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April 24, 2017

Via Electronic Filing

Ms. Barcy McNeal
Public Utilities Commission of Ohio
Administration/Docketing
180 East Broad Street, 11th Floor
Columbus, OH 43215-3793

Re: Hog Creek Wind Farm LLC, Case Nos. 09-277-EL-BGN
10-654-EL-BGN, 16-1422-EL-BGA and 16-1423-EL-BGA

Dear Ms. McNeal:

On November 29, 2016, the OPSB issued an Order on Certificate approving Hog Creek Wind Farm, LLC's ("Hog Creek") applications to amend its Hog Creek I Certificate (Case No. 09-277-EL-BGN) and Hog Creek II Certificate (Case No. 10-654-EL-BGN) subject to the conditions set forth in the Stipulation and continued compliance with the conditions set forth in the certificate orders as later amended (Order on Certificate at 9).

Within these sets of conditions, Hog Creek I Certificate **Condition No. 8** and Hog Creek II Certificate **Condition No. 25** require that:

Sixty days prior to the first turbine becoming commercially operational. Hog Creek shall submit a post-construction avian and bat mortality monitoring plan for ODNR and staff review and approval. This plan will be based on the turbine layout in conjunction with the Staff Report. Hog Creek's plan shall be consistent with ODNR's On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio. The post construction monitoring shall be conducted for a minimum of two seasons (April 1 to November 15), which may be split between calendar years. The second monitoring season may be waived at the discretion of ODNR and staff. The monitoring start date and reporting deadlines will be provided in the ODNR approval letter and the Board concurrence letter.

On October 27, 2016, Hog Creek filed its Post-Construction Bird and Bat Mortality Monitoring Study Plan in compliance with the above condition. Attached is a copy of the updated Post-Construction Bird and Bat Mortality Monitoring Plan (Attachment 1) based upon comments received from USFWS (Attachment 2) and ODNR (Attachment 3).

If you have any questions please call at the number listed above.

Sincerely,

Sally W Bloomfield

Sally W. Bloomfield

Attachments

cc: Andrew Conway (w/Attachments)
Jonathan Pawley (w/Attachments)

Post-Construction Monitoring Study Plan for the Hog Creek Wind Farm Hardin County, Ohio

Prepared for:

Hog Creek Wind Project, LLC

Prepared by:

Goniela Iskali and Rhett E. Good

Western EcoSystems Technology, Inc.
408 West Sixth Street
Bloomington, Indiana 47404

January 18, 2017

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INTRODUCTION

Hog Creek Wind Project, LLC, a subsidiary of Renewable Energy Systems Americas, Inc. is planning the development of the Hog Creek Wind Farm (Project) in Hardin County, Ohio. The Project will be operational in the fall of 2017 and consists of 30 2.2-megawatt Vestas V110 wind turbines that have a 95 meter (m; 311 foot [ft]) hub height and a 55 m (180 ft) blade length. Hog Creek Wind Project, LLC has requested that Western EcoSystems Technology, Inc. (WEST) develop a 1-year post-construction fatality monitoring plan for 2018, consistent with the Ohio Department of Natural Resources' (ODNR) Option B protocol for post-construction monitoring (ODNR 2009).

STUDY AREA

The Project is located in Hardin County, Ohio and within the Eastern Corn Belt Plains Ecoregion, which encompasses a large portion of central and southern Ohio and Indiana (Woods et al. 1998). The Eastern Corn Belt Ecoregion is a broad, fertile plain with better drained soils than the Huron/Erie Lake Ecoregion. The region is characterized by nearly flat topography; the study area is flat with no hills, ridges, or other areas of starkly elevated topography (USEPA 2002).

The boundary of the Project occurs within an area formerly dominated by extensive elm (*Ulmus* spp.) - ash (*Fraxinus* spp.) swamps and American beech (Fagus grandiflora) forests. Today, most of the forests have been cleared and the swamps artificially drained to make way for highly productive farms producing corn (*Zea mays*), soybean (Glycine max), livestock, and vegetables. According to the US Geological Survey (USGS) National Land Cover Database (USGS NLCD 2011, Homer et al. 2015), cultivated cropland and developed open space are the two most dominant land cover types, totaling approximately 98% of the overall study area (Table 1, Figure 1). The remaining area (approximately 2%) is composed of small areas of deciduous forest and herbaceous land (Table 1, Figure 1).

Table 1. The land cover types, coverage, and composition within a half-mile (about 800 meters) of turbine locations at the Hog Creek Wind Energy Project.

Habitat	Acres	% Composition
Cultivated Crops	6,146	93
Developed, Open Space	300	5
Deciduous Forest	135	2
Developed, Low Intensity	41	<1
Herbaceous	21	<1
Developed, Medium Intensity	2	<0.01
Developed, High Intensity	<1	<0.01
Total	**6,645**	**100.0%**

Data from USGS NLCD 2011, Homer et al. 2015

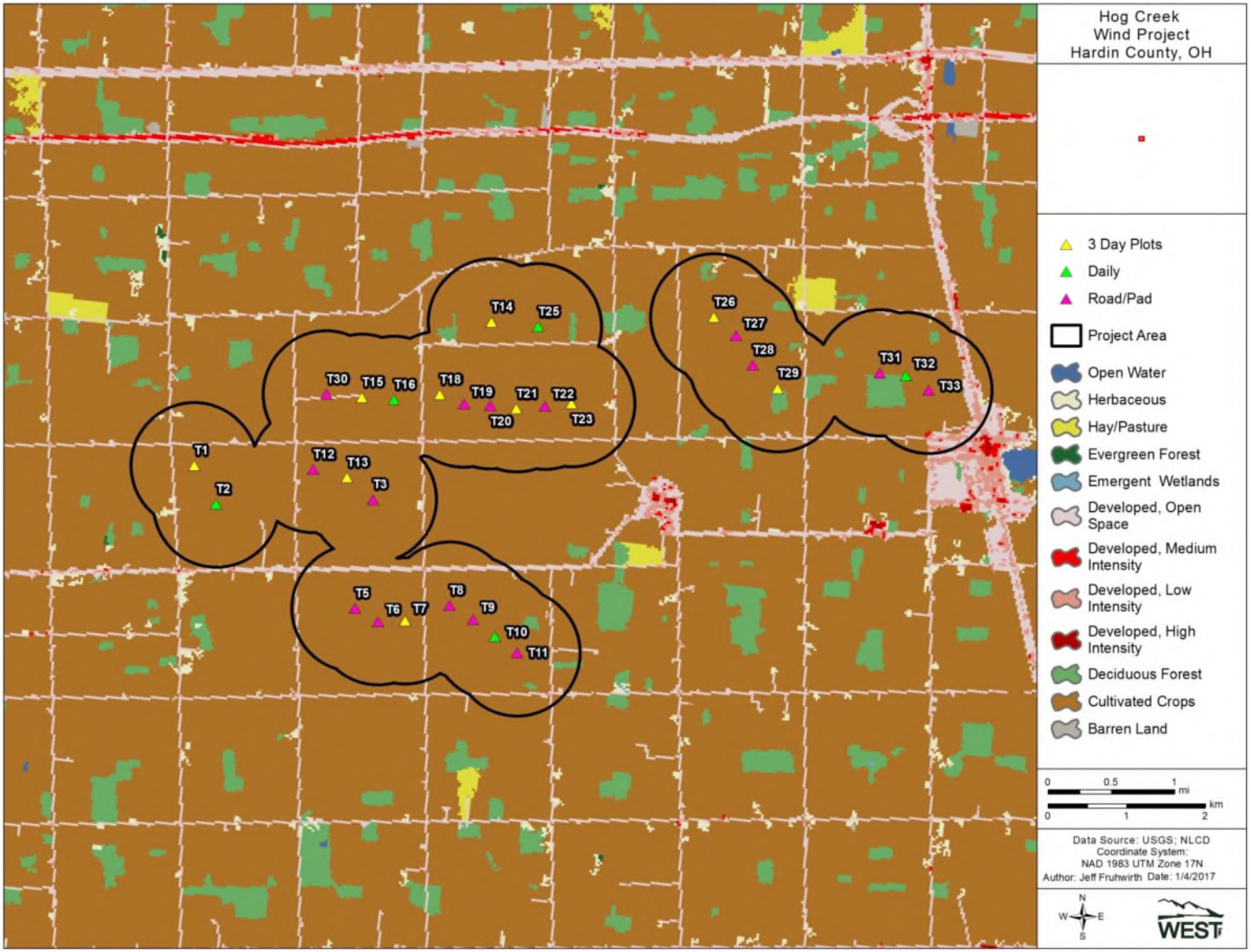

Figure 1. Land cover map and location of searched areas by plot type for the Hog Creek Wind Farm.

METHODS

Standardized carcasses searches will be completed at the Project for avian and bat carcasses. Studies will commence on April 1, 2018, and continue until November 15, 2018.

Observers trained in proper search techniques will conduct the carcass searches. Carcass searches will begin at first light, and end by 1700 hours. Observers will walk north/south or east-west oriented transects 5.0 m (16 ft) apart at a rate of approximately 45 – 60 m per minute (min; 148 – 197 ft/min) along each transect. Observers will scan the area on both sides out to approximately 2.5 m (8.2 ft) for casualties as they walk each transect, thereby surveying the entire plot area. All searches in daily and 3-day plots will end by 5 PM, as per ODNR recommendations (pers. conv. with Kate Parsons on January 4, 2017).

The condition of each carcass found will be recorded using the following categories:

- Intact - a carcass that is complete, is not badly decomposed, and shows no sign of being fed upon by a predator or scavenger.
- Dismembered - a carcass that is found in multiple pieces distributed more than one m (3.3 ft) apart from one another.
- Scavenged - an entire carcass, which shows signs of being fed upon by a predator or scavenger, or a portion(s) of a carcass in one location (e.g., wings, skeletal remains, portion of a carcass, etc.), or a carcass that has been heavily infested by insects.
- Feather Spot - 10 or more feathers or two or more primary feathers (excluding down) at one location indicating predation or scavenging of a bird carcass.

Data to be recorded for each plot searched will include date, start time, end time, observer, turbine number and weather data for each search. When a carcass is found, the observer will record the distance the observer is from the carcass when first observed. Observers will place a flag near the carcass and continue the search. After searching the entire plot, the observer will return to each carcass and record information on a fatality data sheet, including the date, species, sex and age (when possible), observer name, turbine number, measured distance from turbine, azimuth from turbine, location of carcass as Universal Transverse Mercator (UTM) coordinates, habitat surrounding carcass, condition of carcass (intact, scavenged, dismembered, feather spot [for birds only]), and estimated time of death (e.g., less than one day, two to three days, etc.). Digital photographs will be taken of the carcass, any visible injuries, and surrounding habitat.

All carcasses found will be placed in a re-sealable plastic bag and labeled with the unique carcass identification number, nearest turbine number, date, and frozen. Rubber gloves will be used to handle all carcasses to eliminate possible transmission of rabies or other diseases and to reduce any possible human scent bias for any carcasses later used in scavenger persistence

trials. In addition to carcasses, all injured bats and birds observed in search plots will be recorded (labeled as intact) and considered as a fatality for analysis purposes.

The identification of bird and bat carcasses will be verified by experienced bird and bat biologists. Due to the difficulty of identifying *Myotis* species, the identification of all bat carcasses will be verified by biologists permitted to identify and handle threatened and endangered bat carcasses. Bats of the Myotis genus will be frozen and given to ODNR at a prearranged date. If any state or federally threatened or endangered species carcass is found, the ODNR Division of Wildlife (DOW) and the U.S. Fish and Wildlife Service (USFWS) will be contacted within 48 hours. Additionally, if a significant mortality event occurs, ODNR DOW and the USFWS will be notified within 24 hours. The ODNR defines a significant mortality event as greater than five birds and/or bats found at an individual turbine, and/or greater than 20 birds and/or bats found across the entire facility during a 24-hour period.

Casualties found in non-search areas (e.g., outside of a plot boundary), or outside of the scheduled search time, will be coded as incidental discoveries and will be documented in a similar fashion as those found during standard searches.

Any injured bird or bat species found will be evaluated for potential rehabilitation, and the ODNR Wind Energy Biologist will be notified. Birds and bats will be carefully captured by the observer and immediately transported to the nearest wildlife rehabilitation center, if directed by ODNR Wind Energy Biologist or ODNR District Wildlife Office, depending on the rehabilitation center availability. If it is determined that rehabilitation is not likely, the injured bird or bat may be humanely euthanized, unless the species in question is a state- or federally-protected species, in which case the appropriate agency will be contacted before the individual is euthanized. Before any bat is euthanized in the field, especially Myotis species, the animal will be positively identified. If a bat is a state or federally listed species, the appropriate agencies (ODNR DOW or USFWS Columbus Field Office) will be called immediately for further direction. Any animal euthanized will be placed in a plastic bag, labeled, and maintained similarly to the carcasses described above.

Number of Turbines Sampled, Search Frequency and Search Area / Plot Size

All 30 turbines will be searched at either daily, 3-day or 7-day intervals, using two different plot sizes and roads and pads searches. Turbines for each of the search types were selected using a systematic sample with random start. Five turbines will have vegetation regularly mowed within 110 m (361 ft), and will be searched daily. Ten turbines will have vegetation mowed within 66 m (217 ft) of the turbine and will be searched at a 3-day interval. The gravel roads and pads will be searched within 100 m (328 ft) of the turbine at 7-day intervals at the remaining 15 turbines at the Project (Figure 1, Table 2).

Table 2. Turbines by search treatment type (daily, three-day, and weekly) selected using a systematic sample with a random start.

Daily Search Turbines	3-Day Search Turbines	Weekly Road and Pad Search Turbines
T2	T1	T3
T10	T7	T5
T16	T13	T6
T25	T14	T8
T32	T15	T9
	T18	T11
	T21	T12
	T23	T19
	T26	T20
	T29	T22
		T27
		T28
		T31
		T32
		T33

Vegetation Clearing and Search Area Mapping

The boundaries of all cleared plots and road and pad plots will be recorded using Global Positioning System (GPS) technology. All of cleared plots will be located within corn or soybean fields, and will be regularly mowed to maintain a height of four inches (10 centimeters) or less, providing relatively uniform searching conditions across all cleared plots. Areas of roads and pads within cleared plots will also be delineated.

Searcher Efficiency Trials

The objective of the searcher efficiency trials is to estimate the percentage of casualties which are found by observers. Searcher efficiency trials will be conducted in the same areas where carcass searches occur. Trials will be conducted in each season of the study period (i.e., the spring, summer, and fall). Searcher efficiency will be estimated according to size of carcass found and season. Estimates of searcher efficiency will be used to adjust the total number of carcasses found for those missed by observers, correcting for detection bias.

Searcher efficiency trials will begin when carcass search studies begin. A total of 200 searcher efficiency trials will be conducted, stratified by plot type and size class (Table 3). Trials will be completed during each month of the survey. Observers conducting carcass searches will not know when trials are conducted or the location of the detection carcasses. Carcasses will vary in terms of composition and stage in decomposition. Bird and bat carcasses provided by the ODNR will be used, if available. If bird carcasses similar to those species found in the area are not available or only available in limited quantities from the ODNR, alternative sources will be explored. If species similar to those found on site cannot be located from alternative sources, we will contact the ODNR for further assistance and direction about potentially using commercially available sources.

Table 3. Distribution of carcasses to be used in searcher efficiency trials by search protocol.

Search Protocol	Number of Bat Carcasses	Number of Small Bird Carcasses	Number of Large Birds Carcasses
Daily Search Turbines	23	23	22
3-Day Search Turbines	22	22	22
Weekly Road and Pad Turbines	22	22	22
Total	**67**	**67**	**66**

Each trial carcass will be discreetly marked with a black zip-tie around the leg for birds or around the upper forelimb for bats so that it can be identified as a study carcass after it is found. Carcasses will be placed prior to the carcass search on the same day by a person not searching the turbines. Carcasses will be dropped from waist-height or higher and allowed to land in a random posture. The number and location of carcasses found during the subsequent carcass search will be recorded, and the number of carcasses available for detection during each trial will be determined immediately after each trial by the person responsible for distributing the carcasses.

Carcass Persistence Trials

The objective of carcass persistence trials is to estimate the average length of time (in days) a carcass will persist (i.e., before a carcass will no longer be available for detection). Carcasses may not persist due to removal by predation or scavenging, or removal by other means, such as typical farming activities. Estimates of carcass persistence will be used to adjust the total number of carcasses found for those removed from the study area, correcting for removal bias.

Carcass persistence trials will begin when carcass search studies begin, and will be stratified by size class and plot type (Table 4). Proposed sample sizes exceed ODNR recommendations, and will be completed during each season (spring, summer, and fall). A subset of the same carcasses used for searcher efficiency trials will be used for carcass persistence trials.

Table 4. Distribution of carcasses to be used in carcass persistence trials by search protocol.

Search Protocol	Number of Bat Carcasses	Number of Small Bird Carcasses	Number of Large Birds Carcasses
Daily Search Turbines	15	15	15
3-Day Search Turbines	15	15	15
Weekly Road and Pad Turbines	15	15	15
Total	**45**	**45**	**45**

Observers conducting carcass searches will monitor the trial birds over a 40-day period according to the following schedule as closely as possible. Carcasses will be checked every day for the first seven days and then every two days thereafter. Trial carcasses will be left at the location until they are removed by scavenging or other means, completely decomposed, or the end of the carcass persistence trial, whichever occurs first. At the end of the 40-day period, any remaining evidence of each carcass will be removed from the search plot.

Statistical Analysis

In keeping with the overall goals of the monitoring study, analyses will include estimates of mortality for birds and bats. Estimates of facility-related fatalities will be based on:

1) Observed number of carcasses found during standardized searches during the monitoring period;
2) Carcass persistence rates, expressed as the estimated average probability a carcass is expected to remain in the study area and be available for detection by the observers during searches;
3) Searcher efficiency, expressed as the proportion of study carcasses found by observers during searcher efficiency trials; and
4) Adjustments for area searched.

The total number of bird or bat carcasses will be estimated by adjusting for persistence and searcher efficiency bias using both the Huso and Shoenfeld estimators (e.g., Huso 2011, Shoenfeld 2004).

REPORTING

This monitoring study will provide information on bird and bat fatality rates associated with operation of the Project. The data will be used to evaluate the overall impacts of the Project on birds and bats. The final disposition of data from the study at the Project will be with Hog Creek Wind Farm, LLC, and will include the data forms (e.g., Appendix A) and electronic data files. In addition, all original data sheets and electronic data files will also be provided to the ODNR. During the study, the raw data forms and individual carcasses collected during the study will be housed in a freezer located at the Project. The final disposition of individual casualties will be based on direction from the appropriate salvage permits from the ODNR and the USFWS.

A final report will be submitted to the USFWS and ODNR by February 1, 2019. The final report will include data pertaining to avian and bat fatalities discovered during the study. In addition, monthly updates will be provided to the ODNR and USFWS, including the species and number of fatalities found by turbine, in an excel spreadsheet. A Microsoft SQL database of data collected during the study will be sent to the ODNR upon completion of the field study and final report.

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Appendix A. Datasheets to be Used for Study

Hog Creek Wind Farm 2018

CASUALTY SEARCH FORM

DATE:_____ OBSERVER(s):_____ TURBINE NO.: _____ Spinning (Y/N)_____
TIME BEGIN:_____ TIME END:_____ (observer #2) TIME BEGIN:_____ TIME END:_____
DOM VEG COVER (for turbine): _____AVG HT (in): _____FOUND DURING (circle): scheduled search OR Incidental find
☐ NO CASUALTIES FOUND ☐ PAD AND ROAD SEARCH ONLY ☐ PLOT SEARCH Interval Since Last Search: _____

Temperature (F) _____ Precipitation: none light rain rain light snow other Weather since last search_____

CASUALTIES FOUND:

Species	1st Dist, (m)/Bearing from turb	Casualty ID (e.g. 051211-ERBA-334-1)	Dominant Veg/landcover	Visibility Index

SEARCHER EFFICIENCY CARCASSES FOUND:

Species	Distance (m)/Bearing from turbine /	ID Tag	Dominant Veg/landcover	Visibility Index

---

DATE:_____ OBSERVER(s):_____ TURBINE NO.: _____ Spinning (Y/N)_____
TIME BEGIN:_____ TIME END:_____ (observer #2) TIME BEGIN:_____ TIME END:_____
DOM VEG COVER (for turbine): _____AVG HT (in): _____FOUND DURING (circle): scheduled search OR Incidental find
☐ NO CASUALTIES FOUND ☐ PAD AND ROAD SEARCH ONLY ☐ PLOT SEARCH Interval Since Last Search:

Temperature (F) _____ Precipitation: none light rain rain light snow other Weather since last search_____

CASUALTIES FOUND:

Species	1st Dist, (m)/Bearing from turb	Casualty ID (e.g. 051211-ERBA-334-1)	Dominant Veg/landcover	Visibility Index

SEARCHER EFFICIENCY CARCASSES FOUND:

Species	Distance (m)/Bearing from turbine /	ID Tag	Dominant Veg/landcover	Visibility Index

---

DATE:_____ OBSERVER(s):_____ TURBINE NO.: _____ Spinning (Y/N)_____
TIME BEGIN:_____ TIME END:_____ (observer #2) TIME BEGIN:_____ TIME END:_____
DOM VEG COVER (for turbine): _____AVG HT (in): _____FOUND DURING (circle): scheduled search OR Incidental find
☐ NO CASUALTIES FOUND ☐ PAD AND ROAD SEARCH ONLY ☐ PLOT SEARCH Interval Since Last Search:_____

Temperature (F) _____ Precipitation: none light rain rain light snow other Weather since last search_____

CASUALTIES FOUND:

Species	1st Dist, (m)/Bearing from turb	Casualty ID (e.g. 051211-ERBA-334-1)	Dominant Veg/landcover	Visibility Index

SEARCHER EFFICIENCY CARCASSES FOUND:

Species	Distance (m)/Bearing from turbine /	ID Tag	Dominant Veg/landcover	Visibility Index

---

Veg/Landcover Codes: BA = bare ground (dirt...), GL = gravel road or pad, SB = shelterbelt, PA = pasture, GR = grassland, DS = deciduous shrub, FR = forest/woodlot, CT = cropland tilled – specific type: CO = corn, SO = soybean, WH = wheat, AI = alfalfa, OT = other **Cas. ID** = date-species-T # - # of casualties found at T. **ID Tag**=Green electrical tape (SEEF); black zip tie (CRT). **Visibility Index** = Easy, Moderate, Difficult, Very Difficult

TURBINE BEING SEARCHED: _____**Searcher:** _____

Casualty ID # (example ID: 010109-BARS-1-1) **:** _____

Date Found: _____ **Time Found:** _____

Found During (circle one): Scheduled Carcass Search Incidental Find

CASUALTY (circle one)**:** Bird / Bat

Species Name: _____ **Species Code:** _____

Collected (circle one)**:** Yes No

Age (circle one)**:** A J U **Sex** (circle one)**:** M F U

Forearm measurement (for bats): _____

Physical Condition at time of find (circle one)**:** Intact / Feather Spot / Scavenged / Dismembered / Injured

If Injured (circle one): Euthanized / Released / Transported to rehab. facility

Position (circle one): Face Up Face Down Sideways

Describe injuries: _____

_____

Scavenging: Yes No **Possible Scavengers:** (circle the most prevalent)

small carnivores large carnivores

rodents corvids or other birds unknown

insects (external scavenging)

other: _____

Scavenging Notes:_____

_____

Carcass Condition:

_____ No Decomposition (no visible signs of decomp.)

_____ Decomposing – early (flesh mostly present)

_____ Decomposing – late (flesh mostly absent)

_____ Desiccated

_____ N/A (e.g., feathers only)

Infestation:

_____ None _____ Flies

_____ Ants _____ Maggots

_____ Bees/Wasps _____ Beetles

_____ Grasshoppers _____ Other

Eyes:

_____ Round/fluid filled

_____ Dehydrated

_____ Sunken

_____ Absent (empty skull)

_____ N/A (e.g., head missing)

Estimated time of death (mark only one):

_____ Last night _____ 14-30 days

_____ 1 – 3 days _____ > 1 Month

_____ 4 – 7 days _____ Unknown/Undetermined

_____ 7 – 14 days

Photo Numbers (at least 4 photos of fatality and surrounding landscape):_____

Additional Notes: _____

_____

_____

LOCATION (Part # 1) Nearest turbine **(number):** _____ **Found Outside of plot?** Yes No

Quadrant: NE SE NW SW **Bearing from turbine:** _____ **Distance from turbine (m):** _____

Transect #:_____ Perpendicular Distance to Transect (m):_____

UTM: Datum: _____(i.e. NAD 27) Easting (6 digits):_____ Northing (7 digits):_____

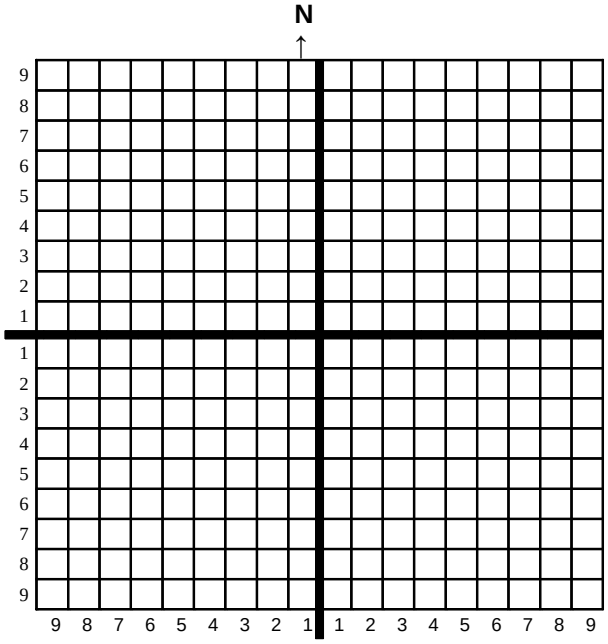
LOCATION (Part # 2) Nearest turbine **(number):** _____ **Found Outside of plot?** Yes No

Quadrant: NE SE NW SW **Bearing from turbine:** _____ **Distance from turbine (m):**_____

Transect #:_____ Perpendicular Distance to Transect:_____

UTM: Datum: _____ (i.e. NAD 27) Easting:_____ Northing:_____

Map Approx. Location on diagram: (label with part number)



VEGETATION (w/in 1 m² of carcass)

Dominant Cover (choose only one):

_____ Bare Ground (0% veg; e.g. dirt)
_____ Road and pad
_____ Grassland
_____ Cropland
  _____ Corn
  _____ Soybean
  _____ Wheat
_____ Other: _____

% Veg cover w/in 1 m radius of carcass (circle one):
<10 11-25 26-50 50-75 75-99 100

White Nose Index (0-3): _____

Visibility Index:

_____ Easy (e.g. ≥ 90% bare ground; vegetation <6" tall)
_____ Moderate (e.g.,26-89 % BG; vegetation < 6" tall)
_____ Difficult (e.g. ≤ 25% BG; ≤ 25% ground cover ≥ 12" tall vegetation or rock/scrub)
_____ Very Difficult (e.g., ≤ 25% BG; > 25% of ground cover ≥ 12" tall vegetation or rock/scrub)
_____ Not searched (dense shrub/tree cover)

Slope >25%: Yes No
Veg. Height: Max_____ Avg._____

Additional Notes

Searcher Efficiency Trials: Carcass Placement Log **Hog Creek Wind Farm 2018**

General Information: Season_____ Month_____

No.	Date placed	Time	Placed by	Species		Age	Size LB, SB, Bat	Turbine #	Dist. (m)	Bearing from turbine	UTM datum (i.e.NAD 27 or 83)	Northing (7 digits)	Easting (6 digits)	Dom Veg cover	Visibility Index	Found?		Retrieved (y/n)	Shoenfeld Est. Information	
				Bird	Bat											Found (y/n)	If found, date found?		Available (y/n))	Date of Availability*
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				

Veg Cover: (may change per project) BA = bare ground ; RK=Rock, large rocks/boulders; GR – grassland; GL - gravel ; CR – cropland; Specific type – corn, soybean, wheat; OT = other
Visibility Index - E = Easy (e.g., ≥ 90% bare ground; vegetation < 6" tall); M = Moderate (e.g., 26-89% bare ground; vegetation < 6" tall); D = Difficult (e.g., ≤ 25% bare ground; ≤ 25% of ground cover is ≥ 12" tall vegetation or rock/scrub); VD = Very difficult (e.g., ≤ 25% bare ground; ≥ 25% of ground cover is ≥ 12" tall vegetation or rock/scrub);

Weather notes for days that carcasses are placed:

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Additional Comments

Carcass Removal Trials Form ***Hog Creek***

Carcass # _______ Placed by_____________ Season_____________ Date_______________ Time ___________

				Information Regarding Carcass When Placed							
Species	Previous frozen (y/n)	Age	Size	Dominant Veg cover	Visibility Index	Plot/ Turbine	Dist from Turbine (m)	Bearing from Turbine	UTM datum (i.e. NAD 27)	Northing	Easting

Condition of Carcass on Day Checked																							
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 9	Day 11	Day 13	Day 15	Day 17	Day 19	Day 21	Day 23	Day 25	Day 27	Day 29	Day 31	Day 33	Day 35	Day 37	Day 39	Day 40

Possible Scavenger(s)

Carcass # _______ Placed by_____________ Season_____________ Date_______________ Time ___________

				Information Regarding Carcass When Placed							
Species	Previous frozen (y/n)	Age	Size	Dominant Veg cover	Visibility Index	Plot/ Turbine	Dist from Turbine (m)	Bearing from Turbine	UTM datum (i.e. NAD 27)	Northing	Easting

Condition of Carcass on Day Checked																							
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 9	Day 11	Day 13	Day 15	Day 17	Day 19	Day 21	Day 23	Day 25	Day 27	Day 29	Day 31	Day 33	Day 35	Day 37	Day 39	Day 40

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Possible Scavenger(s)

Conditions: **I** = intact, no evidence of scavenging **S** = evidence of scavenging **FS** = feather spot ($\geq$ 10 feathers, $\geq$ 2 primary feathers)
0 = carcass not present or <10 feathers **SC=** snow covered

INCIDENTAL OBSERVATIONS **Location/Facility:** ______________________________ Page_____of______

OBSERVER: ____________________ Survey being conducted when observed________________

DATE of first observation on this pg: ________________ **DATE of last observation on this pg:** ______________

DATE	OBS. No.	Time	Species	Sex	Age	No. in group	Dist from observer (m) 1st / closest	Habitat[a]				LOCATION Observed between pts **OR** UTMs for sensitive spp.		Notes
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
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								RI	FR	RO	OT			
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								SB	GR	BG	AG			
								RI	FR	RO	OT			
								SB	GR	BG	AG			
								RI	FR	RO	OT			

SB-shrub-steppe, GR-grassland, BG- bare ground, AG-agriculture, RI-Riparian, FR-forest/woodlot, RO-rocky outcrop/cliff, OT-other

ATTACHMENT 2

Anne-Marie Griger

From: Rhett Good <rgood@west-inc.com>
Sent: Friday, December 16, 2016 3:03 PM
To: Lott, Keith
Cc: Kate Parsons; Anne-Marie Griger; Mason Sorenson; Sean Flannery; Goniela Iskali
Subject: Re: Hog Creek Post-Construction Monitoring Plan

Hi Keith - Thanks for your review. To answer your questions, yes fatalities found at non-search turbines will be collected. RES is also aware that the owner of the Project will need to obtain a special use permit. Construction of the Project is expected to occur during 2017, and the project will begin operation sometime in late 2017.

On Thu, Dec 15, 2016 at 12:58 PM, Lott, Keith <keith_lott@fws.gov> wrote:
Rhett,

Thank you for providing the study plan. I finally had a moment to look it over this morning. I don't have any comment on the level of effort or the techniques, I'll leave that up to ODNR DOW since it's their protocol. I did have a couple of questions/comments you can address without much issue.

1.) I just wanted to confirm that fatalities found at non-searched turbines will be collected. It says they will be "documented", but of course with limited availability of carcasses and the desire to confirm identifications I wanted to make sure they are collected.

2.) Remember that RES should obtain a Migratory Bird Special Purpose Utility Permit (https://www.fws.gov/forms/3-200-81.pdf) in order to legally collect and temporarily possess species covered under the Migratory Bird Treaty Act.

3.) When is this project expected to be operational?

Keith

On Fri, Dec 9, 2016 at 2:25 PM, Rhett Good <rgood@west-inc.com> wrote:
Hello Keith and Kate,

Please find attached a draft of the Hog Creek post-construction monitoring plan for your review. The post-construction monitoring plan was developed to follow Option B Guidelines; an earlier version was formally submitted to the OPSB as part of their permit compliance process. The plan has been revised slightly since the original submittal, including a minor revision to assignment of plot types to turbines, and removal of acoustic monitoring per Hog Creek's voluntary agreement.

We wanted to provide the plan for your review and input. Please let me know if you have any questions, or if you would like to discuss further. We look forward to hearing your feedback.

--

Rhett E. Good

Research Biologist / Senior Manager

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Response to ODNR Comments 12/22/16

• Daily searches will be conducted at 5 turbines, 3-day interval searches will be at 10 turbines, and the remaining 15 turbines will be searched using the described roads and pads double-sampling method.

- The ODNR Option B Protocol does state that a minimum of 5 turbines should be searched daily. The protocol should be revised.

• All searches, to include daily and 3-day intervals, should start at first light and end by 1 pm.

- The ODNR approved a lengthened search day for Blue Creek and Timber Road to approximately 5 pm. The reason why the ODNR proposed stopping searches at 1pm was to reduce potential scavenging bias by day time scavengers, such as crows and turkey vultures. Five years of post-construction monitoring at Blue Creek and Timber Road has shown that most carcasses last much longer than 24 hours, and the American crow and turkey vulture are not common scavengers of carcasses in Ohio. Night time scavengers such as common raccoon and eastern skunk are the most common scavengers. Requiring searches to stop at 1pm requires firms to utilize more crews and vehicles, which increases the costs of surveys while providing no realized benefit to carcass monitoring studies. We request that search end times be extended to 5 pm.

• Bats within the Myotis family should be frozen and given to ODNR at a prearranged date. Additionally, if any state and federally listed species are found the ODNR should be contacted within 48 hours, at that time arrangements will be made for turning over the carcass to the appropriate agency.

- This will be added to the protocol.

• Before any bat is euthanized in the field, especially Myotis species, the animal should be positively identified. If a bat is a state or federally listed species, the appropriate agencies (Ohio Division of Wildlife or U.S. Fish and Wildlife Service's Columbus Field Office) should be called immediately for further direction.

- This will be added to the protocol.

• During searcher efficiency and carcass removal trials, surrogate and game species will not be used. Efforts will be made to obtain species that are collected from the site and carcasses from elsewhere that are expected to be encountered during the searches. Carcasses used should vary in both composition and stage of decomposition. WEST, Inc. should seek alternative sources that may be able to provide carcasses within Ohio and should consult ODNR Wind Energy Biologist if additional carcasses or alternative approaches are needed.

- Finding carcasses from other sources in Ohio has proven difficult. We will seek other sources of carcasses, such as bat and bird rehabilitation centers and zoological museums, however, we will need to rely on the ODNR to provide the majority of carcasses needed for searcher efficiency and carcass removal trials.

Case No(s). 09-0277-EL-BGN, 10-0654-EL-BGN, 16-1422-EL-BGA, 16-1423-EL-BGA

Summary: Correspondence of Hog Creek Wind Farm LLC in Compliance with Certificate Condition Nos. 8 and 25 - Updated Post-Construction Mortality Monitoring Study Plan electronically filed by Teresa Orahood on behalf of Sally W. Bloomfield