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August 18, 2017

Ms. Barcy F. McNeal, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215

Re: Case No. 16-1871-EL-BGN, In the Matter of the Application of Icebreaker Windpower Inc. for a Certificate to Construct a Wind-Powered Electric Generation Facility in Cuyahoga County, Ohio.

Aerial Waterfowl Surveys - Modification to the July 17, 2017 Icebreaker Wind Avian and Bat Monitoring Plan.

Dear Ms. McNeal:

On July 20, 2017, as corrected on July 24, 2017, Icebreaker Windpower, Inc. ("Applicant") filed the avian and bat memorandum of understanding ("Avian and Bat MOU") signed by both the Applicant and the Ohio Department of Natural Resources ("ODNR"). Attached to the MOU, as Exhibit A, was the Icebreaker Wind Avian and Bat Monitoring Plan dated July 17, 2017 ("Monitoring Plan").

The Monitoring Plan sets forth the protocol for aerial waterfowl surveys and provides that "[t]he aerial survey project area and flight patterns will be approved by ODNR in writing at least two months prior to the initiation of the initial survey" (Monitoring Plan at 9). As provided for in the Avian and Bat MOU, the Monitoring Plan is a living document that may be amended with the consent of both the Applicant and ODNR (Avian and Bat MOU at 5).

In accordance with the Monitoring Plan, the Applicant and ODNR worked together to develop the Aerial Waterfowl & Waterbird Study Plan ("Study Plan") dated August 8, 2017. At this time, the Applicant is filing the Study Plan, as well as the letter from ODNR dated August 18, 2017, which agrees with the Study Plan and affirms that surveys may begin on or after October 15, 2017. The Study Plan is attached to ODNR's August 18, 2017 letter as Exhibit 1.

The August 8, 2017 Study Plan replaces and supersedes the Aerial Waterfowl Surveys section found on pages 9 and 10 of the Monitoring Plan attached to the Avian and Bat MOU.

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

Respectfully submitted,

/s/ *Christine M.T. Pirik*
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Enclosure

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR | JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife
Michael R. Miller, Chief
2045 Morse Road, Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

August 18, 2017

Dr. Lorry Wagner, President
Icebreaker Windpower Inc.
1938 Euclid Avenue, Suite 200
Cleveland, Ohio 44115

Dear Dr. Wagner:

Per the Memorandum of Understanding between Icebreaker Windpower Inc. (Icebreaker) and the Ohio Department of Natural Resources (ODNR) outlining monitoring protocols for bird and bat species (Protocol), the Protocol is a living documents and, as such, may be modified from time to time to reflect best available practices.

ODNR received Icebreaker's request to modify a portion of the Protocol and agrees to these changes. The "Aerial Waterfowl Surveys" section of the Protocol is hereby deleted and replaced with the attached Exhibit 1"Aerial Waterfowl & Waterbird Study Plan" dated August 8, 2017.

Please file this letter and Protocol modification immediately with the Ohio Power Siting Board for inclusion in their electronic public docket. Surveys may begin on or after October 15, 2017.

Sincerely,

Michael R. Miller
Chief, Division of Wildlife
As Designee for James Zehringer, ODNR Director

EH/JC

Cc: Beth Nagusky, LEEDCo

Exhibit 1

Aerial Waterfowl & Waterbird Study Plan

for

Icebreaker Windpower, Inc.

Cuyahoga County, Ohio

Prepared for:

Icebreaker Windpower, Inc.

Lake Erie Energy Development Corporation

1938 Euclid Avenue, Suite 200

Cleveland, Ohio 44115

Prepared by:

Western EcoSystems Technology, Inc.

7575 Golden Valley Rd., Suite 350

Minneapolis, MN 55427

8 August 2017

WEST inc.

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INTRODUCTION

Icebreaker Windpower Inc. (IWI), is proposing to construct Icebreaker Wind, a 6 turbine demonstration offshore wind energy project (Project) in Lake Erie, 8 to 10 miles off the shore of Cleveland, Ohio. Previously, IWI developed the *Icebreaker Wind Avian and Bat Monitoring Plan* (Monitoring Plan), dated July 17, 2017, that describes the studies and analyses that will be performed to document the avian and bat resources at the Project site and assess potential impacts to those resources during the pre-construction and post-construction phases of the Project. The Monitoring Plan was incorporated into the Memorandum of Understanding between IWI and the Ohio Department of Natural Resources (ODNR).

The Monitoring Plan is based on currently available scientific methodologies to assess displacement, avoidance, attraction/deterrence, and potential for mortality. The Monitoring Plan generally follows the requirements of the Ohio Department of Natural Resources (ODNR) *On-Shore Bird and Bat Pre- and Post- Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. Project specific recommendations were provided to the Ohio Power Siting Board (OPSB) by the ODNR and the US Fish and Wildlife Service (USFWS) in comments dated February 28, 2017, and additional consultation between the Project team and the wildlife agencies.

This *Aerial Waterfowl and Waterbird Study Plan* (Aerial Waterbird Study Plan) was developed to provide additional details specific to waterfowl and waterbirds previously described in the Monitoring Plan. The Aerial Waterbird Study Plan outlines the specific monitoring methods to meet the two objectives identified previously in the Monitoring Plan. Those objectives are as follows:

1. Characterize waterfowl and waterbird species, numbers, distribution, and use of project area
2. Characterize whether or not any waterfowl or waterbird species are displaced from the Project area due to the presence of wind turbines

The first objective can be assessed prior to construction, providing baseline data for analyses supporting the second objective in the years following construction of turbines. Upon approval by ODNR in writing, this Aerial Waterbird Study Plan will be incorporated into the Monitoring Plan as an amendment.

STUDY AREA

The proposed Icebreaker Wind Project is located in offshore waters of Lake Erie, Cuyahoga County; the city of Cleveland and greater metropolitan area is 12.8 km (8 miles) to the south of the Project. The study area proposed in this Aerial Waterbird Study Plan extends 5 km (3.1 miles) from the proposed turbines, and encompasses 145 km^2 (35,830 US acres) of US waters within Lake Erie (Figure 1). The proposed study area includes water depths of 15-20 m (49-66 ft) (Figure 2). Substrates throughout the area are primarily mud, with some areas of sand, and clay (Figure 3).

STUDY METHODS

Study Design

The Aerial Waterbird Study Plan is designed to incorporate most recommendations by Gilbert et al. (2013) to the Great Lakes commission on survey and data collection design, with the goal of ensuring data quality. These recommendations are identified in the Monitoring Plan, and also in design and procedure documents in support of offshore aerial surveys (Bailey et al. 2014, Fox et al. 2006, Buckland et al. 2004, and Camphuysen et al. 2004).

Survey Design and Sampling Methods

The proposed survey area was identified as an area up to 5 km (3.1 mi) beyond all turbines, generalized to a rectangle that is 10 km x 14.5 km (6.2 mi x 9 mi), centered on the proposed 4.5-km (2.8 mi) string of turbines. In comparing co-occurring species between northern Europe and in Lake Erie that may be displaced by wind turbine development, the species potentially most sensitive are loons (i.e. divers, *Gavia spp;* Bailey et al 2014). Displacement of *Gavia spp.* near turbines at Nysted and Horns Rev, Denmark occurred at the scale of 2 km (>1.2 mi) (Petersen et al 2006). Therefore, our survey area will encompass potential displacement effects at Icebreaker 2.5 times greater than that 2-km displacement, to a distance of 5 km (3.1 mi) from the proposed wind turbines (Figure 4) with a maximum distance extending 7 km (4.3 mi) from a turbine to the far corners of the proposed project area. Survey efforts to a distance of 5 km beyond the turbine should be more than adequate to assess use by, and distribution of species, and any potential displacement.

Sampling of the survey area will occur using aerial line transect approaches, following distance sampling, recording perpendicular distances from plane to as close to 0.5 km (0.31 mi) as possible. Recommended spacing to minimize double counting between transects is >2 km (1.24 mi) (Camphuysen et al. 2004). In order to maximize the flight space between turbines, parallel transects will be established 2.2 km (1.37 mi) apart, and perpendicular to the turbine string. This will result in seven 10 km (6.2 mi) transects that will be flown during each survey. In addition to using distance sampling to aid in density estimation and correct, or account for, decreasing probability of detection from from the transect line (plane), a double-observer data collection strategy permits estimation of inter-observer variability. These methods, in combination, can increase the robustness in the estimates of population abundance within the project area, thereby increasing the likelihood of detecting change attributable to displacement rather than sampling skill of the observers.

Orientation of sampling transects perpendicular to the proposed turbine string follows a gradient design, which is the preferred method for assessing point-source disturbance impacts (Ellis and Schneider 1997).[1]

[1] Although Before-After-Control-Impact (BACI) designs were used previously in offshore wind studies they are no longer recommended due to the recognition of wind turbines as a point effect disturbance, which varies by species and over distance rather than a uniform fixed effect. Furthermore, identifying truly comparable control sites, and then statistically accounting for differences between impact and control sites can mask assessing the impact of the wind turbines; *see* Bailey, Brooks, and Thompson (2014) for a review.

Data Collection Requirements

In addition to use of distance sampling from line transects to collect data, and a double observer design to assess observer detection, specific data collection conditions must be considered and accounted for during each survey. The following list identifies requirements and constraints integral to the survey effort. These closely reflect the survey protocol set forth in comments received from the agencies previously.

Survey Timing

- Surveys will be performed for one complete survey season 15 October – 31 May prior to Project construction.
- Survey frequency will be once every 2 weeks per survey season
- During any periods of extensive ice cover, when the next scheduled survey may not capture extensive ice conditions, an additional survey(s) may be flown to document bird use of the survey area and the ice status.
- Surveys will be conducted throughout daylight hours as much as possible, aiming for relatively equal representation, by thirds, and in relation to sunrise/sunset, with early-day (0500-1000H), mid-day (1000-1400H) and later-day (1400-1900H).
- Surveys will be performed during one year preceding construction and in years one and four subsequent to Project construction.

Transects

- Survey transects will be established parallel to each other with spacing maintained at 2.2 km (1.37 mi).
- Survey transects will be perpendicular to the turbine string.
- Transect order and direction within the survey will be established with a random start location and direction.
- Each of the seven transects will be flown during each survey on a single day unless precluded by weather/wind/visibility conditions.
- Transects will be 10 km (6.2 mi) each, and will be sampled with a single pass per survey.
- Flight heights will be maintained at 76-100 m AGL in order to detect small water birds and minimize flushing.
- Flight speeds will be maintained as close to 150-200 km/h (93-124 mph) as possible to minimize flushing.
- Deviation from prescribed flight heights or speeds will be considered if required for safety, but any proposed deviation would be discussed with cooperators unless required on an emergency basis.

Weather and Visibility Conditions

- Beaufort scale wave conditions categorized as 4 or below (Beaufort=4 winds 20-28 kmh (13-17 mph), and surface conditions of long breaking crests and whitecaps (wave height <1 m (3 ft) in Great Lakes). This metric will reassessed in the lake environment where

the wave periodic is shorter than in marine environments, and a consistent approach will be used among observers.

- winds of 37 km/h (23 mph) or below
- minimum of 3.2 km (2 mi) visibility (or pilot's discretion)

Data collection

- WEST will establish a database to store, retrieve, and organize field observations. Data from electronic and/or field forms will be keyed into electronic data files using a pre-defined format that should make subsequent data analysis straightforward. All field data forms, field notebooks, and electronic data files will be retained for ready reference.
- Distance sampling to 300 m on each side of airplane using distance band method (or better) to estimate distance by groups
- Double observer design, with three observers per flight, with two on the right side of the plane; the pilot will not serve as an observer.
- Each observer will use a data logger and/or voice recorder to record data in flight
- Standard environmental and survey conditions will be recorded by each observer for each transect, including:
    - Date
    - Start Time / End Time
    - Sea state
    - Glare
    - Visibility
    - Transect name and geoposition
    - Azmith, direction of flight
    - Observer location within the plane
    - Survey type (regularly scheduled or ice cover)
- GPS tracks (3) will be recorded by each observer for each survey to ensure redundancy.
- Record all bird species encountered, focusing on waterfowl and waterbirds, and presence of raptors and bald eagles. For each bird observation the following will be recorded:
    - Time and GPS position
    - Species, or finest resolution ID possible. e.g. "unidentified gull", "unidentified diving duck"
    - Distance or distance band
    - Group size
    - Behavior (including all flying, swimming and diving birds)
    - Location
    - Ice Conditions

QAQC and training

- WEST will ensure appropriate quality assurance/quality control (QA/QC) measures will be implemented at all stages of the study, including field data collection, data entry, data analysis, and report preparation. At the end of each survey day, each observer will be responsible for inspecting his or her data forms for completeness, accuracy, and

legibility. Periodically, the study team leader will review data forms to insure completeness; any problems detected will be corrected. Any changes made to the data forms will be initialed and dated by the person making the change.

- All data forms will be checked thoroughly for data entry errors. Any errors will be corrected by referencing the raw data and/or consulting with the observer(s) who collected the data. Any irregular codes detected, or any data suspected as questionable, will be discussed with the observer and study team leader. Any changes made to the raw data will be documented for future reference.
- All reasonable efforts will be made to minimize the number of different observers used
- All observers will be qualified biologists that will complete at least 10 hours of observer training specific to this project, at least one week prior to the first flight, including a trial flight to ensure all observers are competent and able to conduct surveys. Training will focus on increasing accuracy and consistency in the following areas:
    - species ID
    - distance estimation
    - environmental variables
    - equipment operation
    - safety and emergency preparedness
    - data handling and QAQC
- Require use of polarized sunglasses.
- Standardize data collection, data entry, and QA/QC process.
- Maintain local and remote copies of electronic data

Analysis Methods

Analysis is anticipated to include fitting distance sampling detection models to estimate the probability of detection of groups (>1) of birds as a function of distance to survey transect and other potential variables such as: group size, species size, behavioral state (flying versus swimming, diving), distance to shore, light conditions (glare), time of day, season, distance to ice, surficial ice coverage, water depth, and lake substrate. Distance sampling methods assume a probability of detection of 1.0 (perfect) on or near the flown transect line. Given the nature of the surveys, perfect detection is unlikely and a mark-recapture design using the double observer observations can estimate the probability of detection of at least one of the observers. The probability of detection of at least one of the observers can be fit using an applicable model such as a logistic regression. Using this approach, density of waterbird species will be estimated using the distance sampling function and the probability of detection by at least one of the observers, if appropriate. Complex modeling approaches require adequate observations of individuals and groups for appropriate inference from statistical models. If survey densities and surveys yield numerous zero (0) observations, or low counts, alternative methods will be considered, including modeling to groups, such as genera (or higher taxa), other biologically relevant groups, or switching to another modeling approach designed for handling minimal observations.

A key objective of this survey effort is to detect any potential displacement or attraction effects in any bird species that may result from the construction and operation of the Project. This analysis will be performed in two ways: 1) before - after analysis; 2) gradient analysis (post-

construction only). Although the proposed design has been developed in consideration of optimal design for these analyses, we note that displacement analyses will only be possible after post-construction data is collected during years 1 and 4 of Project operations.

Survey Reports

Once the field data has been collected, WEST will prepare reports describing the surveys and their results. Reports will summarize species, numbers, distribution, and use of project area, in texts and illustration. Annual reports will be submitted 60 days following completion of surveys.

REFERENCES

Bailey, H., K. L. Brookes, and P. M. Thompson. 2014. Assessing environmental impacts of offshore wind farms: lessons learned and recommendations for the future. Aquatic Biosystems 10:8 https://doi.org/10.1186/2046-9063-10-8

Bradbury G, Trinder M, Furness B, A. N. Banks, R. W. G. Caldow, and D. Hume. 2014. Mapping Seabird Sensitivity to Offshore Wind Farms. PLoS ONE 9(9): e106366. https://doi.org/10.1371/journal.pone.0106366

Buckland, S.T., Anderson, D.R., Burnham, K.P., Laake, J.K., Borschers, D.L. & Thomas, L. 2004. Advanced Distance Sampling. Oxford: Oxford University Press.

Camphuysen, C.J., Fox, A.D., Leopold, M.F. & Petersen, I.K. 2004. Towards standardised seabirds at sea census techniques in connection with environmental impact assessments for offshore wind farms in the UK. A Comparison of Ship and Aerial Sampling Methods for Marine Birds and Their Applicability to Offshore Wind Farm Assessments. Report by Royal Netherlands Institute for Sea Research and the Danish National Environmental Research Institute to COWRIE BAM 02–2002. London: Crown Estate Commissioners. Available at: http://www.thecrownestate.co.uk/1352_bird_survey_phase1_final_04_05_06.pdf

Clarke, E.D., Spear, L.B., McCracken, M.L., Marques, F.F.C., Borchers, D.L., Buckland, S.T. & Ainley, D.G. 2003. Validating the use of generalized additive models and at-sea surveys to estimate size and temporal trends of seabird populations. J. Appl. Ecol. 40: 278–292.

Ellis JI, Schneider DC: 1997. Evaluation of a gradient sampling design for environmental impact assessment. Environmental Monitoring and Assessment. 48:157–172.

Fox, A. D., M. Desholm, J. Kahlert, T. K. Christensen, and IB. K. PETERSEN. 2006. Information needs to support environmental impact assessment of the effects of European marine offshore wind farms on birds. Ibis 148(s1):129 – 144. DOI: 10.1111/j.1474-919X.2006.00510.x

Gilbert, A., W. Goodale, I. Stenhouse, and K. Williams. 2013. Preliminary recommendationsto facilitate data collection during the autumn 2013 migration season Great Lakes aerial surveys. A report to The Great Lakes Commission, Eisenhower Corporate Park, 2805 S. Industrial Hwy, Suite 100, Ann Arbor, MI 48104-6791

Hedley, S.L., Buckland, S.T. & Borchers, D.L. 1999. Spatial modelling from line transect data. J. Cetacean Res. Manage 1: 255–264.

Petersen, I.K., T. K. Christensen, J. Kahlert,M. Desholm,. and A. D. Fox.. 2006. Final results of bird studies at the offshore wind farms at Nysted and Horns Rev, Denmark. National Environmental Research Institute Ministry of the Environment URL: http://www.dmu.dk pp. 166 http://www.folkecenter.net/mediafiles/folkecenter/pdf/final_results_of_bird_studies_at_the_offshore_wind_farms_at_nysted_and_horns_rev_denmark.pdf

U.S. Fish and Wildlife Service. 2012a. Land-Based Wind Energy Guidelines. OMB Control No, 1018-0148. March 2012. http://www.fws.gov/windenergy/docs/weg_final.pdf

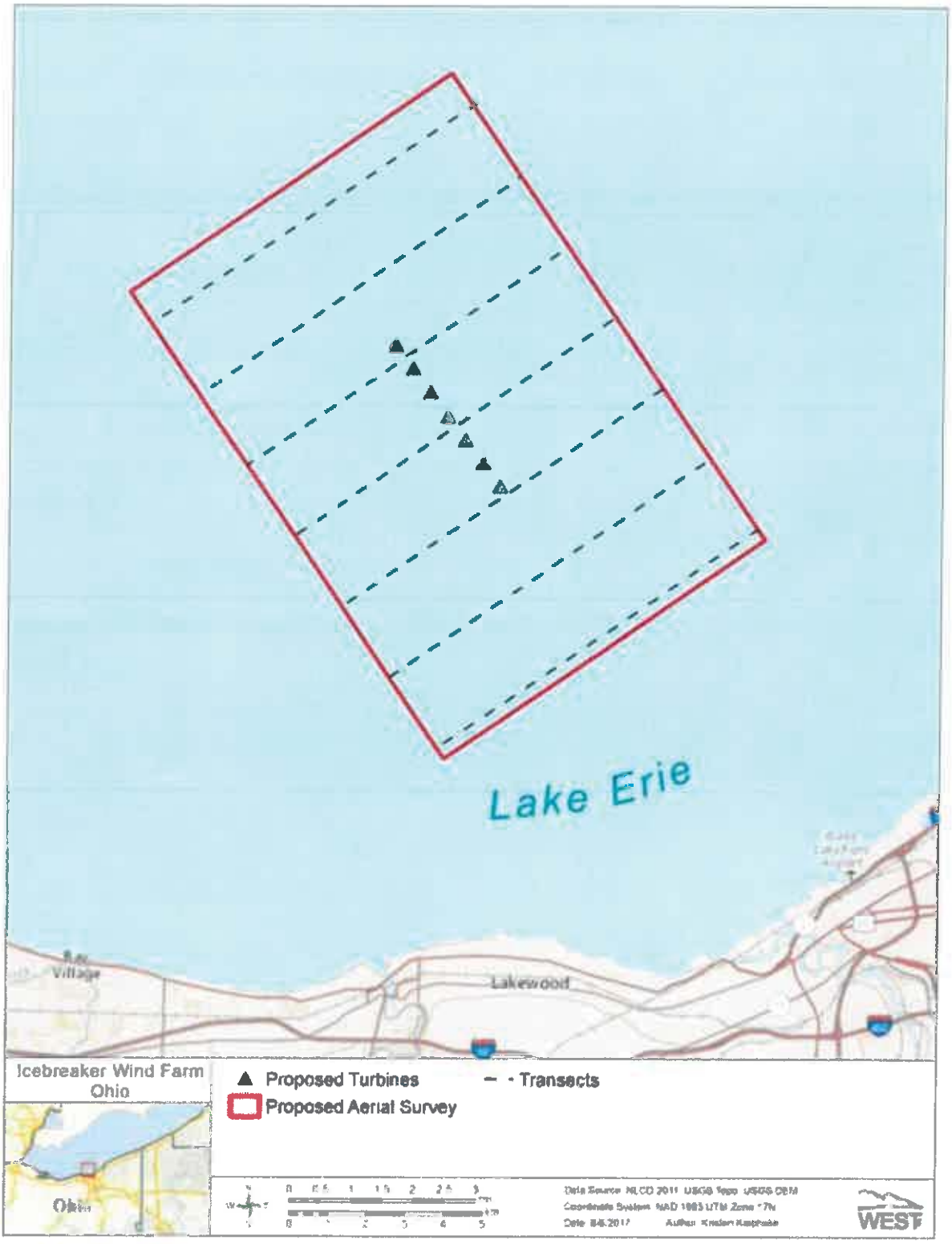

Figure 1. Location of the proposed aerial survey area and survey transects for the Icebreaker Wind Farm.

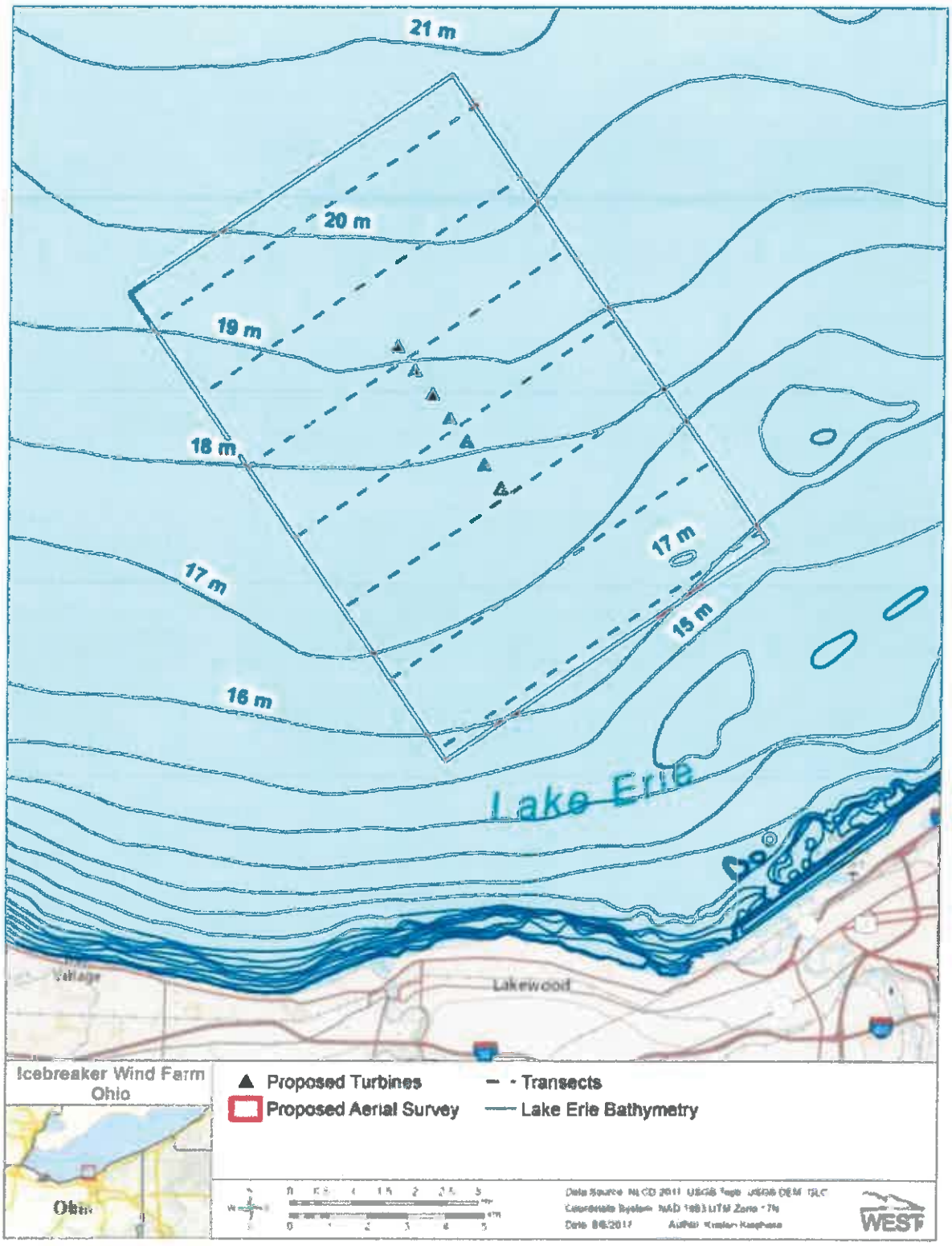

Figure 2. Bathymetry within the proposed aerial survey area for the Icebreaker Wind Farm.

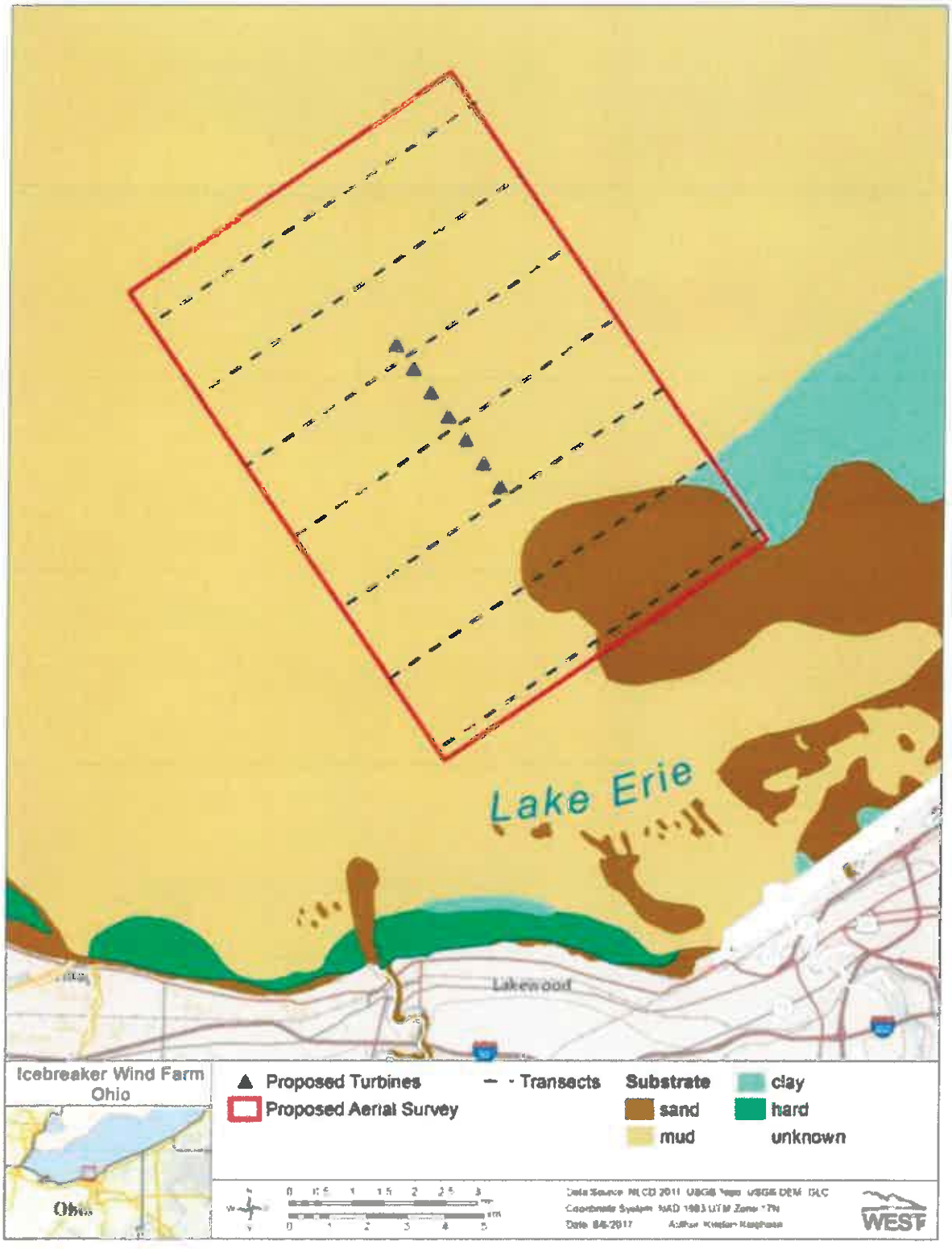

Figure 3. Substrate materials within the proposed aerial survey area for the Icebreaker Wind Farm.

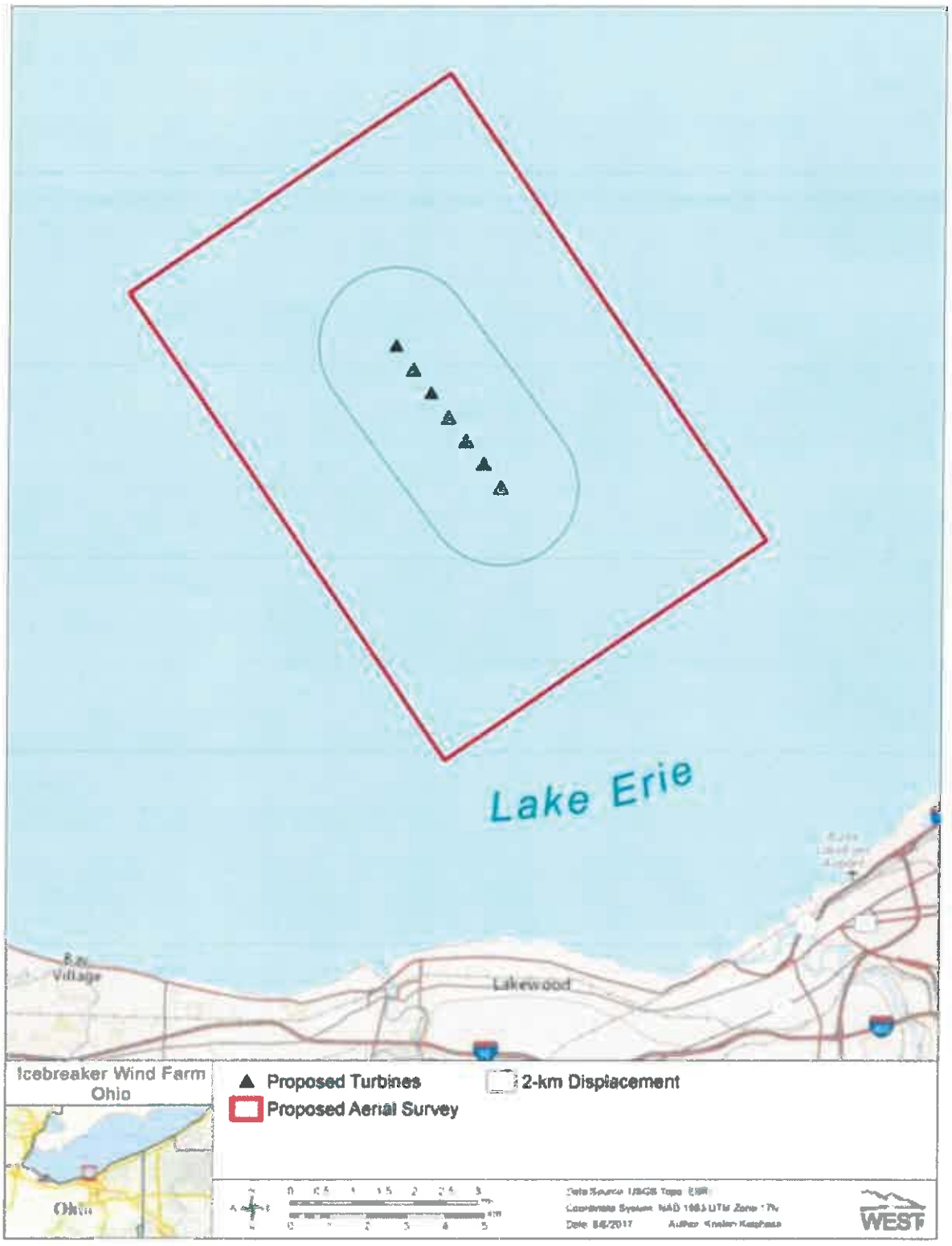

Figure 4. The proposed aerial survey area for the Icebreaker Wind Farm, with an illustration of a hypothetical 2 km displacement area.

Summary: Notice Aerial Waterfowl Survey - Modification to July 17, 2017 Monitoring Plan electronically filed by Christine M.T. Pirik on behalf of Icebreaker Windpower Inc.