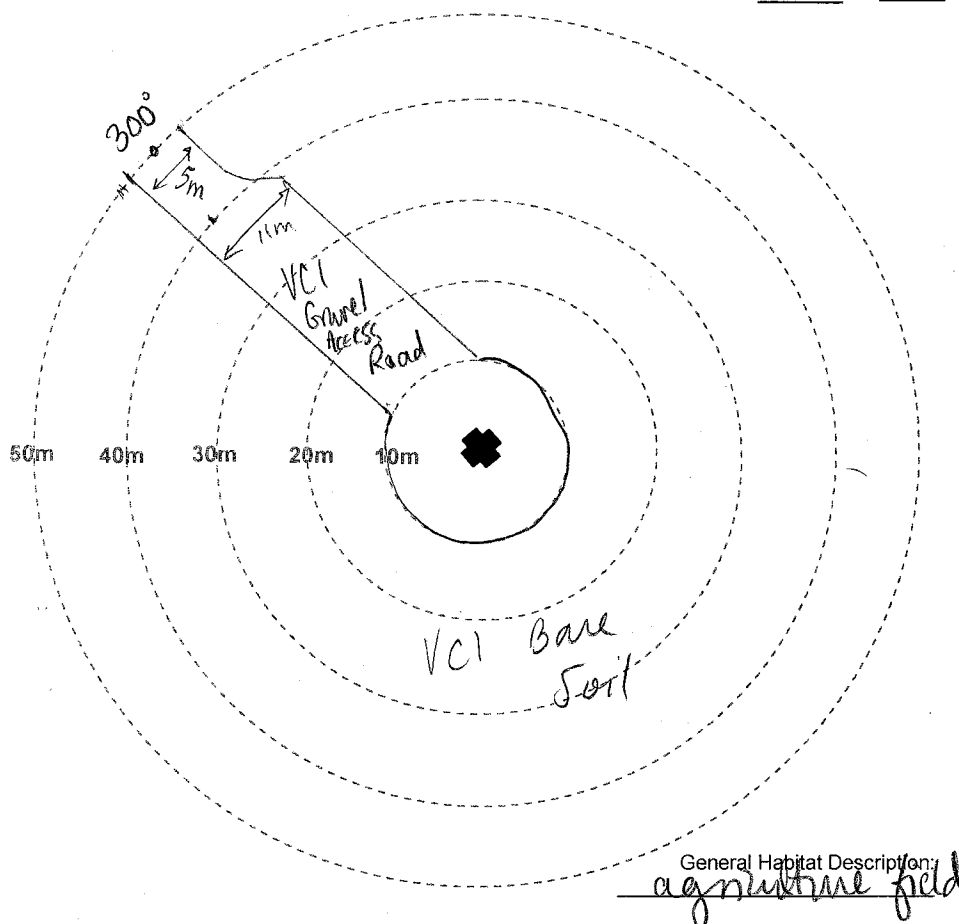
Photo Numbers (from turbine base)
 Facing North: 5919
 Facing East: 5920
 Facing South: 5921
 Facing West: 5922
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 05/06/20 ↑

Observer: MES

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: Gunn's Hill Wk Project #: 1875D Turbine #: T07

Photo Numbers (from turbine base)
 Facing North: 6104
 Facing East: 6109
 Facing South: 6106
 Facing West: 6107
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/07/20 ↑

Observer: MES

Monthly/Seasonal Linear Transect Width: 5 m ↑

N

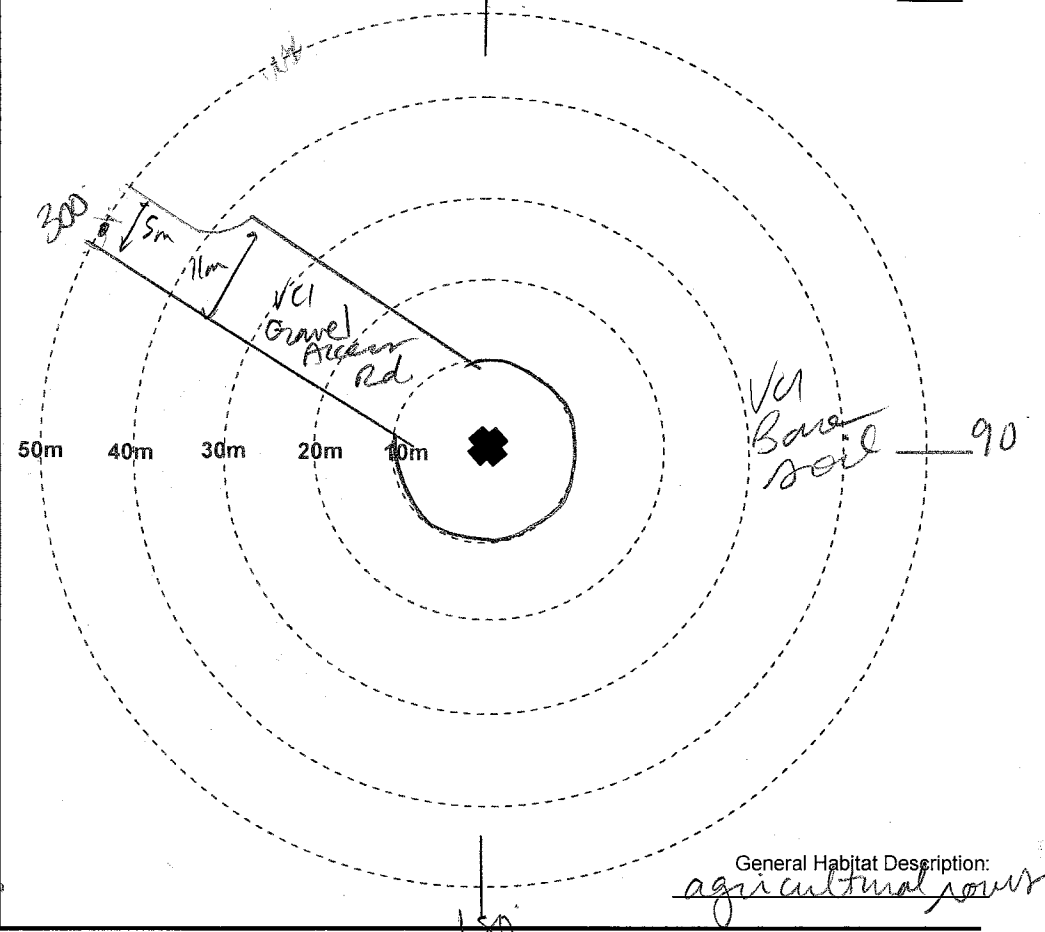
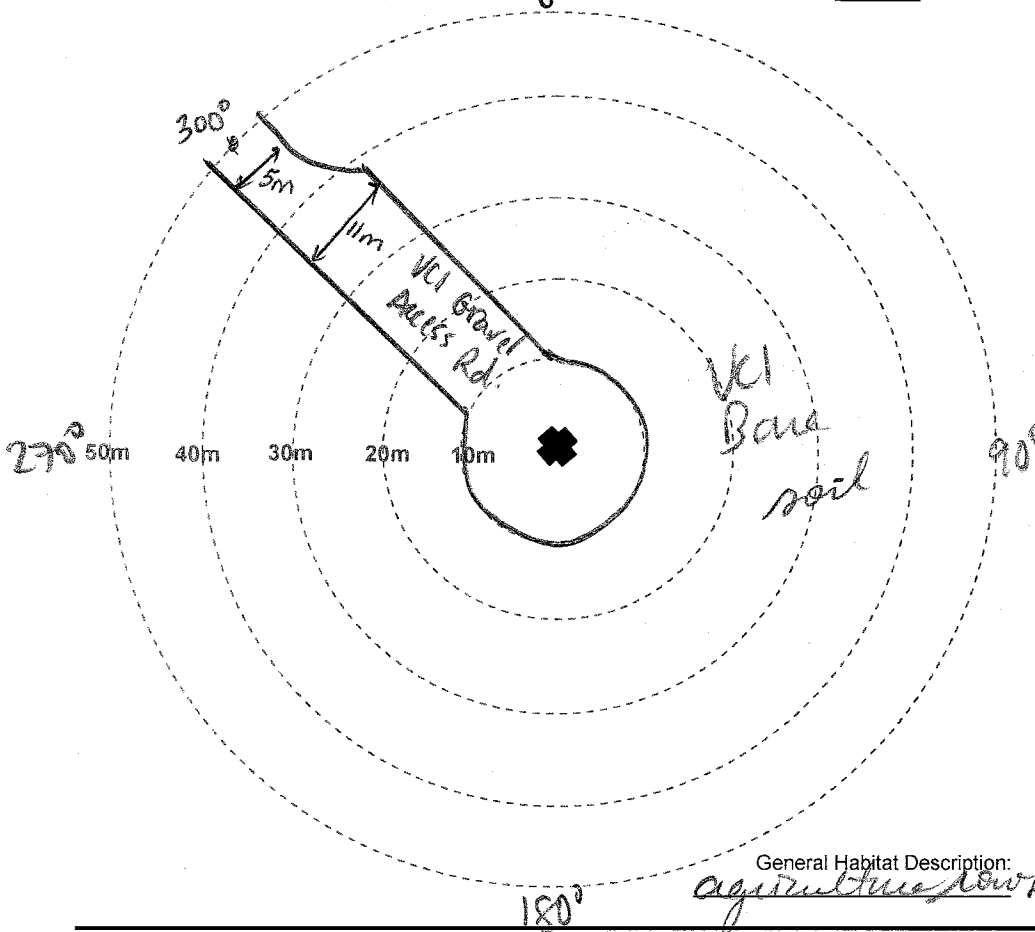
Photo Numbers (from turbine base)
 Facing North: 6245
 Facing East: 6246
 Facing South: 6247
 Facing West: 6248
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/08/20 ↑

Observer: MES

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: Gunn's Hill WF Project #: 187SD Turbine #: 107

Photo Numbers (from turbine base)
 Facing North: 6458
 Facing East: 6459
 Facing South: 6460
 Facing West: 6461
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/09/20 ↑

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m ↑

N

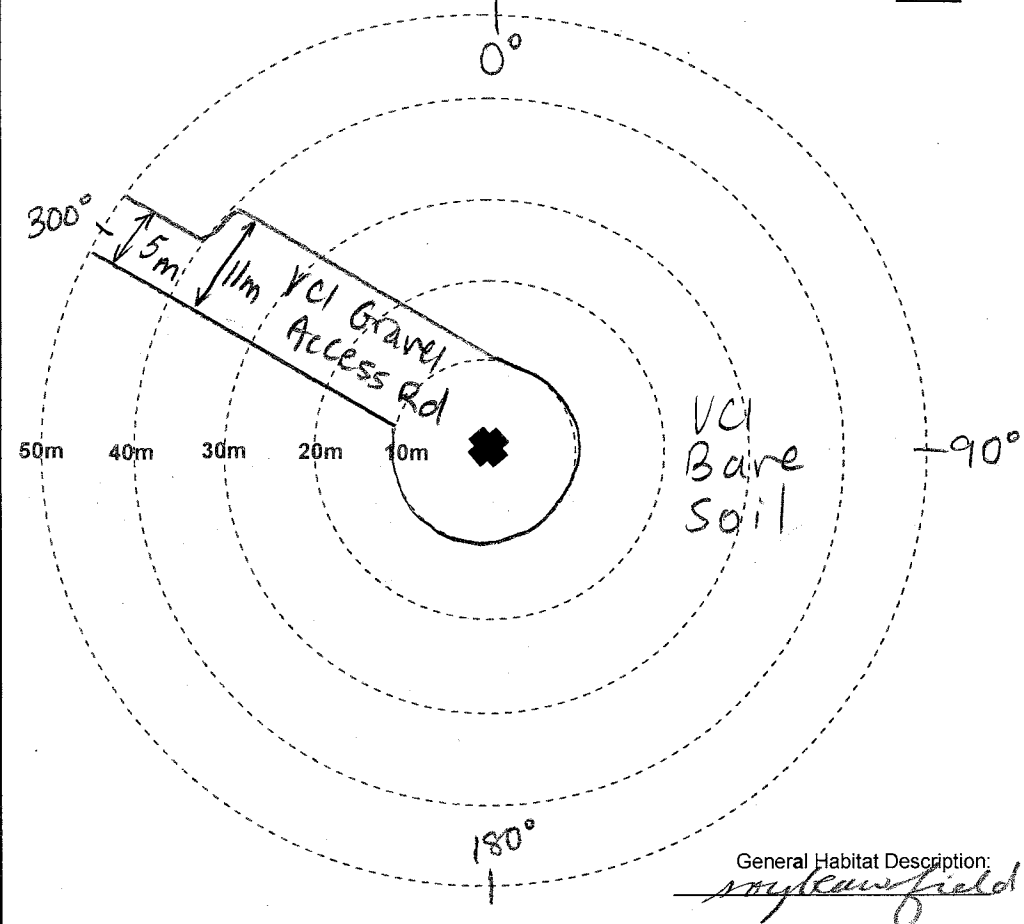
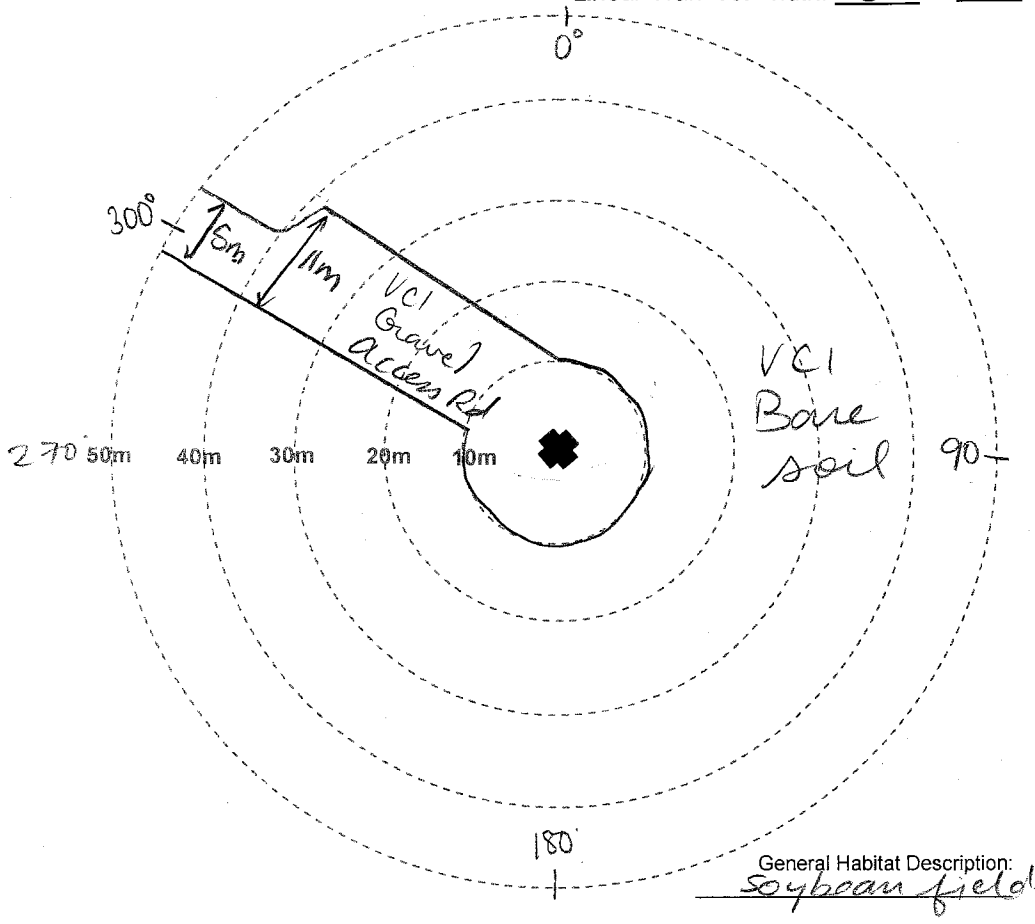
Photo Numbers (from turbine base)
 Facing North: 6627
 Facing East: 6628
 Facing South: 6629
 Facing West: 6630
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 09/10/20 ↑

Observer: MES

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

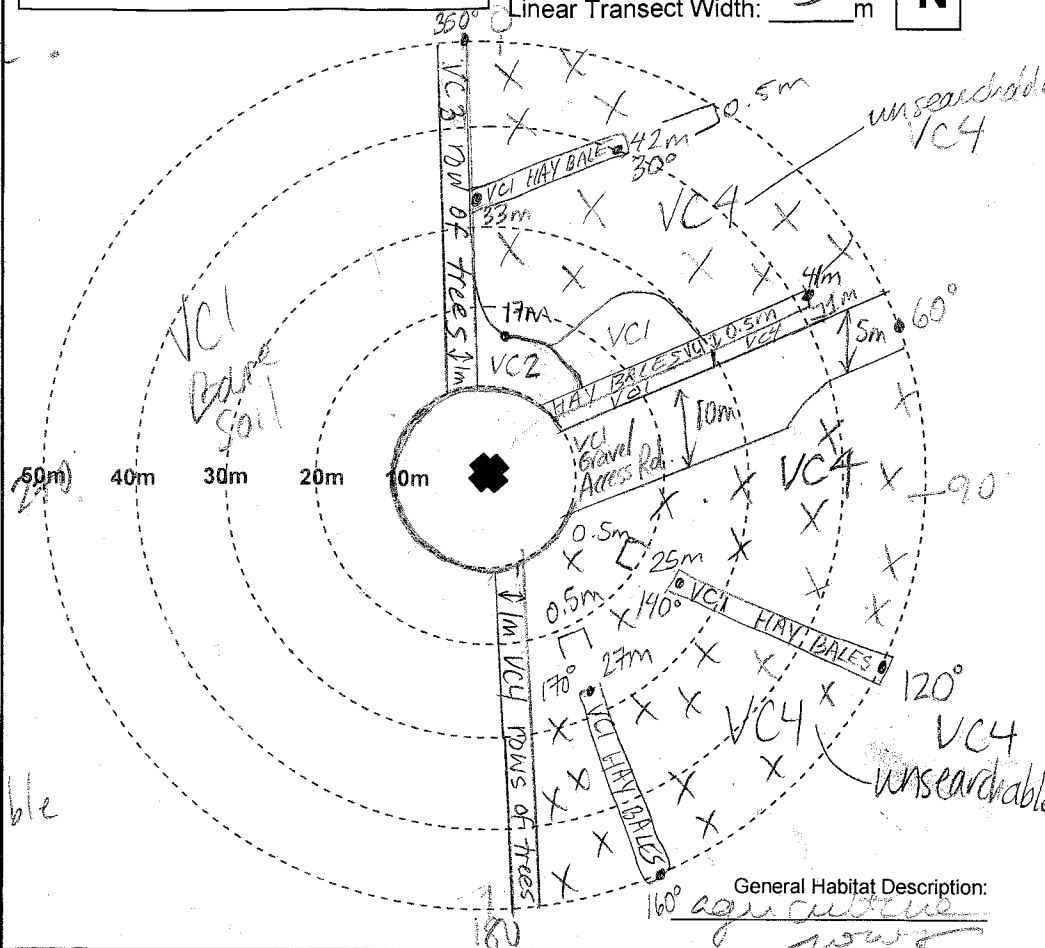
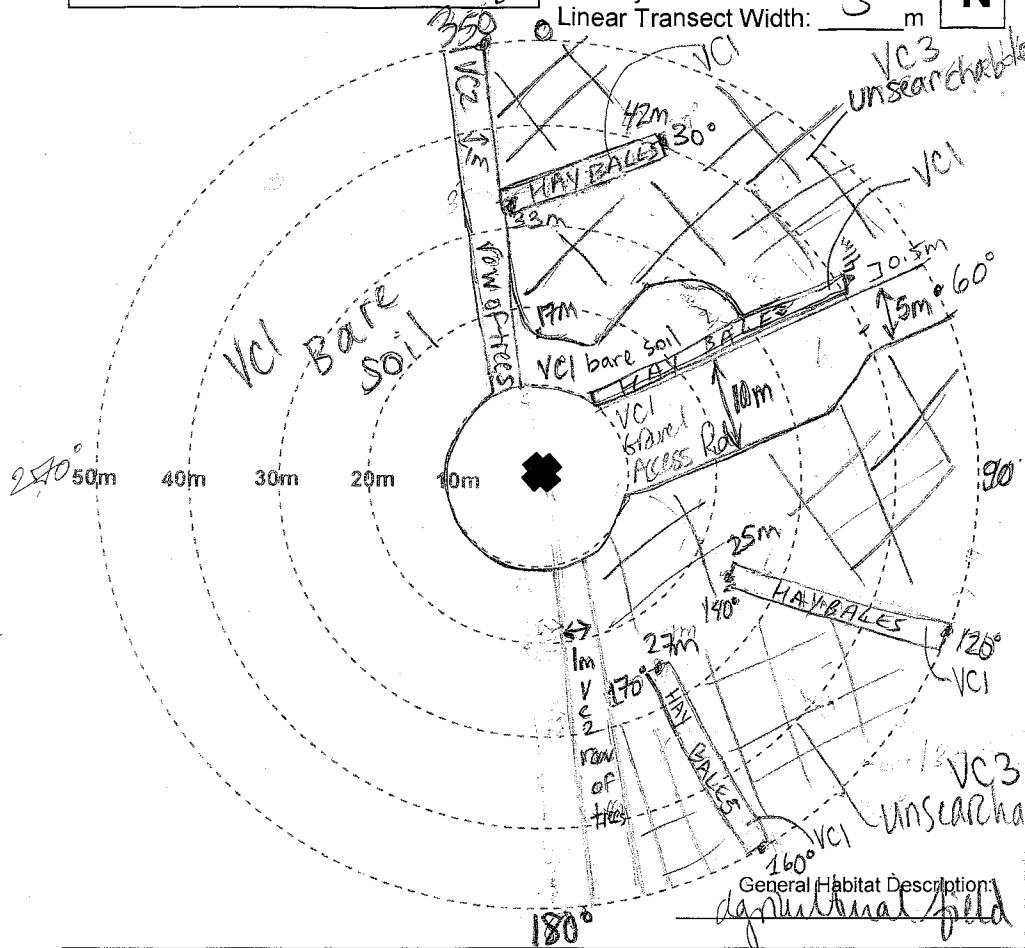
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: T08 Degree of Slope 4 Slope Orientation S

Photo Numbers (from turbine base)
 Facing North: 5744
 Facing East: 5745
 Facing South: 5746
 Facing West: 5747
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 15/05/20
 Observer: MES
 Monthly/Seasonal
 Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 5920
 Facing East: 5930
 Facing South: 5931
 Facing West: 5932
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 05/06/20
 Observer: MES
 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: Burns Hill WF Project #: 187SD Turbine #: T08

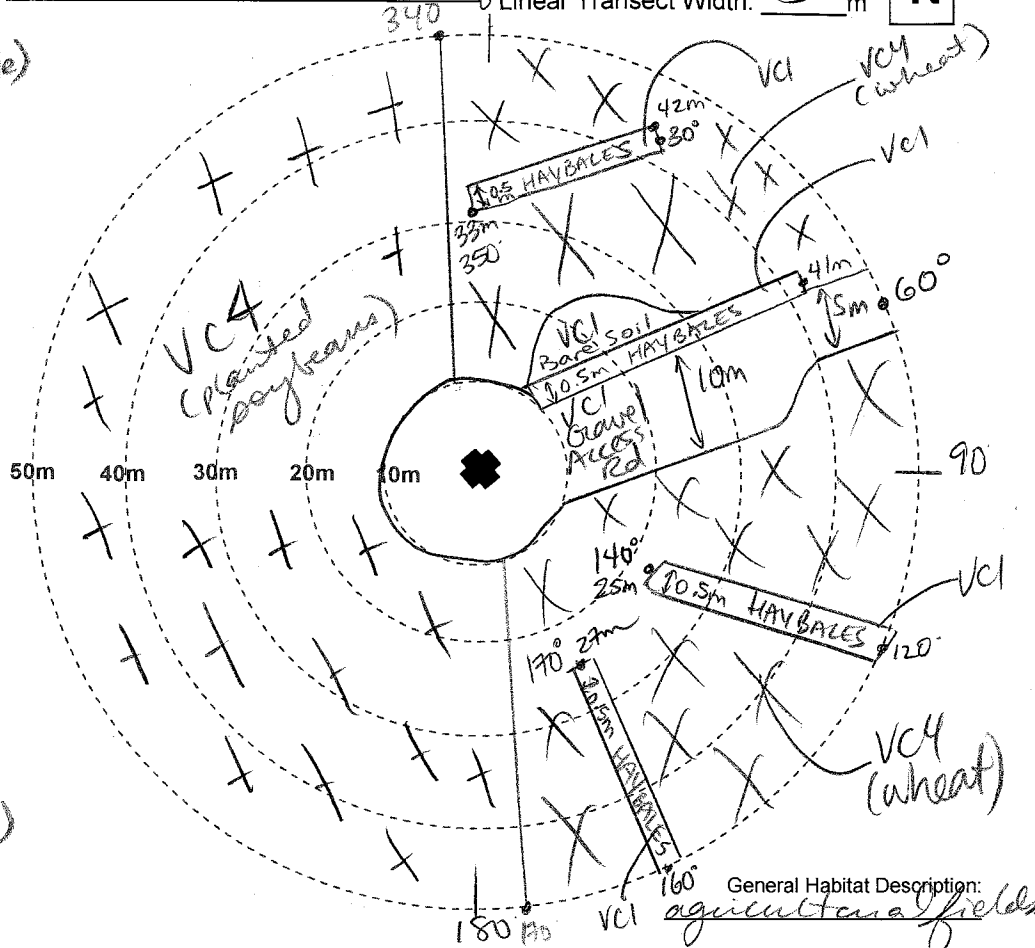
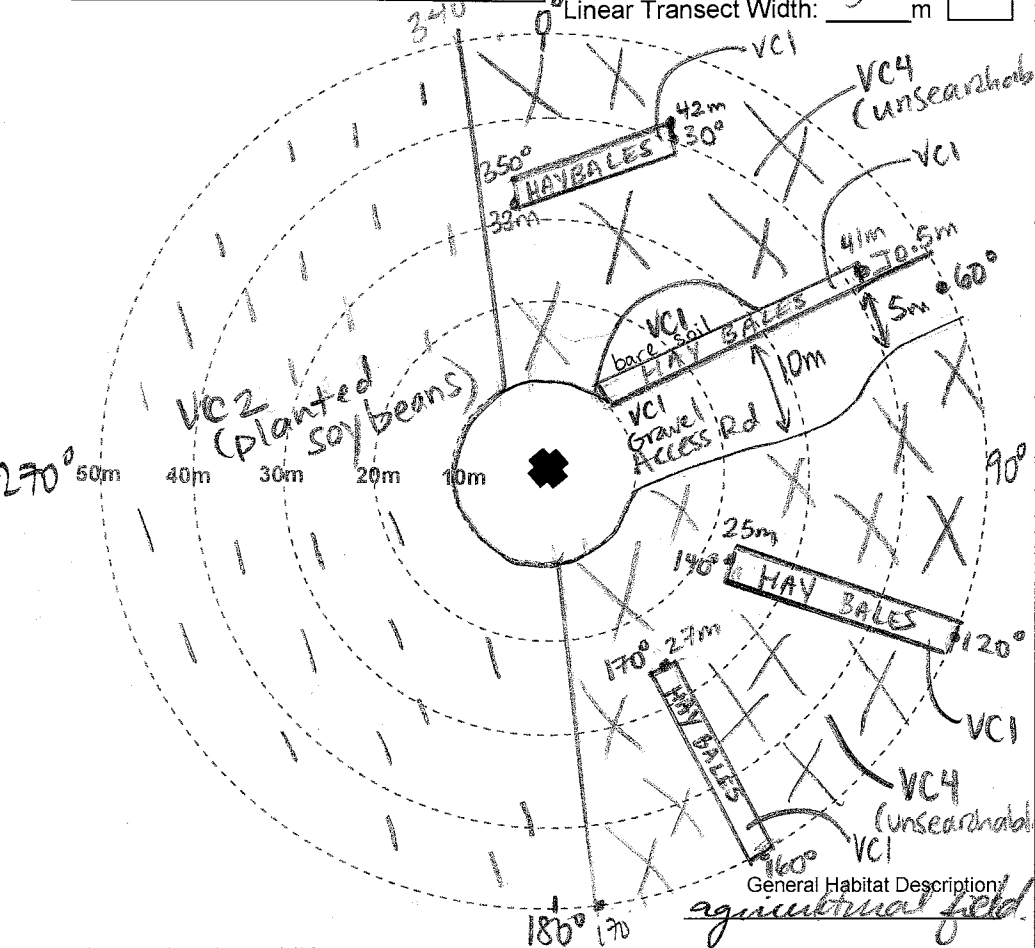
Photo Numbers (from turbine base)
 Facing North: 6108
 Facing East: 6109
 Facing South: 6110
 Facing West: 6111
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/07/20
 Observer: NES
 Monthly/Seasonal Linear Transect Width: 5 m



Photo Numbers (from turbine base)
 Facing North: 6257
 Facing East: 6254
 Facing South: 6253
 Facing West: 6256
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/08/20
 Observer: NES
 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: Gunn's Hill WF Project #: 187SD Turbine #: T08

Photo Numbers (from turbine base)
 Facing North: 6514
 Facing East: 6515
 Facing South: 6516
 Facing West: 6517
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 15/09/20

Observer: NES

Monthly/Seasonal
 Linear Transect Width: 5 m **N**

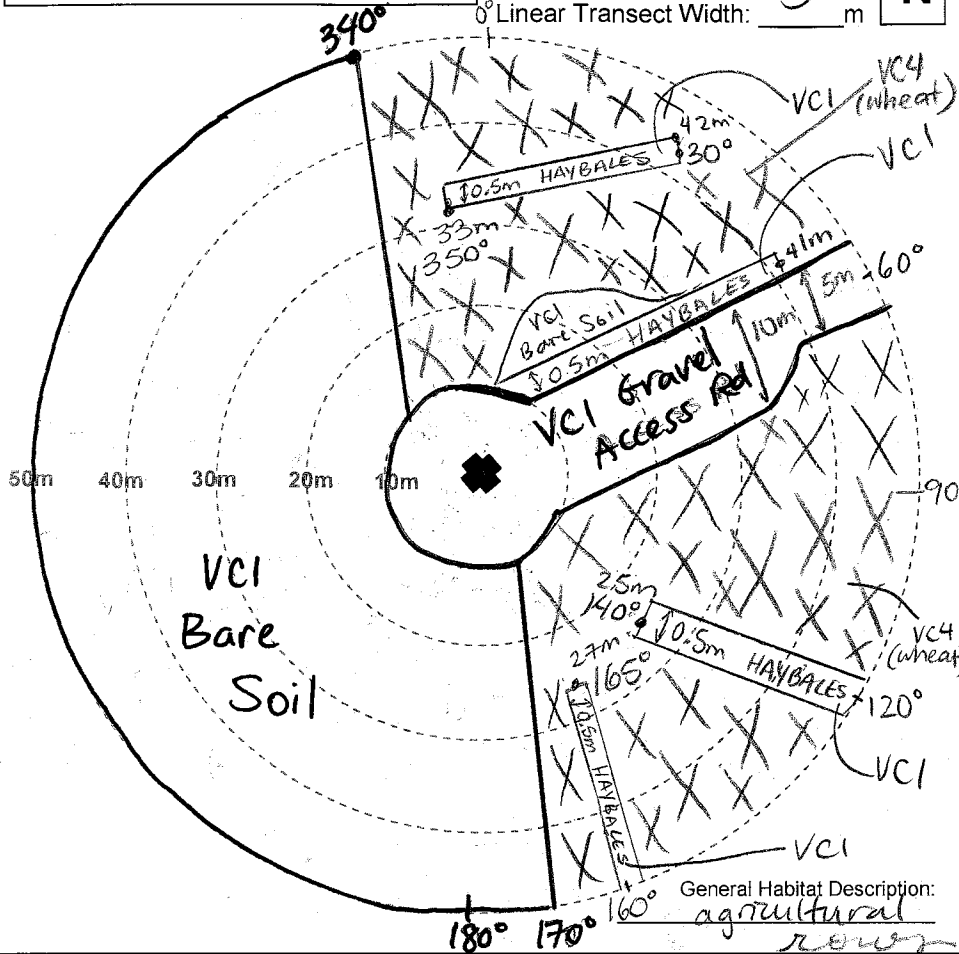
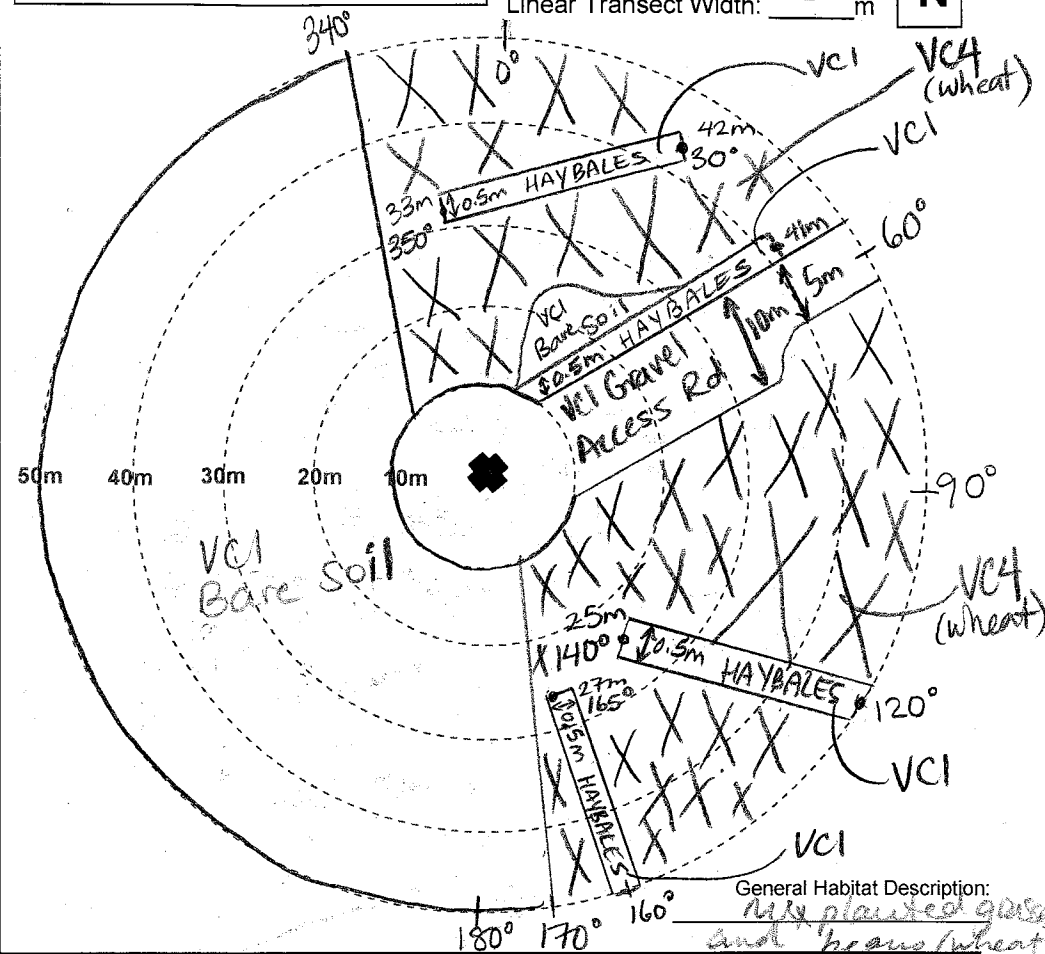


Photo Numbers (from turbine base)
 Facing North: 6634
 Facing East: 6635
 Facing South: 6636
 Facing West: 6637
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 09/10/20

Observer: NES

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: Gunn's Hill WF Project #: 187SD Turbine #: T09 Degree of Slope 2 degrees Slope Orientation ESE (e.g. SSW)

Photo Numbers (from turbine base)
 Facing North: 5949
 Facing East: 5950
 Facing South: 5951
 Facing West: 5952
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 15/05/20 ↑
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m ↑
 N

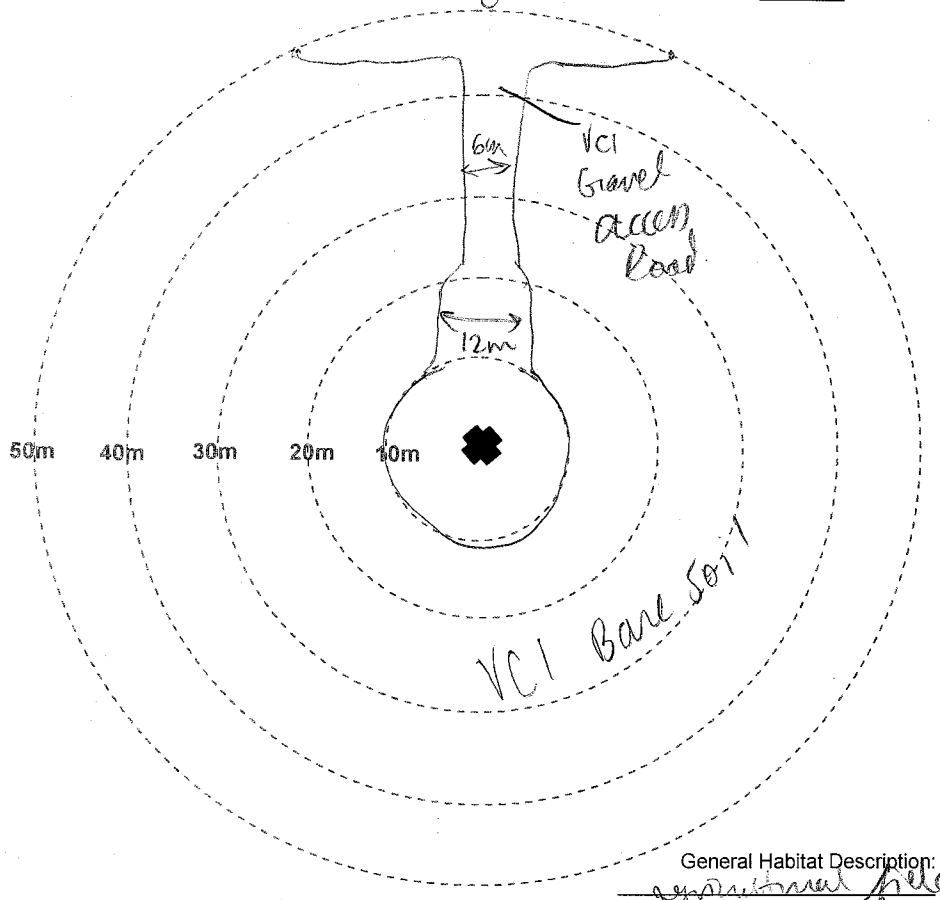
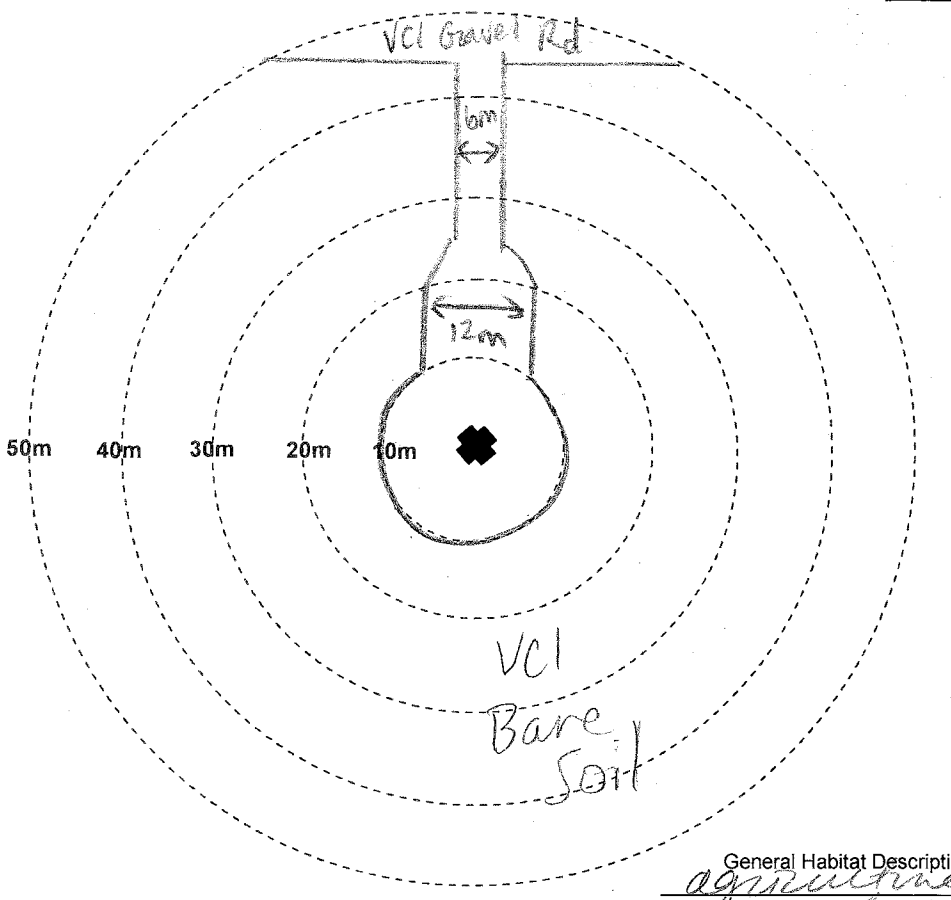


Photo Numbers (from turbine base)
 Facing North: 5939
 Facing East: 5938
 Facing South: 5939
 Facing West: 5940
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 05/06/20 ↑
 Observer: MES
 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: Gunn's Hill WF Project #: 1875D Turbine #: T09

Photo Numbers (from turbine base)
 Facing North: 6112
 Facing East: 6113
 Facing South: 6114
 Facing West: 6115
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/07/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m

↑
N

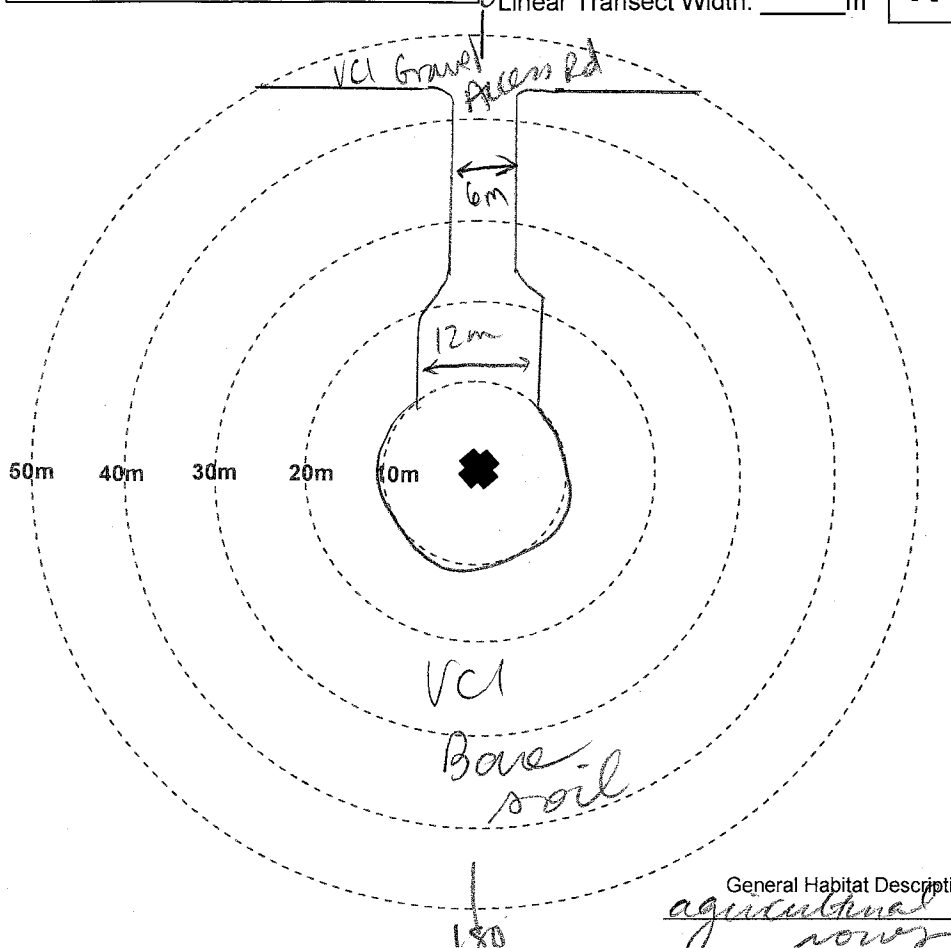
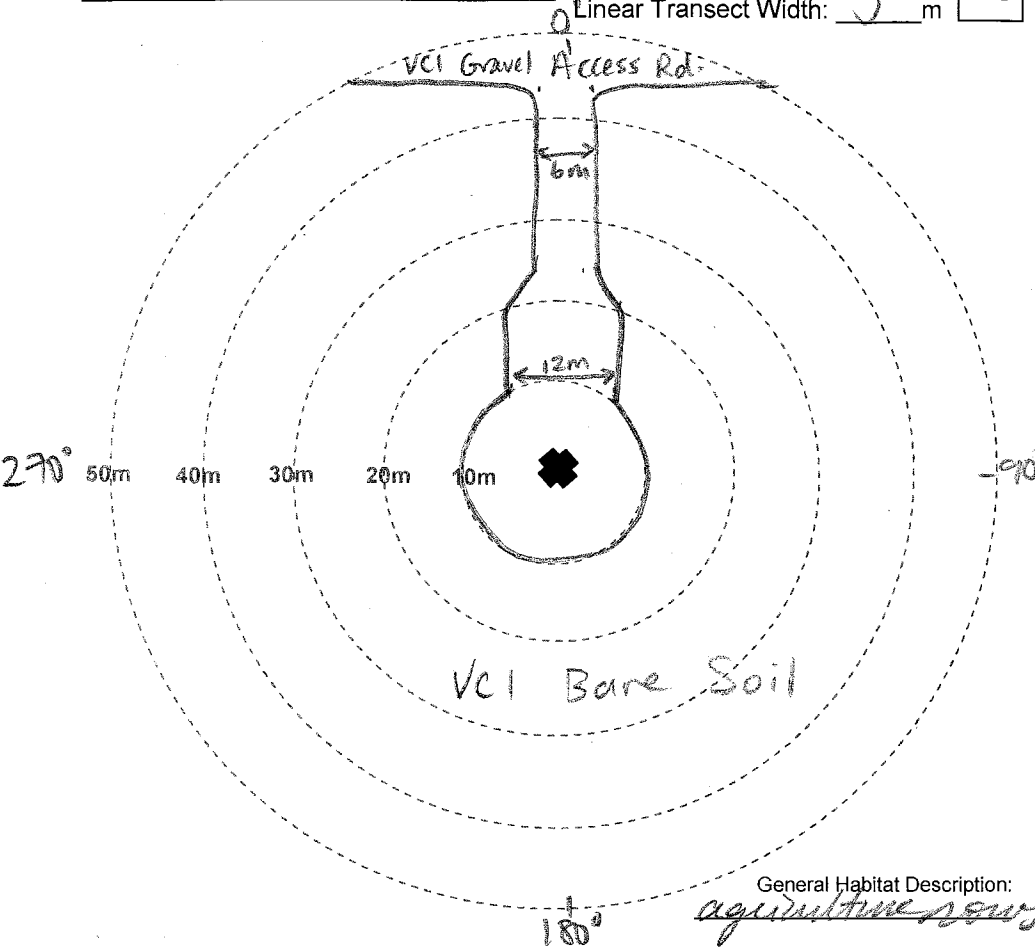
Photo Numbers (from turbine base)
 Facing North: 6253
 Facing East: 6250
 Facing South: 6251
 Facing West: 6252
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/06/20

Observer: MES

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: Gunn's Hill WF Project #: 1875D Turbine #: T09

Photo Numbers (from turbine base)
 Facing North: 6467
 Facing East: 6468
 Facing South: 6469
 Facing West: 6470
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 04/10/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m

N

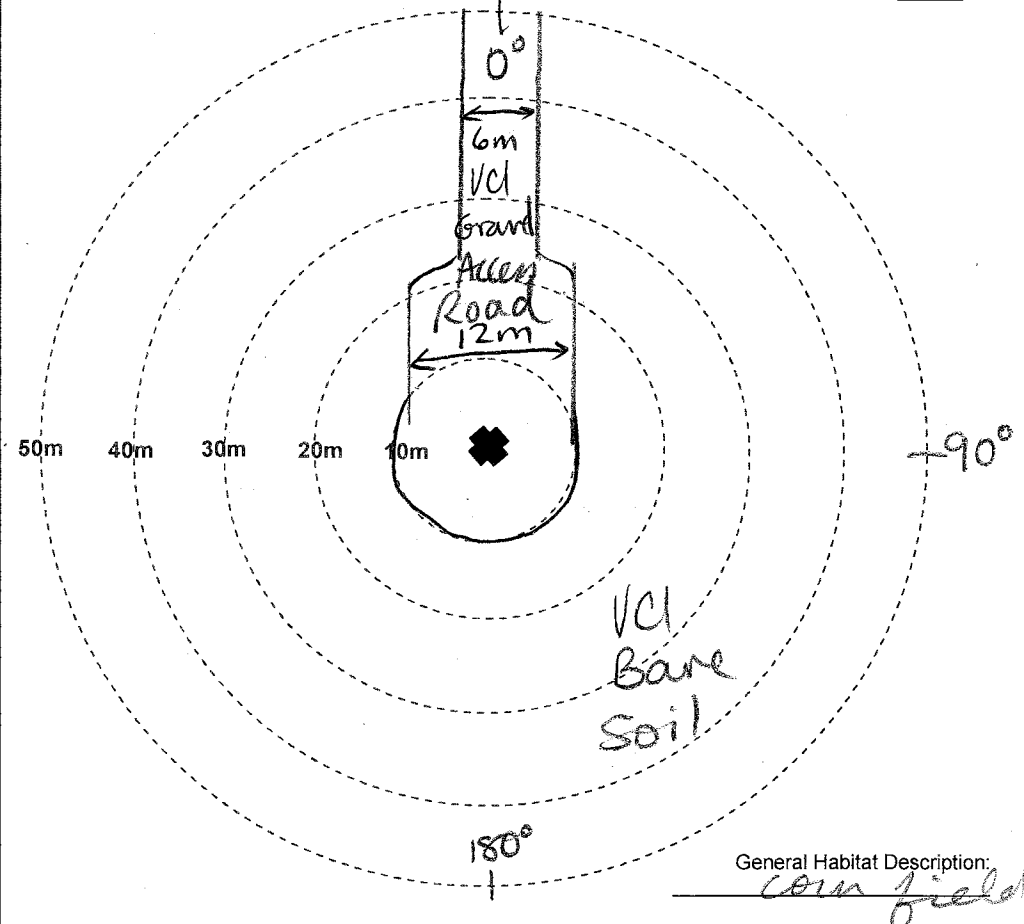
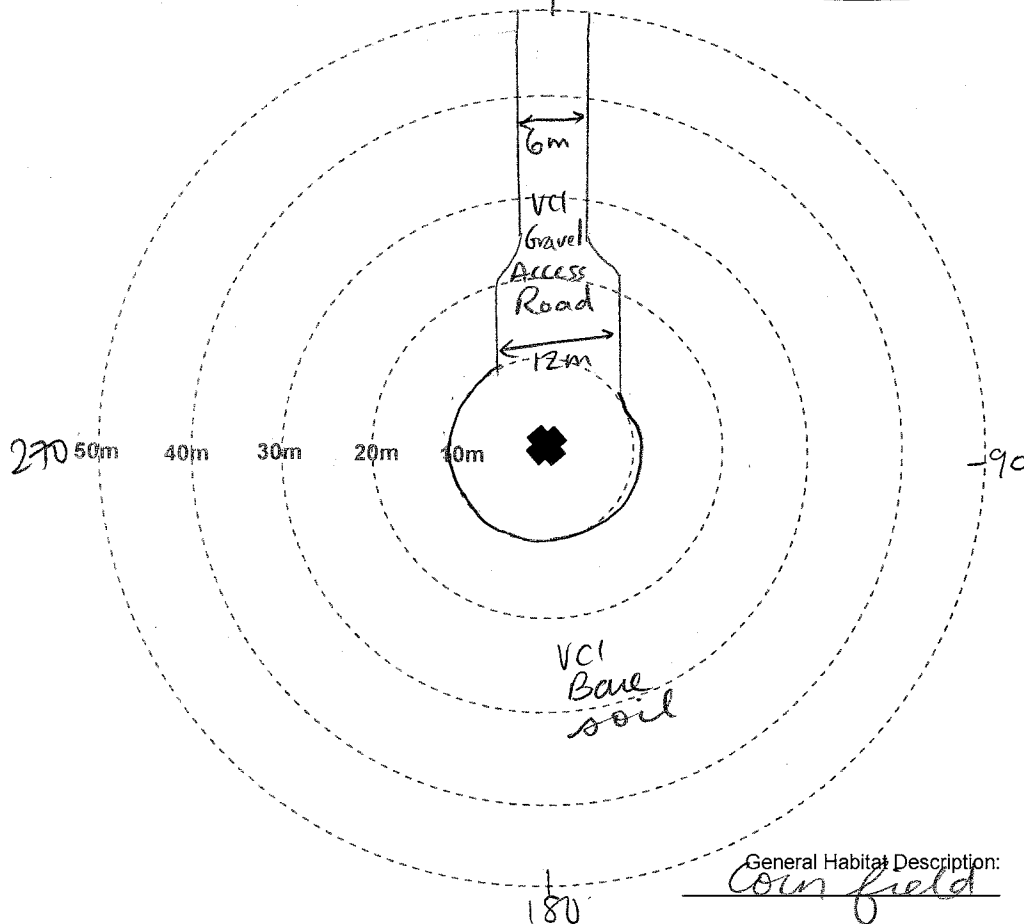
Photo Numbers (from turbine base)
 Facing North: 6638
 Facing East: 6639
 Facing South: 6640
 Facing West: 6641
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 09/10/20

Observer: MES

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

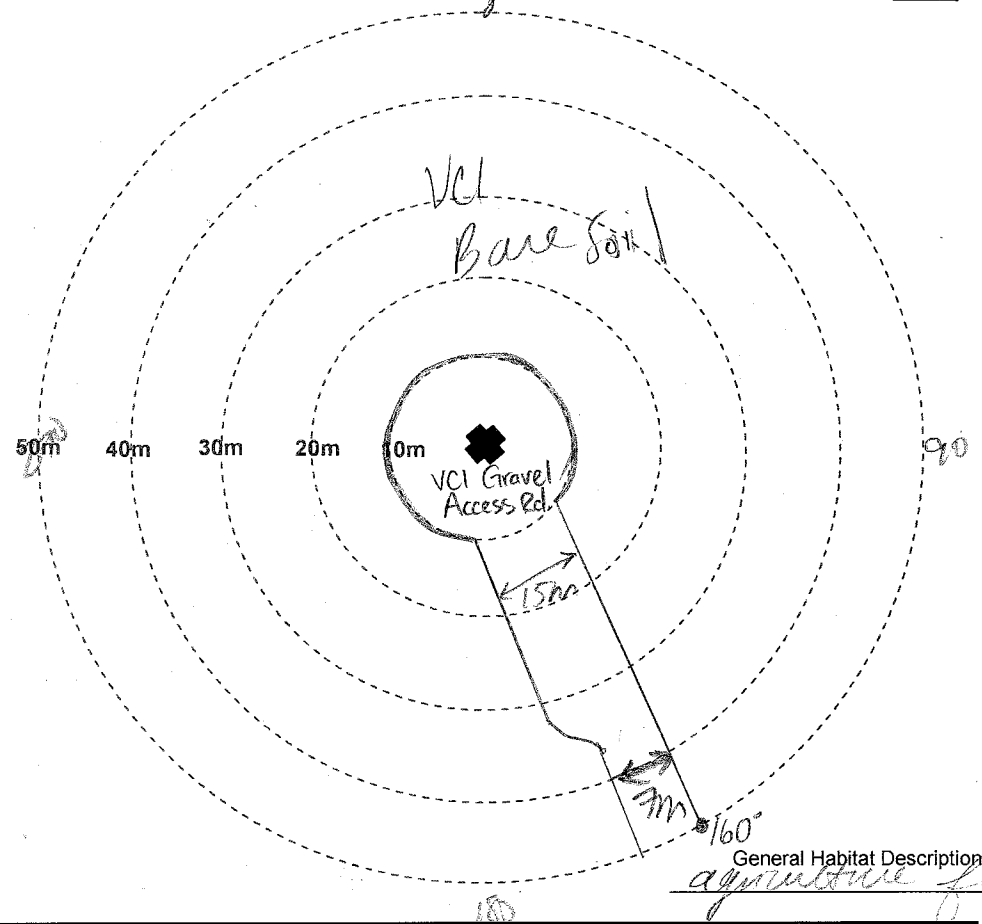
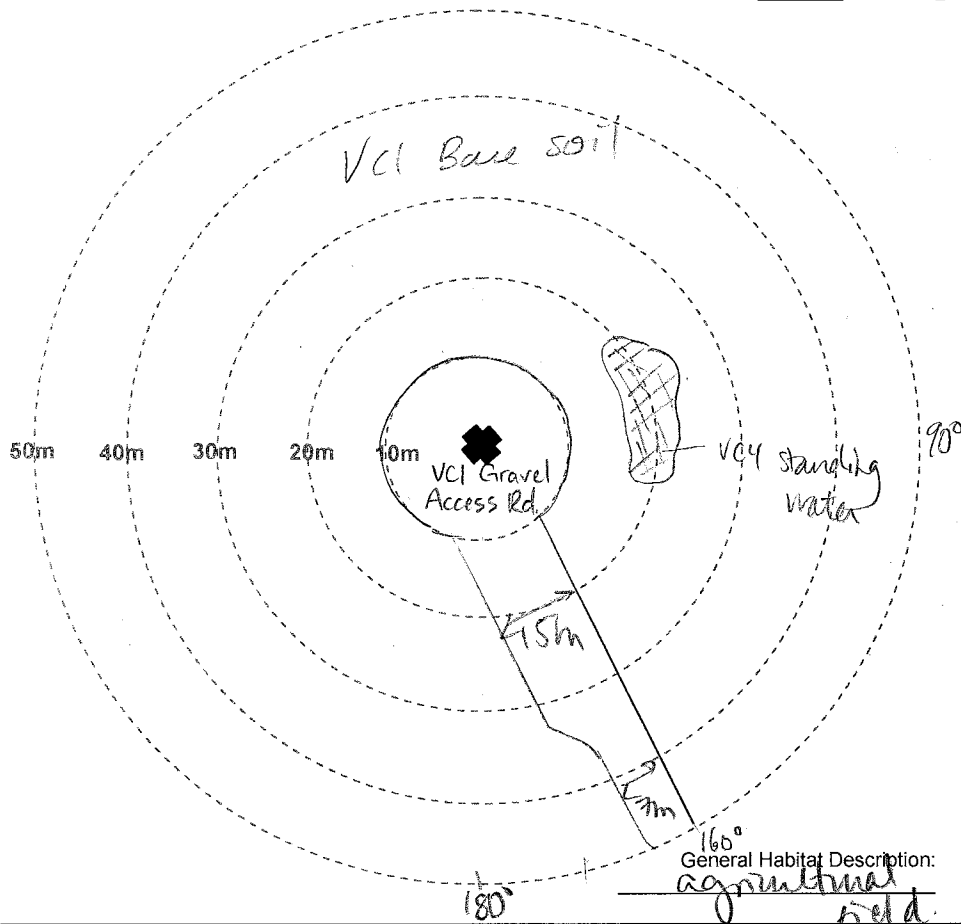
Project Name: Gunn's Hill WF Project #: 1875D Turbine #: 710 Degree of Slope 0 Slope Orientation N/A

Photo Numbers (from turbine base)
 Facing North: 5753
 Facing East: 5754
 Facing South: 5755
 Facing West: 5756
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 15/05/20
 Observer: MES
 Monthly/Seasonal Linear Transect Width: 5 m **N**

Photo Numbers (from turbine base)
 Facing North: 5942
 Facing East: 5943
 Facing South: 5944
 Facing West: 5945
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 05/06/20
 Observer: MES
 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: Gunnis Hill WF Project #: 1875D Turbine #: T10

Photo Numbers (from turbine base)
 Facing North: 6116
 Facing East: 6117
 Facing South: 6118
 Facing West: 6119
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/07/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m

↑
N

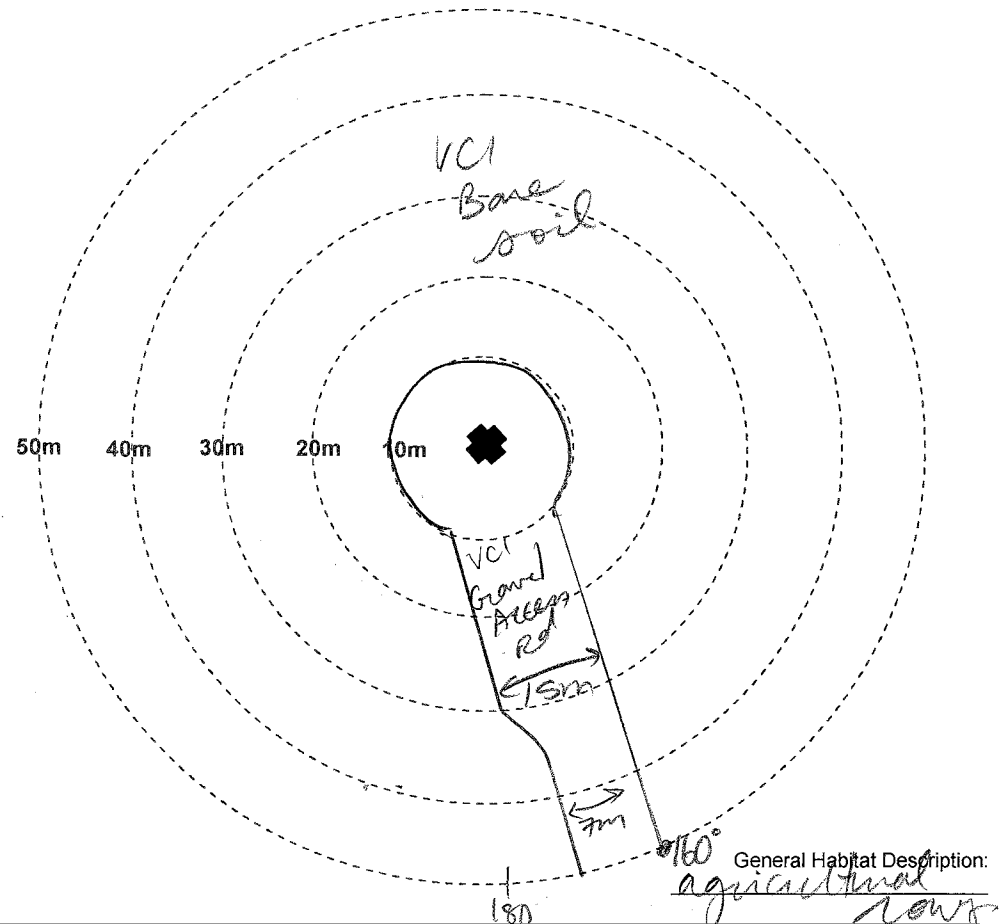
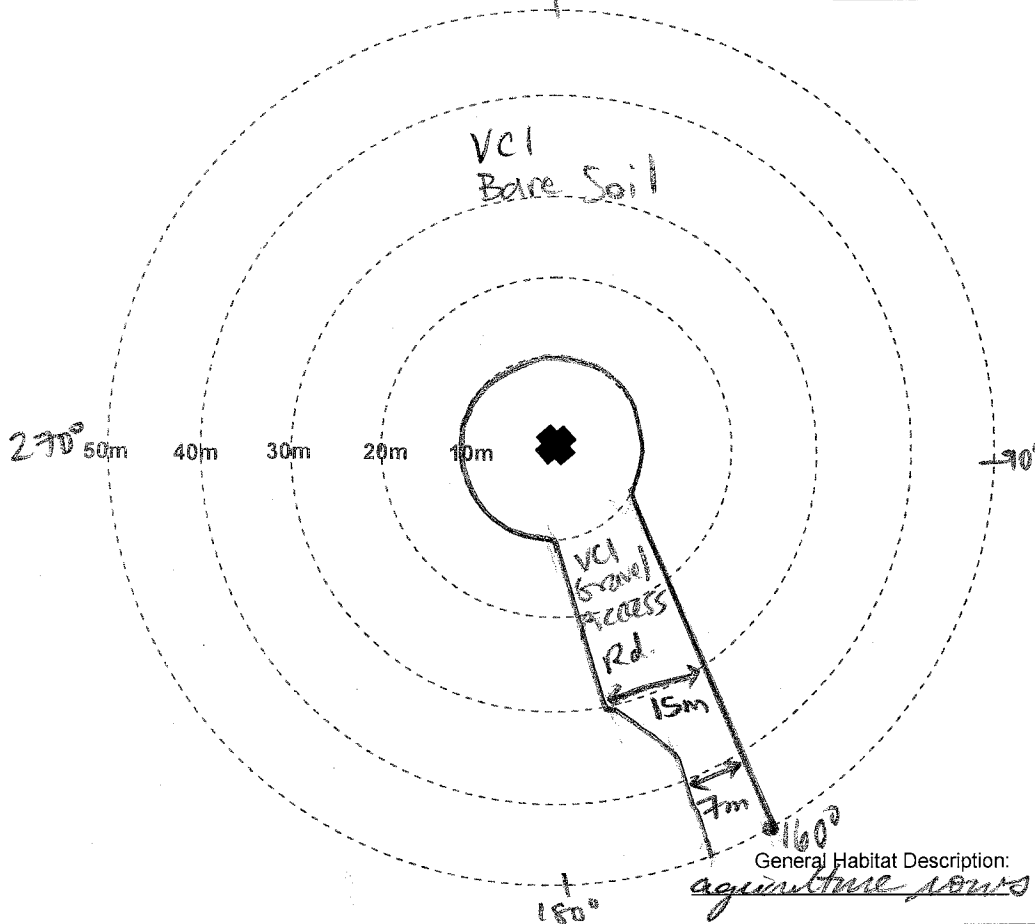
Photo Numbers (from turbine base)
 Facing North: 6259
 Facing East: 6260
 Facing South: 6261
 Facing West: 6262
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 07/08/20

Observer: MES

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: Gunn's Hill WF Project #: 1875D Turbine #: T10

Photo Numbers (from turbine base)
 Facing North: 6504
 Facing East: 6505
 Facing South: 6506
 Facing West: 6507
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 11/09/20

Observer: MES

Monthly/Seasonal
 Linear Transect Width: 5 m

↑
N

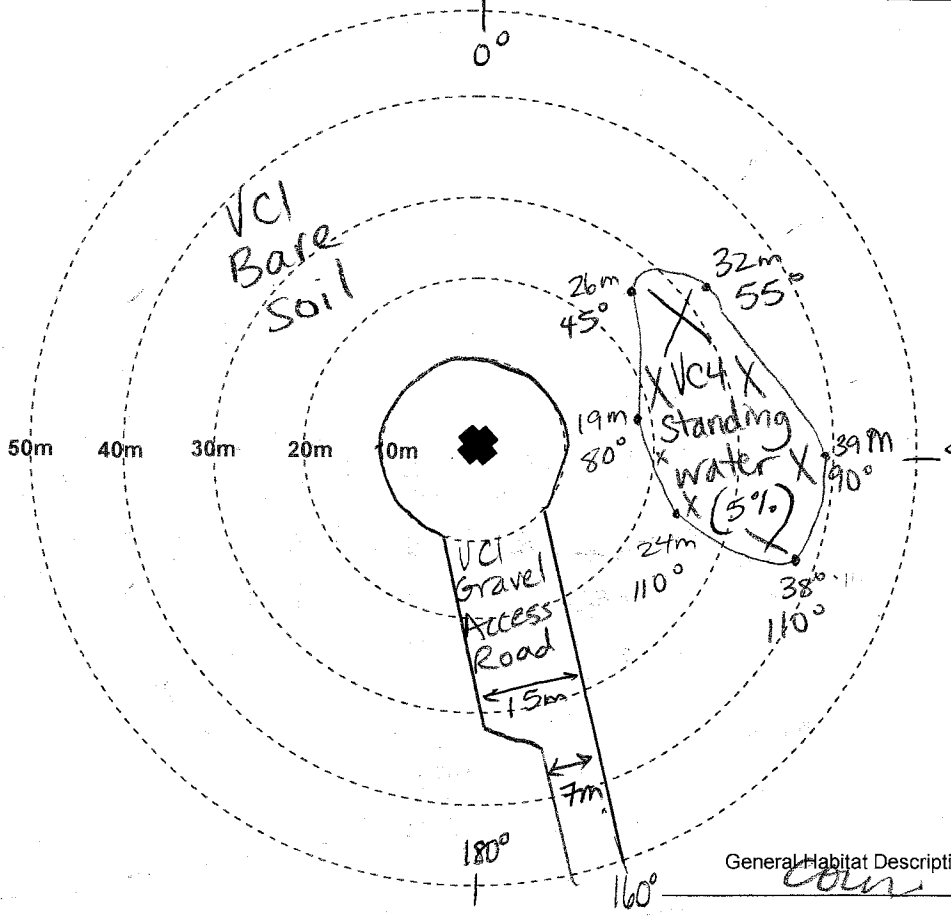
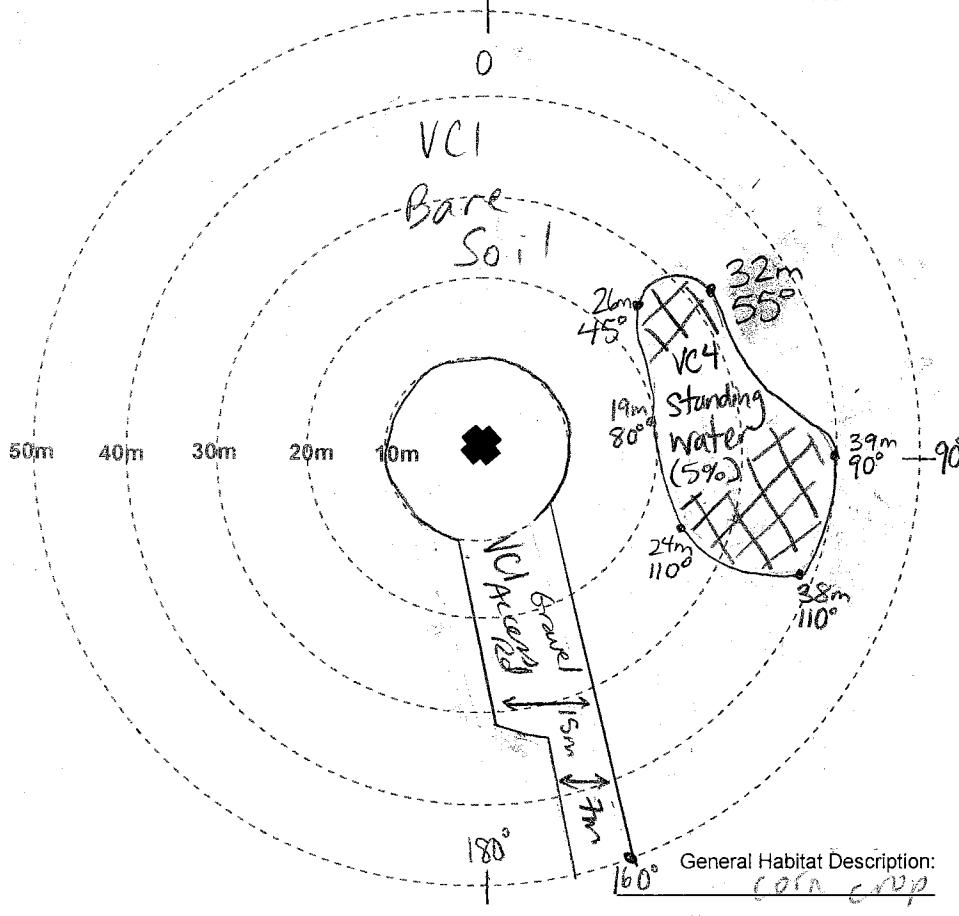
Photo Numbers (from turbine base)
 Facing North: 6642
 Facing East: 6643
 Facing South: 6644
 Facing West: 6645
 (sketch habitat and visibility classes)

Date (DD/MM/YY): 09/10/20

Observer: MES

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