

August 24, 2021

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3797

Re: Case No. 20-417-EL-BGN -In the Matter of the Application of Grover Hill Wind, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Wind-Powered Electric Generation Facility in Paulding County, Ohio.

Response to Third Data Request from Staff of the Ohio Power Siting Board

Dear Ms. Troupe:

Attached please find Grover Hill Wind, LLC's ("Applicant") Response to the Third Data Request from the staff of the Ohio Power Siting Board ("OPSB Staff"). The Applicant provided this response to OPSB Staff on August 24, 2021.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ Christine M.T. Pirik

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CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to these cases. In addition, the undersigned certifies that a copy of the foregoing document is also being served upon the persons below this 24th day of August, 2021.

/s/ Christine M.T. Pirik

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Administrative Law Judge:

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4852-9474-6872 v1 [73809-23]

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Application of Grover Hill Wind,)
LLC for a Certificate of Environmental Compatibility)
and Public Need to Construct a Wind-Powered) Case No: 20-417-EL-BGN
Electric Generation Facility in Paulding County, Ohio)

**GROVER HILL WIND, LLC 'S
RESPONSE TO THE THIRD DATA REQUEST
FROM THE STAFF OF THE OHIO POWER SITING BOARD**

On May 3, 2021, as supplemented on June 7, 2021, Grover Hill Wind, LLC (“Applicant”) filed an application (“Application”) with the Ohio Power Siting Board (“OPSB”) proposing to construct a wind-powered electric generation facility in Paulding County, Ohio (“Project”).

On June 29, 2021, the Staff of the OPSB (“OPSB Staff”) provided the Applicant with OPSB Staff’s Third Data Request. Now comes the Applicant providing the following response to the Third Data Request from the OPSB Staff.

- 1. Page 13 speaks to the disposal of sewage and wastewater to either a septic system or municipal treatment system. Confirm which one of these options will be used and provide a summary of potential sources of the wastewater.**

Response: Sewage and wastewater will be disposed of to a septic system. Wastewater will be generated during construction in the laydown yard and during operations at the operations and maintenance (“O&M”) building in a quantity typical of a small commercial facility.

- 2. Figure 7 of the application illustrates that several water wells exist within the project boundary. Specify minimum distances between these wells and any of the proposed wind facility equipment (including collection lines).**

Response: The distance between the nearest wells and facility equipment are shown in the table below. A total of 3 unique wells are located between 17.6 feet and 630.6 feet from facility equipment.

Well ID	Name of Facility Equipment ¹	Distance to Nearest Well (feet)
906325	Temporary Access Road	17.6
906325	Permanent Access Road	25.6
1001558	6mw Collection Line	39.5
91534	O&M Building	90.0
1001558	Crane Path	155.3
91534	Laydown Yard	310.0
91534	Substation	630.6
¹ Distances were measured based on a temporary access road width of 32 feet, permanent access road width of 16 feet, 50-foot-wide temporary workspace for the 6mw collection line, and a 30-foot-wide temporary crane path.		

3. **Given the potential for perched groundwater discussed within the application, has the Applicant determined if the turbine foundations are expected to impact the project area hydrogeology? If so, please discuss the extent of that potential impact.**

Response: A hydrological study has been initiated to review the hydrological features of the Project Area and to determine if turbine foundations would impact area hydrogeology. This report will be drafted and presented to the OPSB Staff on or before Friday, August 27, 2021. The issue of impacts to perched groundwater, if encountered, will be addressed.

Geology

4. **Page 77 of the application discusses detailed geotechnical investigation techniques for the purpose of ascertaining karst potential. If available at this time, provide detailed plans for this geotechnical work.**

Response: A hydrological investigation has been initiated. The data collection and analysis were initiated the week of July 26, 2021. It is estimated that the analysis and reporting effort will last approximately 5 weeks (through August 27, 2021). The Applicant anticipates having the completed hydrological report ready to provide to the OPSB Staff by the second week of September.

5. **Pages 177-178 of the application discusses “decommissioning and removal”. Will concrete foundations for turbines be removed in their entirety at the time of decommissioning?**

Response: Concrete foundations will be removed in their entirety up to 36 inches below the ground surface. Any foundations greater than 36 inches below the ground surface will remain in-place. The specific features of the foundations will be established following the completion of the geotechnical study and the final turbine selection for the Project.

The following details regarding decommissioning of the turbine foundations and site restoration is provided on page 4 of Application Exhibit CC, the Grover Hill Decommissioning Plan dated April 2021, which was filed on May 3, 2021:

Turbine foundations are fabricated of concrete and rebar. As discussed above, topsoil from the area surrounding the foundations will be stripped and stockpiled proximal to the work site to keep the soil separate and secure from contamination prior to preapplication during restoration activities. The turbine foundation will be exposed using backhoes, bulldozers and other earth moving equipment. The upper part of the turbine foundation will be removed to a depth of 36 inches below the ground surface using heavy machinery to break up the concrete. Concrete and rebar will be broken into manageable-sized pieces and placed into containers to be hauled off site to be recycled or disposed.

Following the removal of turbines and upper foundations, the resulting voids will be backfilled with native subsoils and compacted to at least 90% of the fill material's standard Proctor density. Topsoil will then be reapplied to the site and graded to match surrounding grade to pre-serve or promote pre-existing drainage patterns. The topsoil will be de-compacted to a minimum depth of 18 inches and tilled to a farmable condition where applicable. If necessary, the site will be temporarily or permanently re-vegetated, depending upon location, time of year and anticipated post-decommissioning land use. Any drain tile lines damaged during removal and restoration of turbine foundation areas will be repaired to ensure proper drainage is maintained.

6. **Exhibit G (Desktop Geohazard Assessment by Westwood) Executive Summary indicates the desktop assessment “has revealed no subsurface conditions that would preclude the development of the proposed wind project.” Exhibit 8 shows conditions (carbonate bedrock overlain by less than 20 feet of glacial drift) necessary for karst feature development exists. If karst features are identified during construction, what mitigation efforts will be pursued to ensure adequate foundations for all wind facility equipment?**

Response: The goal is to identify potential karst features prior to construction by conducting a detailed geotechnical evaluation. Application Exhibit G, the Desktop Geohazard Assessment, filed on May 3, 2021, indicates that karst features are a low to moderate risk and those additional evaluations should be conducted during the geotechnical investigation.

A geotechnical evaluation is tentatively scheduled for late-August 2021. Should shallow rock be encountered, the evaluation will involve rock coring, observing for water loss or tool drop while drilling, surveying the site for surficial karst topography such as depressions, and a visual inspection of voids in rock at nearby limestone quarries, if accessible. Seismic refraction and surface wave surveys will also be performed at a number of locations, which can be helpful in assessing potential subsurface voids (i.e. karst features) and rock quality, among other soil and rock properties. Should any suspected karst features be identified, future investigations using downhole cameras may be an option to visually confirm and quantify the suspected features in question and develop proper mitigative actions.

7. **Page 6 of Exhibit G discusses the presence/location of mines. It indicates: "The mines are not considered a hazard to the Project, but these mines could be useful for observing the quality and karst susceptibility of carbonate bedrock at the project site." Please expand on this idea and discuss any plans the Applicant may have to work with quarry owners to define the project area karst conditions.**

Response: There are at least three facilities with open pit mines located within 30 miles of the Project Area. Each of these facilities operates an open pit feature that provides exposures to the regional bedrock. The Applicant may approach these facilities to obtain additional information on the nature of the regional bedrock and the potential for the presence or development of karst features should geotechnical investigations indicate such potential. A preliminary list of regional facilities is provided below.

- 1- **Stoneco Auglaize Quarry:** located 11.2 miles north of Grover Hill at 13762 County Road 179, Oakwood, OH 45873.
- 2- **Lafarge Cement Quarry:** located 13.5 miles northwest of Grover Hill at 11435 Road 176, Paulding, OH 45879.
- 3- **Meshberger Brothers Stone Corporation:** located 26.8 miles southwest of Grover Hill at 18079 St. Rt. 49S, Willshire, OH, 45898.

Ecological

8. **In accordance with Rule 4906-4-09(D)(1), the Applicant should coordinate with the USFWS and provide the results of this coordination. This coordination is needed due to the potential operational impacts to federally and state listed species, migratory birds, and other protected species, including bald eagles and other raptors. Typically projects are coordinated with the USFWS Ohio Field Office to receive guidance on**

studies needed within the project area, as well as a review of and recommendations to minimize potential impacts. They can be reached at (614) 416-8993 or ohio@fws.gov.

Response: The Applicant consulted the United States Fish and Wildlife Service (“USFWS”) Information for Planning and Consultation (“IPaC”) database on April 24, 2020 (Consultation Code: 03E15000-2020-SLI-1296) and again on February 24, 2021(Consultation Code: 03E15000-2021-SLI-0864) to verify the accuracy of the 2020 species list. The USFWS response letters have been uploaded to the docket as Application Exhibit D, filed on May 3, 2021, and are included with this data request response as Attachment A. Additionally, the Applicant will continue coordinating with the USFWS, Ohio Department of Natural Resources (“ODNR”), and OPSB to determine what actions may be necessary to avoid or minimize impacts to state or federally listed and protected species or other species that may be impacted.

Bridges, Roads and Drain Tiles

- 9. Provide information on possible equipment/turbine delivery routes and subsequent modifications to roadways. Include an analysis of what would be necessary from the nearest point-of-rail/waterway deliveries or limited access highways to the turbine site locations within the State of Ohio.**

Response: Applicant does not anticipate road improvements will be necessary from the point of rail delivery location to the Project footprint as those roads are designed for heavy transport loads and were utilized during the construction of the Northwest Ohio Wind Energy project. Once the Applicant reaches the Project Area, the Applicant will install radius and other road improvements in order to facilitate equipment delivery. The Applicant also has an executed Road Use Agreement with the county and townships in place, which was filed in the docket as Attachment 1 to the first supplement to the Application filed on June 7, 2021. A set of maps depicting delivery route directions, within the Project Area, and the proposed road improvements are included in the “Recommended Pre-Construction Road Improvements” report issued June 2, 2021, which was filed as Attachment 3 to the first supplement filed on June 7, 2021.

10. Provide any drain tile mitigation plan and drain tile map(s) developed for the project.

Response: Because the Project Area approaches 10,000 acres, a drain tile map has not been developed. The Applicant shall avoid, where possible, or minimize to the extent practicable, any damage to functioning field tile drainage systems and soils resulting from the construction, operation, and/or maintenance of the facility in agricultural areas. Damaged field tile systems shall be promptly repaired to at least original conditions or modern equivalent at the Applicant's expense. However, if the affected landowner agrees to not having the damaged field tile system repaired, they may do so only if the field tile systems of adjacent landowners are to remain unaffected by the non-repair of the landowner's field tile system.

This is the same process as the Applicant utilized in the Northwest Ohio Wind Energy project to great success.

Social Impacts

11. Has the Applicant studied any potential impacts as they are related to adjacent population centers with higher population densities (i.e. greater than the state average of 282 persons per square mile)? For example, expected increases or decreases in traffic volume and congestion, aesthetic impacts, or public safety concerns?

Response: Grover Hill is the only town with a population of over 282, at 364 in the Project Area.

Paulding County itself has an exceptionally low population density of 47 persons per square mile compared to the state average of 282. The Project Area itself is located in a predominately agricultural area.

Traffic increases will be seen in the Project and surrounding areas during the construction of the Project. There should be no long-term traffic volume changes during operation of the facility. The Applicant has executed a Road Use Agreement with the county and townships for this purpose and the agreement was filed as Attachment 1 to the Application Supplement filed on June 7, 2021.

As wind turbines are large structures, they will have an aesthetic impact on the surroundings. The Applicant had a Visual Impact Assessment performed in order to quantify these impacts. This was filed to the docket on May 3, 2021, as Application Exhibit BB.

There are few public safety concerns involved in operating a wind farm. An Ice Throw Analysis was performed and filed to the docket as Application Exhibit U. As turbines and access roads are all located on private property, anyone not authorized to use the access roads or approach to a turbine would be trespassing. In addition, all access doors to the turbines are locked. The O&M facility and the Project substation are fenced and gated to prevent unauthorized access.

- 12. Does Applicant have any experience in an area with similar or greater population density than now exists in this project area? Please provide examples, if any, along with corresponding regulatory dockets, if available.**

Response: The Applicant developed and constructed the Northwest Ohio Wind Energy project (OPSB Case No. 13-197-EL-BGN) just to the west of the proposed Grover Hill Wind project and has been working with the community and county and township representatives for many years.

In addition, the Applicant is an experienced developer of energy infrastructure projects in North America and has developed over 2,800 megawatts (“MW”) of assets across power (wind, solar, biomass, gas) and transmission sectors.

The below table lists relevant projects that the Applicant and its affiliates have developed, which are in areas with similar or greater population densities (totaling 1,330 MW of capacity). In particular, it is noted that (1) the Starwood SSM projects were located in the City of Sault Ste. Marie, Ontario and represented the second-largest solar project in Canada when it commenced operations, and (2) the Starwood Midway project was one of the last new gas-fired power plants permitted in the state of California.

As it relates to the Starwood Midway project, please see below regulatory docket from the California Energy Commission:

<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=06-AFC-10C>

Project Name	Project Size (MW)	Generation Type	Location
Northwest Ohio	100	Wind	Paulding County, Ohio
Electra	230	Wind	Wilbarger County, Texas
Horse Creek	230	Wind	Knox and Haskell Counties, Texas
Shannon	204	Wind	Clay County, Texas
Stephens Ranch II	165	Wind	Borden and Lynn Counties, Texas
Stephens Ranch I	211	Wind	Borden and Lynn Counties, Texas
Starwood SSM 1-3	70	Solar	Ontario, Canada
Starwood Midway	120	Natural Gas	Fresno County, California

13. **Will collection lines be above ground or below ground? If above ground, has the Applicant considered any mitigating measures?**

Response: All collection lines will be located below ground.

14. **Is the Applicant considering any screening or other mitigating measure for the non-participating residence that would be 79.7 ft from an O&M Building?**

Response: The distance of 79.7 feet from the non-participating residence represents the distance between the residence and the land parcel upon which the O&M building will be constructed. It is not anticipated that the O&M structure will be built on the immediate edge of the parcel closest to the non-participating residence. It is anticipated that a security fence line will be erected along the parcel boundary, enclosing the O&M facility. The Applicant will consider screening or other mitigative measures if warranted.

15. **Expand and provide additional analysis for specific impacts and/or benefits that this project would potentially have on surrounding commercial and industrial land use development.**

Response: There are no major areas of commercial or industrial land uses in the Project vicinity that would be negatively impacted by the Project. The proposed Project has been sited on land used primarily for row crop agriculture.

Construction and operation of the facility will have a positive impact on commercial and industrial development in Paulding County, as well as throughout northwest Ohio and the entire state. The development of wind power, like other commercial or economic development projects, have the potential to expand the local, regional, and statewide economies through both direct and indirect means. Income generated from direct employment during the construction and operation phases of the wind farm is returned to the local economies as it is used to purchase goods and services, creating a ripple effect throughout the state.

In terms of statewide economic benefit, the construction of the Grover Hill Wind Farm is expected to produce a total of \$26.7 million in employment earnings and \$73.1 million in total economic output. Subsequently, each year the facility is operational it is expected to generate approximately \$1.5 million in earnings and \$3.8 million in total economic output.

Local benefits include the creation of 475 temporary jobs and 25 jobs during each year of operation, annual lease payments of \$1.1 million to landowners, and approximately \$900,000 to \$1.35 million to be distributed for the benefit of the county and the local taxing units.

Noise

- 16. Staff recommends that the applicant redo the ambient study. The operational noise model should comply with ISO 9613-2. The ambient noise study should comply with ANSI S12.100-2014 Methods to define and measure the residual sound in protected natural and quiet residential areas and with ANSI S12.9-1992 Quantities and procedures for description and measurement of environmental sound: Part 2 Measurement of long term, wide-area sound.**

Response: As detailed in Application Exhibit I, the Noise and Shadow Impact Assessment, Grover Hill Wind Farm dated April 20, 2021, page 2, “[t]his noise analysis was performed utilizing windPRO, a sophisticated wind modeling software program. windPRO calculates

detailed noise maps across an entire area of interest or at site specific locations using noise sensitive receptors. The analysis assumed the ISO 9613-2 General noise calculation model with General ground attenuation and an attenuation factor of 0.5, which represents typical mixed vegetation and crop cover.”

17. What standards, apart from calibrating the noise meters, were used in conducting the ambient noise determination?

Response: ANSI/ASA Standard, S12.9 Part 2: Measurement of long-term, wide-area sound, was adhered to for equipment selection, data collection, and data processing.

18. Why were each of the ambient locations chosen?

Response: The six locations selected were chosen to give an accurate sample of the larger Project Area. Meters were sited away from anomalous noise sources and set back away from homes to give a conservative level for the project area.

19. Were high frequency natural sounds filtered out of the resulting ambient levels?

Response: No natural sounds were found to be occurring at a high enough frequency to impact the overall averages. None were filtered out.

20. Provide a table showing Leq, L90, L50, and L10 for each monitoring locations including day/night levels, day levels and night levels. Provide temperature and precipitation data for the location and time and date of the measurements.

Response: Leq, L90, L50, and L10 levels were collected at each monitoring site, along with day/night, day, and night levels. Weather data was collected with a Kestrel 5500 weather meter at 10-minute increments for the duration of the Project.

21. Were any precipitation or high wind gust events filtered out of the results?

Response: A thunderstorm rolled into the area the morning of July 23rd, as measurement sites 4, 5, and 6 were collecting data. The meter at location 4 was retrieved just as precipitation started in the area. 5 and 6 were retrieved once the rain had begun. The hour before precipitation began was removed from the overall average levels.

22. **Were any anomalous events filter out of the results?**

Response: Meters were set to record audio for anomalous events. This audio was reviewed after the conclusion of the field effort. The recordings were only found to include vehicle pass bys and bird calls. Both of these types of events constitute the overall existing ambient conditions and were left in the overall averages.

Respectfully submitted,

/s/ Christine M.T. Pirik _____

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Attorneys for Grover Hill Wind, LLC

Attachment A

Correspondence with United States Fish and Wildlife Service and the Ohio Department of Natural Resources

1. February 5, 2020 Letter United States Fish and Wildlife Service Regarding Grover Hill
2. February 19, 2021 Letter Ohio Department of Natural Resources to Grover Hill
3. February 24, 2021 Letter United States Fish and Wildlife Service Regarding Grover Hill
4. February 26, 2021 Correspondence Westwood to Ohio Department of Natural Resources
5. May 7, 2021 Letter Ohio Department of Natural Resources to Grover Hill

Attachment A

Correspondence with United States Fish and Wildlife Service and the Ohio Department of Natural Resources

1. February 5, 2020 Letter United States Fish and Wildlife Service Regarding Grover Hill



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230-8355
Phone: (614) 416-8993 Fax: (614) 416-8994

In Reply Refer To:

February 05, 2020

Consultation Code: 03E15000-2020-SLI-0748

Event Code: 03E15000-2020-E-01019

Project Name: Grover Hill Wind Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <http://www.fws.gov/migratorybirds/RegulationsandPolicies.html>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/BirdHazards.html>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <http://www.fws.gov/migratorybirds/AboutUS.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ohio Ecological Services Field Office

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

(614) 416-8993

Project Summary

Consultation Code: 03E15000-2020-SLI-0748

Event Code: 03E15000-2020-E-01019

Project Name: Grover Hill Wind Project

Project Type: POWER GENERATION

Project Description: Wind Project

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.026433699999856N84.486118828W>



Counties: Paulding, OH | Van Wert, OH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Incidental take of the northern long-eared bat is not prohibited at this location. Federal action agencies may conclude consultation using the streamlined process described at https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment A

Correspondence with United States Fish and Wildlife Service and the Ohio Department of Natural Resources

2. February 19, 2021 Letter Ohio Department of Natural Resources to Grover Hill



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

February 19, 2020

Shelby Kilibarda
Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, Minnesota 55343

Re: 20-082: Grover Hill Wind Project

Project: The proposed project involves the construction of a 150-megawatt (MW) wind energy project.

Location: The proposed project is located in Grover Hill, Paulding County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

State and federally listed species have been documented within the vicinity of the Grover Hill Wind Project area. These species include the Indiana bat (*Myotis sodalis*), a state and federally endangered species, the red bat (*Lasiurus borealis*), a state species of concern, the big brown bat (*Eptesicus fuscus*), a state species of concern, the hoary bat (*Lasiurus cinereus*), a state species of concern, and the silver-haired bat (*Lasionycteris noctivagans*), a state species of concern. These and other species have the potential to be impacted by construction and/or operational activities associated with the project. Because construction and operational activities have the potential to impact species differently, these comments have been separated between construction, and operation of the project.

Recommendations for construction phase

The eastern half of the project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31.

The remainder of the project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 30 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects.

The project is within the range of the club shell (*Pleurobema clava*), a state endangered and federally endangered mussel, and the pondhorn (*Unio merus tetralasmus*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts

will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2018) can be found at:

<http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the greater redhorse (*Moxostoma valenciennesi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened species. This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next. Due to the location, the type of habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet meadows and other wetlands. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

Recommendations for operational phase

To reduce impacts to migratory birds and bats, the DOW recommends curtailment at night during migratory seasons at and below wind speeds of 6.9 m/s. The DOW also recommends a curtailment regime at night during the summer residency period to reduce risk to state and federally endangered Indiana bats. Additional curtailment regimes or other avoidance measures may be recommended should this project result in significant adverse impact to wild animals, post-construction. The DOW further recommends development of a mitigation plan, in conjunction with DOW and OPSB staff, should this occur.

Please refer to the survey effort letter dated November 2, 2018 for breeding bird habitat survey direction, including the northern harrier.

Due to the potential operational impacts to federally and state listed species, migratory birds, and other protected species, including bald eagles and other raptors, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)

Attachment A

Correspondence with United States Fish and Wildlife Service and the Ohio Department of Natural Resources

3. February 24, 2021 Letter United States Fish and Wildlife Service Regarding Grover Hill



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230-8355
Phone: (614) 416-8993 Fax: (614) 416-8994

In Reply Refer To:
Consultation Code: 03E15000-2021-SLI-0864
Event Code: 03E15000-2021-E-01199
Project Name: Grover Hill Wind Project

February 24, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <http://www.fws.gov/migratorybirds/RegulationsandPolicies.html>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/BirdHazards.html>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <http://www.fws.gov/migratorybirds/AboutUS.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ohio Ecological Services Field Office

4625 Morse Road, Suite 104

Columbus, OH 43230-8355

(614) 416-8993

Project Summary

Consultation Code: 03E15000-2021-SLI-0864

Event Code: 03E15000-2021-E-01199

Project Name: Grover Hill Wind Project

Project Type: POWER GENERATION

Project Description: Paulding County, Ohio

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@41.02647425,-84.48608954029132,14z>



Counties: Paulding and Van Wert counties, Ohio

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Incidental take of the northern long-eared bat is not prohibited at this location. Federal action agencies may conclude consultation using the streamlined process described at https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment A

Correspondence with United States Fish and Wildlife Service and the Ohio Department of Natural Resources

4. February 26, 2021 Correspondence Westwood to Ohio Department of Natural Resources

Dean Sather

From: Shelby Kilibarda
Sent: Friday, February 26, 2021 8:46 AM
To: environmentalreviewrequest@dnr.state.oh.us
Subject: Environmental Review Request - Grover Hill Wind Project
Attachments: 20-082; Westwood PS- Grover Hill Wind Project Comments.pdf; GH_Habitat_Ex2_ProjectSiteMap_191219.pdf; GH_Habitat_Ex3_Topography&DrainageFeatures_191218.pdf; GH_Habitat_Ex4_WetlandsMap_191219.pdf; GH_Habitat_Ex5_WindsFarms_191219.pdf; GH_Habitat_Ex6_LandCoverMap_191219.pdf; GH_Habitat_Ex1_ProjectVicinityMap_191220.pdf; GH_ProjectBoundary_200915.zip

To whom it may concern,

Westwood Professional Services is requesting an updated Environmental Review for the Grover Hill Wind Project in Paulding County, Ohio.

Starwood Energy Group Global, LLC (Starwood) proposes to construct and operate the Grover Hill Wind Project (Project) in Paulding County, Ohio (Exhibit 1). The Project Area consists of approximately 9,685 acres (15 square miles) located in southern Paulding County, Ohio, approximately 3 miles east of the town of HaviLand and 6 miles to the southeast of the town of Paulding. The town of Grover Hill is located within the central portion of the Project Area (Exhibit 2). The Project will be configured as a wind energy conversion facility with a potential total nameplate capacity of 150 megawatts (MW). Starwood continues to assess its turbine options, and is currently evaluating wind turbine generators (WTGs) with rated power outputs between 3.0 to 6.0 MW each, which could result in the installation of 25 wind turbines, depending upon the model(s) selected and the final output of the Project. Additional facilities may include transmission line, access roads, electrical collection lines, an operations and maintenance facility, substation, and laydown area.

Topography is relatively flat; no buttes, rolling hills, or draws exist (Exhibit 3). Portions of eight named waterways are located within the Project Area including Town Creek, Maddox Creek, Middle Creek, Hoaglin Creek, West Branch Creek, Prairie Creek, Dog Run, and Hog Run (Exhibit 4). Surface ownership in the Project Area is exclusively private. Several operating, utility-scale wind farms are located in the Project Area vicinity including the Northwest Ohio Wind Farm (NOW) (100MW), located directly west of the Project Area, Timber Road Wind Farm (100 MW), located west of NOW, and Blue Creek Wind Farm (304 MW), located to the south (Exhibit 5).

A total of seven principal land cover types are recognized and mapped within the Project Area. These include cultivated crops, developed areas, forest, herbaceous, woody wetlands, open water, and emergent herbaceous wetlands (Exhibit 6).

Please let me know if you have any questions.

Thank you,

Shelby Kilibarda

Environmental Scientist
shelby.kilibarda@westwoodps.com

direct (952) 906-7440
main (952) 937-5150
cell (651) 206-6123

Westwood

12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

Attachment A

Correspondence with United States Fish and Wildlife Service and the Ohio Department of Natural Resources

5. May 7, 2021 Letter Ohio Department of Natural Resources to Grover Hill



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

May 7, 2021

Shelby Kilibarda
Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, Minnesota 55343

Re: 21-0254: Grover Hill Wind Project

Project: The proposed project involves installation of 25 wind turbines, depending upon the model(s) selected and the final output of the Project. Additional facilities may include transmission line, access roads, electrical collection lines etc.

Location: The proposed project is located in Grover Hill, Paulding County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has no records at or within a one-mile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

State and federally listed species have been documented within the vicinity of the Grover Hill Wind Project area. These species include the Indiana bat (*Myotis sodalis*), a state and federally endangered species, the red bat (*Lasiurus borealis*), a state species of concern, the big brown bat (*Eptesicus fuscus*), a state species of concern, the hoary bat (*Lasiurus cinereus*), a state species of concern, and the silver-haired bat (*Lasionycteris noctivagans*), a state species of concern. These and other species have the potential to be impacted by construction and/or operational activities associated with the project. Because construction and operational activities have the potential to impact species differently, these comments have been separated between construction, and operation of the project.

Recommendations for construction phase

The eastern half of the project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.us).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH \geq 20 if possible.

The DOW also recommends that a desktop habitat assessment, followed by a field assessment if needed, is conducted to determine if there are potential hibernaculum(a) present within the project area. Information about how to conduct habitat assessments can be found in the current USFWS “Range-wide Indiana Bat Survey Guidelines.” If a habitat assessment finds that potential hibernacula are present within 0.25 miles of the project area, please send this information to Sarah Stankavich, sarah.stankavich@dnr.state.oh.us for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the club shell (*Pleurobema clava*), a state endangered and federally endangered mussel, and the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site.

This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at: <http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of the greater redhorse (*Moxostoma valenciennesi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.

The project is within the range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened species. This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet meadows and other wetlands. Due to the location, the type of habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the American bittern (*Botaurus lentiginosus*), a state endangered bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, the project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus hudsonis*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands,

seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Recommendations for operational phase

To reduce impacts to migratory birds and bats, the DOW recommends curtailment at night during migratory seasons at and below wind speeds of 6.9 m/s. Because mortality rates have been shown to increase in Ohio in August and September, even under 6.9m/s curtailment, additional curtailment regimes or other avoidance measures may be recommended post-construction. The DOW also recommends a curtailment regime at night during the summer residency period to reduce risk to the state and federally endangered Indiana bat and the state-endangered tricolored bat which have been documented in project vicinity. The DOW further recommends development of a bird and bat mitigation plan, in conjunction with DOW and OPSB staff.

Please refer to the survey effort letter dated November 2, 2018 for breeding bird habitat survey direction, including the northern harrier.

Due to the potential operational impacts to federally and state listed species, migratory birds, and other protected species, including bald eagles and other raptors, we recommend that this project be coordinated with the US.. Fish & Wildlife Service.

Geological Survey: The Division of Geological Survey has the following comment.

Physiographic Region

The proposed project area is in Latty Township, Paulding County. The project area lies within the Paulding Clay Basin physiographic region. This region is characterized by a nearly flat lacustrine plain. Low gradient, highly meandering streams are common. Soils are easily ponded. Pleistocene-age lacustrine clay covers clay till. Silurian-age dolomite underlies the site. The southern portion of this project area lies with the Maumee Lake Plains subregion. This area is characterized by a flat-lying Ice-Age lake basin. Beach ridges, bars, dunes, deltas and clay flats can all be found in this region. This area was once covered by the Great Black Swamp but is now dissected by modern streams. Pleistocene-age silt, clay and wave-planed clayey till cover Silurian and Devonian-age bedrock (Ohio Department of Natural Resources, Division of Geological Survey, 1998).

Surficial/Glacial Geology

The project area lies within the glaciated margin of the state and includes several Wisconsinan-age glacial features. The northern portion of the project area is covered by lacustrine clay. This clay was deposited in a calm glacial lake environment. It is mostly laminated and covered in places with thin organic deposits. The southern portion of the project area is covered by lake-planed moraine. This area is made up of clayey till. Terrain is very flat and small patches of sand, silt, or clay may be present on the surface. Small patches of thin sand may indicate localized beach deposits (Pavey et al, 1999). Glacial drift throughout most of the study area is between 13 and 49 feet thick. Drift is highest in uplands and thinnest along drainages (Powers and Swinford, 2004).

Bedrock Geology

The uppermost bedrock unit in the project area is the Salina Undifferentiated. This unit is Silurian-age and consists of a gray to brown dolomite which contains argillaceous partings,

brecciated intervals, algal laminations and anhydrite/gypsum zones. This unit underlies the entire project area. Underlying the Salina Undifferentiated is the Silurian-age Tymochtee and Greenfield Formations Undivided. This unit is characterized by olive gray to yellowish brown dolomite with brownish black to gray shale laminae. Underlying the Tymochtee and Greenfield Formations Undivided is the Silurian-age Lockport Dolomite. This unit is characterized by bluish gray to gray dolomite with minor interbedding of limestone, chert and shale. Fossils and planar to irregular bedding are common. These two units are not the uppermost unit anywhere within the project area but may be used as an aquifer in area wells. It should be noted that bedrock is not exposed at the surface within the boundaries of the project area due to glacial drift (Slucher et al, 2006).

Oil, Gas and Mining

ODNR has record of five oil and gas wells within one mile of the proposed project area. Most of these wells are listed as dry holes in final restoration. One well record is an expired permit for a well that was never drilled (Ohio Department of Natural Resources, Division of Oil and Gas, Ohio Oil and Gas Wells Locator).

ODNR does not have record of any mining operations within the project area. The nearest mine to the project area is the Scott Quarry mine operated by Stoneco, Inc. This mine is a limestone quarry and is located approximately 7.1 miles from the site boundary (Ohio Department of Natural Resources, Division of Mineral Resources, Mines of Ohio).

Seismic Activity

Several small earthquakes have historically been recorded in the region. The three events closest to the site are listed in the chart below (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Earthquake Epicenters):

Date	Magnitude	Distance to Site Boundary	County	Township
06/12/2015	2.6	12.5	Van Wert	Tully
03/13/2005	2.2	21.9	Mercer	Dublin
01/30/2004	2.4	22.8	Mercer	Dublin

Karst

Karst features usually form in areas that are covered by thin or no glacial drift and the bedrock is limestone or dolomite. There are no known sinkholes in this area, however it should be noted that the underlying carbonate bedrock units are known for their tendency to include karst features in other areas of the state (Ohio Department of Natural Resources, Division of Geological Survey, Ohio Karst).

Soils

According to the USDA Web Soil Survey, the project area consists primarily of soils derived from glacial till, alluvium and glaciolacustrine deposits. Paulding, Latty and Nappanee are the most common soil series found within the boundaries of the project area. Together these soils make up over 85% of the project area (USDA Web Soil Survey).

There is a moderate to high risk of shrink-swell potential in these soils. Other limiting factors include ponding and seasonal saturation. Slope remains relatively flat, with slope seldom exceeding a 6% grade. (USDA Web Soil Survey).

Groundwater

Groundwater resources are plentiful throughout the project area. Wells developed in bedrock are likely to yield 5 to 100 gallons per minute. Wells developed in the Salina Undifferentiated have an expected yield of 5 to 25 gallons per minute however wells that are developed in deeper

carbonate units such as the Tymochtee and Greenfield Formations Undivided or the Lockport Dolomite have an expected yield of up to 100 gallons per minute or more (Raab, 1986 and Ohio Department of Natural Resources, Division of Water, Bedrock Aquifer Map, 2000). Wells developed in glacial material are likely to yield up to 25 gallons per minute. The majority of the project area overlies the Lake Maumee Lacustrine Aquifer which has a yield of 5 gallons per minute or less. Portions of the project area that intersect the Auglaize River Alluvial Aquifer have an expected yield of 5 to 25 gallons per minute. Higher groundwater yields typically reflect larger diameter, properly developed and screened wells (Ohio Department of Natural Resources, Division of Water, Statewide Unconsolidated Aquifer Map, 2000).

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)

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Summary: Response to Third Data Request from Staff of the Ohio Power Siting Board electronically filed by Christine M.T. Pirik on behalf of Grover Hill Wind, LLC