

## **Appendix A. Scoping Comments and WAPA Responses**

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
<b>Scoping</b>							
1	a	U.S. Department of Agriculture, Natural Resource Conservation Service (USDA-NRCS)	1/21/2021	The project as outlined will have no impact on prime or important farmland.	Thank you for your comment. The information was incorporated into the soils and geologic resource sections of the Environmental Assessment.	3.1	Soils and Geologic Resources
2	a	Private Citizen	1/25/2021	I can't discern from the map 100%, but we have land in Sections 20, 21, 24, and 30 and I'm just curious of that. I contacted someone last fall and he indicated we were a little late to the game, but he indicated that it would be added to it and I can't really discern 100% from the map if its included there or not, if you could inform me of what it is it would be appreciated. Thank you.	Christina Gomer, WAPA, returned call on 1/26/21 at 3:11 pm (Mountain Time). Ms. Gomer explained that, at this point, the project boundary is preliminary and could be subject to change. Ms. Gomer offered to put citizen in contact with someone at North Bend LLC to discuss this property but citizen declined, as they have already been in contact with someone. Citizen had no further questions or concerns.	2.2	Proposed Action Alternative
3	a	Yankton Sioux Tribe	1/28/2021	I wanted to indicate that that we would like a TCP study the be done on the North Bend Wind Project. If nobody has requested I would like to throw out a request to survey project area.	WAPA supports tribal nations in their efforts to identify properties of traditional religious and cultural importance on their reservations and ancestral homelands. After the scoping meeting, a TCP survey was completed and three tribes participated in the survey: the Crow Creek Sioux Tribe, the Rosebud Sioux Tribe, and the Yankton Sioux Tribe.	3.10	Cultural Resources
4	a	South Dakota State Historic Preservation Office (SHPO)	1/29/2021	On January 27, 2021, we received your letter regarding the proposed interconnection request for the North Bend Wind Project in Hughes and Hyde Counties, South Dakota. We agree with your agency's definition of the area of potential effects (APE) for direct effects. SHPO recommends the APE for indirect effects include at least one-and-a-half miles from the center point of each turbine, given the maximum rotor tip height of the tower type likely to be selected. SHPO also recommends that the indirect APE include a one-mile buffer around the transmission line as well.	WAPA thanks you for your recommendations on the area of potential effects for direct and indirect effects. WAPA defined the ground disturbance APE as a 5-acre area centered around each of the turbine locations; a 150'-wide survey corridor from the centerline for linear features; and the construction footprint plus an additional 200' on all sides for buildings and other non-linear features. WAPA defined the visual/auditory APE as a 1.5 mile buffer from all turbines and one mile from the gen-tie line.	3.10 and Appendix F	Cultural Resources
5	a	SHPO	1/29/2021	Duplicate of above comment - one was received via email and other was a hard copy letter.		3.10 and Appendix F	Cultural Resources
6	a	U.S. Fish and Wildlife Service (USFWS) - Huron Wetland Management District	1/29/2021	As a follow up to our phone conversation, I am wondering if it would be possible to provide USFWS with any pertinent GIS shapefile information available for this project (i.e. project boundary, proposed wind turbine locations, collector lines, etc.)? Any information that can be provided will be used to begin the review process.	Christina Gomer, WAPA, provided a GIS shapefile of the project boundary via email on 1/29/21 at 3:16 pm.	N/A	Request for information
	b		1/29/2021	On page 24 of the recorded power point presentation, a map showing the locations of USFWS wetland and grassland easement interests was presented. The presenter mentioned that the project will avoid all grassland easement interests and all water features within wetland easement properties will also be avoided through micro sighting adjustments. One item for consideration- at first glance, the map on page 24 appears to have several USFWS property interests mislabeled (i.e. there are actually more grassland easement properties then what is shown on the map).  I've included a link below to a public facing website the Service updates approximately 3 times each year which depict the Services property interests. Easement types (i.e. grassland, wetland, FmHA) can be identified by clicking on the property. For planning purposes, I ask that you please ask your team to review the project area (using the link below) as I believe there are several properties that have been mislabeled. I would be happy to explain this further as/if needed.	Information in the EA has been updated as suggested.	3.2 and 3.3	Water Resources and Vegetation: Land Use and Land Cover
7	a	USFWS - South Dakota Ecological Field Services Office	2/2/2021	Recommends avoidance of grasslands. There's a lot of leks out there and they're right in the middle of the whooper corridor with all records all around... not a good location from a wildlife perspective.	The proposed layout of Project facilities was developed through an iterative process. Various turbine models were eliminated due to availability. Layout options were evaluated and eliminated based on: 1) the wind resource, 2) the selected turbine model, and 3) avoidance areas and setbacks.  Complete avoidance of grassland and herbaceous cover was infeasible for the Project due to limits on land availability and participating landowners.	2.1, 3.3, 3.4, 3.5	Vegetation: Land Use and Land Cover, Wildlife, Threatened and Endangered Species

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	b		2/2/2021	Least terns and piping plovers use sparsely vegetated interchannel sandbars, islands, and shorelines for nesting, foraging and brood-rearing. These birds are closely associated with the Missouri River in South Dakota, but overland movements are likely, particularly by piping plovers which may nest at isolated wetlands outside the Missouri River corridor. The extent of overland movements by these species is not known, however, the proximity of your project to the Missouri River likely increases the potential for their onsite occurrence during migration, breeding, or dispersal. Turbine collisions may be possible, and the birds are sensitive to human disturbances during breeding which can limit reproduction. These species do not winter in South Dakota; they typically occur in the state between May 1 and August 15.	The interior least tern was delisted on January 13, 2021. Piping plovers and their potential to occur are addressed in Section 3.5 of the Draft EA.	3.5	Threatened and Endangered Species
	c		2/2/2021	The proposed wind farm location is within the documented migration corridor of the Aransas/Wood Buffalo population of whooping cranes - the only self-sustaining migratory population of whooping cranes in existence. A map of the portion of the migration corridor that exists in South Dakota and an associated "required reading" document for that corridor map are enclosed. These birds migrate through South Dakota twice annually on their way to northern breeding grounds and southern wintering areas. They occupy numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which to stand and rest. Whooping cranes are large birds with low maneuverability. Line strike mortality is the greatest known threat to fledged whooping cranes; more information on this topic is provided herein (see enclosure dated February 4, 2010, and Power Lines section below). Whooping crane mortality via turbine strikes may also pose a risk if the birds utilize habitat at/near wind farm sites. Loss of stopover habitat in the migration corridor is a concern that may be realized if whooping cranes tend to avoid wind farms in this area. Additionally, should construction occur during spring or fall migration, the potential for disturbances to whooping cranes exists. Disturbance (flushing the birds) stresses them at critical times of the year and should be avoided. These issues should be addressed prior to wind farm development. Sightings of whooping cranes at any time should be reported to this office. Note that use of the proposed project area by sandhill cranes may be indicative of the potential presence of whooping cranes since the two species are often observed utilizing the same habitats and migrating together.	WAPA thanks you for the information and has incorporated it into the EA. North Bend has indicated it will implement the following conservation measures to avoid or reduce impacts to whooping cranes and their habitat: <ul style="list-style-type: none"> <li>• Bird flight diverters consistent with Avian Power Line Interaction Committee standards would be placed on the top static wire of the transmission line.</li> <li>• A whooping crane observation plan and turbine shutdown protocol would be implemented during the spring and fall migration periods for the life of the Project. Details are provided in Appendix D of the EA.</li> <li>• Participation in an environmental awareness training program would be required for all Project staff and sub-contractors working on-site. The program includes training participants in the proper identification, response protocol, and reporting of sandhill and whooping cranes. Additionally, pamphlets or identification guides would be disseminated to operations staff and sub-contractors while conducting work on-site during the migration seasons.</li> </ul>	3.5.1	Threatened and Endangered Species
	d		1/5/2017	Per previous contacts by phone and email, you are aware that the U.S. Fish and Wildlife Service's (Service) Huron Wetland Management District (WMD) holds easements on private lands in the proposed project area. The Huron WMD will provide exact locations of easements in the area if they have not already done so. These lands are part of the National Wildlife Refuge System of lands and are of high value for wildlife. Please continue coordination with Huron WMD regarding impacts to Service easements as a result of your project.	Wetland easements are addressed in Section 3.2 of the Draft EA. The applicant has coordinated with the USFWS regarding the easements present and has identified all wetland easements. While the project will enter wetland easement parcels, all wetlands within those parcels would be avoided.	3.2.	Water Resources
	e		1/5/2017	In accordance with section 7(c) of the Endangered Species Act (ESA), as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days): Least Tern, ( <i>Sterna antillarum</i> ), Piping Plover, ( <i>Charadrius melodus</i> ), Whooping Crane ( <i>Grus americana</i> ), Rufa Red Knot ( <i>Calidris canutus rufa</i> ), and Northern Long-eared Bat ( <i>Myotis septentrionalis</i> ). If there is a "may adversely affect" determination, request formal consultation. Submit a "may affect - not likely to adversely affect" determination for concurrence. No consultation needed for "no effect" determination.	Threatened and Endangered species are addressed in Section 3.5 of the Draft EA. ESA consultation will be fulfilled through the Section 7 consultation process. WAPA has prepared a Biological Assessment, which will be submitted to the USFWS. The species addressed include whooping crane, piping plover, pallid sturgeon, rufa red knot, and northern long-eared bat. <p>WAPA has determined the Project may affect, but is not likely to adversely affect whooping crane, piping plover, rufa red knot, and northern long-eared bat. WAPA determined the Project would result in no effect to pallid sturgeon. The least tern is no longer listed under the ESA.</p>	3.5	Threatened and Endangered Species
	f			The rufa red knot is a robin-sized shorebird that migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States, the Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America. Although it is primarily a coastal species, small numbers of rufa red knots are reported annually across the interior United States (i.e., greater than 25 miles from the Gulf or Atlantic Coasts) during spring and fall migration. These reported sightings are concentrated along the Great Lakes, but multiple reports have been made from nearly every interior State, including South Dakota. The red knot likely uses South Dakota habitats similar to those of the least tern and piping plover. The species does not breed in this state, but moves through during spring and fall migrations.	WAPA has determined the Project may affect, but is not likely to adversely affect, rufa red knot.	3.5	Threatened and Endangered Species

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	g			<p>The northern long-eared bat is a medium-sized brown bat listed as threatened under the Endangered Species Act. Northern long-eared bats are known to be present in South Dakota during the summer months, primarily roosting singly or in colonies underneath bark, in cavities or in crevices of both live and dead trees. Some hibernacula have been documented in caves/mines in the Black Hills, the species has been documented in other forested areas in the state during the summer months, and along the Missouri River during migration. White nose syndrome - a fungus affecting hibernating bats - is considered a significant threat to this species, but individuals may be harmed by other activities such as modifications to hibernacula, timber harvest, human disturbance, and collisions with wind turbines. Currently, feathering turbine blades and increasing cut-in speeds are recommended measures to reduce the risk of bat mortality at wind generation facilities. A 4(d) rule has been published that exempts take of Northern long-eared bats in certain circumstances. For more information, see: <a href="https://www.fws.gov/Midwest/Endangered/mammals/nleb/index.html">https://www.fws.gov/Midwest/Endangered/mammals/nleb/index.html</a>.</p> <p>It is unclear at this time whether a Federal nexus exists for this project (i.e. a Federal agency is funding, permitting or otherwise authorizing the project). If a Federal action agency, or their designated representative exists for this project and determines that the project "may adversely affect" listed species in South Dakota, it should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary. However, a copy of the determination should be sent to this office. If no Federal agency is involved with the proposed project and take of federally listed species may occur, ESA compliance may be achieved by private entities via coordination with this office and development of a Habitat Conservation Plan (HCP). Our website provides more information on HCPs at: <a href="http://www.fws.gov/Endangered/what-we-do/hcp-overview.html">http://www.fws.gov/Endangered/what-we-do/hcp-overview.html</a>.</p>	WAPA is conducting ESA consultation and has prepared a Biological Assessment, which will be submitted to USFWS. WAPA has determined the Project may affect, but is not likely to adversely affect northern long-eared bat. Rationale is provided in Section 3.5.1 of the Draft EA and in the Biological Assessment.	3.5	Threatened and Endangered Species
	h		1/5/2017	<p>Golden eagles (<i>Aquila chrysaetos</i>) are year-round residents in western South Dakota, and may be found throughout the state in winter or during migration. Bald eagles (<i>Haliaeetus leucocephalus</i>) occur throughout South Dakota in all seasons. Both species are protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). These laws protect eagles from a variety of harmful actions and impacts. Your letter included Tier 1 information for the proposed wind energy facility, based on our 2012 <i>Land-based Wind Energy Guidelines</i>. Note that additional guidance is available for your use regarding development impacts to eagles: Our 2007 <i>National Bald Eagle Management Guidelines</i> are available online. We recommend reviewing these guidelines as they advise of circumstances where these laws may apply and assist you in avoiding potential violations. In 2009, we published a final rule (50 C.F.R. §§ 22.26 and 22.27) authorizing issuance of permits to take bald and golden eagles, where the take is compatible with the preservation of the bald eagle and the golden eagle, is associated with and not the purpose of an otherwise lawful activity, has been avoided to the maximum degree practicable, and the remaining take is unavoidable. We recently amended the eagle permit regulations. In 2013, we released our <i>Eagle Conservation Plan Guidance, Module 1—Land-based Wind Energy Version 2</i> (ECPG). This guidance supplements the 2012 Land-based Wind Energy Guidelines and explains and supports the requirements of the 2009 eagle permit rule as it applies to wind energy facilities. The ECPG provides specific in-depth guidance for development of an Eagle Conservation Plan to conserve bald and golden eagles in the course of siting, constructing, and operating wind energy facilities. These plans are intended to assist companies with compliance regarding regulatory requirements for programmatic eagle take permits and the associated National Environmental Policy Act process by avoiding and minimizing the risk of taking eagles through evaluation of possible alternatives in siting, configuration, construction, and operation of wind projects. South Dakota is part of the Service's Region 6, therefore we have enclosed a document intended to further assist wind companies working in this region as they develop Eagle Conservation Plans: <i>Final Outline and Components of an Eagle Conservation Plan (ECP) for Wind Development: Recommendations from USFWS Region 6</i>.</p>	Thank you for the information. Based upon observed nesting and use patterns at the Project, North Bend has elected to not prepare a voluntary Eagle Conservation Plan or apply for an Incidental Take Permit for eagles at this time.	3.4	Wildlife
	i		1/5/2017	<p>According to National Wetlands Inventory maps (available online at <a href="http://wetlands.fws.gov/">http://wetlands.fws.gov/</a>), numerous wetlands exist within the proposed project area. If a project may impact wetlands or other important fish and wildlife habitats, the Service, in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible; then minimization of any adverse impacts; and finally, replacement of any lost acres; in that order. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted and the methods of replacement should be prepared and submitted to the resource agencies for review.</p>	Impacts to wetlands are addressed in Section 3.2.1 of the Draft EA. Facilities will be microsited to the extent possible to avoid and minimize impacts to the extent practicable. Impacts to jurisdictional wetlands and waterways will likely be limited to ephemeral stream crossings and palustrine emergent wetlands. Any impacts to wetlands will be authorized through the USACE permitting process, and replaced through mitigation if needed.	3.2	Water Resources

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	j		1/5/2017	The Migratory Birds Division of the Service has published Birds of Conservation Concern 2008, which may be found online at: <a href="https://www.fws.gov/migratorvbirds/pdf/grants/BirdsofConservationConcern2008.pdf">https://www.fws.gov/migratorvbirds/pdf/grants/BirdsofConservationConcern2008.pdf</a> . This document is intended to identify species in need of coordinated and proactive conservation efforts among State, Federal, and private entities, with the goals of precluding future evaluation of these species for ESA protections and promoting/conserving long-term avian diversity. Your project is located in Bird Conservation Region 11: Prairie Potholes. Primary threats impacting the birds of conservation concern in this area in South Dakota are habitat loss and fragmentation. In accordance with Executive Order 13186 regarding migratory bird protection, we recommend avoidance, minimization and finally, compensation of migratory bird habitats to reduce the impacts to species protected by the MBTA. Compliance with this law may be partially addressed in a Bird and Bat Conservation Strategy (BBCS) (identified within our 2012 Land-Based Wind Energy Guidelines). However, a separate mitigation plan that specifically addresses direct and indirect take of birds during and after construction is also recommended, particularly if placement must occur within intact native grasslands. Some species of grassland nesting birds are known to exhibit avoidance behavior relative to wind turbines on the prairie landscape, out to a distance of 300 m or more (which equates to an area approximately 70 acres in size around each turbine), and the level of avoidance increases over time (Shaffer and Buhl 2015). If prairie habitat impacts are unavoidable, we recommend implementing offsetting measures for this impact, such as prairie restoration, establishment of easements, or purchase of fee title lands. We can provide further guidance in this regard if the project progresses.	The effects of habitat loss and fragmentation to birds of conservation concern are addressed in Section 3.4.1 of the Draft EA. Access roads and turbine pads would contribute to some habitat loss and fragmentation. Additional grassland habitat would be temporarily disturbed during construction, however would be revegetated according to the project's restoration plan (Section 3.3.1 of the Draft EA). A Bird and Bat Conservation Strategy (BBCS) has been developed for the North Bend Wind Project (See EA Appendix C).  Grassland avoidance is one of many factors considered during siting of the project, however it was not feasible to avoid all grasslands due to their prevalence throughout the Project area. Land enrolled in the USFWS Grassland Easement Program and the FSA easement would be completely avoided by Project facilities. Other grasslands are privately owned. It is voluntary to mitigate grassland impacts.  The Project does not intend to prepare or implement voluntary mitigation or compensation plans for migratory birds or grasslands, through fee title land purchase, or easement establishment. Siting avoidance, and restoration measures are appropriately identified in the Draft EA.	3.4	Wildlife
	k		1/5/2017	Meteorological towers constructed in association with wind turbines are often similar in design to typical communication towers: tall, lighted, lattice structured, and guyed. Of primary concern are the collision mortality risks posed to migratory birds as towers are currently estimated to kill 6.8 million birds per year in the United States and Canada (Longcore et al. 2012). We have enclosed Service guidance on this issue, our 2013 U.S. Fish and Wildlife Service (USFWS) Revised Voluntary Guidelines for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning. Among the primary concerns addressed within our guidelines are the establishment of new towers on the landscape, the heights of these towers, their lighting scheme, and means of structural support. Collocation of communications tower facilities on an existing structure is strongly recommended to avoid any additional impacts to facilities on an existing structure is strongly recommended to avoid any additional impacts to migratory birds. If a new tower is necessary, placement of the new tower near other existing structures is recommended to concentrate the risk posed by the towers to relatively small areas. Minimization of tower height (below 200 feet to preclude the need for Federal Aviation Administration lighting requirements), use of only strobe or flashing lights (no steady-burning lights), and avoidance of guy wires (a great deal of avian mortality is a result of collisions with supporting guy wires) are important components intended to minimize potential impacts to migratory birds.	One permanent meteorological tower would be constructed as a free-standing structure with no guy wires and a height equal to a turbine hub. Five different locations within the Project area are currently under consideration and depicted in Figure 2.2-1 in the Draft EA. Installation of the tower would result in land disturbance.	3.4	Wildlife
	l		1/5/2017	The construction of additional overhead power lines associated with wind farms creates the threat of avian electrocution, particularly for raptors. Thousands of these birds, including endangered species, are killed annually as they attempt to utilize overhead power lines as nesting, hunting, resting, feeding, and sunning sites. The Service recommends the installation of underground, rather than overhead, power lines whenever possible/appropriate to minimize environmental disturbances. For all new overhead lines or modernization of old overhead lines, we recommend incorporating measures to	An underground collector system would be used. The overhead transmission line between the project substation and WAPA's point of interconnect (called the "gen tie line") would be less than 500 feet and would run up and over a fence that demarks the two locations. North Bend has committed to installing bird flight divertors along the length of the overhead transmission line.	2.2	Proposed Action Alternative

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
				<p>prevent avian electrocutions. The publication entitled Suggested Practices for Avian Protection on Power Lines - The State of the Art in 2006 has many good suggestions including pole extensions, modified positioning of live phase conductors and ground wires, placement of perch guards and elevated perches, elimination of cross arms, use of wood (not metal) braces, and installation of various insulating covers. You may obtain this publication by contacting the Edison Electric Institute via their website at: <a href="http://www.eei.org/resourcesandmedia/products/Pages/products.aspx">http://www.eei.org/resourcesandmedia/products/Pages/products.aspx</a>, or by calling 202-508-5000. Please note that utilizing just one of the "Suggested Practices . . ." methods may not entirely remove the threat of electrocution to raptors. In fact, improper use of some methods may increase electrocution mortality. Perch guards, for example, may be only partially effective as some birds may still attempt to perch on structures with misplaced or small-sized guards and suffer electrocution as they approach too close to conducting materials. Among the most dangerous structures to raptors are poles that are located at a crossing of two or more lines, exposed above-ground transformers, or dead end poles. Numerous hot and neutral lines at these sites, combined with inadequate spacing between conductors, increase the threat of raptor electrocutions. Perch guards placed on other poles has, in some cases, served to actually shift birds to these more dangerous sites, increasing the number of mortalities. Thus, it may be necessary to utilize other methods or combine methods to achieve the best results. The same principles may be applied to substation structures. Please also note that the spacing recommendation within the "Suggested Practices . . ." publication of at least 60 inches between conductors or features that cause grounding may not be protective of larger raptors such as eagles. This measure was based on the fact that the skin-to-skin contact distance on these birds (i.e., talon to beak, wrist to wrist, etc.) is less than 60 inches. However, an adult eagle's wingspan (distance between feather tips) may vary from 66 to 96 inches depending on the species (golden or bald) and gender of the bird, and unfortunately, wet feathers in contact with conductors and/or grounding connections can result in a lethal electrical surge. Thus, the focus of the above precautionary measures should be to a) provide more than 96 inches of spacing between conductors or grounding features, b) insulate exposed conducting features so that contact will not cause raptor electrocution, and/or c) prevent raptors from perching on the poles in the first place. Additional information regarding simple, effective ways to prevent raptor electrocutions on power lines is available in video form. Raptors at Risk may be obtained by contacting EDM International, Inc. at 4001 Automation Way, Fort Collins, Colorado 80525-3479, Telephone No. (970) 204-4001, or by visiting their website at: <a href="http://www.edmlink.com/raptorvideo.htm">http://www.edmlink.com/raptorvideo.htm</a>. In addition to electrocution, overhead power lines also present the threat of avian line strike mortality. Particularly in situations where these lines are adjacent to wetlands or where waters exist on opposite sides of the lines, we recommend marking them in order to make them more visible to birds. For more information on bird strikes, please see Reducing Avian Collisions with Power Lines: The State of the Art in 2012 which, again, may be obtained by contacting the Edison Electric Institute via their website at <a href="http://www.eei.org/resourcesandmedia/products/Pages/products.aspx">http://www.eei.org/resourcesandmedia/products/Pages/products.aspx</a>, or by calling 202-508-5000. Please note that, while marking of power lines reduces line strike mortality, it does not preclude it entirely. Thus, marking of additional, existing, overhead lines is recommended to further offset the potential for avian line strike mortality. As noted above, the whooping crane is particularly susceptible to this type of mortality, and your project occurs within the whooping crane migratory corridor. This region of the Service (Region 6) has developed Guidance for Minimizing Effects From Power Line Projects Within the Whooping Crane Migration Corridor (copy enclosed). Marking of existing lines elsewhere in the species' corridor is recommended. As indicated previously, a copy of the migration corridor of the Aransas-Wood Buffalo Population of whooping cranes is also enclosed for your information.</p>			
	m			<p>As with Eagle Conservation Plans for wind projects in this region, we have developed a document to further assist companies in following our established national guidance on BBCSs. We have enclosed our Region 6 Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects. As stated in the introduction of that document: a BBCS "...is a life-of-a-project framework for identifying and implementing actions to conserve birds and bats during wind energy project planning, construction, operation, maintenance, and decommissioning. It is the responsibility of wind energy project developers and operators to effectively assess project-related impacts to birds, bats and their habitats, and to work to avoid and minimize those impacts." A BBCS explains the actions taken by developers as they progress through the tiers of our Land-Based Wind Energy Guidelines, describing the analyses, studies, and reasoning implemented with the purpose of mitigating for potential avian and bat impacts. It also addresses post-construction monitoring and habitat impacts. We recommend you develop a BBCS as this project progresses.</p>	<p>A Bird and Bat Conservation Strategy (BBCS) has been developed for the North Bend Wind Project. It is included in the EA as Appendix C.</p>	3.4	Wildlife

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
8	a	Private Citizen	1/23/2021	I am not here to object to you building the North Bend Project. I am only asking a small favor from you that impacts my cattle operation. I am asking to place all of the towers on a certain piece of land and not on another, separate piece of land. I have enclosed a letter and a map to explain everything to you and ask you please consider my request. Thank you. Enclosed letter: I own a ranch along the North Bend Wind Project and did not sign any of my land up in the project. I was never against wind energy, only had a problem with the 1/2-mile set back. I wanted a mile. The area within the project is vast and with very few ranches within its boundaries. The land agent on insisted on a 1/2-mile setback or he would pull the project. With the immense support for the project by the people the county commissioners agreed to a 1/2-mile set back. This is what involves my ranch now, a neighbor is signed up for your project and it has now been brought to my attention that you intend to put a tower, or towers on a certain piece of land. I own the land surrounding this land and that piece of land is just 1/2-mile from ranch headquarters. I run a cattle operation and wean a lot of calves in the fall - around 800 head. They are very susceptible to any noise at that time and can spook and stampede through the fences and scatter for miles. There is also a shelterbelt of trees around the ranch that is home to grouse, prairie chickens, pheasants, and deer. After talking to ranchers in the White Lake South Dakota Wind Farm Project they all insist a 1/2-mile set back was not enough, they all have problems with the noise the tower makes. The have problems with the cattle and they said it eliminated all the wildlife, they all said that knowing what they know now they would have never signed up, I am asking you to look at the land maps I am sending you. All I am asking for is you place all of the towers on a certain piece of land and not on another, separate piece of land owned by the same project participant. That would give me close to 1 mile set back. I am not here to cause you trouble. I know that you can legally place the tower on the current piece of land. Only as a good neighbor I ask you to place all of the towers on the separate piece of land owned by the same project participant. I have lived here since 1958 and want to continue to ranch here hoping my sons and grandsons can make the ranch a centennial ranch in 2058. The noise factor could make that difficult if not impossible on a cattle operation. Please consider my request. It seems like such a small request and would make such a huge impact on the future of my ranch. Thank you for your time.	The turbine sited closest to your house would be located approximately one mile away. It is estimated that operational levels at residences near the project would have a maximum noise level of 45 dBA consistent with the County's standards, while the majority of time the noise will be far below this level. This is within the range of very quiet to quiet. Please refer to Table 3.8-1 for further explanation of these levels. Sources for noise in agricultural areas are primarily from vehicular traffic, agricultural farm equipment, farm animals, weather activities (i.e., thunder and wind), occasional aircraft and wildlife, and cattle presumably are accustomed to such noise. The U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines acknowledge the need for more research regarding noise effects on wildlife, which would also extend to cattle.	3.8	Noise
9	a	Private Citizen	1/23/2021	I have been waiting for wind turbines on our farm for fifty-plus years. This area is perfect for wind energy production. Plus nearly all the residents who live in the project area are in favor of it. We have been fighting to keep the project moving forward. My concern is that the family fighting the project will try to get outsiders to bad mouth the project. They have used unscrupulous tactics to stall the project at every level. The opponents have a hunting lodge that that they put in knowing fully well it was a prime wind energy production area. Now this family calls all of his neighbors white trash. I sincerely hope WAPA doesn't let one family influence the outcome that will benefit many families in the proposed project area. Projections of 80% electric automobiles in ten years. Where is the electricity going to come from?	Thank you for your comment.	N/A	General Support
10	a	Private Citizen	1/26/2021	Do you have any idea when the Project would start?	At the time of the scoping meeting, construction was expected to begin as early as February 2022 with commercial operations beginning November 2022. At the time of the draft EA, construction is expected to begin in fall 2022 and commercial operations is targeted for October 2023.	2.2.10	Project Construction, Operation, Maintenance, and Decommissioning
11	a	Private Citizen	1/16/2021	I am in favor of this wind farm as I believe renewable energy is the way to go.	Thank you for your comment.	N/A	General Support
12	a	Private Citizen	1/19/2021	Welcome WAPA. I'm glad to be a part of the North Bend Wind Turbine Project. WAPA towers have crossed our land for generations. Our family will work with the Project in the future. This will be the future of our farms and ranches. Clean wind energy is the future. Thank you.	Thank you for your comment.	N/A	General Support
13	a	Private Citizen	1/19/2021	This project is long over due it is the best thing for the area. All of us land owners are glad to work with WAPA. Wind energy is what the county needs to keep our future power needs with WAPA. Working together with WAPA and all of us together will keep the project and energy companies stronger. Thank you.	Thank you for your comment.	N/A	General Support
14	a	Private Citizen	1/15/2021	I have shared this information with my brother. We co-own the affected farm land.	Thank you for your comment.	N/A	General Comment
15	a	Private Citizen	1/12/2021	I support the North Bend Wind Project. Renewable energy is a necessity for our country's future. A strong majority of the landowners on the proposed project location support this project. A small, yet very vocal, minority oppose it. The benefits from this project are far-reaching and will continue long into the future, should this project be realized. Thank you for considering my input. My best to all those involved in the decision-making process.	Thank you for your comment.	N/A	General Support

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
16	a	Private Citizen	1/14/2021	I support the North Bend Project completely. I have looked at the power lines my whole life and think they should be used completely full to capacity. Wind energy is good energy, the wind blows most of the time so it is time we made it work for us. The Triple H Project east of me looks nice, the roads are better than they were and its a lot of money coming into the county. If you have any questions just call me. Wish you would have a live meeting I'm not much on computer/email stuff, but I understand the way things are today with Covid.	Thank you for your comment.	N/A	General Support
17	a	South Dakota Department of Transportation (SDDOT)	1/14/2021	When will the materials be trucked in? Over what duration? On what state highways? From where?	At the time of the scoping meeting, construction for the project was expected to begin as early as February 2022. Generally speaking, heavy equipment would be provided to the site in order to grade roads in conjunction with civil work. Major component deliveries would likely start in the early 2023 after foundations have been poured. At the time of the draft EA, the construction schedule is expected to begin fall of 2022 and is expected to take approximately 9 to 12 months.	3.7	Transportation and Aviation
	b		1/14/2021	Any special signing needs (e.g., truck crossing) or traffic control would need a permit.	The contractor would be required to coordinate with Hughes County and Hyde County road departments, as well as SDDOT.	3.7.2.1	Transportation and Aviation
	c		1/14/2021	Assuming all loads legal?	The contractor would comply with all laws and regulations including transportation.	3.7	Transportation and Aviation
	d		1/14/2021	Be good for you to know any projects we have in the area.	The contractor would contact SDDOT before construction of the Project begins.	3.7	Transportation and Aviation
18	a	Private Citizen	1/20/2021	I am a landowner in Hughes Co. SD.	Thank you for your comment.	N/A	General Comment
19	a	Private Citizen	1/20/2021	I support the North Bend Wind Project. Wind projects have been considered in this area since the 1970's. The projects never materialized because there was no way to get the power to where it could be used. With a world turning to environmentally favorable sources of power, wind is a no brainer. The trend toward electric vehicles will most certainly create the need for electric power generation beyond what exists now. Yes, please approve this project. This area is a very low density population area ideally suited for wind energy production.	Thank you for your comment.	N/A	General Support
20	a	Private Citizen	1/21/2021	When will work begin on this project?	At the time of the scoping meeting, construction for the project was expected to begin as early as February 2022. At the time of the draft EA, the construction schedule is expected to begin fall of 2022 and is expected to take approximately 9 to 12 months.	2.2.10	Project Construction, Operation, Maintenance, and Decommissioning
21	a	USFWS - South Dakota Ecological Field Services Office	1/5/2017	Duplicate of Letter Number 7, which is a 2017 letter from USFWS to Infinity Renewables regarding this project.	See responses to Letter Number 7	3.4	Wildlife
22	a	USDA-NRCS	1/21/2021	Duplicate of Letter Number 1 - this hard copy letter was sent twice to WAPA	See response to Letter Number 1	3.1	Soils and Geologic Resources
23	a	Federal Aviation Administration (FAA)	1/10/2021	We have reviewed the document dated January 6, 2021, proposing a wind farm near Harrold, SD, in the counties of Hughes and Hyde. The proposed wind farm at its closest point is approximately 2.5 miles from the Harrold Municipal Airport, and about 8 miles from the Highmore Municipal Airport. Structures over 200' tall will need to have an aeronautical study done to determine the impact to the safe and efficient use of aircraft. The studies can be filed at <a href="https://oeaaa.faa.gov/oeaaa/external/portal.jsp">https://oeaaa.faa.gov/oeaaa/external/portal.jsp</a> .	Although the Project boundary is approximately 2.5 miles and 8 miles from the Harrold Municipal Airport and the Highmore Municipal Airport respectively, the nearest turbines to the Harrold and Highmore airports are approximately 6.5 and 11.5 miles, respectively. Due to the height of the turbines, Form 7460-1 would need to be submitted to the FAA. Determinations of no hazard have been issued by the FAA for a preliminary layout for the project. A revised filing will be needed once turbine locations have been finalized prior to construction.	3.7	Transportation and Aviation
24	a	South Dakota Department of Environment and Natural Resources (DENR)	1/10/2021	At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM or <a href="http://denr.sd.gov/des/sw/stormwater.aspx">http://denr.sd.gov/des/sw/stormwater.aspx</a>	Erosion and sediment control measures are discussed in Section 3.2.1 of the Draft EA, including the preparation of a Stormwater Pollution Presentation Plan and other applicable permits from SDDANR.	3.2	Water Resources



Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	b			A Surface Water Discharge permit may be required if any construction dewatering should occur as a result of this project. Please contact this office for more information.	A general permit for storm water discharges through the SDDANR would be required for construction activities. A surface water discharge permit would also be required for point source discharges to surface waters not related to storm water runoff. The construction contractor would be required to get these permits, as applicable.	3.2	Water Resources
	c			Impacts to tributaries, creeks, wetlands, and lakes should be avoided by this project. These waterbodies are considered waters of the state and are protected under Administrative Rules of South Dakota Chapter 74:51. Special construction measures may have to be taken to ensure that water quality standards are not violated.	Some surface waters in the project area would be affected due to access roads and collector line crossings. Collector line impacts would be temporary. Affected waterbodies are discussed in Section 3.2.1 of the Draft EA.	3.2	Water Resources
	d			This project may be in close proximity to Chapelle Creek and South Fork Medicine Knoll Creek. These waterbodies are classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses: (6) Warmwater marginal fish life propagation waters; (8) Limited contact recreation waters; (9) Fish and wildlife propagation, recreation, and stock watering waters; and (10) irrigation waters.	Chapelle Creek is discussed in the EA. South Fork Medicine Knoll Creek is outside the Project area and not expected to be affected. The only Project feature that crosses Chapelle Creek is a collection line, and temporary impacts associated with installation of the collection line would not affect beneficial uses 6, 8, 9, or 10.	3.2	Water Resources
	e			This project may be in close proximity to Holabird and Mission (also known as Stephan) Lakes. These waterbodies are classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Lakes for the following beneficial uses: (6) Warmwater marginal fish life propagation waters; (7) Immersion recreation waters; (8) Limited contact recreation waters; and (9) Fish and wildlife propagation, recreation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that the daily maximum total suspended solids criterion of 263 mg/L and the 30-day average total suspended solids criterion of 150 mg/L are not violated.	Holabird Lake is outside of and upstream from the Project area (Figure 3.2-1). Mission Lake is outside the Project area, approximately 7.25 miles to the southeast. Neither lake would be affected by the Project.	3.2	Water Resources
	f			This project may be in close proximity to Chapelle Lake. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Lakes for the following beneficial uses: (5) Warmwater semipermanent fish life propagation waters; (7) Immersion recreation waters; (8) Limited contact recreation waters; and (9) Fish and wildlife propagation, recreation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that the daily maximum total suspended solids criterion of 158 mg/L and the 30-day average total suspended solids criterion of 90 mg/L are not violated	Chapelle Lake is outside of and upstream from the Project area (Figure 3.2-1). It would not be affected by the Project.	3.2	Water Resources
	g			The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment except where authorized under Section 404 of the Federal Water Pollution Control Act. Please contact the United States Army Corps of Engineers for more information 605-224-8531.	To avoid potential water quality effects from petroleum products, if stored on site, fuel, lubricants, and other hazardous substances would be stored in a containment area and a Spill Prevention, Control and Countermeasure Plan (SPCCP) would be developed and implemented by the construction contractor. North Bend, LLC will apply for permits under Section 404 from the U.S. Army Corps of Engineers for use of fill material in any jurisdictional waters of the U.S., including wetlands.	3.2	Water Resources
25	a	Private Citizen		I am writing to express my concerns and provide comments regarding the proposed North Bend Project in central South Dakota. The sheer magnitude and location of the project's footprint will negatively impact and cause irreparable damage to our established, diverse value added agriculture operation	Section 2.1 describes how North Bend, LLC arrived at the proposed layout and selection for the turbines, turbine and infrastructure locations, and avoidance areas. Socioeconomic impacts are discussed in Section 3.6.1 of the Draft EA.	2.1	Alternatives Considered but Eliminated
	b			Our family owns, leases and operates more than 12,000 acres of property in Hughes/Hyde counties. Our operation includes farming grain and oilseed crops, raising/selling certified seed to regional farmers, and operating one of the oldest, established hunting preserve/lodge operations in the state. More than 40 staff rely on our diverse operation for an income stream. We take pride in what we've developed over the past 35 years and recognize the multitude of life altering effects associated with the transition of agriculture lands into an industrial wind park.	The proposed project would be located south and east of the commenter's operation, with the nearest wind turbine approximately 0.6 mile away. Section 3.6.1 of the Draft EA discusses socioeconomic impacts.	3.6	Socioeconomics
	c			Our hunting lodge operation hosts more than 400 guests each season and has been recognized as one of the Top Ten Greatest Hunting Lodges in the World and one of the Top 20 Greatest Wing Shooting Destinations in the World, among many other accolades and accomplishments. Each season guests from across the globe express their appreciation for the star filled skies and vast open landscapes. They express to us year after year how they depart the urban, blinking lights, steel towers and concrete jungles to enjoy one of America's last great undisturbed agriculture/grassland habitat locations. There is value in view shed. Surrounding our operation with industrial wind towers will result in loss of tourism revenue our operation and staff rely on!	The viewshed from the commenter's operation would be affected in two directions, the south and east. The effects on the night sky would be minimized by the Aircraft Detection Lighting System. Visual impacts are discussed in Section 3.9.1 of the Draft EA. Socioeconomics are discussed in section 3.6 of the Draft EA.	3.9 3.6	Visual Resources and Shadow Flicker Socioeconomics

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	d			To say the footprint of the project will take a toll on the wildlife population is an understatement. We are surrounded by multiple grouse and prairie chicken leks, Hungarian partridge and pheasants. We make a living by managing and harvesting these bird species. Without them, we are out of business! Numerous studies have concluded there is a direct co-relation between the populations of upland birds and location of industrial wind turbines. Infrasound, low frequency noise, shadow flicker, perception of a raptor perch, and the destruction of habitat during the building phase are all negative effects of industrial wind turbines resulting in the reduction and at times the elimination of bird species. The most intriguing study "Wind Energy and Wildlife Resource Management in Iowa: Avoiding Potential Conflicts" was completed by a joint effort consisting of representatives from the Iowa DNR Wildlife Bureau and Energy section, US Fish and Wildlife Service, several nongovernmental conservation organizations, energy companies, and the Iowa Renewable Energy Association. One of the most concerning conclusions was how highly "area-sensitive" wildlife species such as prairie-chickens are prone to the negative effects of wind turbines and a minimum of a 5 mile setback from all known leks is strongly recommended!	Thank you for the information. The study you provided was reviewed and some of the siting, turbine design, and operation recommendations are incorporated into the Project design and layout, as well as other relevant literature. Four years of prairie grouse lek surveys were conducted in the project and surrounding area. Active leks were found each of the four years, ranging from 4 to 17 leks. The number of male birds on leks ranged from 1 to 5 in the most recent survey years (2020). Habitat fragmentation and wind turbine disturbance may impact prairie grouse behavior effectively resulting in habitat loss. While the Project is located at the edge of the species range and not within prime occurrences areas for the species in the state, a total of six active leks located within five miles of Project facilities may experience lek abandonment due to the Project. Pheasants were observed during avian use surveys, but were among the five most common species observed in one out of five survey years (2021 - ongoing).	3.4	Wildlife
	e			Siting wind turbines in our location would be harmful to the natural balance of wildlife. We have the fortunate opportunity to have whooping cranes on our property from time to time as they migrate through. Their exact locations have been documented over the years through the SD Dept. of Game Fish and Parks. We also have bald eagles, golden eagles, and other raptor species that not only migrate with the waterfowl population on the Missouri River Flyway (which this project would overrun), but some have become year round residents. Not only do we appreciate this diverse ecosystem but so do our clients. Disrupt this system and our business will suffer	Game birds found in the project area during avian use surveys include ring-necked pheasant, greater prairie-chicken, and sharp-tailed grouse. No Hungarian partridges were found during the surveys. Ring-necked pheasant were among the most common large birds found in one out of five years and neither greater prairie-chicken or sharp-tailed grouse were among the common birds found in any of survey years. Prairie grouse lek surveys found 16 leks in 2020, all were greater prairie-chicken (no sharp-tailed grouse leks) and 8 were inactive. Of the eight active leks, six would likely be affected by the project. The applicant has indicated that they will utilize minimization measures as recommended by SDGFP for occupied grouse habitat relative to the Project to reduce impacts during construction.	3.6	Socioeconomics
	f			One of my greatest concerns is the negative effects on health when wind turbines are sited too closer residences. There is a plethora of information available regarding negative health effects of industrial wind turbine structures erected too close to residences/communities. Ill effects including noise pollution/infrasound, low frequency noise, sleep disturbance, and shadow flicker. 89 testimonies alone from Brown County, WI provide ample proof why the Brown County Board of Health designated the Shirley Wind Farm a "Human Health Hazard". Studies by Dr. Alex Salt, Jerry Punch, PhD, and Richard James, INCE, BME all provide supportive evidence of the ill effects. The Minnesota Dept. of Health's award-winning White Paper Public Health Impacts of Wind Turbines concluded people (who live in and around industrial wind parks) suffering from sleep deprivation, migraine headache, vertigo and tinnitus are most likely a result of low frequency noise (infrasound) created by large wind turbines. Furthermore, the health of some Minnesotans is being harmed by wind turbines.  Big Wind developers recognize these concerns as well and place Indemnity Clauses in their contracts holding themselves harmless. Engie's (formerly Infinity) Indemnity Clause 13.1 states: Engie will be held harmless for damage or injury directly suffered as a result of any audible or electromagnetic noise, electrical and radio interference, vibration, visual impacts, shadow flicker, and other hazards attributed to Developer's operations. I'm not exposed to this risks know and I most certainly don't want my family and staff to be exposed to them later.	North Bend LLC has a setback requirement of 1,800 ft. from occupied residences. WAPA understands that The Upper Great Plains Programmatic Environmental Impact Statement, which the EA is tiered to, states positive and negative impacts to public safety have been identified with the operation of wind farms (Section 3.8.2). Recent studies have suggested that EMF, shadow flicker, low-frequency noise, and infrasound from wind turbines are not likely to affect human health (Knopper et al 2014). Some studies have shown that audible noise can cause annoyance, which may be associated with self-reported health effects, such as sleep disturbance, at sound pressure levels greater than 40 dBA (Leventhall 2003, 2006). Expert testimony filed before the South Dakota Public Utilities Commission found that peer-reviewed, published scientific research has not demonstrated a link between infrasound from wind turbines and adverse health effects, including sleep disturbance or vertigo. Two residences participating in the Project would have sound levels greater than county regulatory thresholds (45 dBA) based on modeling, which would require waivers or easements by the affected residences; both have easements. No non-participating residences would exceed county regulatory thresholds. See Section 3.8.1 of the Draft EA. The article cited by Jerry Punch and Richard James, reports on reserach by Dr. Alex Salt and others that are "leading the way to establishing biological plausibility of harmful effects of sound generated by wind turbines" ( <a href="https://hearinghealthmatters.org/hearingviews/2014/infrasound-wind-turbine-hearing-health-effects/">https://hearinghealthmatters.org/hearingviews/2014/infrasound-wind-turbine-hearing-health-effects/</a> ). Until potential harmful effects are more firmly established, North Bend has relied on, and complied with, local noise restrictions.	3.11	Health and Safety

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	g			Your letter states the EA will evaluate the environmental effects of the proposed project. The wildlife and recreational resources as well as social, economic and environmental effects would be severely impacted on just our operation alone. The eco-tourism and hunting lodge revenue would be virtually eliminated along with dozens of jobs. Property values will take a significant hit as a result of limited tourism and future development. Let's face it, no one wakes up one day and says, hey I would love to live and work in the footprint of 90+ industrial wind turbines. Wind turbine placement limits housing/ranch building eligibilities. It's clear if people have a choice they do NOT want to move to a region where there are numerous 625' industrial wind turbine generators towering over their family farms and homes. The negative impact the North Bend project would have on our multi-generational family operation would be irreparable.	Impacts to the property values are discussed in the Upper Great Plains Environmental Impact Statement (PEIS) in Section 5.10.1.3., which the EA is tiered to, which is summarized in Section 3.6.1 of the Draft EA. The PEIS generally concluded that there may be small negative effects to property values initially, at larger distances and over the longer Project term, no significant enduring impacts to property values have been observed. Studies have also shown (ECONorthwest 2002 and Sterzinger et al. 2003) the impact to property values by wind developments has been positive, resulting in increases to property values. Generally, the Project's effect on property values in the area is uncertain, and could be adverse or beneficial. The Project would likely not impact beyond a local scale.	3.6	Socioeconomics
	h			Engie has already withdrawn one application to tie one of their projects into Basin Electric through a local cooperative in eastern Hyde County as a result of substantial interconnection costs. I can only assume the cost would be the same if not more to tie into WAPA. Unfortunately it seems that that expense would be bestowed upon the hundreds of families and businesses relying on WAPA energy through rate increases. We are yet to be "post-pandemic". Now is not the time to subject families to higher energy expenses. Big Wind already receives plenty of our taxes through production tax credit subsidies. Adding more Big Wind energy would make WAPA unstable.	If WAPA determines that existing transmission capacity is available for a proposed wind energy project, WAPA must ensure that existing transmissin system reliability and service to existing customers is not degraded. Interconnection procedures provide for transmission and system studies to ensure that capapcity is available and that system reliability and service to existing customers are not adversely affected. These studies identify system upgrades or additions that would be necessary to accommodate a proposed wind energy project and ensure they are included in the proejct's scope (UGP PEIS Section 1.1.1).	3.6	Socioeconomics
26	a	Private Citizen	2/8/2021	On behalf of my family and 40 staff members that comprise our diverse farm/lodge operation, I am writing you to express our deep concerns with the location of numerous industrial wind turbines being considered for the North Bend Wind Project located in central South Dakota. My general concern from an agronomic standpoint stems from the prevention of aerial applicators to safely and effectively apply crop protection products on our lands. Navigating through multiple 625' industrial wind turbines generating turbulence and "dirty air" is a cause for concern in itself. Compound that hazard with limited distances on field borders to turn around makes it virtually impossible for aerial applicators. The SDAA (South Dakota Aviation Association) and the NAAA (National Agriculture Aviation Association) have determined through many studies a loaded aircraft requires more than 1 mile to safely turn/operate at the end of a field. Having a 625' structure on the boarders makes it impossible to manage that property effectively.	Impacts to aerial spray application are addressed in Section 3.8.1 of the Draft EA. Spray application generally occurs when wind speeds are below 10 miles per hour to limit drift onto adjacent properties. Wind projects generally do not operate at wind speeds when spray application is likely to occur, below wind speed of 6.7 miles per hour. North Bend and area spray applicators would coordinate on a mutually agreeable timeframe for when the spray applications occur. This would be beneficial to both parties as it gives the spray applicator certainty that turbines in proximity would not be operating and would limit loss of energy production at the Project. This is done through meteorological forecasting of expected wind conditions to confirm a future window of opportunity a few days in advance. Ten turbines would be within 1.8 miles (the maximum turning distance of a fully loaded aircraft) of your property boundary; the turbines would be located to the east and south of the property boundary. The nearest turbine to the property boundary would over 0.6 mile. A fully loaded aircraft would have to navigate around turbines when making a 1.82-mile turn if the aircraft is traveling east or south from the property boundary. With a lighter load, and therefore a shorter turning distance, it is possible no turbines would affect the turning radius.	3.7	Transportation and Aviation

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	b			<p>There are a multitude of circumstances that require aerial application over ground application; not limited to wet soils, pesticides and fungicides labeled for aerial application only, dense crop foliage, and foliage too tall for ground equipment. Without aerial application as an option, the negative economic impact on our operation alone would be in the six figures, annually.</p> <p>Proposed wind turbine locations based on the attached FAA aeronautical study provide a visual firsthand look just how obtrusive this project would be on thousands of acres of just our operation alone.</p> <p>Proposed locations labeled A07, A08, and 8 would border a 160 acre parcel (SW 14 Section 11: 111-74) on 3 sides, preventing safe, effective aerial application from any direction. Hazardous.</p> <p>Another proposed location would border a parcel (Section 3: 111-74) on the east side. As you can see on the satellite imagery map, the trees and fields run east/west on that parcel, limiting aerial applicators to apply in only those directions. Location 9 would prevent necessary aerial applications and create hazardous conditions.</p> <p>Proposed locations A04, A06, and to some extent 7, would surround another parcel (S 'A, SE 1/4 Section 16 &amp; SE 1/4 Section 21: 111-74) on 3 sides. Once again, this would present a hazard to our aerial applicators to effectively apply crop protection products.</p> <p>Proposed location A04 in conjunction with location 6 would border a parcel (SW 1/4, Section 9: 111-74) on two sides making an otherwise standard aerial application into a dangerous situation.</p>	As mentioned in the previous response above and in Section 3.8.1, North Bend would work with spray applicators and turning distances are described. The comment refers to a preliminary layout, which has since been revised. See Figure 2.2-1 in the Draft EA for the current layout and Section 3.8.1 for a discussion of impacts to aerial applicators and farms.	3.7	Transportation and Aviation
	c			Also concerning is more than half of the acres represented as the project footprint on the map included in your initial letter aren't even signed up with the project. Engie is very manipulative in how they illustrate and perceive more acres/operators in the North Bend project than the number that really are supporting and signed up.	The current project boundary shown in Figure 2.2-1 in the Draft EA. The majority of landowners within this boundary are participating in the Project. North Bend would need landowner permission before placing infrastructure on private property.	N/A	General Comment
	d			As a member of an aerial applicator and commercial pilot family, I am well aware of the inherent risks involved in the profession and take them seriously. As we continue to see heavy agriculture states become inundated with requests to erect massive 625' steel industrial wind turbines, the risks compound. I appreciate WAPA taking these facts into careful .thought when determining the negative economic and agronomic impacts in our region.	As mentioned in the previous response above and in Section 3.8.1, North Bend would work with spray applicators and turning distances are described. The comment refers to a preliminary layout, which has since been revised. See Figure 2.2-1 in the Draft EA for the current layout.	3.7	Transportation and Aviation
	e			We cannot continue to rubber stamp these low performing, subsidy driven wind projects now; only to pay for the short sighted consequences in the future. Proven Hydro-electric and natural gas efficiency makes much more sense.	Thank you for your comment.	NA	General opposition
27	a	Private Citizen	2/18/2021	I wanted to see how to become qualified as a vendor for the required obstruction lighting on this project. We have been manufacturing lighting for 20+ years with a strong focus on renewable energy projects. Please keep us in mind when the time is right for the lighting aspect.	Information was passed on to North Bend LLC for consideration.	3.7	Transportation and Aviation
28	a	USFWS - South Dakota Ecological Field Services Office	2/2/2021	<p>Thank you for your letter dated January 6, 2021, regarding the above referenced North Bend Wind Project involving construction of a 200 MW wind farm with associated facilities which will interconnect to Western Area Power Administration's (WAPA) Fort Thompson-Oahe 230 kV transmission line. In compliance with the National Environmental Policy Act, this project is proposed to tier to WAPA's Upper Great Plains Wind Energy Programmatic Environmental Impact Statement (PEIS) via an Environmental Assessment (EA). We submit the comments and recommendations herein that apply to the project and development of that EA. While your scoping letter indicates the farm may be composed of 90 wind turbines, per our recent agency meeting on January 28, 2021, a range of 30 to 70 turbines are currently being considered with the number dependent on which turbine size is selected. The proposed project is located approximately four miles south of the town of Harold, in Hughes and Hyde counties, South Dakota.</p> <p>The North Bend Wind Project is also located immediately adjacent to the existing Triple H wind energy facility owned by the same developer as North Bend Wind (ENGIE). The EA analysis should include the cumulative impacts of these projects together, as well as the potential for others in this area.</p>	Cumulative impacts are addressed in Section 4.0 of the Draft EA. The Triple H, Titan I, Crow Lake, and Wessington Springs wind projects are all included in this cumulative impact analysis. The construction and operation of the proposed Project, in combination with operation of these other existing wind projects, as well as additional development, would contribute to cumulative impacts on resources within the UGP Region, including loss and fragmentation of grasslands, conversion of land use from undeveloped to developed, loss of habitat for wildlife including threatened and endangered species, and visual resource impacts. A more detailed analysis by resource can be found in Table 4.1-1 in the Draft EA.	4.0	Cumulative Impacts
	b			Our office of the U.S. Fish and Wildlife Service (Service) provided earlier comments on North Bend Wind via a January 5, 2017, letter to the original project developer of this project, Infinity Renewables (since acquired by ENGIE). We have attached those comments in the email that transmits this letter; the majority are still applicable to this project. However, note that the least tern, as of January 2021, has been removed from the list of species protected under the Endangered Species Act.	Responses to the January 5, 2017 letter are addressed in Letter Number 7 above.	N/A	General Comment

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	c			<p>Since our January 5, 2017, letter we have developed additional recommendations within our Service Region which can be applied to this project including:</p> <ul style="list-style-type: none"> <li>• U.S. Fish and Wildlife Service, Region 6, Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities</li> <li>• U.S. Fish and Wildlife Service, Region 6, Mountain-Prairie Region Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects</li> <li>• U.S. Fish and Wildlife Service (USFWS), Region 6</li> <li>• Wildlife Buffer Recommendations for Wind Energy Projects</li> <li>• U.S. Fish and Wildlife Service, Region 6, Recommended Approach for Development and Submission of Eagle Conservation Plans submitted to Region 6, Migratory Management Office in support of an Eagle Incidental Take Permit Application for Wind Energy Projects.</li> <li>• U.S. Fish and Wildlife Service (USFWS), Region 6, Recommended Protocol for Conducting Pre-construction Eagle Nest Surveys at Wind Energy Projects</li> </ul> <p>The above guidance documents are available online at: <a href="https://www.fws.gov/mountain-prairie/migbirds/index.php">https://www.fws.gov/mountain-prairie/migbirds/index.php</a> under the tab "Wind Energy Guidance Documents".</p> <p>Also, our South Dakota Species of Habitat Fragmentation Concern: Grassland Birds (Bakker 2020) report has recently been completed. That report is also attached to the email that conveys this letter, and available online at: <a href="https://www.fws.gov/mountain-prairie/es/southDakota/southDakota.php">https://www.fws.gov/mountain-prairie/es/southDakota/southDakota.php</a>. Species of habitat fragmentation concern are emphasized in our USFWS Land-based Wind Energy Guidelines as important considerations when determining placement of wind facilities, as these species are sensitive to development on the landscape that fragments and degrades their habitats. In South Dakota, those species primarily occupy grasslands, and many are known to be displaced by turbines.</p> <p>Based on our January 28, 2021, agency meeting, as well as ENGIE's December 15, 2020 report, North Bend Wind Project Field Studies Summary 2016 – 2020 Hughes and Hyde Counties, South Dakota, which was provided to this office just prior to that meeting, we submit the following additional observations/recommendations.</p>	Thank you for the reference material.	N/A	General Comment
	d			<p>Grassland Birds: Population decline among grassland birds in recent decades is greater than for any avian groups reliant on any other biomes in North America (Rosenberg et al. 2019) primarily due to loss and degradation of prairie habitats. It is our understanding that more than half (41 of 72, 57%) of the turbine sites under consideration at the North Bend Wind Project area fall on herbaceous land cover/pasture, along with 18 miles of planned access roads and additional miles of collector lines. The entire project site is dominated (60%) by grasslands; the type of location in South Dakota that is likely to result in relatively higher environmental impacts than in cropland dominated sites.</p>	The effects of habitat loss and fragmentation to birds of conservation concern are addressed in Section 3.4.1 of the Draft EA. Access roads and turbine pads would contribute to habitat loss and fragmentation. Additional grassland habitat would be temporarily disturbed during construction and would be revegetated according to the project's restoration plan (Section 3.3.1 of the Draft EA)	3.4	Wildlife
	e			<p>Much of the grassland cover – and the bulk of the impact area – appear to be concentrated in the center of project site, while locations within the project area that are dominated by cropland are left unimpacted. It is not clear whether, or to what extent, efforts have been made to avoid grassland habitats for this project; we recommend reevaluation of the placement of facilities at this wind farm to target previously disturbed lands. Clarification regarding efforts made to avoid grassland habitats, and reasons (if any) these areas are unavoidable should be provided in detail in the Environmental Assessment for this project.</p>	Impacts to grasslands are addressed in Section 3.3.1 of the Draft EA. Due to the amount of herbaceous cover in the Project area (51% of the useable turbine area is herbaceous cover) and the limits on land available for Project facilities because of required and voluntary avoidance areas and setbacks (described in Section 2.1 of the EA), effects to herbaceous vegetation would be unavoidable. When feasible, Project facilities were sited on already altered landscapes. During Project design, Project infrastructure was consolidated wherever possible to maximize efficient use of the land and minimize impacts. Existing transmission and market access were evaluated and use of existing facilities was maximized.	3.3	Vegetation: Land Use and Land Cover
	f			<p>Preconstruction surveys revealed at least 20 greater prairie chicken and sharptailed grouse leks in the North Bend Wind project area. Their presence is indicative of the extensive grassland habitat in the project area, and these species are sensitive to habitat fragmentation. South Dakota Game Fish and Parks has coordinated with wind energy developers on research to evaluate impacts of wind energy to prairie grouse; we recommend contacting that agency for further information and potential participation in such work.</p>	Impacts to prairie grouse are addressed in Section 3.4.1 of the Draft EA. Four years of prairie grouse lek surveys were conducted in the project and surrounding area. Active leks were found each of the four years, ranging from 1 to 17 leks (in a given year). The number of birds on leks ranged from 1 to 5 in the most recent survey years (2020). Habitat fragmentation and wind turbine disturbance may impact prairie grouse behavior, effectively resulting in habitat loss. While the Project is located at the edge of the species range and not within prime occurrences areas for the species in the state, a total of six active leks may experience lek abandonment due to the Project because these six leks are one mile of Project roads and turbine locations.	3.4	Wildlife

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	g			The North Bend Wind Project Field Studies Summary 2016 – 2020 Hughes and Hyde Counties, South Dakota report emphasizes common species such as Canada goose and red-winged blackbird that were observed in high numbers at the site, however, the most common species at these sites are generally (but not always) not those of primary concern. A notable exception is the grasshopper sparrow which was singled out in 2020 as being one of the most frequently observed small bird species surveyed at North Bend Wind; grasshopper sparrows are known to be displaced by wind energy development (Shaffer and Buhl 2016).	Construction of the Project may result in habitat fragmentation and direct mortality of grassland bird species. Section 3.4.1 of the Draft EA acknowledges research that has shown turbines placed in intact grasslands have reduced densities of some breeding grassland species, including grasshopper sparrows.	3.4	Wildlife
	h			For the EA, we recommend specifically focusing analysis on those species that are most likely to be impacted by the project. The EA should list species observed in the project area that are also identified in our aforementioned species of habitat fragmentation concern report, and our Birds of Conservation Concern 2008 report ( <a href="https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf">https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf</a> ).	Twelve of 19 species listed in the habitat fragmentation report were observed during avian use surveys. Impacts to these species are addressed in Section 3.4.1 of the Draft EA. Herbaceous habitat fragmentation, removal or degradation of wetland habitat, and direct mortality may impact these species.	3.4	Wildlife
	i			As mentioned in our 2017 letter and reiterated to ENGIE during their work on nearby projects (Triple H, Meridian) an offset plan to mitigate the grassland species impacts that will occur at the North Bend Project site is needed. Pertinent literature (Shaffer and Buhl 2016; Loesch et al. 2013) has documented displacement levels for grassland birds and waterfowl; Shaffer et al. (2019) provides guidance for determining compensation needed to offset those impacts at wind energy facilities. We recommend ENGIE adhere to that methodology, quantify direct loss of habitat and degradation due to displacement, and develop and implement a habitat compensation plan. Every effort should be made to avoid, minimize, and offset impacts to these species at the North Bend Wind site so this form of energy does not further contribute to the decline of North America's grassland birds. Although the PEIS was completed prior to finalization of the more recent research results, the PEIS recognizes these impacts to migratory bird and the need to offset them. The EA's inclusion of such a plan would align with, and allow tiering to, the PEIS.	WAPA appreciates the concern for grassland habitat, it's increased rarity, and conservation importance for associated migratory birds. WAPA would welcome the opportunity to collaborate with USFWS to develop a larger strategy to address these concerns at the UGP scale, so that they can be meaningfully addressed in future projects. North Bend recognizes the avoidance recommendation, and additional text was added to the 2.1 on selection of the Project Area. Grassland avoidance is one of many factors considered in siting a project. However, the Project does not intent to prepare or implement voluntary mitigation or compensation plans for migratory birds or grasslands, through fee title land purchase, or easement-establishment. Siting avoidance, grading minimization, and reseeding measures are appropriately identified in the Draft EA.	3.4	Wildlife
	j			Surveys of eagles in and around the project area appear to have variable results in different years, but both bald and golden eagles have been observed onsite. With increasing eagle populations in South Dakota and proximity of this project to the Missouri River which harbors nesting and roosting habitat, eagle occurrence (and the existence of nests in/near the area) may increase over time at the North Bend Wind Project site. An avenue exists to obtain an eagle take permit and avoid violations under the Bald and Golden Eagle Protection Act; see our regional website above with the most recent Regional guidance and recommendations.	Impacts to eagles are addressed in Section 3.4.1 of the Draft EA. At this time, no eagle species have been observed in the two most recent years of five years of ongoing fixed-point surveys for the Project. At this time, no eagle nests have been observed within two miles of the Project area. The low rate of eagle sightings during avian surveys suggests a low likelihood of impacts. The lack of eagle nests in the Project Area suggests breeding or nesting eagles and fledglings would not be impacted at this time. Based on observed nesting and use patterns at the Project, it is expected to be a Category 3 site per the USFWS Eagle Conservation Plan Guidance (USFWS 2013). North Bend has elected to not prepare a voluntary Eagle Conservation Plan or apply for an Incidental Take Permit for eagles at this time.	3.4	Wildlife
	k			The location of the North Bend Wind Project raises concerns for whooping crane. The project is near the center of the whooping crane migration corridor, near the Missouri River, modeling of whooping crane habitat (Niemuth et al. 2018) indicates areas of highest predicted use by the cranes exists in the project area, and whooping crane sightings exist both in and adjacent to the project area.	Impacts to whooping cranes are addressed in Section 3.5.1 of the Draft EA. Collision risk is low because whooping cranes appear to avoid wind energy projects, no whooping crane fatalities related turbine collisions have been recorded, the Project transmission line approximately 500 feet in length and would be outfitted with bird flight diverts, the meteorological tower would not have guy wires and would be marked with red blinking lights per FAA regulations, the collection lines would be underground, and the Project speed limit of 25 mph would reduce the potential for collision mortality. Habitat loss would also occur because migrating whooping cranes are expected to avoid stopover habitat within three miles of Project turbine locations, totalling 5,156 acres of wetland at North Bend. Up to 44,930 acres of wetland is available between three and 12 miles around Project turbine locations for displaced whooping crane to use as stopover habitat.	3.5	Threatened and Endangered Species
	l			Monitoring for whooping cranes and a turbine shutdown plan for when birds are observed near turbines are required for this project if it is to tier to the PEIS. Note that monitoring involves actively searching for the birds. Plans that list prescribed actions only after cranes are sighted incidentally during the course of normal work, rather than as a result of active searches, are contingency plans and do not fit the definition of monitoring. As of our January 28, 2021, agency call, it is not apparent that a monitoring plan currently exists for the North Bend Wind Project. We recommend development of an active monitoring plan, to be implemented during spring and fall whooping crane migrations, be included in the EA in order to tier the project to the PEIS.	A whooping crane observation plan and turbine shutdown protocol would be implemented during the spring and fall migration periods for the life of the Project. Details are provided in Appendix D of the Draft EA. Monitoring would be conducted by site personnel trained by biologists in the identification of whooping crane within the Project and a 2-mile buffer. Whooping crane sightings would be reported immediately.	3.5 and Appendix D	Threatened and Endangered Species

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	m			<p>It is our understanding that monitoring for northern long-eared bats was conducted at two locations in the project area, acoustic monitoring devices were not placed in/near areas where the bats might occur (despite nine patches and 3000 acres of potentially suitable habitats identified in the project area), and bat calls recorded were not identified to species level. Two potential turbine sites at the North Bend Wind Project are within ½ mile of suitable northern long-eared bat habitat. Proximity of the project to the Missouri River where the northern long-eared bat has been documented may increase the potential occurrence of this species at the project site. The northern long-eared bat has been found at other wind energy sites in North and South Dakota along stream corridors that connect directly to the Missouri River. North Bend Wind may have a similar situation with Chapelle Creek and South Chappelle Creek. Summer survey guidelines are available for the Indiana Bat, and are applicable to the northern long-eared bat; these methods are recommended to determine presence of the northern long-eared bat at North Bend Wind: <a href="https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html">https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html</a>.</p>	<p>A pre-construction foraging and roosting habitat evaluation was completed following guidance from the 2020-2021 USFWS Range-wide Indiana Bat Survey Guidelines. Once the habitat evaluation was completed, presence was assumed at each patch of trees 10 acres or greater and included a 1,000-foot buffer (hereafter, connected habitat buffers) as recommended by USFWS guidance. No turbines were sited within 0.5 miles of these connected habitat buffers. The highest risk time for fatalities is during migration from summer habitat to hibernacula in the fall, which corresponds with typically higher activity of all bat species. This risk is reduced because the Project is 108 miles from the nearest known hibernacula where they may be migrating to. The nearest known occurrence records of northern long-eared bat are approximately 17 miles west of the Project. Following the Wind Energy Guidelines, preconstruction acoustic surveys were completed at two bat acoustic stations in 2016 and 2018 and detected a total of 236 high frequency calls which could contain northern long-eared bat calls. There are no known or assumed northern long-eared bat hibernacula within 1 mile of the Project, so continuous noise activities are not avoided. There are no known or assumed NLEB hibernacula, so specially approved herbicides are not proposed. Tree removal is not proposed, so suitable habitat would not be cleared. No additional impacts would result from construction, maintenance, or decommissioning of the Project. The Project would notify the appropriate USFWS office in the event that a NLEB was detected injured or dead. It was determined there is no need for implementation of increased cut-in speeds during the fall bat migration period. Although the Project contains 686.0 acres potential summer habitat, is approximately four miles from the river, and 17 miles from the nearest known occurrences, it is far from known hibernacula, so it is suspected NLEB do not use the area for critical migration patterns. Therefore, it was determined the risk of injury or mortality is not sufficiently high to warrant higher cut-in speeds, so they are not required to offset the risk.</p> <p>No turbines were sited within 0.5 miles of suitable habitat. This distance minimizes risk to individuals that may be harmed by activities, including human disturbance and collisions with wind turbines. Currently, North Bend does not intend to feather turbine blades or increase cut-in speeds because the risk of injury or mortality is not sufficiently high. This is based on the distance to known occurrences (17 miles), distance to known hibernacula (108 miles) and lack of a suspected migration route in or near the Project Area.</p>	3.5	Threatened and Endangered Species
	n			<p>If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.</p>	<p>Comment noted. WAPA will coordinate with USFWS should any changes be made to the Project plans or operating criteria.</p>	3.5	Threatened and Endangered Species

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
29	a	South Dakota Game, Fish and Parks (SDGFP)	3/1/2021	Thank you for contacting South Dakota Game, Fish and Parks (GFP) regarding the proposed 200 megawatt North Bend Wind Project located in Hyde County, South Dakota. The proposed project would include the construction of approximately 90 turbines, turbine pads, access roads, underground power collection system, a new substation and a new overhead transmission line. We strive to collaborate with developers of wind projects to balance wildlife conservation with wind energy development in our state. The purpose of this letter is to provide information and recommendations for the development and siting of the proposed wind facility. We have prepared the following comments to address environmental concerns regarding threatened, endangered and rare species, areas of high conservation value, and species of concern in South Dakota. We request that the following comments and recommendations are considered as part of the Environmental Assessment (EA) to be prepared by Western Area Power Administration. The proposed siting and operation of a wind power project has the potential to affect area wildlife by altering wildlife habitat, behavior and increasing mortality through collisions with wind turbines. Impacts to wildlife and their associated habitats can be minimized by using responsible, wildlife friendly siting recommendations early in the project planning stage of development. Additional information and recommendations on wind facility siting can be found on our website at: <a href="https://gfp.sd.gov/userdocs/docs/SDSitingGuides_2018-10-17.pdf">https://gfp.sd.gov/userdocs/docs/SDSitingGuides_2018-10-17.pdf</a> . Please note, the GFP does not have regulatory authority regarding the siting and operation of a wind facility.	The EA acknowledges that the Project will decrease wildlife habitat, alter wildlife behavior, and increase wildlife mortality. Impacts to wildlife and their habitat were minimized where possible. Field studies and habitat assessments were used to inform siting of turbines and additional micro-siting will be done before each turbine is constructed to avoid important habitats to the greatest extent practicable. The Project substation was sited adjacent to WAPA's point of interconnect, resulting in minimum distance for the transmission line and associated impacts to birds. No turbines were sited within 0.5 mile of suitable northern long-eared bat habitat. Bird mortality due to turbine collisions in the area varies from 0.3 to 9.2 birds per year, and similar range of yearly mortality rates would be expected at the Project. The 38 acres of cropland habitat that would be occupied by Project facilities during operation is less than 0.2 percent of all cropland (4,514 acres) in the Analysis Area and the 62 acres of herbaceous habitat that would be occupied by Project facilities is less than 0.3 percent of all herbaceous (3,960 acres) in the Analysis Area.	3.4	Wildlife
	b			We have completed a search of the project area and found a record of Whooping Cranes ( <i>Grus americana</i> ; federally endangered) within the project area. Two additional whooping crane records were identified approximately 5 miles east of the project area. All three records of whooping cranes using the area were observations of multiple birds on the ground (e.g. stop-over sites) for multiple days (2-5).	Based on USFWS data available from the Cooperative Whooping Crane Tracking Project-GIS Database, there have been two confirmed whooping cranes within the Project area, one from telemetry data in the northern-most portion of the Project area and one confirmed sighting along the western portion of the Project area. These sightings are reported in the EA, along with 14 sightings within a 10-mile buffer and outside this buffer.	3.5	Threatened and Endangered Species
	c			The South Dakota Natural Heritage Program monitors species at risk. Species at risk are those that are listed as threatened or endangered at the state or federal level or those that are rare. Rare species are found at the periphery of their range, have isolated populations or are species which we simply do not have extensive information. A list of species monitored by the Heritage Program can be found at <a href="https://gfp.sd.gov/natural-heritage-program/">https://gfp.sd.gov/natural-heritage-program/</a> .  Please note many places in South Dakota have not been surveyed for rare or protected species and the absence of a species from the database does not preclude its presence from your project area.	A data request was made to South Dakota Game, Fish, and Parks for sensitive species records from the South Dakota Natural Heritage Database for the Project Area and a 1-mile buffer on November 16, 2021. The report included two federally endangered species, whooping crane and pallid sturgeon, which are addressed in Section 3.5.1 of the Draft EA. One plant (Common spikerush wet meadow) and one bird (Swainson's hawk) were also included in the report, neither of which are species of greatest conservation need, which are addressed in Section 3.4.1 of the Draft EA.	3.5	Threatened and Endangered Species
	d			Grasslands are of high conservation value in South Dakota. Approximately 70% of the native mixed-grass prairie has been lost in eastern South Dakota, and approximately 32% has been lost in western South Dakota (Wright and Wimberly 2013, Bauman et al. 2014, Bauman et al. 2016, Bauman et al. 2018). Untilled grasslands, large grassland blocks (160 acres or more) and grasslands with native plant species are of particular importance and special care should be taken to avoid placing turbines in these areas. Other grassland types such as native rangeland, grazed grasslands (with native plant species), pasture (grazed grasslands with non-native plant species), and Conservation Reserve Program lands (formerly tilled lands planted to vegetative cover for erosion control and wildlife habitat) serve as wildlife habitat. Placement of project infrastructure (turbines, roads, etc.) in contiguous blocks of grassland can fragment habitat and result in less suitable habitat for grassland dependent species. Additionally, disturbance and compaction of grassland soils by construction activities (temporary or permanent) can permanently alter soil structure (Bauman et al. 2014). Early identification of grassland areas provides the information needed to avoid further grassland loss, degradation and fragmentation. The best available information on the location of untilled grasslands for South Dakota can be found in: Bauman et al. 2014, Bauman et al. 2016, and Bauman et al. 2018. These reports and associated spatial layers are available at: <a href="https://openprairie.sdstate.edu/">https://openprairie.sdstate.edu/</a> .	The proposed layout of Project facilities was developed through an iterative process. Various turbine models were eliminated due to availability. Layout options were evaluated and eliminated based on: 1) the wind resource, 2) the selected turbine model, and 3) avoidance areas and setbacks.  Complete avoidance of grassland and herbaceous cover was infeasible for the Project due to limits on land availability and participating landowners.	3.3.2.1	Vegetation



Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	e			<p>Grassland nesting bird populations have been declining faster than any other bird groups in North America (Peterjohn and Sauer 1999, Rosenberg et al. 2019). Many grassland nesting bird species require large tracts of open, contiguous grasslands. Placement of turbines in large, in-tact grassland parcels can fragment habitat and displace certain species of grassland nesting birds (Shaffer and Buhl 2015).</p> <p>Based on the information listed above, GFP recommends avoiding siting turbines in grassland habitats, particularly untilled native grasslands.</p>	<p>The proposed layout of Project facilities was developed through an iterative process. Various turbine models were eliminated due to availability. Layout options were evaluated and eliminated based on:</p> <ol style="list-style-type: none"> <li>1) the wind resource,</li> <li>2) the selected turbine model, and</li> <li>3) avoidance areas and setbacks.</li> </ol> <p>Complete avoidance of grassland and herbaceous cover was infeasible for the Project due to limits on land availability and participating landowners.</p>	3.3	Vegetation: Land Use and Land Cover
	f			<p>In South Dakota, the prairie pothole region encompasses almost half of the state east of the Missouri River. This region is characterized by millions of depressional wetlands, or "prairie potholes", left behind by retreating glaciers, and surrounded with expansive grassland habitat. The unique mixture of diverse wetland types and remaining grasslands provides important breeding habitat for many grassland and wetland dependent birds. The United States portion of the prairie pothole region is often referred to as the "duck factory"; approximately 1.43 million breeding ducks settle in South Dakota.</p> <p>The prairie pothole region of South Dakota supports a wide diversity of bird species (~80 species; Johnson et al. 1997). Wetland birds (such as rails, ibis, herons, bitterns, ducks, whooping cranes, etc.) can be susceptible to direct strikes with wind turbines (Johnson et al. 2002). Wind turbines can also displace nesting waterfowl pairs up to 800 meters (Loesch et al. 2013). Displacement of breeding waterfowl from high quality habitats could result in increased predation or reduced reproduction in and around wind energy facilities (Loesch et al. 2013).</p> <p>Based on the information listed above, GFP recommends avoiding siting turbines in wetlands or within wetland complexes (multiple wetland basins adjacent to each other).</p>	<p>By overlaying the Project features onto the NWI map, an estimated 14.5 acres of wetland would be impacted during construction and 2.3 acres during operation. Wetlands within USFWS wetland easements would be avoided. Other wetlands would be avoided or minimized to the greatest extent practicable by micro-siting facilities onto uplands if possible.</p>	3.2	Water Resources
	g			<p>During the construction and maintenance phase of a wind energy facility, existing roads often experience increased traffic and new turbine access roads are constructed. This increases the amount of area disturbed and increases opportunity for the introduction and establishment of invasive, non-native plant species.</p> <p>Based on the information listed above, GFP recommends controlling noxious weeds at the project site, as well as revegetating with native, weed-free seed mixes.</p>	<p>The Land Cover and Land Use section lists commitments to avoid the spread of noxious weeds. The Soils Resources and Visual Resources sections list commitments to reseed and revegetate the project area.</p>	3.3	Vegetation
	h			<p>Prairie grouse (sharp-tailed grouse and greater prairie chicken) inhabit large in-tact blocks of native grassland. Development (roads, power lines, wind turbines, buildings, etc.) in and around prairie grouse habitat and leks can fragment otherwise suitable habitat and displace birds (Pruett et al. 2009). Prairie grouse and some species of grassland nesting birds are indicators of high-quality grassland habitat and a robust ecological community due to their specific habitat needs. Lek survey reports indicate the presence of up to eight prairie grouse leks within the project boundary and 1-mile survey buffer during the most recent survey (2020). Based on the information listed above, GFP recommends a 1-mile setback of project infrastructure from active prairie grouse leks. We also recommend a two mile no construction buffer during the lekking season, 1 March to 30 June. Prairie grouse are sensitive to noise disturbance, and construction near leks could cause birds to abandon leks.</p>	<p>Impacts to prairie grouse are described in Section 3.4.1 of the Draft EA. Eight active or potentially active leks were found during the 2020 survey. Of these, two are at or greater than one mile from Project facilities. These leks are outside SDGFP's recommended development avoidance area, but still have potential for lek abandonment because these leks are within five miles of turbines. Of the remaining six active leks, three are within 0.5 to one mile of the Project roads and turbines and are likely to experience lek abandonment or decreased persistence. The three other leks are surrounded by Project facilities, including between five and eight turbines and several miles of new access roads per lek, and are most likely to experience lek abandonment. While lek abandonment is likely, the Project is on the edge of greater prairie-chicken occurrence in South Dakota (Figure 3.4-3) and would not affect the prime occurrence areas for this species in the State. Impacts would occur during Project operation.</p>	3.4	Wildlife
	i			<p>Avoid construction within 2 miles of active grouse leks during the lekking season (March 1-June 1)</p>	<p>Section 3.4.1 discusses construction impacts to prairie grouse. Construction impacts are minimized because daytime construction activities would be limited to three hours after sunrise and one hour before sunset from March 1 through July 30 within one mile of active leks to avoid interruption of lekking and nesting activity, per SDGFP recommendations.</p>	3.4	Wildlife

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	j			South Dakota is home to 13 different bat species. Bats are long-lived (up to 30 years) and have low reproductive rates (1-2 pups/year). Because of this, direct mortality of bats has a disproportionately larger impact to populations. Bat mortality at wind energy facilities is one of the major concerns regarding wind energy impacts on wildlife (Arnett et al. 2016, O'Shea et al. 2016). Post-construction mortality surveys from existing wind energy facilities have shown that migratory tree-roosting bats such as the hoary bat, eastern red bat and silver-haired bat, have the highest rates of mortality during their fall migration at wind energy facilities. GFP recommends siting turbines at least 1,000 feet away from suitable bat habitat (e.g. forested areas, woody draws, etc.)	Nine of 78 turbines are located within 1,000 feet of suitable bat habitat (e.g., forested areas, woody draws, etc.). This is identified in Section 3.4.1 of the Draft EA.	3.4	Wildlife
	k			The black-tailed prairie dog is a keystone species that has a significant and unique impact on grassland ecosystems. Burrows are used for shelter and places to raise young. Prairie dog colonies may concentrate foraging raptors both during the breeding season and during migration. Many other species, such as black-footed ferret (a federally endangered species), swift fox (a state threatened species) and burrowing owls (a species of greatest conservation need) will use abandoned prairie dog burrows. In addition, the endangered black-footed ferret primarily preys on black-tailed prairie dogs. Our data indicates the possible presence of 2-3 small prairie dog colonies within the project area. Based on the information listed above, GFP recommends not siting turbines within or immediately adjacent to prairie dog colonies to reduce disturbance to habitat, as well as to reduce the risk of collision for avian predators that may forage in prairie dog colonies.	No prairie dog colonies were observed within the Project area during pre-construction surveys.	3.4	Wildlife
	l			The whooping crane is a state and federal endangered species with only one naturally occurring population. Members of this population pass through South Dakota as they migrate to and from Aransas National Wildlife Refuge in Texas to Wood Buffalo National Park in Canada. Whooping Cranes can be spotted almost anywhere in South Dakota during migration. However, reported sightings are most frequent near central South Dakota. Whooping cranes are large (1.5 m) birds and can have difficulty maneuvering quickly to avoid collision with power lines and other tall structures. Power line strikes are the most common form of mortality for fledged whooping cranes. The proposed project is located within the whooping crane migratory corridor and has known sightings of whooping cranes within and near the project boundary. GFP recommends preparing a detailed contingency plan if whooping cranes are spotted within 2 miles of the project.	The "Whooping Crane Operational Procedure Program for the North Bend Wind Project" has been prepared (see Appendix D of the EA).	3.5 and Appendix D	Threatened and Endangered Species
	m			We also recommend creating a detailed phone/contact tree for operations staff in the event a whooping crane is spotted.	A detailed contract tree can be found on page 2 of the "Whooping Crane Operational Procedure Program for the North Bend Wind Project" (see Appendix D of the EA).	3.5	Threatened and Endangered Species
	n			These two documents [Whooping Crane Contingency Plan and detailed contact tree] should be included in any Bird and Bat/Wildlife Conservation Strategy documents. We also recommend the developer draft a Bird and Bat Conservation Strategy/Wildlife Conservation Plan to include with project plans after wildlife surveys and project siting is complete (or near complete).	A Bird and Bat Conservation Strategy (BBCS) was prepared for the North Bend Wind Project. See Appendix C in the EA.	3.4	Wildlife
	o			New power lines/transmission lines are often associated with a proposed wind energy project. Power line strikes and electrocutions are a known cause of mortality to birds. GFP recommends implementing mitigation measures described in The Avian Power Line Interaction Committee guidelines ( <a href="https://www.aplic.org/">https://www.aplic.org/</a> ). Additionally, GFP recommends avoiding placement of over-head power lines adjacent to or between bodies of water (wetlands and lakes), as this could increase the risk of bird strikes, particularly for waterfowl. We further recommend burying collection and transmission lines when possible.	The project substation and point of interconnect to WAPA's transmission line are located adjacent to one another such that there would be minimal overhead transmission (less than 500 feet). In addition all collection lines would be trenched and placed underground. North Bend intends to add bird-flight diverters would be installed along the entire length of the transmission line.	2.2	Proposed Action Alternative
	p			GFP typically recommends at least 2 years of post-construction wildlife mortality monitoring. Triple H Wind Project (also owned by Engie North America) is located approximately 1 mile east of the proposed North Bend Wind Project. As part of the facility permit granted to Triple H from the South Dakota Public Utilities Commission, the applicant is required to undertake a minimum of two years of independently conducted post-construction avian and bat mortality monitoring (Condition 33). Because of the close proximity, similar habitat conditions and existing post-construction mortality monitoring requirements at Triple H, GFP is agreeable to substituting a post-construction research project to assess impacts to nesting grassland birds at the North Bend Wind Project, in-lieu of mortality monitoring. Game, Fish and Parks would prefer a study design that incorporates the BACI (before-after-control-impact) study design and methods similar to Shaffer and Buhl (2015). North Bend Wind Project is located approximately 6 miles west of the South Dakota Wind Energy Center, which was a study site used by Shaffer and Buhl (2015). Because of this close proximity, GFP believes that grassland bird research at the North Bend Wind Project presents a unique and valuable opportunity to add to wind-wildlife research efforts in the Dakotas.	North Bend has opted to participate in a post-construction research project focusing on grassland nesting birds rather than post construction monitoring. This is a collaborative effort with SDGFP.	3.4	Wildlife

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
30	a	U.S. Environmental Protection Agency (USEPA) Region 8		We recommend that WAPA disclose specific information about Project design, including final project components selected (e.g. turbine design, overhead electric towers, etc.) and final turbine site configuration in the NEPA document in sufficient detail to solicit effective input from the public on the draft EA, as well as to enable decision-makers to effectively monitor and minimize impacts to the greatest extent possible.	The project is described in the EA in Section 2.2., including the suggested details regarding turbine design, overhead electric, and turbine site configuration.	2.2	Proposed Action Alternative
	b			EPA recommends that WAPA include a publicly available map and summary of Project area waters and downstream waters, including streams, lakes, springs and wetlands. It would be helpful if the summary identified high resource value water bodies and their designated beneficial uses (e.g., agriculture, fisheries, drinking water, treaty rights, recreation).	Please see Figure 3.2-1 in the EA.	3.2	Water Resources
	c			EPA recommends that WAPA include watershed conditions, including vegetation cover and composition, and soil conditions.	Surface waters in the project area are described in the EA in Section 3.2.1.	3.2	Water Resources
	d			The EPA recommends that WAPA include surface water information, including available water quality data in relation to current South Dakota surface water quality standards, stream functional assessments, stream channel/stream bank stability conditions, sediment loads, and aquatic life	Please see Figure 3.2-1 in the EA for a map of surface waters in the project area. Surface water information, to include quality, function, condition, and sediment load are found in Section 3.2.1 to the extent existing data were available.	3.2	Water Resources
	e			EPA recommends that WAPA include clear identification of types, functions and acreage of wetlands, riparian areas, streams (including perennial, intermittent, and ephemeral) and springs	Wetland type and acreage based on NWI data and an online wetland delineation are presented in the EA (Section 3.2).	3.2	Water Resources
	f			EPA recommends that WAPA include available groundwater information, including information about quality and location of aquifers; Location and extent of hydrologically connected zones and shallow aquifers in proximity to proposed Project facilities.	The Northern Great Plains aquifer system is the aquifer system found under the Project area. Information on this aquifer is summarized in Section 3.2 of the Draft EA, and is described in Section 4.6.1.2 of the Upper Great Plains Programmatic Environmental Impact Statement, to which the EA is tiered.	3.2	Water Resources
	g			EPA recommends that WAPA include areas of geologic or other instability that may affect water quality	There are no areas of geologic or any other instability that may affect water quality within the Project area.	3.1	Soils and Geologic Resources
	h			EPA recommends that WAPA include a map and list of Clean Water Act (CWA) impaired or threatened water body segments within, or downstream of, the Project area, including the designated uses of the water bodies and the specific pollutants of concern. The South Dakota Department of Environmental and Natural Resources can identify/validate any such CWA Section 303(d) listed water bodies. It will also be important to include water quality data for parameters listed for impaired water bodies within or downstream of the Project area. South Dakota can further assist in the identification of impaired waters and development of total maximum daily loads for impaired waters under Section 303 of the CWA, as well as in identifying any significant gaps in available data that may be useful in informing a water quality monitoring plan for the Project.	See Figure 3.2-1 for map of water resources within the Project area. No water bodies in the project area are on the South Dakota TMDL list.	3.2	Water Resources
	i			EPA recommends that WAPA include identification of any water resources important to drinking water.	The North Bend Project area is located in a rural area. There are no public water utilities available to the area but rather individual wells for water consumption and use.	3.2	Water Resources
	j			Water quality data for the streams and lakes located within the Project area provide important information as well as a baseline for future monitoring of impacts and evaluation of potential influence of the Project on downstream water quality. We recommend that the EA provide a summary of available information and monitoring data on water quality for the Project area and downstream waters affected by activities in the Project area, including parameters such as total phosphorus, total nitrogen, total suspended solids, turbidity, and temperature.	Impacts to surface waters are addressed in Section 3.2.1 of the Draft EA. The main impacts to water quality would be through sedimentation resulting from soil erosion and excavating, trenching, and grading in or near surface waters. Standard erosion control BMPs would be implemented to disturbed areas as applicable to minimize impacts to water quality. Permits will be acquired as necessary from SDDANR, including development and submission of a Storm Water Pollution Prevention Plan. Best management practices for Water Resources are discussed in Section 3.2.1 of the EA.	3.2	Water Resources

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	k			<p>Surface disturbance is an important source of sediment to streams, which can smother aquatic habitat, disrupt natural food chains, increase nutrient loads, and alter stream morphology and function. Construction can cause short-term but substantial increase in sediment delivery to streams, and roads modify natural drainage patterns and can increase hillslope erosion and downstream sedimentation on a long-term basis. Road-stream crossings are one of the largest chronic inputs of eroded sediment to streams and can cause extensive acute impacts of increase sedimentation through hydrologically connected zones. Changes to the biological components of these connected zones from sedimentation can cause important consequences to the overall function of the entire watershed ecosystem.</p> <p>We note that at this time, the total acreage of the Project is unknown, but it is expected that construction of up to 90 wind turbines and associated facilities could cause significant surface disturbance. Although some surface disturbance for wind projects is temporary, EPA encourages WAPA to work cooperatively with North Bend to ensure that the amount of surface disturbance is minimized to the extent practicable. Even temporary disturbances have the potential to create long-term environmental impacts, including soil erosion, invasive plant species growth and habitat loss.</p>	Construction and surface disturbance impacts on water bodies are discussed in the EA in Section 3.2.1	3.2	Water Resources
	l			We recommend that the WAPA encourage North Bend to consider and disclose methods to reduce surface disturbance and requirements for contractors working on the project to minimize surface disturbance to the maximum extent practicable.	Best management practices for Water Resources are found in Section 3.2.1 of the EA. The list includes commitments for surface disturbances and minimization of surface disturbances.	3.2	Water Resources
	m			<p>Wetlands and riparian areas increase landscape and species diversity, support many species of western wildlife and are critical to the protection of water quality and designated beneficial uses of waterbodies. Installation of wind turbine generators, electric collection and transmission lines, and construction of access roads, substations, switchyards, and maintenance areas all have potential to effect wetlands in the Project area. EPA recommends that the EA clearly describe the types of effects that may result from the Project to:</p> <ul style="list-style-type: none"> <li>· Stream structure and channel stability;</li> <li>· Streambed substrate, including seasonal and spawning habitats;</li> <li>· Stream bank vegetation, riparian habitats, and aquatic biota; and</li> <li>· Predictable increases in levels of erosion and sedimentation.</li> </ul>	Effects of the project on surface waters are described in the EA in Section 3.2.1.	3.2	Water Resources
	n			EPA recommends that the EA describe how WAPA intends "to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands," as described in EO 11990. Specifically, the EA should identify and evaluate specific methods to protect wetlands, riparian areas and floodplains, including a clear list of mitigation requirements and BMPs applicable for construction, operation and reclamation activities to prevent adverse impacts to these aquatic resources. This list of measures should include, as appropriate, mitigation found in the April 2015 PEIS, and could also include actions such as: the use of stormwater control measures, marking of perennial seeps, springs and wetlands on maps and on the ground before commencing construction to facilitate their avoidance and protection, and enhanced monitoring of resource conditions for high value water and riparian resources. To ensure that wetlands are protected to the greatest extent possible, it may be necessary to consider exclusion of roads or turbines in areas where wetlands or riparian area would be adversely impacted. We also support establishment of riparian habitat buffer zones to avoid adverse effects to wetlands and riparian areas.	Best management practices for Water Resources are found in Section 3.2.1 of the EA.	3.2	Water Resources
	o			Discharge of dredged or fill material into waters of the U.S., including wetlands, is regulated under Clean Water Act (CWA) Section 404. This permit program is administered jointly by the U.S. Army Corps of Engineers (USACE) and the EPA. We recommend that North Bend and WAPA consult with USACE to make a final determination as to the applicability of CWA Section 404 permit requirements to wetlands that would be impacted by any new construction in the Project area. EPA encourages this coordination as early as possible in the planning of the proposed Project. The EA should be developed to provide sufficient information and support for decisions in compliance with the EPA's CWA Section 404(b)(1) Guidelines.	North Bend LLC will consult with the USACE regarding Clean Water Act compliance. Jurisdictional waters, including wetlands, regulated by the USACE under the Clean Water Act will be identified. They anticipate Nationwide Permits 12 and 14 would be used for the Project.	3.2	Water Resources
	p			In addition to impacting water quality, construction of linear facilities and/or roads that cross streams or dislodges erosive soils can have disproportionate impacts on stream hydrologic, geomorphic, and biological functions such as, sediment transport, nutrient cycling, floodplain interspersion and connectivity, fish spawning, and overall aquatic habitat quality. Construction, increased road use, and introduction of heavy construction equipment can compact soil and disturb or eliminate vegetative cover, decreasing water infiltration and increasing surface runoff and erosion. These effects are magnified on steep slopes or in erosive, unstable soils and would have detrimental effects on stream function. We recommend WAPA's EA include functional or condition assessments for the streams in the Project area to help evaluate construction and operational alternatives and to help choose the option that would have the least impacts to stream functions.	Effects of the Project on surface waters are described in the EA in Section 3.2.1. Implementation of the Best Management Practices and conservation measures identified in the EA, derived from Section 5.2.3 of the PEIS, would help to avoid or minimize impacts to water resources and wetlands, associated with the Proposed Action.	3.2	Water Resources

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	q			EPA supports the development of design elements to avoid aquatic resource impacts where possible and mitigation measures to minimize unavoidable impacts. The EPA recommends minimizing unavoidable effects to water quality, stream functions and aquatic habitats from surface disturbance, road-stream crossings, and storm water runoff.	Aquatic resource impacts would be avoided where possible; unavoidable impacts would be mitigated or minimized. A list of best management practices is found in Section 3.2.1 of the EA to minimize impacts to aquatic habitats.	3.2	Water Resources
	r			EPA further recommends that impacts to aquatic resources determined to be "difficult to replace" under the EPA and USACE' Final Rule for Mitigation for Losses of Aquatic Resources [33 CFR Parts 325 and 332; 40 CFR Part 230 (73 FR 19594; April 10, 2008)] be avoided and minimized to the maximum extent practicable, particularly in areas where waterbody crossings occur. Such resources may include fens, springs and streams.	Aquatic resource impacts would be avoided where possible if they are found in the project footprint during the delineation. No fens or springs were found during the wetland delineation.	3.2	Water Resources
	s			Unless other resource concerns outweigh aquatic resource impacts, we further recommend identifying corridor alignments that minimize potential impacts to aquatic resources. If more damaging, open-cut water body crossings are proposed, we recommend that mitigation measures be used to stabilize and return stream banks to preconstruction contours, and waterbody crossing areas be graded and revegetated immediately following construction. We recommend that rip-rap, gabions, or other methods to harden banks not be used or used only sparingly to control erosion and stabilize banks at stream crossings during and/or after construction. The EPA supports an overall goal to return construction sites to natural, preconstruction conditions.	Best management practices for aquatic resources are found in Section 3.2.1 of the EA. The list includes commitments to reclaim disturbed areas to the natural, pre-construction conditions. Also, at decommissioning, Project components would be recycled and disposed of in accordance with technologies and regulations applicable at the time of decommissioning.	3.2	Water Resources
	t			EPA appreciates North Bend's ongoing extensive studies of wildlife resources in the Project area. We recommend coordinating with the U.S. Fish and Wildlife Service and South Dakota game and fish officials during evaluation of all existing wildlife resources and migration corridors, impacts from micro siting decisions and avoidance measures. EPA also recommends conducting independent and transparent post-construction monitoring of raptor, avian and bat deaths or injuries to help inform mitigation and calculating any compensatory mitigation amounts for the loss of ecologically important, federally-protected birds. We recognize that any consultation around endangered species would be achieved in accordance with the Programmatic Biological Assessment (PBA) developed in associated with the 2015 Wind PEIS. The PBA identifies avoidance and minimization measures which implementation is supported by EPA to address potential adverse impacts on listed species in the proposed Project area. In accordance with the PBA process, EPA encourages WAPA to fully disclose North Bend's commitments to implement appropriate avoidance and minimization measures for protected species from effects of the proposed Project in the EA.	A list of project specific commitments is provided at the end of the species-specific environmental consequences sections of the EA. A summary of key commitments is listed on pages 3-42 for wildlife and 3-54 for threatened and endangered species.	3.5 and Appendix C	Threatened and Endangered Species
	u			Management of noxious weeds is an important issue to address in the EA since these species tend to gain a foothold where there are disturbances to the landscape. We recommend the EA provide information on the current state of invasive species in the Project area and how alternatives may impact distribution and prevalence of invasive species. We further recommend that the EA disclose specific management actions that will address invasive species through prevention, early detection and rapid response, and restoration and rehabilitation. If any herbicides will be used to treat noxious weeds, we recommend disclosing any potential hazards related to the application of the chemicals and describing what actions will be taken to minimize impacts of toxic substances released into the environment.	Consultation with Hughes and Hyde counties Weed and Pest Control Commissions will occur during construction and operations of the Project. Best management practices for Land Cover and Land Use are discussed in Section 3.3.1 of the EA.	3.3	Vegetation: Land Use and Land Cover
	v			The EPA recommends that the EA describe how the Project would be affected by foreseeable changes from predictable trends to the affected environment, for instance, under a scenario of continued decreasing precipitation days, changing frequency of intense storms and related flood events, and increasing drought intensity in the Project area. Full consideration of influences from the Project setting on the proposed Project may inform necessary design modifications and changes to operational assumptions for determining resource supplies, system demands, system performance requirements, and operational constraints. We recommend that WAPA and North Bend analyze potential impacts of current and predictable trends to the proposed action's affected environment associated with the proposal and its alternatives. The US Climate Resilience Toolkit ( <a href="https://toolkit.climate.gov/">https://toolkit.climate.gov/</a> ) serves as a repository of information related to climate resilience in the U.S., including steps to build resilience, case studies, expertise, and special topic areas, including renewable energy technology development. In addition, we suggest that this Project consider resiliency and adaptation measures based on how future precipitation and flood trends may impact the Project and the ability of North Bend to effectively protect the resources in the Project area from unintentional deleterious impacts due to long-term, moderate to severe drought conditions experienced in the proposed Project area. 3 The Fourth National Climate Assessment (NCA), released by the U.S. Global Change Resource Program ( <a href="https://nca2018.globalchange.gov">https://nca2018.globalchange.gov</a> ), contains scenarios for regions and sectors. Using NCA or other peer-reviewed scenarios to inform the NEPA analysis and possible changes to the proposal can improve the ability of Spire Storage to build in resilience and preparedness in their management plans for persistent alterations in the existing environmental setting.	Climate change is addressed in Section 6.2.2.5 of the Upper Great Plains Programmatic Environmental Impact Statement, to which this EA is tiered.	UGP PEIS	Climate Change

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
	w			We recommend that all technical reports that lead to conclusions regarding environmental consequences be included as appendices to the NEPA document available through the Project website. We further recommend that this information be made available at the time of the release of the draft EA. The findings can be summarized in the environmental impacts chapter of the NEPA document with references pointing the reader to the appropriate technical report in the appendices. Providing technical documents in publicly-accessible appendices as well as information in the environmental impacts chapters helps to ensure a comprehensive picture of the Project and its impacts for reviewers, the public and the decision maker while keeping the environmental document succinct and in accordance with guidance found in the Council of Environmental Quality's NEPA Implementing Regulations (September 2020).	Technical reports are included as appendices to the EA.	Appendices	NEPA Process
31	a	SHPO	1/28/2021	At virtual agency scoping meeting: Have any tribes requested to participate in the archaeological survey?	At meeting, D. Kluth, WAPA, replied: No – Dave indicated that he believed that the survey started prior to WAPA involvement in the project and then identified the three tribes that responded to WAPA's initial request for consultation – Yankton, Crow Creek, and Rosebud. Yankton also requested that they conduct a "TCP" survey of the project area.	3.10	Cultural Resources
	b			At virtual agency scoping meeting: Will the underground collection lines follow the roads?	At meeting, North Bend LLC replied: Not necessarily. Collection lines will be located in straight lines as much as possible below the plow depth, and roads may have different requirements.	2.2	Proposed Action Alternative
32	a	USEPA Region 8	1/28/2021	At virtual agency scoping meeting: The project would likely need a Clean Water Act 404 Permit through the Corps of Engineers.	At meeting, North Bend LLC replied: North Bend LLC expects the project would need a Nationwide permit. North Bend LLC will re-engage with the Corps once they have enough design information.	3.2	Water Resources
	b			At virtual agency scoping meeting: Engage with the Corps of Engineers as soon as possible.	At meeting, North Bend LLC replied: North Bend LLC will avoid wetlands as much as possible	3.2	Water Resources
	c			At virtual agency scoping meeting: What is the height of the 230 kV monopole?	At meeting, North Bend LLC replied: Typically 90 – 120 feet, depends on landscape features. Since that time the layout has been revised such that the project substation and POI have changed such that a transmission line is not required.	2.2	Proposed Action Alternative
33	a	USFWS - South Dakota Ecological Field Services Office	1/28/2021	At virtual agency scoping meeting: Does the developer have a monitoring plan for whooping cranes?	At meeting, North Bend LLC replied: As at their nearby Triple H wind facility, the developer expects a similar monitoring program, which involves training on-site personnel to identify whooping cranes and shut down turbines if spotted until they leave the area. North Bend LLC will also coordinate with SDGFP about known whooping crane locations as they migrate. Since the scoping meeting, North Bend has developed a Project-specific monitoring plan, which is presented in Appendix D of the Draft EA.	3.5 and Appendix C	Threatened and Endangered Species
	b			At virtual agency scoping meeting: Regarding the bat surveys, were bats identified to species or just to high/low frequency?	At meeting, WEST replied: high/low frequency	3.4	Wildlife
	c			The project will displace grassland birds – is there a plan to offset the impacts?	At meeting, North Bend LLC replied: North Bend LLC does not have control over how landowners choose to use their land that is under easement – they might develop, graze, etc. Having said that, North Bend LLC is willing to explore offsetting impacts. Since the scoping meeting, North Bend has avoided locating Project facilities on grasslands to the greatest extent practicable as described in Section 2.1. North Bend would contribute to a post-construction research project to assess impacts to nesting grassland birds at the North Bend Wind Project, in-lieu of avian and bat mortality monitoring. SDGFP has agreed to this substitution. See Section 3.4.1.	3.4	Wildlife
34	a	SDGFP	1/28/2021	At virtual agency scoping meeting: Will there be a post-construction monitoring plan for mortality, grouse leks, and whooping cranes?	At meeting, North Bend LLC replied: Post-construction monitoring will occur for 2 years, as required by the PUC. Note: since the scoping meeting, North Bend LLC has opted to participate in a post-construction research project focusing on grassland nesting birds rather than post construction monitoring. This is a collaborative effort with SDGFP.	3.4	Wildlife

Letter #	Comment #	Entity	Date of Comment	Comment	WAPA Response	Section in EA	Comment Topic
35	a	South Dakota Public Utilities Commission	1/28/2021	At virtual agency scoping meeting: Regarding the 4-5 miles of overhead transmission line connecting the project to the substation described in the presentation, does that include the collection lines? Are the collection lines AC or DC?	At meeting, North Bend LLC replied: All collection lines would be buried, so they are not included are part of the overhead transmission line. AC, not DC. Note: since the scoping meeting the project layout has been revised such that the project substation and POI would be adjacent to each other and a transmission line would be minimal (less than 500 feet).	2.2	Proposed Action Alternative
36	a	Private Citizen	1/28/2021	At virtual agency scoping meeting: What is the expected length of the underground collection lines?	At meeting, North Bend LLC replied: Unknown at this time – can vary widely. Note: since the scoping meeting the project layout has been revised and the length of the underground collection lines is 68 miles (Table 2.2-1 of the EA).	2.2	Proposed Action Alternative
37	a	Private Citizen	1/28/2021	At virtual public scoping meeting: Are the slides available on a website or can you provide a link	At meeting, WEST put link in chat box: <a href="https://www.wapa.gov/regions/UGP/Environment/Pages/NorthBendWind.aspx">https://www.wapa.gov/regions/UGP/Environment/Pages/NorthBendWind.aspx</a>	N/A	Information Request
38	a	Private Citizen	1/28/2021	At virtual public scoping meeting: On the "Useable Turbine Area" map..... Is the map on the right side (that is more faint in color) the one that shows where the turbines can possibly set?	At meeting, North Bend LLC replied verbally.	2.2	Proposed Action Alternative
39	a	Private Citizen	1/28/2021	At virtual public scoping meeting: How did you come up with the wetlands area?	At meeting, WEST replied verbally that the wetland map is from the U.S. Fish and Wildlife Service's National Wetland Inventory mapping effort, which is based on aerial photo interpretation	3.2	Water Resources
40	a	Private Citizen	7/13/2021	60 percent of this product is on native grassland that is home of too many to count tipi rings, markers and burial grounds of Native Americans...I know of many tipi rings. In fact the MET tower in Pratt township is in amongst tipi rings as it is my dads land and I have seen them and know they are there, the whole ridge from Ree Heights west southwest through to the Missouri River and the whole North Bend Project foot print is in this land mass is covered in tipi rings and such. I know of at least two probably burial site on this ridge!	The archaeological consultant has been made aware of these sites so they can be documented. North Bend, LLC's approach is 100% avoidance of eligible archaeological sites.	3.10.	Cultural Resources
	b			There are confirmed and documented whooping crane sightings in this footprint. I have spoken to a US Fish and Wildlife agent about this. It was conveyed to me that people of this project know about this and ignore the fact.	Whooping crane sightings within a 12-mile buffer around Project facilities are shown on Figure 3.5-3 and discussed in Section 3.5. Eighteen sighting have been documented within this buffer based on publically available datasets, including data from the U.S. Fish and Wildlife Service.	3.5	Threatened and Endangered Species
	c			We need to preserve the native grassland and afford as much protection to endangered animals that habitat these area!!! Not ruin it with wind turbines. My place is next to the first one in Hyde County that going on eighteen years of being next to a wind farm it is in no way shape or form green energy, it is harmful to the wildlife and humans in the area. I see it first hand! Obviously the lands were not given due diligence of checking out the points I have mentioned!	The proposed layout of Project facilities was developed through an iterative process. Various turbine models were eliminated due to availability. Layout options were evaluated and eliminated based on: 1) the wind resource, 2) the selected turbine model, and 3) avoidance areas and setbacks.  Complete avoidance of grassland and herbaceous cover was infeasible for the Project due to limits on land availability and participating landowners.	3.3	Vegetation: Land Use and Land Cover
41	a	Private Citizen		Duplicate of comment letter 40.	Please see responses to comments for Letter 40.		

**Appendix B. Potential Waters of the U.S. Preliminary Delineation Summary Report for  
North Bend Wind Project Hughes and Hyde Counties, South Dakota**





January 20, 2023

Mr. Anthony Crutch  
ENGIE North America  
Project Developer-US West & Canada  
Sent via email: anthony.crutch@engie.com

**RE: Self-Certification for Temporary and/or Permanent Losses of Wetlands and Other Waters of the United States—North Bend Wind Energy Project, Highmore, South Dakota**

Dear Mr. Crutch:

Tetra Tech, Inc. (Tetra Tech) conducted a review of the *Potential Waters of the U.S. Delineation Report* (Wetland Report) dated November 2022; the *Preconstruction Notification for the North Bend Wind Project* dated November 23, 2022; and the associated GIS data prepared by CORE Consultants Inc. (CORE) for the North Bend Wind Energy Project (Project) on behalf of ENGIE North America (ENGIE) to determine whether a self-certification letter would satisfy compliance under Section 404 of the Clean Water Act. As described in the Wetland Report (Attachment A), the Project at 60% design shows areas of proposed Project infrastructure totaling approximately 1,460 acres. The facilities include meteorological towers, electrical collection lines, access roads, a substation, and crane walks. The Survey Area encompassed these facilities. The delineation was conducted by CORE between July 21 through July 26 and October 28 through November 2, 2022.

The Wetland Report summarized field delineations conducted within the Survey Area shown in the 60% design. A total of 45 features were delineated during the field survey: 44 wetlands and one stream in the Survey Area. The 44 wetlands comprised 4.19 acres within the Survey Area. One stream reach combined for a total of 0.078 acre of permanent loss. All features identified have been assumed to be jurisdictional.

Based on these findings, Tetra Tech's recommendation to ENGIE is that they consider the use of self-certification under a nationwide permit (NWP). The application of NWP 57, Electric Utility Line and Telecommunications Activities, would apply to impacts resulting from the construction of Project infrastructure. Tetra Tech is making this recommendation based on an understanding that construction and operation of **this Project will not result in the permanent loss of more than 0.1 acre to any wetlands or other waters of the United States.**

Permanent loss refers to single and complete projects (e.g., a single intersection with a given wetland, stream, or pond). Temporary impacts to wetlands and other waters must be returned to pre-construction contours immediately following construction. No written permit would be forthcoming, and no notification would need to be made to the U.S. Army Corps of Engineers (USACE) South Dakota Regulatory office. It is imperative that the Project practice avoidance and minimization efforts utilizing best management practices as outlined in the Wetland Report and consider use of mat

Mr. Anthony Crutch  
ENGIE North America  
January 20, 2023

boards and horizontal directional drilling where practicable. The **Project must adhere to the NWP general conditions and South Dakota regional conditions** (see Attachments B and C, respectively).

If conditions change or Project features cannot be constructed without causing a permanent loss of wetlands that exceed the 0.1-acre threshold, then that work must stop, and a preconstruction notification must be made formally with the USACE prior to causing the loss.

Please do not hesitate to contact me if you have any questions or comments about this request, or if you need the original delineation reporting via email at [chris.ansari@tetratech.com](mailto:chris.ansari@tetratech.com).

Sincerely,

**TETRA TECH, INCORPORATED**



Chris Ansari  
Senior Wetland Scientist

cc: Shaun Brooks, Tetra Tech, Inc.

**Attachments:**

Attachment A—Potential Waters of the U.S. Report Delineation Report

Attachment B— Preconstruction Notification for the North Bend Wind Project

Attachment C— Nationwide Permit General Conditions

Attachment D— Nationwide Permit Regional Conditions (South Dakota)

Mr. Anthony Crutch  
ENGIE North America  
January 20, 2023

# **ATTACHMENT A—POTENTIAL WATERS OF THE U.S. DELINEATION REPORT**

# POTENTIAL WATERS OF THE U.S. DELINEATION REPORT

FOR

NORTH BEND WIND PROJECT  
HYDE AND HUGHES COUNTIES, SOUTH DAKOTA

**Prepared for:**

North Bend Wind Project, LLC  
3760 State Street, Suite 200  
Santa Barbara, CA 93105

**Prepared by:**



CORE Consultants, Inc.  
3473 South Broadway  
Englewood, CO 80113  
Project No. 21-199

November 2022

**Table of Contents**

**1 INTRODUCTION ..... 1**

**2 REGULATORY SETTING..... 1**

**3 METHODS..... 2**

    3.1 Desktop Review ..... 2

    3.2 Field Survey ..... 2

**4 RESULTS ..... 5**

    4.1 Desktop Review ..... 5

    4.2 Field Survey ..... 6

**5 CONCLUSIONS..... 11**

**6 REFERENCES ..... 12**

**FIGURES**

Figure 3.1 Project Location Map..... 4

Figure 4.1 Surface Waters Map..... 7

Figure 4.2 FEMA Flood Hazard Map .....8

Figure 4.3 Soils Map .....9

**TABLES**

Table 3.1 Wetland Indicator Status..... 3

Table 3.2 Dominant Soils Within the Survey Area..... 5

Table 4.1 Dominant Plant Species Observed in the Survey Area ..... 10

**APPENDICES**

Appendix A Wetland Determination Forms

Appendix B Representative Photographs

Appendix C Potential WOTUS Features Table

Appendix D WOTUS Location Map

## 1 INTRODUCTION

North Bend Wind Project, LLC contracted CORE Consultants, Inc. (CORE) to perform a potential Waters of the U.S. (WOTUS) delineation for the proposed North Bend Wind Project (Project) in Hyde and Hughes counties, South Dakota. The area surveyed consisted of buffers around proposed Project infrastructure within the 60% design, including turbines, crane paths, laydown yards, access roads, collection lines, Project substation, and MET towers (Survey Area). CORE completed the delineation to aid in avoidance and minimization of impacts to WOTUS. This report contains the methods, results, and conclusions of the delineation.

The Survey Area is approximately 1,460 acres and is located 5.85 miles southeast of the town of Harrold. The Survey Area ranges in elevation from 1,850 to 2,100 feet and is situated on the U.S. Geological Survey (USGS) Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE, Chapelle Lake SW, and De Grey NE 7.5-minute quadrangles (USGS 2021) within Townships 110, 111, and 112 North, Range 73 West and Townships 110 and 111 North, Range 74 West, 5<sup>th</sup> Principal Meridian.

## 2 REGULATORY SETTING

The U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged and fill material into jurisdictional WOTUS pursuant to Section 404 of the Clean Water Act (CWA).

The USACE typically has jurisdiction over navigable or traditionally navigable waters, relatively permanent waters, and wetlands that abut such waters, and determines jurisdiction over other waters based predominantly on their significant nexus to navigable or traditionally navigable waters (i.e., WOTUS). The Navigable Waters Protection Rule, which became effective on June 22, 2020, changed the definition of a jurisdictional Water of the U.S. (EPA 2020). However, on August 30, 2021, the Navigable Waters Protection Rule was vacated by order of the U.S. District Court for the District of Arizona, and on December 7, 2021, a proposed rule to reinstate the pre-2015 WOTUS definition was published in the Federal Register (EPA 2021a, 2021b). The pre-2015 WOTUS definition more broadly applies federal jurisdiction to streams and wetlands than the recently vacated Navigable Waters Protection Rule. The features delineated in the Survey Area may be considered jurisdictional by the USACE. Only the USACE can render an approved jurisdictional determination.

Section 40 of the Code of Federal Regulations, Part 232.2 describes activities that do not require a permit under CWA Section 404. Land-based renewable energy development activities regulated under the CWA, which typically require a CWA Section 404 permit, include temporary construction disturbance, grading, access using heavy equipment, and placement of material or foundations within WOTUS. While the USACE regulates only those activities resulting in a discharge of dredge or fill material into WOTUS, the South Dakota Department of Environment and Natural Resources (SDDENR) has the authority to regulate compliance with South Dakota water quality standards. The SDDENR conducts Section 401 certification reviews of projects in South Dakota requiring a CWA Section 404 permit from the USACE. The purpose of these certification reviews is to determine whether a proposed discharge will comply with South Dakota water quality standards.

The 2021 Nationwide Permit (NWP) 51 - Land-Based Renewable Energy Generation Facilities may authorize construction of land-based renewable energy production facilities, including attendant features, such as roads, parking lots, and stormwater management facilities associated with the

energy generation facility. The discharge associated with the construction activities must not cause the loss of greater than 0.5 acres of WOTUS and qualify for other thresholds in the 2021 Regional Conditions to Nationwide Permits in the State of South Dakota. Additionally, electric utility lines constructed to transfer the energy from the land-based renewable energy generation facility to a distribution system, regional grid, or other facility are generally considered to be linear projects and each separate and distinct crossing of a waterbody is eligible for treatment as a separate single and complete linear project. Those electric utility lines may be authorized by NWP 57 - Electric Utility Line and Telecommunications Activities. An understanding of proposed impacts to WOTUS is necessary to determine the permits needed to authorize the activities in WOTUS (USACE 2021a).

In South Dakota, Regional Conditions to NWP 51 and 57 require a preconstruction notification if regulated activities are located within, or comprised of, wetlands classified as peatlands or waters adjacent to natural springs (USACE 2021a).

### 3 METHODS

CORE conducted a desktop review and field delineation for wetlands and other potential WOTUS within the Survey Area (Figure 3.1). The delineation was conducted according to methods described in the *1987 USACE Wetland Delineation Manual* (USACE 1987) and the *Regional Supplement to the USACE Wetland Delineation Manual: Great Plains Region* (Version 2.0; USACE 2010).

The field delineation was completed from July 21 through 26, and October 28 through November 2, 2022. Scientists delineated and mapped boundaries of features within the Survey Area during the field delineation.

#### 3.1 Desktop Review

CORE reviewed desktop data sources to determine the presence and locations of potential wetlands and other WOTUS within the Survey Area, including:

- USDA Natural Resources Conservation Service - County Soil Survey Maps (USDA 2021)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps (USFWS 2020)
- USGS Topographic Maps (USGS 2021)
- USGS National Hydrography Dataset (NHD; USGS 2020)
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (FEMA 2022)
- EPA Ecoregions of the Continental United States (Bryce et al. 1996)

#### 3.2 Field Survey

Scientists collected data for wetland and upland sample plots in the Survey Area and reviewed the plots for indicators of hydrophytic vegetation, hydric soil, and hydrology in order to document jurisdictional wetlands. Potential WOTUS were evaluated for ordinary high water mark (OHWM) characteristics following methods in the *Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (USACE 2014). There is no field guide to the identification of OHWM published for the Great Plains Region; however, some indicators for OHWM are similar across regions and therefore can

be applied across regions. Wetland indicator status for vegetation was determined following the 2020 National Wetland Plant List (USACE 2021b). The 2020 National Wetland Plant List designates five ratings for plant species based on their occurrence within wetlands (Table 3.1; USACE 2021b). Data for each sample plot were collected on the Wetland Determination Data Sheet: Great Plains Region (Appendix A) and site photos of sample plots were captured as well (Appendix B).

**Table 3.1 Wetland Indicator Status**

Indicator Status (abbreviation)	Occurrence in Wetlands
Obligate (OBL)	almost always occur in wetlands
Facultative Wetland (FACW)	usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	occur in wetlands and non-wetlands
Facultative Upland (FACU)	usually occur in non-wetlands, but may occur in wetlands
Upland (UPL)	almost always occur in non-wetlands





## 4 RESULTS

### 4.1 Desktop Review

The desktop review indicated that multiple NHD streams and NWI wetlands are located in the Survey Area (Figure 4.1; USFWS 2020; USGS 2020). The main channel and tributaries of Chapelle Creek and South Chapelle Creek traverse the central portion of the Survey Area, generally flowing west to east. Chapelle Creek flows into Chapelle Lake to the east of the Survey Area (USGS 2020). Review of NWI data revealed that many NWI palustrine emergent wetlands are scattered throughout the Survey Area, with the largest concentrations of wetlands occurring north of Chapelle Creek. NWI ponds and lakes were also identified in the Survey Area, primarily along the main channel and tributaries of Chapelle Creek and in the southern portion of the Survey Area. NWI wetland types occurring in the Survey Area included those characterized as lacustrine, littoral, aquatic bed, semi permanently flooded, diked/impounded (L2ABFh); palustrine, aquatic bed, semi permanently flooded, diked/impounded (PABFh); palustrine, emergent, persistent/forested, seasonally flooded (PEM1/FOC); palustrine, emergent, persistent, temporary flooded (PEM1A); palustrine, emergent, persistent, temporary flooded, partly drained/ditched (PEM1Ad); palustrine, emergent, persistent, seasonally flooded (PEM1C); palustrine, emergent, persistent, seasonally flooded, partly drained/ditched (PEM1Cd); palustrine, emergent, persistent, seasonally flooded, excavated (PEM1Cx); riverine, intermittent, streambed, seasonally flooded (R4SBC; USFWS 2020).

The portion of the Survey Area located in Hughes County is within an area of minimal flood hazard (Zone X) and an area of 1% annual chance of flood (Zone A; FEMA 2022; Figure 4.2). Data for Hyde County is unmapped according to FEMA's National Flood Hazard Layer.

Dominant soil series within the Survey Area are listed in Table 3.1 (NRCS 2021a, 2021b). For the purposes of this report, CORE considered dominant soils as those accounting for more than 80 acres within the Survey Area. All dominant soil series that were present within the Survey Area are characterized as hydric (Figure 4.3; USDA 2021).

**Table 4.1 Dominant Soils within the Survey Area**

SOIL SERIES	ACRES	HYDRIC
Eakin-Raber complex, 2 to 6 percent slopes	191.1	Yes
Raber-Cavo loams, 2 to 6 percent slopes	172.7	Yes
Highmore silt loam, 0 to 2 percent slopes	98.7	Yes
Highmore-DeGrey silt loams, 0 to 2 percent slopes	83.8	Yes

Source: USDA 2021

The Survey Area is located in the Southern Missouri Coteau and Southern Missouri Coteau Slope Level IV ecoregions within the Northwestern Glaciated Plains Level III ecoregion (Bryce et al. 1996). The Southern Missouri Coteau and Southern Missouri Coteau Slope are characterized by gentle undulations and scattered areas of high wetland density. Land use is primarily cultivated cropland, with crops consisting of sunflowers, small grains, grain sorghum, corn, and alfalfa. Native upland vegetation includes western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), needle-and-thread (*Hesperostipa comata*), and big bluestem (*Andropogon gerardii*); riparian habitat is primarily composed of willows (*Salix* spp.), elms (*Ulmus* spp.), and green ash (*Fraxinus pennsylvanica*; Bryce et al. 1996).

## 4.2 Field Survey

Scientists conducted an initial field survey of the Survey Area from July 21 through July 26, 2022. A second field survey from October 28 through November 2 was conducted to survey the remaining areas that were previously inaccessible due to standing crops. Paired sample points were collected within wetland and upland communities to verify the extent of wetlands within the Survey Area. Data were collected at 44 wetlands. Additionally, upland sample points or photo points were collected at NWI features that were not present to demonstrate the lack of wetland criteria. Wetland points included those that adequately achieved all three wetland criteria: hydrophytic vegetation, hydric soil, and hydrology.

Using the Cowardin Classification System, delineated wetlands were characterized as palustrine emergent (PEM) and palustrine scrub-shrub (PSS). Within the Survey Area, 4.19 acres of wetland were delineated; 46 PEM wetlands totaled 4.06 acres and one PSS wetland totaled 0.13 acre (Figure 4.4). One wetland delineated within the Survey Area is greater than 0.5 acres in size. One intermittent stream with a sandy bed and bank, 1-001, was mapped within the Survey Area. WT-T-070 was associated with intermittent stream 1-001 (Appendix B, Photos 29 & 50). An OHWM was observed along the stream channel (Appendix B, Photos 49 & 50). Additionally, fourteen stream features with OHWM characteristics were associated, and overlapped, with mapped wetlands. A Potential WOTUS Features Table with acres for each delineated wetland within the Survey Area is included as Appendix C. Data for upland and wetland sample plots collected throughout the Survey Area are included as Appendix A.

Where possible to observe, the hydric soil indicators that were commonly identified within the PEM and PSS wetlands were Redox Dark Surface (F6) and Redox Depressions (F8). Additional indicators that were observed included Hydrogen Sulfide (A4), Loamy Gleyed Matrix (F2), and 1 cm Muck (A9). Primary wetland hydrology indicators included Surface Water (A1), High Water Table (A2), Saturation (A3), Hydrogen Sulfide Odor (C1), and Inundation Visible on Aerial Imagery (B7). Secondary wetland hydrology indicators, including Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and the FAC-Neutral Test (D5), were also observed in the mapped wetlands. Dominant plant species within wetland sample plots included retrorse sedge (*Carex retrorsa*), creeping spikerush (*Eleocharis palustris*), and reed canarygrass (*Phalaris arundinacea*). Hydrophytic vegetation indicators included the Rapid Test for Hydrophytic Vegetation, Dominance Test is >50%, and Prevalence Index is  $\leq 3.0$ .

Uplands around the delineated wetlands lacked requisite indicators of wetland hydrology, hydric soil, and hydrophytic vegetation. The upland plant community was diverse; some of the species observed included Kentucky bluegrass (*Poa pratensis*), white sagebrush (*Artemisia ludoviciana*), smooth brome (*Bromus inermis*), and squirreltail (*Elymus elymoides*). A list of the dominant plant species observed in the Survey Area is provided in Table 4.1.

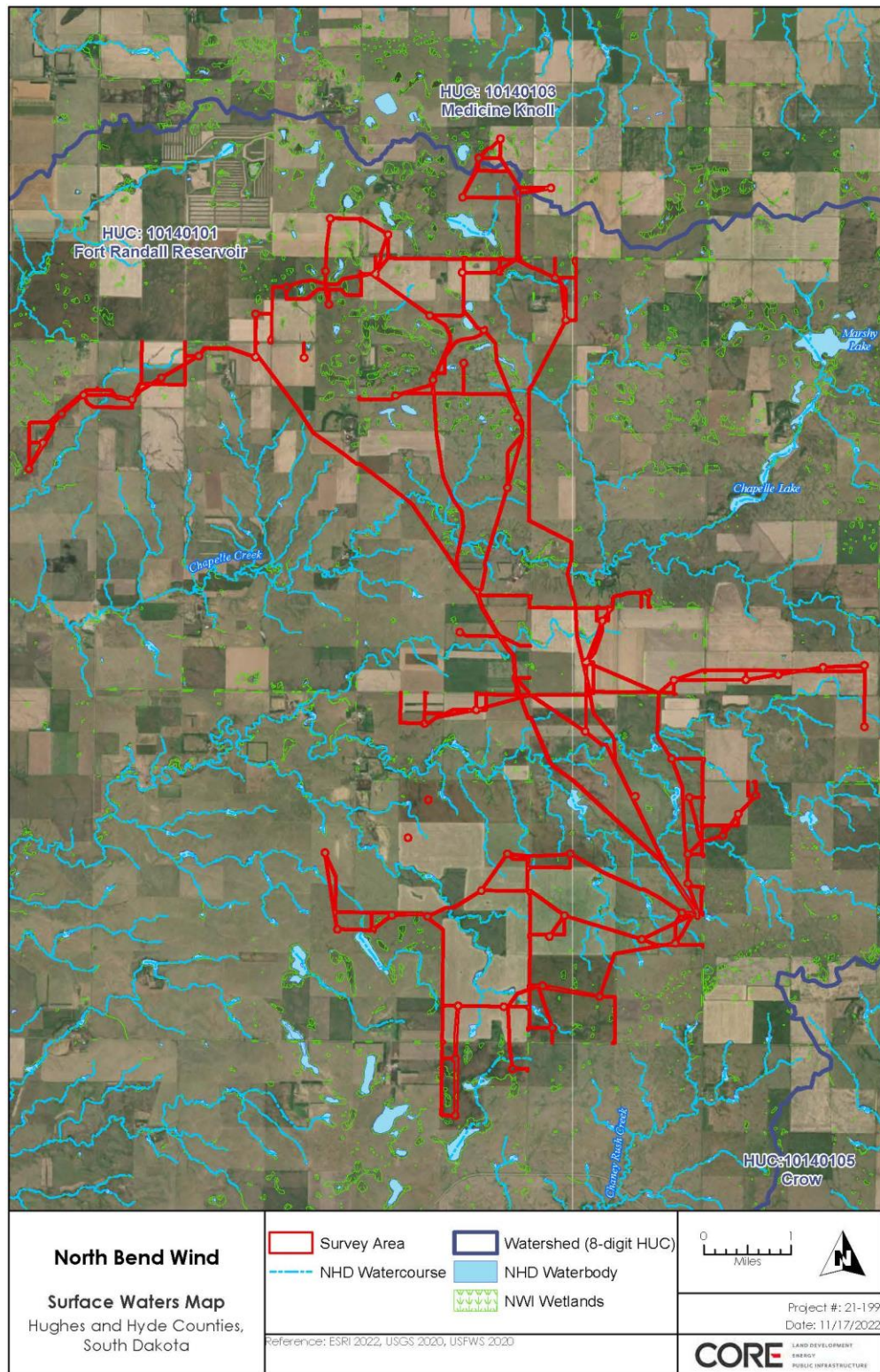


Figure 4.1 Surface Waters Map

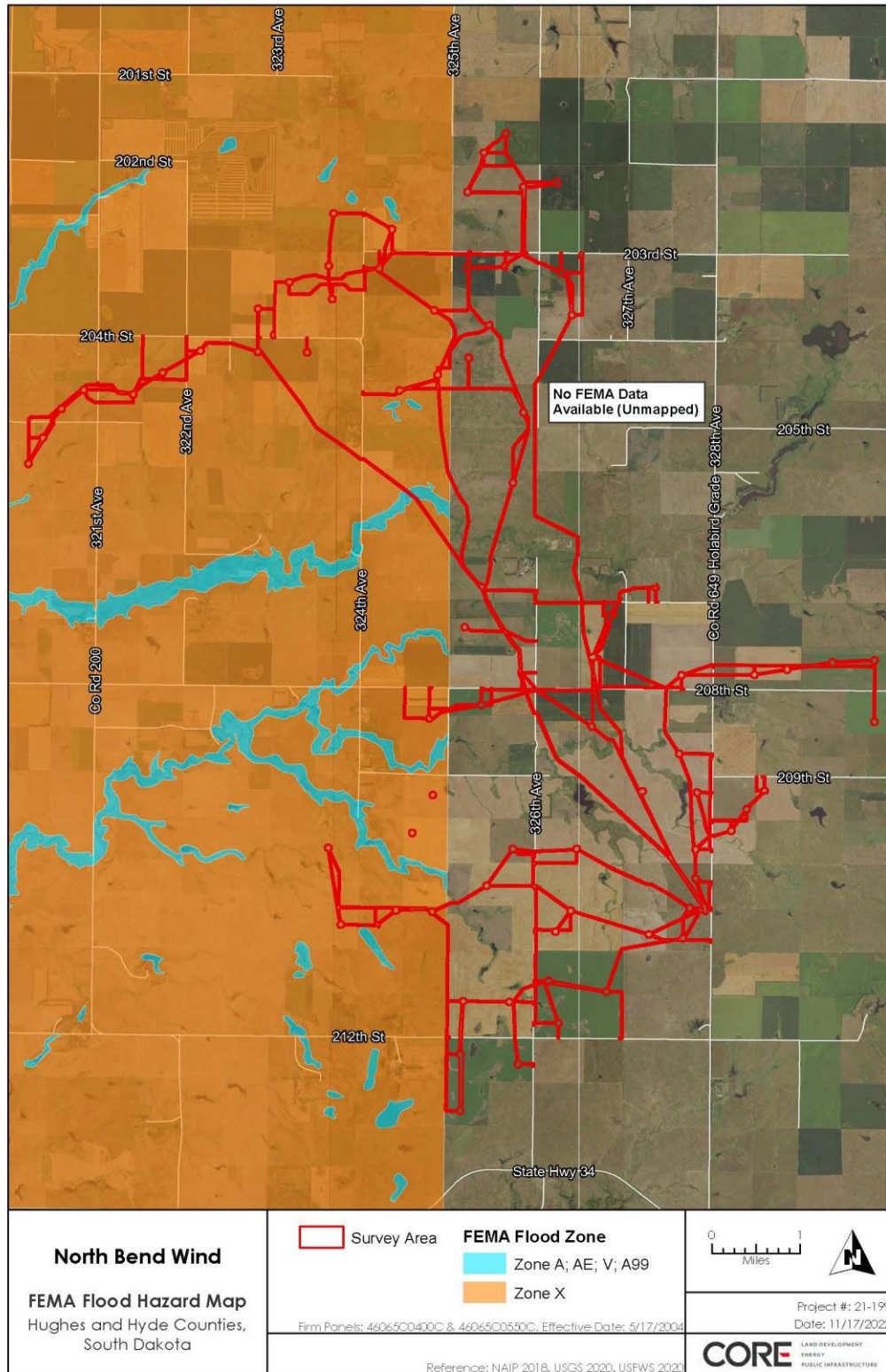


Figure 4.2 FEMA Flood Hazard Map

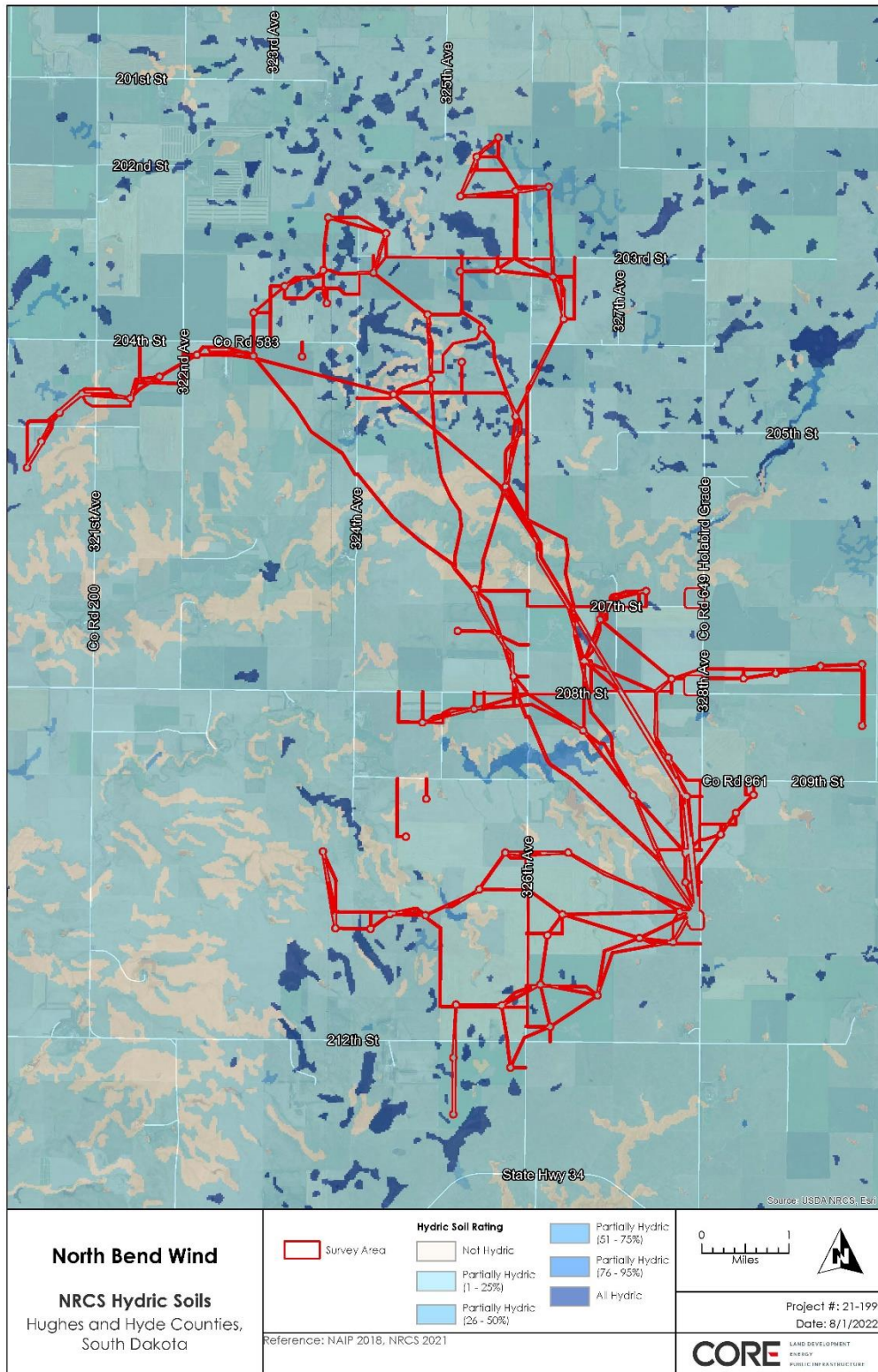


Figure 4.3 NRCS Hydric Soils Map

**TABLE 4.1 Dominant Plant Species Observed Within Wetlands in the Survey Area**

SCIENTIFIC NAME	COMMON NAME	WETLAND INDICATOR STATUS
GRAMINOIDS/RUSHES/SEDGES		
<i>Ambrosia trifida</i>	Giant ragweed	FAC
<i>Asclepias speciosa</i>	Showy milkweed	FAC
<i>Asclepias syriaca</i>	Common milkweed	UPL
<i>Bromus inermis</i>	Smooth brome	UPL
<i>Carex retrorsa</i>	Retorse sedge	OBL
<i>Cirsium arvense</i>	Creeping thistle	FACU
<i>Eleocharis palustris</i>	Creeping spikerush	OBL
<i>Elymus elymoides</i>	Squirreltail	UPL
<i>Juncus effusus</i>	Common rush	OBL
<i>Lemna minor</i>	Lesser duckweed	OBL
<i>Pascopyrum smithii</i>	Western wheatgrass	FACU
<i>Persicaria amphibia</i>	Water smartweed	OBL
<i>Phalaris arundinacea</i>	Reed canarygrass	FACW
<i>Phragmites australis</i>	Common reed	FACW
<i>Poa annua</i>	Annual bluegrass	FACU
<i>Poa pratensis</i>	Kentucky bluegrass	FACU
<i>Psoralea argophylla</i>	Silverleaf scurfpea	UPL
<i>Rumex crispus</i>	Curly dock	FAC
<i>Schoenoplectus tabernaemontani</i>	Softstem bulrush	OBL
<i>Spartina pectinata</i>	Prairie cordgrass	FACW
<i>Typha latifolia</i>	Broadleaf cattail	OBL
<i>Verbena hastata</i>	Blue verbena	FACW
<i>Xanthium strumarium</i>	Rough cocklebur	FAC
SUB-SHRUBS/SHRUBS/TREES		
<i>Amorpha fruticosa</i>	False indigo	FACW

## 5 CONCLUSIONS

CORE delineated the boundary of 46 PEM wetlands, one PSS wetland, and one stream within the Survey Area. The 1,460-acre Survey Area contains a total of 4.19 acres of wetland area.

Impacts to WOTUS should be avoided to the extent practicable. If WOTUS impacts are minimal, it is likely that the project could be permitted for temporary and permanent impacts incurred as a result of construction activities under a USACE Nationwide Permit. Mitigation may be required for losses of greater than 0.1 acre of wetlands. Should impacts to WOTUS exceed the thresholds for the appropriate NWP, the Project would be permitted under an Individual Permit (IP). If NWP impact limits are exceeded, IPs require a 30-day public notice period, alternatives evaluation, and a separate 401 Water Quality Certification review from the SDDENR.

The results and conclusions of the delineation are limited to the Survey Area. If additional area will be disturbed as part of construction, additional analysis and delineation may be required.



## 6 REFERENCES

- Bryce, S.A., J.M. Omernik, D.A. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P. Kuck, and S.H. Azevedo. 1996. Ecoregions of North Dakota and South Dakota, (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,500,000).
- EPA (U.S. Environmental Protection Agency). 2020. The Navigable Waters Protection Rule: Definition of "Waters of the United States". 85 FR 22250. <https://www.federalregister.gov/documents/2020/04/21/2020-02500/the-navigable-waters-protection-rule-definition-of-waters-of-the-united-states>. Accessed November 2022.
- EPA. 2021a. Definition of "Waters of the United States": Rule Status and Litigation Update. August 30, 2021. <https://www.epa.gov/nwpr/definition-waters-united-states-rule-status-and-litigation-update>. Accessed November 2022.
- EPA. 2021b. EPA and Army Take Action to Provide Certainty for the Definition of WOTUS. December 7, 2021. <https://www.epa.gov/newsreleases/epa-and-army-take-action-provide-certainty-definition-wotus>. Accessed November 2022.
- FEMA (Federal Emergency Management Agency). 2022. National Flood Hazard Layer. FEMA Flood Map Service Center. <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>. Accessed November 2022.
- USACE (U.S. Army Corps of Engineers). 1987. Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. Waterways Experiment Station Environmental Laboratory. <https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/4532/>. Accessed November 2022.
- USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Regional Supplement (Version 2). Engineer Research and Development Center, Environmental Laboratory. ERDC/EL TR-103. <https://usace.contentdm.oclc.org/utis/getfile/collection/p266001coll1/id/7613>. Accessed November 2022.
- USACE. 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States. ERDC/CRREL TR-14-13. <https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/3691/>. Accessed November 2022.
- USACE. 2021a. 2021 Nationwide Permits Regional Conditions: Omaha District, State of South Dakota. <https://usace.contentdm.oclc.org/utis/getfile/collection/p16021coll7/id/19977>. Accessed November 2022.
- USACE. 2021b. 2020 National Wetland Plant List. Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire. [https://cwbi-app.sec.usace.army.mil/nwpl\\_static/v34/home/home.html](https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html). Accessed November 2022.

USDA (U.S. Department of Agriculture). 2021. Soil Survey Geographic (SSURGO) database for Hyde and Hughes Counties. Natural Resources Conservation Service. <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed November 2022.

USFWS (U.S. Fish and Wildlife Service). 2020. National Wetlands Inventory (NWI). <https://www.fws.gov/wetlands/data/state-downloads.html>. Accessed November 2022.

USGS (U.S. Geological Survey). 2020. National Hydrography Dataset. <https://apps.nationalmap.gov/downloader/#/>. Accessed November 2022.

USGS. 2021. U.S. Topographic 7.5-Minute Maps for De Grey NE, Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE, and Chapelle Lake SW, South Dakota. <https://apps.nationalmap.gov/downloader/#/>. Accessed November 2022.

**Note to Reader:**

Appendix A	Wetland Determination Forms
Appendix B	Representative Photographs
Appendix C	Potential WOTUS Features Table
Appendix D	WOTUS Location Map

Available upon request from:

Western Area Power

Administration Upper Great

Plains Regional Office PO Box

35800

Billings, Montana 59107-5800

Phone: 406-255-2800

Mr. Anthony Crutch  
ENGIE North America  
January 20, 2023

# **ATTACHMENT B— PRECONSTRUCTION NOTIFICATION FOR THE NORTH BEND WIND PROJECT**



November 23, 2022

U.S. Army Corps of Engineers  
Omaha District-South Dakota Regulatory Office  
28563 Powerhouse Road, Room 118  
Pierre, SD 57501

**RE: Pre-construction Notification  
North Bend Wind Project  
Hughes and Hyde Counties, South Dakota**

On behalf of North Bend Wind Project, LLC, CORE Consultants, Inc. (CORE) has prepared this Pre-construction Notification (PCN) for the 2021 Nationwide Permit (NWP) 57 in support of the proposed North Bend Wind Project (Project) in Hughes and Hyde counties, South Dakota (**Attachment I: Pre-Construction Notification Engineering Form 6082**). This document is an assessment of the potential regulatory status of wetlands, significant bodies of water, watercourses, and/or floodplains located within the Project, based on Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. CORE conducted the potential Waters of the U.S. (WOTUS) delineation in accordance with the US Army Corps of Engineers (USACE) Great Plains Regional Supplement (Version 2.0) and the 1987 USACE Wetland Delineation Manual. This letter includes the following documents:

**Attachment I:** *Pre-Construction Notification Engineering Form 6082*

**Attachment II:** *Project Location Map*

**Attachment III:** *Potential WOTUS Delineation Report*

**Attachment IV:** *Potential WOTUS Impacts Mapbook*

**Attachment V:** *Wildlife and Habitat Field Studies Summary*

**Attachment VI:** *North Bend Wind ESA Consultation Discussion*

**Attachment VII:** *Cultural Resources Report*

**Attachment VIII:** *SHPO Consultation Letter*

CORE respectfully requests review of the documents herein regarding a PCN for 2021 NWP 57 if potential WOTUS are jurisdictional. If you should have any questions or require additional information, please feel free to contact Anthony Crutch directly at (256) 303-5010, or at Anthony.Crutch@engie.com.

Sincerely,

**CORE Consultants, Inc.**

**Chris Haas, MS**

Principal

## 1. Background Information

### 1.1 Project Description

The proposed North Bend Wind Project (Project) would include the development of a wind project with necessary associated facilities. The Project would permanently impact wetlands and streams from the construction of access roads, crane routes, and a power collection system. The Project would also include temporary impacts to wetlands and streams by creating temporary workspaces to complete the proposed work.

South Dakota's population is expected to grow from 891,688 residents in 2020 to 1,043,032 residents in 2040 (UVA Weldon Cooper Center, Demographics Research Group 2018). This population growth is anticipated to result in increased energy demand. The North Bend Wind Project is one of the Projects aimed at meeting that demand.

### 1.2 Project Location

The approximately 1,460-acre Survey Area consisted of buffers around proposed infrastructure, including turbines, crane paths, laydown yards, collection lines, Project substation, and MET towers. The Survey Area is located in Hughes and Hyde counties, South Dakota, and is on the U.S. Geological Survey (USGS) Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE, Chapelle Lake SW, and De Grey NE 7.5-minute quadrangles (**Attachment II: Project Location Map**; USGS 2021). The Project Area is within Townships 110, 111, and 112 North, Range 73 West and Townships 110 and 111 North, Range 74 West, 5th Principal Meridian. The approximate coordinates of the Project center are 44.396809° North and -99.669073° West (WGS 84 datum). Project elevation ranges from 1,850 to 2,100 feet above mean sea level.

### 1.3 Landowner Information

**TABLE 1. LANDOWNER AND PARCEL INFORMATION**

Schedule Numbers	Owner Name	Owner Address	Property Address/Location	Owner Contact

Source: Hughes and Hyde Counties 2022

## 2. Environmental Review

### 2.1 Desktop Analysis

CORE completed a desktop analysis and site visit to inventory potential WOTUS within the Project Area. CORE queried the following spatial datasets for the Project Area in support of the desktop analysis:

- Federal Emergency Management Agency 100-year Floodplains and National Flood Hazard Layer (FEMA 2022)

- U.S. Department of Agriculture (USDA) National Agriculture Imagery Program Imagery (USDA 2021a)
- USDA Natural Resources Conservation Service Soil Surveys (USDA 2021b)
- U.S. Environmental Protection Agency (EPA) Level IV Ecoregions of the Continental United States (EPA 2021a)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (USFWS 2020)
- USGS National Hydrography Dataset (USGS 2020)
- USGS 7.5-minute Quadrangles and Topographic Contours (USGS 2021)

## 2.2 Potential Waters of the U.S. Delineation

CORE inspected watercourses and other aquatic features identified in the preliminary desktop analysis during a site visit and delineation from July 21 through 26, and October 28 through November 2, 2022, to assess their jurisdictional potential (**Attachment III: Potential WOTUS Delineation Report**). CORE conducted the WOTUS delineation in accordance with the Great Plains Regional Supplement (Version 2.0) (USACE 2010) to the 1987 USACE Wetland Delineation Manual (USACE 1987).

## 3. Section 404 Compliance

The USACE typically has jurisdiction over navigable or traditionally navigable waters, relatively permanent waters, and wetlands that abut such waters, and determines jurisdiction over other waters based predominantly on their significant nexus to navigable or traditionally navigable waters (i.e., WOTUS). The Navigable Waters Protection Rule, which became effective on June 22, 2020, changed the definition of a jurisdictional Water of the U.S. (EPA 2020). However, on August 30, 2021, the Navigable Waters Protection Rule was vacated by order of the U.S. District Court for the District of Arizona, and on December 7, 2021, a proposed rule to reinstate the pre-2015 WOTUS definition was published in the Federal Register (EPA 2021a, 2021b). The pre-2015 WOTUS definition more broadly applies federal jurisdiction to streams and wetlands than the recently vacated Navigable Waters Protection Rule. The features delineated in the Survey Area may be considered jurisdictional by the USACE. Only the USACE can render an approved jurisdictional determination.

### 3.1 Proposed Discharge of Fill Material to Potentially Jurisdictional Features

The Project proposes **0.054 acres of temporary and 0 acres of permanent discharges of fill material** to stream channels. Additionally, the Project proposes **4.113 acres of temporary and 0.078 acres of permanent discharges of fill material** to wetlands (**Attachment IV: Potential WOTUS Impacts Mapbook; Table 2; Table 3**). The temporary and permanent impacts proposed are for the construction of a wind project with necessary associated facilities, including access roads, crane routes, a power collection system, and temporary workspaces.

On behalf of North Bend Wind Project, LLC, CORE proposes coverage of temporary and permanent discharges of fill material to streams and wetlands under the 2021 NWP 57 for Electric Utility Line and Telecommunications Activities. This document aims to demonstrate compliance with 2021 NWP 57.

**TABLE 2. PROPOSED IMPACTS TO POTENTIALLY JURISDICTIONAL FEATURES**

WOTUS Type/WOTUS ID	Latitude (°N)	Longitude (°W)	Impact Duration	Acres
Wetland / WT-T-097	44.439802	-99.647288	Permanent	0.008
Wetland / WT-T-100	44.435379	-99.637269	Permanent	0.015
Wetland / WT-T-071	44.420766	-99.734378	Permanent	0.012
Wetland / WT-T-046	44.381841	-99.616607	Permanent	0.008
Wetland / WT-T-045	44.375647	-99.647605	Permanent	0.011
Wetland / WT-T-009	44.330551	-99.669552	Permanent	0.020
Wetland / WT-T-003	44.311639	-99.643641	Permanent	0.004
Wetland / WT-T-097	44.439788	-99.647193	Temporary	0.096
Wetland / WT-T-099	44.436560	-99.635217	Temporary	0.006
Wetland / WT-T-100	44.435412	-99.637114	Temporary	0.057
Wetland / WT-T-088	44.432823	-99.660052	Temporary	0.075
Wetland / WT-T-075	44.424041	-99.724570	Temporary	0.037
Wetland / WT-T-074	44.423955	-99.724267	Temporary	0.051
Wetland / WT-T-071	44.420791	-99.734321	Temporary	0.092
Wetland / WT-T-056	44.418503	-99.643870	Temporary	0.015
Wetland / WT-T-070	44.417117	-99.743181	Temporary	0.116
Stream / I-001	44.417107	-99.743274	Temporary	0.028
Wetland / WT-T-070	44.416318	-99.743408	Temporary	0.092
Stream / I-001	44.416315	-99.743477	Temporary	0.026
Wetland / WT-T-069	44.414265	-99.744258	Temporary	0.191
Wetland / WT-M-003	44.399702	-99.673395°	Temporary	0.051
Wetland / WT-T-066	44.391823	-99.660403	Temporary	0.046
Wetland / WT-T-064	44.391859	-99.653347	Temporary	0.144
Wetland / WT-T-065	44.389302	-99.654296	Temporary	0.038
Wetland / WT-T-047	44.388436	-99.634948	Temporary	0.138
Wetland / WT-T-037	44.381845	-99.633373	Temporary	0.007
Wetland / WT-M-002	44.381843	-99.625025	Temporary	0.002
Wetland / WT-T-046	44.381839	-99.616481	Temporary	0.039
Wetland / WT-T-045	44.375594	-99.647637	Temporary	0.056
Wetland / WT-T-049	44.374161	-99.648433	Temporary	0.225
Wetland / WT-M-001	44.367389	-99.614043	Temporary	0.049
Wetland / WT-T-027	44.367185	-99.614046	Temporary	0.044
Wetland / WT-T-021	44.364868	-99.566512	Temporary	0.014
Wetland / WT-T-028	44.360354	-99.614161	Temporary	0.085
Wetland / WT-T-030	44.359997	-99.624440	Temporary	0.139
Wetland / WT-T-035	44.358810	-99.626388	Temporary	0.082
Wetland / WT-M-004	44.358799	-99.626972	Temporary	0.008
Wetland / WT-T-036	44.355763	-99.638974	Temporary	0.263
Wetland / WT-T-026	44.344895	-99.607927	Temporary	0.058
Wetland / WT-T-025	44.345137	-99.604909	Temporary	0.057
Wetland / WT-T-023	44.344262	-99.603753	Temporary	0.199
Wetland / WT-T-022	44.343433	-99.603752	Temporary	0.042
Wetland / WT-T-015	44.343012	-99.602901	Temporary	0.114
Wetland / WT-T-008	44.337753	-99.627014	Temporary	0.179
Wetland / WT-C-002	44.334795	-99.617527	Temporary	0.060



WOTUS Type/WOTUS ID	Latitude (°N)	Longitude (°W)	Impact Duration	Acres
Wetland / WT-T-019	44.331498	-99.662235	Temporary	0.168
Wetland / WT-M-005	44.331677	-99.603661	Temporary	0.011
Wetland / WT-T-009	44.330603	-99.669600	Temporary	0.272
Wetland / WT-T-014	44.327720	-99.682119	Temporary	0.557
Wetland / WT-T-005	44.315366	-99.643358	Temporary	0.093
Wetland / WT-T-003	44.311572	-99.643642	Temporary	0.011
Wetland / WT-T-004	44.311650	-99.643807	Temporary	0.001
Wetland / WT-M-006	44.311236	-99.643633	Temporary	0.020
Wetland / WT-M-007	44.311239	-99.643812	Temporary	0.013

**TABLE 3. PROPOSED CUMULATIVE IMPACTS TO POTENTIALLY JURISDICTIONAL FEATURES**

Resource Type	Permanent Feet	Temporary Feet	Permanent Area (acres)	Temporary Area (acres)
Wetlands	N/A	N/A	0.078	4.113
Streams	N/A	N/A	0	0.054

### 3.2 Threatened and Endangered Species Assessments

Western EcoSystems Technology, Inc. (WEST) has conducted baseline wildlife and habitat studies to evaluate potential impacts to wildlife from construction of the proposed North Bend Wind Project (**Attachment V: Wildlife and Habitat Field Studies Summary**). Wildlife and habitat studies that have been conducted between 2016 and the present include:

- Avian Use Surveys (2016 - ongoing)
- Raptor and Eagle Nest Surveys (2016, 2018 - 2020)
- Prairie Grouse Lek Surveys (2016, 2018 - 2020)
- General Bat Acoustic Monitoring (2016, 2018)
- Northern Long-eared Bat (*Myotis septentrionalis*) Summer Habitat Analysis (2017, updated in 2020)
- Whooping Crane (*Grus americana*) Stopover Habitat Analysis (2020)
- Land Cover Characterization Study (2020)

Table 4 summarizes the findings of the wildlife and habitat field studies within the Project area. The Project area, as described in **Attachment V: Wildlife and Habitat Field Studies Summary**, has been modified various times between 2016 and the present. Therefore, some wildlife and habitat findings from previous years discussed in Table 4 no longer fall within the updated Project area.

On September 14, 2021, the Western Area Power Administration (WAPA) consulted with the USFWS regarding whooping crane (**Attachment VI: North Bend Wind ESA Consultation Discussion**). WAPA and USFWS agree that, for a whooping crane monitoring plan, North Bend Wind Project, LLC needs to either 1) utilize active monitoring (as in, staff devoted

entirely to whooping crane observations rather than monitoring done as a collateral duty) or 2) make clear their “monitoring plan” is actually a “contingency plan.” WAPA will recommend that North Bend’s whooping crane monitoring plan be revised to more clearly describe the role of monitors and revise terminology from “monitoring” to “contingency” or “observation.” With these changes, WAPA intends to certify the Project is compliant with the monitoring plan requirement of the Programmatic Biological Assessment (PBA).

Regarding the ability of North Bend Wind Project to tier from the PBA, considering the potential impacts to whooping cranes:

- a. WAPA and USFWS agree risk of mortality is possible, due to the project's central location within the migration corridor, but displacement is the main concern.
- b. WAPA and USFWS agree that with proper offsets and/or compensation, North Bend is compliant with the PBA and can utilize the consistency forms to document concurrence.

**TABLE 4. SUMMARY OF WILDLIFE AND HABITAT FIELD ASSESSMENTS BETWEEN 2016 - PRESENT, NORTH BEND WIND PROJECT, HUGHES AND HYDE COUNTIES, SOUTH DAKOTA**

Field Study	Years Conducted	Summary of Findings
WILDLIFE		
Avian Use Surveys	2016 - Ongoing	<p><b>2016-2017:</b> Forty-one unique bird species, including one bald eagle (<i>Haliaeetus leucocephalus</i>), were observed within the Project area during surveys. No state- or federal-listed species were observed during surveys.</p> <p><b>2018-2019:</b> Sixty unique bird species, including four bald eagles, were observed within the Project area during surveys. No state- or federal-listed species were observed during surveys.</p> <p><b>2019-2020:</b> Sixty unique bird species, including one bald eagle, were observed within the Project area during surveys. No state- or federal-listed species were observed during surveys.</p> <p><b>2020-2021:</b> Fifty-eight unique bird species were observed within the Project area during surveys. No eagles, state-, or federal-listed species were observed during surveys.</p>
Raptor Nest Surveys	2016, 2018 - 2020	<p><b>2016:</b> One unoccupied and two occupied raptor nests were identified within the Project area during surveys. No eagle or potential eagle nests were identified.</p> <p><b>2018:</b> Fourteen unoccupied and seven occupied raptor nests were identified within the Project area during surveys. No eagle or potential eagle nests were identified.</p> <p><b>2019:</b> Ten unoccupied and twelve occupied raptor nests were identified within the Project area during surveys. No eagle or potential eagle nests were identified.</p> <p><b>2020:</b> Sixteen unoccupied and twenty-one occupied raptor nests were identified within the Project area during surveys. No eagle or potential eagle nests were identified.</p>
Prairie Grouse Lek Surveys	2016, 2018 - 2020	<p><b>2016:</b> Four prairie grouse (greater prairie-chicken [<i>Tympanuchus cupido</i>] and sharp-tailed grouse [<i>T. phasianellus</i>]) lek locations were identified as active within the Project area plus a 1-mile buffer.</p> <p><b>2018:</b> Seven prairie grouse lek locations were identified as active within the Project area plus a 1-mile buffer.</p> <p><b>2019:</b> Three prairie grouse lek locations were identified as active within the Project area plus a 1-mile buffer.</p> <p><b>2020:</b> Eight prairie grouse lek locations were identified as active within the Project area plus a 1-mile buffer.</p>

Field Study	Years Conducted	Summary of Findings
General Bat Acoustic Monitoring	2016, 2018	<b>2016, 2018:</b> Overall bat activity was found to be higher in the fall than in the summer. Bat passes peaked during the first half of September. The bat detector unit recorded more bat passes/detector night than in the cropland as was expected. A total of 325 and 150 bat passes were recorded in 2016 and 2018, respectively.
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> ) Summer Habitat Analysis	2017, updated in 2020	<b>2017, 2020:</b> Nine separate patches of potentially suitable northern long-eared bat habitat were identified within the Project area and 4-kilometer buffer, totaling 2,961 acres.
Whooping Crane ( <i>Grus americana</i> ) Stopover Habitat Analysis	2020	<b>2020:</b> Although there is potential whooping crane migratory stopover habitat within and around the Project area, only sixteen whooping cranes have been confirmed within 10 miles of the Project. In comparison, more confirmed habitat use has been identified to the northeast, east, and south of the Project.
<b>HABITAT</b>		
Land Cover Characterization Study	2020	<b>2020:</b> Dominant land cover types within the Project area are herbaceous (60%) and cultivated crop (35%). The remaining 5% of land cover types included developed, herbaceous wetlands, open water, hay/pasture, and barren land.

### 3.3 Cultural Resources

#### Archaeological Resources/TCPs

Beaver Creek Archeology (BCA) conducted a formal Level III Intensive Cultural Resource Inventory and Traditional Cultural Property (TCP) Survey for the Project area from August 3 through 12, 2021 (**Attachment VII: Cultural Resources Report**). Additional findings from a preliminary pedestrian inventory conducted in 2020 are included in the report, however, they correspond to an outdated Project boundary and are therefore not summarized here.

During the 2021 Level III survey, 13 cultural resources were identified within the proposed Project area. Eleven of the cultural resources were identified as prehistoric stone feature sites, all of which have been recommended as eligible for National Register of Historic Places (NRHP). Mitigation measures were recommended for these 11 sites. The remaining two cultural resources were identified as architectural sites, which have been recommended as ineligible for nomination to NRHP. No avoidance measures were recommended for these two sites. Additionally, 30 TCPs were identified during the survey, and mitigation measures were recommended for all. All 30 TCPs have been submitted to the South Dakota State Historic Preservation Officer (SHPO) for their records.

Since these findings, the Project boundary has been revised to avoid every stone feature site and TCP identified during the survey by a minimum of 50 feet.

Cultural resource staff from the Crow Creek Sioux Tribe, the Rosebud Sioux Tribe, and the Yankton Sioux Tribe conducted tribal field surveys concurrently with BCA staff during the August 2021 field survey effort. Following the survey in August 2021, the Project layout was revised with re-routes to avoid all the documented cultural resources. These reroutes were surveyed by a BCA archaeologist and Rosebud Sioux Tribe investigator during a third survey in September 2021. The reroutes avoid all cultural resources by at least 50 feet.

#### *Architectural Survey and Viewshed Analysis*

BCA conducted a reconnaissance architectural survey of structures within a 1.5-mile radius buffer of the proposed Project (i.e., the area where impacts could arise due to visual/audial changes to the landscape). Any standing structure in this area was recorded. Satellite imagery, topographic maps, and a records search provided by the South Dakota Archaeological Research Center were used to determine buildings, structures, and previously recorded sites. Field visits were conducted in July and October 2021 to take photographs and conduct a preliminary evaluation of each standing building or structure. Upon completion of the field visits, each building and structure was evaluated to determine its age and assessed for inclusion to the NRHP based on its potential significance and integrity.

Sixty-six locations that were or appeared to be architectural sites were investigated. Eleven of these had no remaining standing structures, another 11 were entirely modern, and 44 contained recordable, historic architectural structures. These 44 locations were recorded with the South Dakota SHPO. None of the architectural resources were located on state land or the Crow Creek Reservation. Five of these locations included buildings or structures that were either previously determined eligible, or that were recommended as NRHP-eligible or potentially NRHP-eligible, unevaluated. Unevaluated resources are those for which not enough documentation exists to make a clear determination of eligibility for listing on the NRHP. Each of the five eligible or unevaluated architectural resources are located within 1.5 miles of at least one turbine location (ranging from 0.3 to 1.5 miles). A digital viewshed analysis, visual impact analysis, and audial analysis were performed for these resources.

#### *Consultation*

On January 31, 2022, the South Dakota SHPO concurred with the determination of "No Adverse Effect" from the proposed North Bend Wind Project (**Attachment VIII: SHPO Consultation Letter**), provided the following two stipulations are met:

1. All archaeological properties and TCPs which are Eligible for listing in the NRHP or are currently unevaluated for listing in the NRHP will be avoided by a minimum of a 50-foot buffer marked with construction fencing.
2. Changes in the location or nature of project activities, such as the need to construct additional access roads or other ancillary features, will require the submission of additional documentation pursuant to 36 C.F.R. § 800.4 and 36 C.F.R. § 800.11.

The North Bend Wind Project would meet these stipulations. The Crow Creek Sioux Tribe has also concurred with the determination of "No Adverse Effect to Historic Properties". Neither the Rosebud Tribe nor the Yankton Sioux Tribe responded to a request for concurrence with its determination of effect.

The Project would not have adverse visual effects on any eligibility-conferring aspects of architectural properties within the Project area or a 1.5-mile radius buffer of the proposed Project. Furthermore, none of the five NRHP-eligible or unevaluated architectural sites would experience an adverse noise effect from the Project.

Native American tribes which may attach religious and cultural significance to historic properties within the Project area were contacted and invited to participate in the National Environmental Policy Act (NEPA) scoping and Section 106 consultation process. The following 11 tribes were contacted in January 2021:

- Apache Tribe of Oklahoma
- Cheyenne and Arapaho Tribes
- Cheyenne River Sioux Tribe
- Crow Creek Sioux Tribe
- Fort Belknap Indian Community
- Lower Brule Sioux Tribe
- Oglala Sioux Tribe
- Rosebud Sioux Tribe
- Santee Sioux Tribe of Nebraska
- Standing Rock Sioux Tribe
- Yankton Sioux Tribe

The Yankton Sioux Tribe, Crow Creek Sioux Tribe, and Rosebud Sioux Tribe each participated in traditional cultural properties surveys with BCA staff during the cultural resource surveys.

### 3.4 Mitigation

Project design was specifically modified to reduce permanent wetland impacts within the Project Area to approximately 0.078 acres. Project design allows for no permanent stream impacts within the Project Area. No compensatory mitigation is anticipated for permanent wetland losses of less than 0.1 acres or permanent stream losses of less than 0.03 acres.

Temporary wetland and stream impacts were also minimized to 4.113 and 0.054 acres, respectively. Temporary construction materials, such as timber mats, silt socks, and silt fencing, may be used to reduce disturbance from construction equipment where necessary.

## 4.0 Conclusion

The Project includes the construction of a wind project and necessary associated facilities. Disturbance to potential WOTUS from construction qualifies for a 2021 NWP 57 and is below the NWP threshold of 0.5 acre loss of WOTUS for each single and complete project.

## 5.0 REFERENCES

- EPA (Environmental Protection Agency). 2020. The Navigable Waters Protection Rule: Definition of "Waters of the United States". 85 FR 22250. <https://www.federalregister.gov/documents/2020/04/21/2020-02500/the-navigable-waters-protection-rule-definition-of-waters-of-the-united-states>. Accessed November 2022.
- EPA. 2021a. Level III and IV Ecoregions of the Continental United States. <https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states>. Accessed November 2022.
- EPA. 2021b. Definition of "Waters of the United States": Rule Status and Litigation Update. August 30, 2021. <https://www.epa.gov/nwpr/definition-waters-united-states-rule-status-and-litigation-update>. Accessed November 2021.
- FEMA (Federal Emergency Management Agency). 2022. National Flood Hazard Layer. FEMA Flood Map Service Center. <https://msc.fema.gov/portal/home>. Accessed November 2022.
- The Navigable Waters Protection Rule: Definition of "Waters of the United States." 2020. 85, Federal Register, 22250 (April 21, 2020). <https://www.federalregister.gov/documents/2020/04/21/2020-02500/the-navigable-waters-protection-rule-definition-of-waters-of-the-united-states>.
- University of Virginia Weldon Cooper Center, Demographics Research Group (UVA Weldon Cooper Center, Demographics Research Group). 2018. National Population Projections. Retrieved from <https://demographics.coopercenter.org/national-population-projections>. Accessed November 2022.
- USACE (U.S. Army Corps of Engineers). 1987. Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. Waterways Experiment Station Environmental Laboratory. <https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/4532/>.
- USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Regional Supplement (Version 2.0). Engineer Research and Development Center. Environmental Laboratory. ERDC/EL TR-10-1.
- USDA (U.S. Department of Agriculture). 2021a. National Agriculture Imagery Program (NAIP). Collected 7/28/21; Published 12/16/2021. <https://nracs.app.box.com/v/naip>. Accessed November 2022.
- USDA. 2021b. Soil Survey Geographic (SSURGO) database for Hughes and Hyde Counties, South Dakota. Natural Resources Conservation Service. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed November 2022.
- USFWS (U.S. Fish and Wildlife Service). 2020. National Wetland Inventory. <http://www.fws.gov/wetlands/>. Accessed November 2022.



USGS (U.S. Geological Survey). 2020. National Hydrography Dataset (NHD). <https://www.usgs.gov/core-science-systems/ngp/national-hydrography>. Accessed November 2022.

USGS. 2021. U.S. Geological Survey 7.5-Minute Topographic Maps. Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE, Chapelle Lake SW, and De Grey NE, South Dakota. <https://apps.nationalmap.gov/downloader/#/>. Accessed November 2022.

**Note to Reader:**

Attachment I: Pre-Construction Notification Engineering Form 6082

Attachment II: Project Location Map

Attachment III: Potential WOTUS Delineation Report

Attachment IV: Potential WOTUS Impacts Mapbook

Attachment V: Wildlife and Habitat Field Studies Summary

Attachment VI: North Bend Wind ESA Consultation Discussion

Attachment VII: Cultural Resources Report

Attachment VIII: SHPO Consultation Letter

Available upon request from:

Western Area Power

Administration Upper Great

Plains Regional Office PO Box

35800

Billings, Montana 59107-5800

Phone: 406-255-2800

Mr. Anthony Crutch  
ENGIE North America  
January 20, 2023

# **ATTACHMENT C—NATIONWIDE PERMIT GENERAL CONDITIONS**

## Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued.

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR

402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take”

provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR



330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106

consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only

after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the

required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency

to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank

stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

---

(Transferee)

---

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee



cannot begin the activity until receiving written notification from the Corps that there is “no effect” on listed species or “no potential to cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible

inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were

considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

### **District Engineer's Decision**

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource

functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is

required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

### **Further Information**

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

### **Nationwide Permit Definitions**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.



Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a “water of the United States.” If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

Mr. Anthony Crutch  
ENGIE North America  
January 20, 2023

## **ATTACHMENT D—NATIONWIDE PERMIT REGIONAL CONDITIONS (SOUTH DAKOTA)**



**US Army Corps  
of Engineers**®  
Omaha District

**2021 Nationwide Permits  
Regional Conditions  
Omaha District  
State of South Dakota**

The following Nationwide Permit (NWP) regional conditions will be used in the State of South Dakota for NWP 12, 21, 29, 39, 40, 42, 43, 44, 48, 50, 51, 52, 55, 56, 57, and 58. Regional conditions are placed on NWPs to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resources concerns.

**A. PRECONSTRUCTION NOTIFICATION REQUIREMENTS APPLICABLE TO ALL NWPs OR LIMITED REVOCATION OF NWPs**

For all NWPs, permittees must notify the Corps in accordance with General Condition 32 Preconstruction Notification (PCN) requirements for regulated activities located within or comprised of the following:

**1. Wetlands Classified as Peatlands:**

For the purposes of this condition, peatlands are permanently or seasonally waterlogged areas with a surface accumulation of peat (organic matter) 30 centimeters (12 inches) or more thick. Under cool, anaerobic, and acidic conditions, the rate of organic matter accumulation exceeds organic decay. Any peat-covered areas, including fens, bogs, and muskegs, are all peatlands.

- a. Reserved
- b. All NWPs are revoked for use in peatlands.

**2. Waters Adjacent to Natural Springs:**

PCN required for any regulated activity located within 100 feet of the water source in natural spring areas. For the purpose of this condition, a spring water source is defined as any location where there is flow emanating from a distinct point at any time during the growing season. Springs do not include seeps and other groundwater discharge areas where there is no distinct point source of waters. Springs do not include drain tile outlets.

**B. BEST MANAGEMENT PRACTICES**

**Best Management Practices**

In addition to Regional Conditions 1 through 2, additional best management practices apply to NWPs within the Omaha District. These are available at:

<https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Nation-Wide-Permit-Information/>

**Appendix C1. Observations Table and Regional Bird and Bat Fatality Figures**

**Table 1. Summary of all groups and individual observations, regardless of distance from observer, by bird type and species during avian bird surveys at the North Bend Wind Energy Project area in Hyde and Hughes counties, South Dakota, from April 19, 2016 to February 28, 2022.**

Type/Species	Scientific Name	2016-2017		2018-2019		2019-2020		2020-2021		2021-2022	
		# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
<b>Loons/Grebes</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>
pied-billed grebe	<i>Podilymbus podiceps</i>	0	0	0	0	0	0	1	1	0	0
<b>Waterbirds</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>102</b>	<b>2</b>	<b>15</b>
great egret	<i>Ardea alba</i>	0	0	0	0	0	0	2	2	0	0
great blue heron	<i>Ardea herodias</i>	0	0	0	0	1	1	5	5	0	0
sandhill crane	<i>Antigone canadensis</i>	0	0	0	0	1	93	5	94	0	0
double-crested cormorant	<i>Phalacrocorax auritus</i>	1	1	0	0	0	0	1	1	2	15
<b>Waterfowl</b>		<b>18</b>	<b>282</b>	<b>12</b>	<b>3,680</b>	<b>100</b>	<b>1,418</b>	<b>61</b>	<b>1,173</b>	<b>34</b>	<b>250</b>
wood duck	<i>Aix sponsa</i>	0	0	0	0	0	0	0	0	1	2
northern pintail	<i>Anas acuta</i>	3	3	0	0	23	67	2	17	3	3
green-winged teal	<i>Anas crecca</i>	0	0	0	0	0	0	0	0	1	2
mallard	<i>Anas platyrhynchos</i>	4	16	0	0	27	110	8	37	11	16
snow goose	<i>Anser caerulescens</i>	1	50	0	0	0	0	6	428	0	0
lesser scaup	<i>Aythya affinis</i>	0	0	0	0	1	2	0	0	2	7
ring-necked duck	<i>Aythya collaris</i>	0	0	0	0	1	1	0	0	0	0
canvasback	<i>Aythya valisineria</i>	0	0	0	0	1	1	0	0	0	0
Canada goose	<i>Branta canadensis</i>	5	201	12	3,680	18	1,143	27	589	5	100
American wigeon	<i>Mareca americana</i>	0	0	0	0	1	8	0	0	0	0
gadwall	<i>Mareca strepera</i>	0	0	0	0	2	7	1	2	1	1
Common merganser	<i>Mergus merganser</i>	0	0	0	0	4	8	0	0	0	0
northern shoveler	<i>Spatula clypeata</i>	2	5	0	0	12	26	2	4	3	7
blue-winged teal	<i>Spatula discors</i>	2	6	0	0	7	13	10	34	1	12
unidentified duck	–	1	1	0	0	2	12	5	62	6	100
unidentified waterfowl	–	0	0	0	0	1	20	0	0	0	0
<b>Shorebirds</b>		<b>16</b>	<b>19</b>	<b>4</b>	<b>4</b>	<b>43</b>	<b>70</b>	<b>55</b>	<b>58</b>	<b>29</b>	<b>31</b>
upland sandpiper	<i>Bartramia longicauda</i>	2	2	0	0	10	17	6	6	4	4
killdeer	<i>Charadrius vociferus</i>	8	10	4	4	27	39	46	49	15	15
Wilson's snipe	<i>Gallinago delicata</i>	0	0	0	0	0	0	0	0	1	1
marbled godwit <sup>b,c,d</sup>	<i>Limosa fedoa</i>	5	6	0	0	6	14	1	1	6	7
greater yellowlegs	<i>Tringa melanoleuca</i>	0	0	0	0	0	0	2	2	1	1
Willet <sup>b,c,d</sup>	<i>Tringa semipalmata</i>	1	1	0	0	0	0	0	0	0	0
unidentified sandpiper	–	0	0	0	0	0	0	0	0	2	3
<b>Gulls/Terns</b>		<b>1</b>	<b>95</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>58</b>	<b>8</b>	<b>31</b>	<b>4</b>	<b>161</b>
black tern <sup>c,d</sup>	<i>Chlidonias niger</i>	0	0	0	0	0	0	5	5	0	0
Bonaparte's gull	<i>Chroicocephalus philadelphia</i>	0	0	0	0	1	1	0	0	0	0





**Table 1. Summary of all groups and individual observations, regardless of distance from observer, by bird type and species during avian bird surveys at the North Bend Wind Energy Project area in Hyde and Hughes counties, South Dakota, from April 19, 2016 to February 28, 2022.**

Type/Species	Scientific Name	2016-2017		2018-2019		2019-2020		2020-2021		2021-2022	
		# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
ring-necked pheasant	<i>Phasianus colchicus</i>	27	45	1	1	19	30	48	52	19	21
greater prairie-chicken <sup>b, d</sup>	<i>Tympanuchus cupido</i>	1	1	0	0	1	5	0	0	0	0
sharp-tailed grouse <sup>b</sup>	<i>Tympanuchus phasianellus</i>	0	0	0	0	1	1	1	6	0	0
<b>Doves/Pigeons</b>		<b>13</b>	<b>50</b>	<b>2</b>	<b>2</b>	<b>37</b>	<b>76</b>	<b>54</b>	<b>98</b>	<b>13</b>	<b>19</b>
rock pigeon	<i>Columba livia</i>	4	21	0	0	0	0	8	20	1	3
Eurasian collared-dove	<i>Streptopelia decaocto</i>	0	0	0	0	0	0	1	1	0	0
mourning dove	<i>Zenaida macroura</i>	9	29	2	2	37	76	45	77	12	16
<b>Woodpeckers</b>		<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>2</b>	<b>3</b>
northern flicker	<i>Colaptes auratus</i>	0	0	0	0	0	0	2	2	2	3
red-headed woodpecker <sup>c</sup>	<i>Melanerpes erythrocephalus</i>	0	0	0	0	0	0	4	4	0	0
unidentified woodpecker	–	0	0	1	1	0	0	0	0	0	0
<b>Large Corvids</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>286</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
American crow	<i>Corvus brachyrhynchos</i>	0	0	0	0	4	286	1	1	1	1
<b>Nightjars</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
common nighthawk	<i>Chordeiles minor</i>	0	0	0	0	0	0	1	1	1	1
<b>Passerines</b>		<b>136</b>	<b>764</b>	<b>262</b>	<b>1,003</b>	<b>206</b>	<b>808</b>	<b>502</b>	<b>1,121</b>	<b>139</b>	<b>271</b>
unidentified passerine	–	2	22	1	400	0	0	7	67	1	1
red-winged blackbird	<i>Agelaius phoeniceus</i>	12	13	24	90	27	145	39	211	10	71
bobolink <sup>c</sup>	<i>Dolichonyx oryzivorus</i>	3	5	2	4	14	70	3	4	4	4
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	1	14	0	0	1	7	1	25	0	0
Baltimore oriole	<i>Icterus galbula</i>	0	0	1	1	0	0	0	0	0	0
unidentified oriole	–	0	0	0	0	1	1	0	0	0	0
brown-headed cowbird	<i>Molothrus ater</i>	15	44	30	87	20	115	22	101	20	53
common grackle	<i>Quiscalus quiscula</i>	6	9	8	11	2	10	19	31	4	5
western meadowlark <sup>b</sup>	<i>Sturnella neglecta</i>	44	81	93	182	75	272	192	192	57	57
European starling	<i>Sturnus vulgaris</i>	3	11	1	1	2	17	1	1	0	0
American goldfinch	<i>Spinus tristis</i>	0	0	0	0	3	3	3	13	0	0
least flycatcher	<i>Empidonax minimus</i>	0	0	1	1	0	0	0	0	0	0
eastern kingbird	<i>Tyrannus tyrannus</i>	3	7	14	22	6	8	7	7	2	2
western kingbird	<i>Tyrannus verticalis</i>	3	6	7	15	0	0	3	3	1	1
grasshopper sparrow <sup>b, c</sup>	<i>Ammodramus savannarum</i>	2	2	5	11	16	21	56	56	9	11
lark bunting <sup>b, d</sup>	<i>Calamospiza melanocorys</i>	1	2	7	13	7	11	0	0	0	0
chestnut-collared longspur <sup>b, c, d</sup>	<i>Calcarius ornatus</i>	7	14	1	1	1	2	7	26	3	24
horned lark	<i>Eremophila alpestris</i>	9	387	27	72	10	27	38	177	16	23
song sparrow	<i>Melospiza melodia</i>	3	9	1	1	1	2	2	2	0	0

**Table 1. Summary of all groups and individual observations, regardless of distance from observer, by bird type and species during avian bird surveys at the North Bend Wind Energy Project area in Hyde and Hughes counties, South Dakota, from April 19, 2016 to February 28, 2022.**

Type/Species	Scientific Name	2016-2017		2018-2019		2019-2020		2020-2021		2021-2022	
		# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs	# grps	# obs
house sparrow	<i>Passer domesticus</i>	3	73	0	0	0	0	6	33	0	0
Savannah sparrow <sup>b</sup>	<i>Passerculus sandwichensis</i>	1	1	0	0	0	0	2	2	0	0
snow bunting	<i>Plectrophenax nivalis</i>	0	0	0	0	0	0	1	27	0	0
vesper sparrow	<i>Poocetes gramineus</i>	0	0	1	4	1	1	1	1	3	4
dickcissel	<i>Spiza americana</i>	0	0	9	18	10	19	45	45	0	0
clay-colored sparrow <sup>b</sup>	<i>Spizella pallida</i>	0	0	0	0	0	0	6	6	0	0
chipping sparrow	<i>Spizella passerina</i>	0	0	0	0	0	0	2	2	0	0
field sparrow	<i>Spizella pusilla</i>	0	0	1	4	1	4	0	0	0	0
American tree sparrow	<i>Spizelloides arborea</i>	2	9	0	0	0	0	1	3	2	6
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	0	0	1	1	1	6	1	3	0	0
unidentified sparrow	–	2	5	4	7	0	0	4	15	0	0
brown thrasher	<i>Toxostoma rufum</i>	1	1	1	2	0	0	0	0	0	0
barn swallow	<i>Hirundo rustica</i>	8	43	16	36	5	16	12	42	4	6
tree swallow	<i>Tachycineta bicolor</i>	2	2	0	0	1	50	2	5	0	0
northern shrike	<i>Lanius excubitor</i>	0	0	0	0	0	0	1	1	0	0
Swainson's thrush	<i>Catharus ustulatus</i>	0	0	0	0	0	0	1	3	0	0
American robin	<i>Turdus migratorius</i>	3	4	2	4	0	0	11	11	2	2
common yellowthroat	<i>Geothlypis trichas</i>	0	0	0	0	1	1	5	5	1	1
yellow warbler	<i>Setophaga petechial</i>	0	0	1	1	0	0	0	0	0	0
unidentified warbler	–	0	0	2	14	0	0	0	0	0	0
blue jay	<i>Cyanocitta cristata</i>	0	0	0	0	0	0	1	1	0	0
<b>Unidentified Birds</b>		<b>10</b>	<b>280</b>	<b>7</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
unidentified small bird	–	10	280	7	12	0	0	0	0	0	0
<b>Overall</b>		<b>232</b>	<b>1,546</b>	<b>275</b>	<b>1,022</b>	<b>465</b>	<b>2,887</b>	<b>848</b>	<b>2,762</b>	<b>2660</b>	<b>994</b>

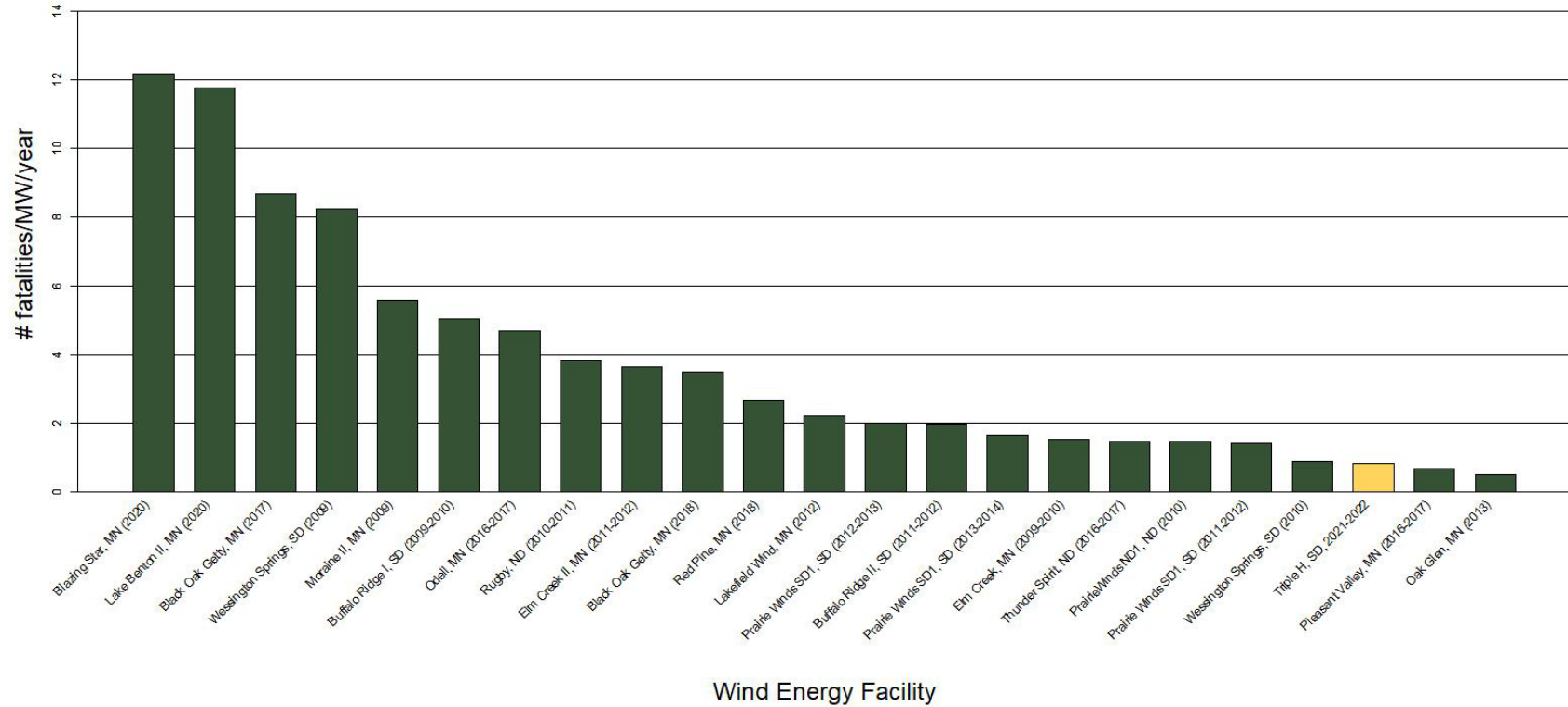
<sup>a</sup> grps = groups; obs = observations.

<sup>b</sup> species of habitat fragmentation concern (Bakker 2020).

<sup>c</sup> birds of conservation concern (US Fish and Wildlife Service 2021).

<sup>d</sup> species of greatest conservation need (South Dakota Game and Fish Department 2014).

## Regional Bird Estimated Fatality Rates (MN, ND, SD)



**Figure 1. Regional bird fatality rates at facilities with publicly available information in Minnesota, North Dakota, and South Dakota.**

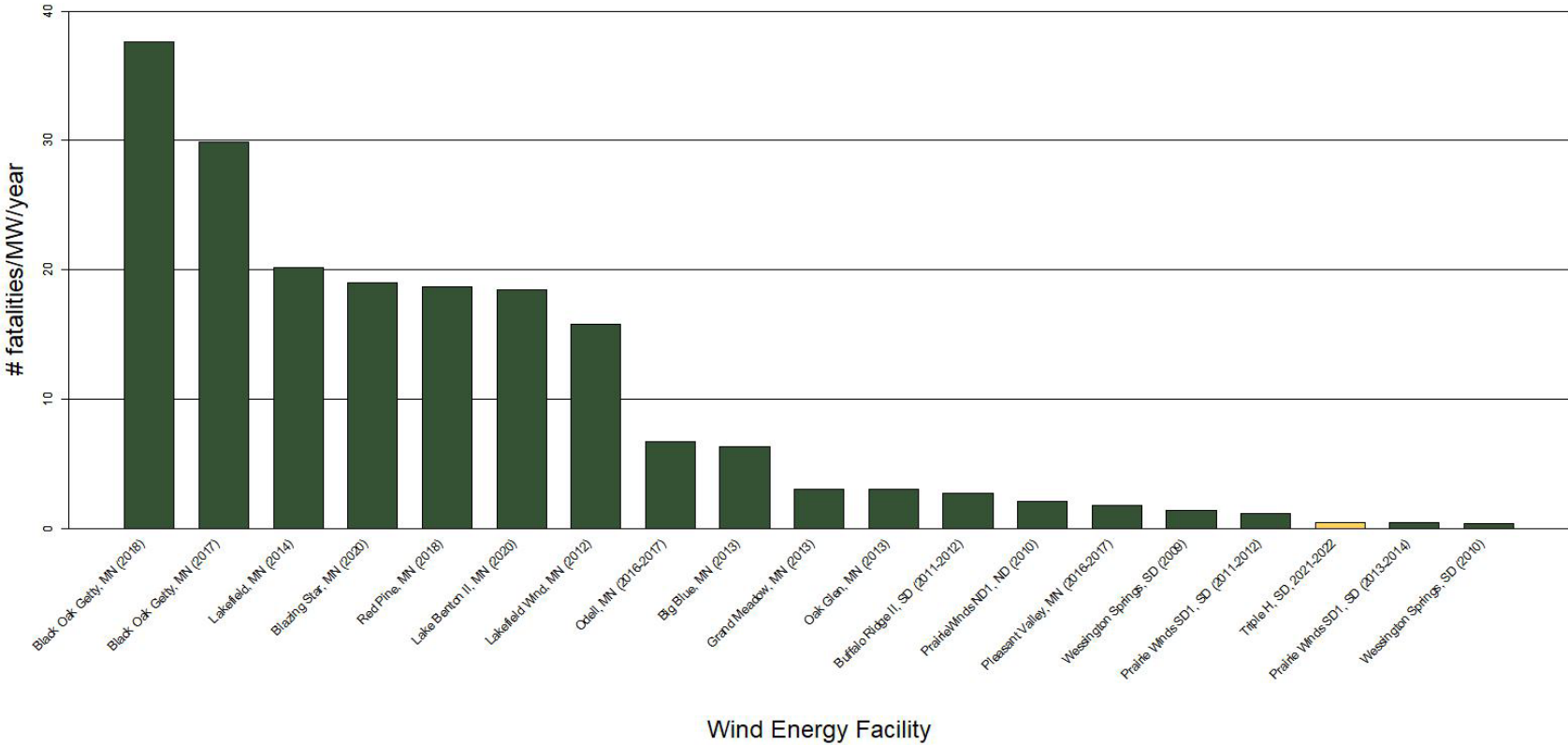
**Figure 1 (continued).** Fatality rates for all birds (number of birds per megawatt [MW] per study period), plot size, estimator, land cover, and study citation from publicly available studies at wind energy facilities in Minnesota, North Dakota, and South Dakota.

<b>Project</b>	<b>Bird fatalities/ MW/year</b>	<b>Plot Size</b>	<b>Estimator</b>	<b>Projects Land Cover</b>	<b>Citation</b>
Blazing Star, MN (2020)	12.18	120 m x 120 m cleared, 100 m radius road/pad	GenEst	Cropland, Pasture, Corn, Soybean	Stucker et al. 2021b
Lake Benton II, MN (2020)	11.75	120 m x 120 m cleared, 100 m radius road/pad	GenEst	Cropland, Corn, Soybean, Herbaceous	Stucker et al. 2021a
Black Oak Getty, MN (2017)	8.69	60 m radius road/pad	Huso	Cropland, Grassland, Wetlands	Pickle et al. 2018
Wessington Springs, SD (2009)	8.25	200 m x 200 m plot	Shoenfeld	Grassland	Derby et al. 2010a
Moraine II, MN (2009)	5.59	200 m x 200 m plot, 200 m x 200 m mowed strips, 100 m x 100 m cleared	Shoenfeld	Agriculture, Grassland	Derby et al. 2010d
Buffalo Ridge I, SD (2009-2010)	5.06	200 m x 200 m plot, 200 m x 200 m mowed strips, 100 m x 100 m cleared	Shoenfeld	Agriculture, Grassland	Derby et al. 2010b
Odell, MN (2016-2017)	4.69	120 m x 120 m cleared	Huso	Agriculture	Chodachek and Gustafson 2018
Rugby, ND (2010-2011)	3.82	200 m x 200 m plot, 100 m x 100 m cleared, 200 m x 200 m mowed strips	Shoenfeld	Agriculture	Derby et al. 2011b
Elm Creek II, MN (2011-2012)	3.64	200 m x 200 m plot, 200 m x 200 m mowed strips, 100 m x 100 m cleared, 100 m radius road/pad	Shoenfeld	Agriculture, Grassland	Derby et al. 2012b
Black Oak Getty, MN (2018)	3.5	60 m radius road/pad	Huso	Cropland, Grassland, Wetlands	Pickle et al. 2019
Red Pine, MN (2018)	2.68	60 m radius road/pad	Huso	Cropland, Developed, Deciduous Tree, Open Water, Pasture, Woody Wetlands, Wetlands	Trana et al. 2019
Lakefield Wind, MN (2012)	2.22	100 m x 100 m plot	Shoenfeld	Agriculture	Minnesota Public Utilities Commission (MPUC) 2012
Prairie Winds SD1, SD (2012-2013)	2.01	200 m x 200 m plot, 200 m x 200 m road/pad	Shoenfeld	Grassland	Derby et al. 2013
Buffalo Ridge II, SD (2011-2012)	1.99	100 m x 100 m cleared, 100 m for roads and pads	Shoenfeld	Agriculture, Grassland	Derby et al. 2012a

**Figure 1 (continued).** Fatality rates for all birds (number of birds per megawatt [MW] per study period), plot size, estimator, land cover, and study citation from publicly available studies at wind energy facilities in Minnesota, North Dakota, and South Dakota.

<b>Project</b>	<b>Bird fatalities/ MW/year</b>	<b>Plot Size</b>	<b>Estimator</b>	<b>Projects</b>	<b>Land Cover</b>	<b>Citation</b>
Prairie Winds SD1, SD (2013-2014)	1.66	200 m x 200 m plot, 200 m x 200 m road/pad	Shoenfeld	Grassland		Derby et al. 2014
Elm Creek, MN (2009-2010)	1.55	100 m x 100 m cleared, 200 m x 200 m mowed strips	Shoenfeld	Agriculture		Derby et al. 2010c
Thunder Spirit, ND (2016-2017)	1.49	160 m x 160 m plot, 80 m radius road/pad	Huso	Agriculture, Grassland		Derby et al. 2018
PrairieWinds ND1, ND (2010)	1.48	200 m x 200 m plot	Shoenfeld	Agriculture, Grassland		Derby et al. 2011c
Prairie Winds SD1, SD (2011-2012)	1.41	200 m x 200 m plot	Shoenfeld	Grassland		Derby et al. 2012c
Wessington Springs, SD (2010)	0.89	200 m x 200 m plot	Shoenfeld	Grassland		Derby et al. 2011a
Triple H, SD, 2021-2022	0.84	NA	NA	NA		This study
Pleasant Valley, MN (2016-2017)	0.68	160 m x 160 m cleared, 80 m radius road/pad	Huso	Agriculture, Grassland, Wetlands		Tetra Tech 2017
Oak Glen, MN (2013)	0.51	120 m x 120 m plot	Shoenfeld	Agriculture, Corn, Soybean		Chodachek et al. 2014

### Regional Bat Estimated Fatality Rates (MN, ND, SD)



**Figure 2. Regional bat fatality rates at facilities with publicly available information in Minnesota, North Dakota, and South Dakota.**

**Figure 2 (continued). Fatality rates for all bats (number of bats per megawatt [MW] per study period), plot size, estimator, land cover, and study citation from publicly available studies at wind energy facilities in Minnesota, North Dakota, and South Dakota.**

<b>Project</b>	<b>Bat fatalities/ MW/year</b>	<b>Plot Size</b>	<b>Estimator</b>	<b>Projects Land Cover</b>	<b>Citation</b>
Black Oak Getty, MN (2018)	37.59	60 m radius road/pad	Huso	Cropland, Grassland, Wetlands	Pickle et al. 2019
Black Oak Getty, MN (2017)	29.88	60 m radius road/pad	Huso	Cropland, Grassland, Wetlands	Pickle et al. 2018
Lakefield, MN (2014)	20.19	100 m x 100 m cleared	Huso	Cropland, Conservation Reservation Program	Westwood 2015
Blazing Star, MN (2020)	19.06	120 m x 120 m cleared, 100 m radius road/pad	GenEst	Cropland, Pasture, Corn, Soybean	Stucker et al. 2021b
Red Pine, MN (2018)	18.74	60 m radius road/pad	Huso	Cropland, Developed, Deciduous Tree, Open Water, Pasture, Woody Wetlands, Wetlands	Trana et al. 2019
Lake Benton II, MN (2020)	18.44	120 m x 120 m cleared, 100 m radius road/pad	GenEst	Cropland, Corn, Soybean, Herbaceous	Stucker et al. 2021a
Lakefield Wind, MN (2012)	15.85	100 m x 100 m plot	Shoenfeld	Agriculture	Minnesota Public Utilities Commission (MPUC) 2012
Odell, MN (2016-2017)	6.74	120 m x 120 m cleared	Huso	Agriculture	Chodachek and Gustafson 2018
Big Blue, MN (2013)	6.33	120 m x 120 m plot	Shoenfeld	Agriculture, Corn, Soybean	Chodachek et al. 2014
Grand Meadow, MN (2013)	3.11	120 m x 120 m plot	Shoenfeld	Agriculture, Corn, Soybean	Chodachek et al. 2014
Oak Glen, MN (2013)	3.09	120 m x 120 m plot	Shoenfeld	Agriculture, Corn, Soybean	Chodachek et al. 2014
Buffalo Ridge II, SD (2011-2012)	2.81	100 m x 100 m cleared, 100 m for roads and pads	Shoenfeld	Agriculture, Grassland	Derby et al. 2012a
PrairieWinds ND1, ND (2010)	2.13	200 m x 200 m plot	Shoenfeld	Agriculture, Grassland	Derby et al. 2011c
Pleasant Valley, MN (2016-2017)	1.8	160 m x 160 m cleared, 80 m radius road/pad	Huso	Agriculture, Grassland, Wetlands	Tetra Tech 2017
Wessington Springs, SD (2009)	1.48	200 m x 200 m plot	Shoenfeld	Grassland	Derby et al. 2010a
Prairie Winds SD1, SD (2011-2012)	1.23	200 m x 200 m plot	Shoenfeld	Grassland	Derby et al. 2012c
<b>Triple H, SD, 2021-2022</b>	<b>0.53</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>This study</b>
Prairie Winds SD1, SD (2013-2014)	0.52	200 m x 200 m plot, 200 m x 200 m road/pad	Shoenfeld	Grassland	Derby et al. 2014
Wessington Springs, SD (2010)	0.41	200 m x 200 m plot	Shoenfeld	Grassland	Derby et al. 2011a

## APPENDIX C1 REFERENCES

Bakker 2020.

Chodachek, K., C. Derby, D. Bruns Stockrahm, P. Rabie, K. Adachi, and T. Thorn. 2014. Bat Fatality Rates and Effects of Changes in Operational Cut-in Speeds at Commercial Wind Farms in Southern Minnesota - Year 1: July 9 - October 31, 2013. Prepared for Minnesota Department of Commerce, St. Paul, Minnesota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota, and Minnesota State University Moorhead, Moorhead, Minnesota. May 23, 2014. Available online:

<http://mn.gov/commerce/energyfacilities/documents/MNDOC,%20Bat%20Fatality%20Study%20Year%201,%205.23.14.pdf>

Chodachek, K. and Z. Gustafson. 2018. Tier 4 Post-Construction Mortality Monitoring Study for the Odell Wind Energy Project, Cottonwood and Jackson Counties, Minnesota. Final Fatality Report: December 2016 – December 2017. Prepared for Odell Wind Farm, LLC, Oakville, Ontario, Canada. Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. March 15, 2018. Available online

<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={E0912A62-0000-C93E-88EA-844E240F695B}&documentTitle= 20183-141067-02>

Derby, C., A. Dahl, A. Merrill, and K. Bay. 2010a. 2009 Post-Construction Monitoring Results for the Wessington Springs Wind-Energy Facility, South Dakota. Final Report. Prepared for Wessington Wind Energy Center, LLC, Juno Beach, Florida. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. August 19, 2010.

Derby, C., K. Chodachek, K. Bay, and A. Merrill. 2010b. Post-Construction Fatality Survey for the Buffalo Ridge I Wind Project. May 2009 - May 2010. Prepared for Iberdrola Renewables, Inc., Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota.

Derby, C., K. Chodachek, K. Bay, and A. Merrill. 2010c. Post-Construction Fatality Surveys for the Elm Creek Wind Project: March 2009- February 2010. Prepared for Iberdrola Renewables, Inc. (IRI), Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota.

Derby, C., K. Chodachek, K. Bay, and A. Merrill. 2010d. Post-Construction Fatality Surveys for the Moraine II Wind Project: March - December 2009. Prepared for Iberdrola Renewables, Inc. (IRI), Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota.

Derby, C., A. Dahl, K. Bay, and L. McManus. 2011a. 2010 Post-Construction Monitoring Results for the Wessington Springs Wind Energy Facility, South Dakota. Final Report: March 9 – November 16, 2010. Prepared for Wessington Wind Energy Center, LLC, Juno Beach, Florida. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. November 22, 2011.

Derby, C., K. Chodachek, K. Bay, and S. Nomani. 2011b. Post-Construction Fatality Surveys for the Rugby Wind Project: Iberdrola Renewables, Inc. March 2010 - March 2011. Prepared for Iberdrola Renewables, Inc. (IRI), Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. Version: October 14, 2011.

Derby, C., K. Chodachek, T. Thorn, K. Bay, and S. Nomani. 2011c. Post-Construction Fatality Surveys for the Prairiewinds Nd1 Wind Facility, Basin Electric Power Cooperative, March - November 2010. Prepared for Basin Electric Power Cooperative, Bismarck, North Dakota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. August 2, 2011.



- Derby, C., K. Chodachek, and M. Sonnenberg. 2012a. Post-Construction Casualty Surveys for the Buffalo Ridge II Wind Project. Iberdrola Renewables: March 2011- February 2012. Prepared for Iberdrola Renewables, LLC, Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. August 31, 2012.
- Derby, C., K. Chodachek, and M. Sonnenberg. 2012b. Post-Construction Fatality Surveys for the Elm Creek II Wind Project. Iberdrola Renewables: March 2011-February 2012. Prepared for Iberdrola Renewables, LLC, Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. October 8, 2012.
- Derby, C., A. Dahl, and A. Merrill. 2012c. Post-Construction Monitoring Results for the Prairiewinds Sd1 Wind Energy Facility, South Dakota. Final Report: March 2011 - February 2012. Prepared for Basin Electric Power Cooperative, Bismarck, North Dakota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. September 27, 2012.
- Derby, C., A. Dahl, and D. Fox. 2013. Post-Construction Fatality Monitoring Studies for the Prairiewinds Sd1 Wind Energy Facility, South Dakota. Final Report: March 2012 - February 2013. Prepared for Basin Electric Power Cooperative, Bismarck, North Dakota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. November 13, 2013.
- Derby, C., A. Dahl, and G. DiDonato. 2014. Post-Construction Fatality Monitoring Studies for the Prairiewinds Sd1 Wind Energy Facility, South Dakota. Final Report: March 2013 - February 2014. Prepared for Basin Electric Power Cooperative, Bismarck, North Dakota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota.
- Derby, C., D. Klostermeier, R. Tupling, and K. Moratz. 2018. Post-Construction Bird and Bat Fatality Monitoring for the Thunder Spirit Wind Energy Facility, Adams County, North Dakota. Final Fatality Report. Prepared for Thunder Spirit Wind, LLC, Bismarck, North Dakota. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. March 1, 2018.
- Minnesota Public Utilities Commission (MPUC). 2012. Lakefield Wind Project Avian and Bat Fatality Monitoring. MPUC Site Permit Quarterly Report and USFWS Special Purpose – Utility (Avian Take Monitoring) 30-Day Report: April 1 – September 30, 2012. USFWS Permit No: MB70161A-0; MDNR Permit No: 17930; MPUC Permit No: IP-6829/WS-09-1239, Permit Special Condition VII.B. October 15, 2012. Available online: <https://www.edockets.state.mn.us/EFiling/edockets/search/Documents.do?method=showPoup&documentId={DEE3ABC0-1AD5-45CF-9451-EBF6F3C4C4 89}&documentTitle=201210-79566-01>
- Pickle, J., J. Lombardi, J. Stucker, and M. Kauffman. 2018. 2017 Post-Construction Monitoring Study, Black Oak Getty Wind Project, Stearns County, Minnesota: March 15 – November 16, 2017. Prepared for Black Oak Wind, LLC. Prepared by Western EcoSystems Technology, Inc. (WEST), Golden Valley, Minnesota. March 13, 2018.
- Pickle, J., J. Lombardi, J. Stucker, and G. DiDonato. 2019. 2018 Post-Construction Monitoring Study, Black Oak Getty Wind Project, Stearns County, Minnesota: April 4 – November 1, 2018. Prepared for Black Oak Wind, LLC. Prepared by Western EcoSystems Technology, Inc. (WEST), Golden Valley, Minnesota. March 15, 2019. Available online: <https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId=%7B80398269-0000-CD12-876A-A85C EB339B7A%7D&documentTitle=20193-151123-01>
- South Dakota Game and Fish Department 2014.
- Stucker, J., A. Suehring, and J. Bushey. 2021a. Post-Construction Bird and Bat Fatality Monitoring Study, Lake Benton II Wind Farm, Pipestone County, Minnesota. Final: March - November 2020. Prepared for Northern States Power, Minneapolis, Minnesota. Prepared by Western EcoSystems Technology, Inc. (WEST), Golden Valley, Minnesota. February 2021. 44 pp. + appendices.

- Stucker, J., A. Suehring, and R. Clark. 2021b. Post-Construction Bird and Bat Fatality Monitoring Study. Blazing Star Wind Farm, Lincoln County, Minnesota. Final: March - November 2020. Prepared for Northern States Power, Minneapolis, Minnesota. Prepared by Western EcoSystems Technology, Inc. (WEST), Golden Valley, Minnesota. January 28, 2021.
- Tetra Tech. 2017. 2016 - 2017 Post-Construction Mortality Monitoring Annual Report, Pleasant Valley Wind Farm, Mower and Dodge Counties, Minnesota. Prepared for Northern States Power Company-Minnesota, Xcel Energy. Prepared by Tetra Tech, Bloomington, Minnesota. June 2017. Available online: <https://mn.gov/commerce/energyfacilities/Docket.html?Id=25724>
- US Fish and Wildlife Service (USFWS). 2021. Birds of Conservation Concern 2021. USFWS Migratory Birds, Falls Church, Virginia. April 2021. Available online: <https://tethys.pnnl.gov/sites/default/files/publications/birds-of-conservation-concern-2021.pdf>

**Appendix C2. North Bend Wind Project Field Studies and Habitat Assessments Summary  
2016 – 2021 Hughes and Hyde Counties, South Dakota**

**North Bend Wind Project  
Field Studies and Habitat Assessments  
Summary 2016 – 2021  
Hughes and Hyde Counties, South Dakota**

---



**Prepared for:**

**North Bend Wind Project, LLC**

3760 State Street, Suite 200  
Santa Barbara, California 93105

---

**Prepared by:**

**Martin Piorkowski and Caleb Arellano**

Western EcoSystems Technology, Inc.  
4007 State Street, Suite 109  
Bismarck, North Dakota

**June 30, 2021**



## TABLE OF CONTENTS

INTRODUCTION .....	1
PROJECT AREA DESCRIPTION .....	3
Land Cover .....	5
AVIAN USE SURVEYS.....	5
Fixed-point Survey Efforts (2016 – 2017).....	6
Fixed-point Survey Efforts (2018 – 2019).....	7
Fixed-point Survey Efforts (2019 – 2020).....	7
Fixed-point Survey Efforts (2020 – 2021): Ongoing.....	7
RAPTOR NEST SURVEYS.....	10
2016 Surveys .....	10
2018 Surveys .....	12
2019 Surveys .....	14
2020 Surveys .....	16
PRAIRIE GROUSE LEK SURVEYS.....	19
Aerial Surveys.....	19
Ground Surveys .....	20
BAT ACOUSTIC SURVEYS.....	23
Summarized Results .....	23
NORTHERN LONG-EARED BAT HABITAT ASSESSMENT.....	26
WHOOPING CRANE STOPOVER HABITAT.....	29
REFERENCES .....	31

## LIST OF TABLES

Table 1. Land cover, coverage, and percent (%) composition within the North Bend Wind Project, Hughes and Hyde counties, South Dakota. ....	5
Table 2. Location of raptor nest sites observed during 2016 surveys located in the current North Bend Wind Project and surrounding 3.2-kilometer (2.0-mile) buffer, Hughes and Hyde counties, South Dakota. ....	10
Table 3. Location of raptor nest sites surveyed and/or observed during 2018 surveys located in the current North Bend Wind Project and surrounding 3.2-kilometer (2.0-mile) buffer, Hughes and Hyde counties, South Dakota. ....	12

Table 4. Location of raptor nest sites surveyed and/or observed during 2019 surveys located in the current North Bend Wind Project and surrounding 3.2-kilometer (2.0-mile) buffer, Hughes and Hyde counties, South Dakota. .... 14

Table 5. Yearly summary of all potential raptor nests<sup>1</sup> surveyed and/or observed during survey efforts for the North Bend Wind Project, Hughes and Hyde counties, South Dakota<sup>2</sup>. .... 16

Table 6. Location and maximum number of prairie grouse observed at potential leks during surveys for the current North Bend Wind Project and 1.6-kilometer (1.0-mile) buffer, Hughes and Hyde counties, South Dakota. .... 22

Table 7. Results of bat activity surveys conducted at stations within the North Bend Wind Project area, Hughes and Hyde counties, South Dakota, from May 26 – October 21, 2016, and April 25 – October 25, 2018. Passes are separated by call frequency: high frequency (HF) and low frequency (LF). .... 23

### LIST OF FIGURES

Figure 1. Location of the North Bend Wind Project, Hughes and Hyde counties, South Dakota. .... 2

Figure 2. Land cover types and protected lands within the current North Bend Wind Project boundary located in Hughes and Hyde counties, South Dakota. .... 4

Figure 3. Location of fixed-point avian use survey stations completed in from 2016-2021 throughout the North Bend Wind Project boundary located in Hughes and Hyde counties, South Dakota. The MCP Boundary (purple outline) encapsulates the final proposed turbine layout. .... 9

Figure 4. Location of raptor nests identified during surveys in 2016 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota. .... 11

Figure 5. Location of raptor nests identified during surveys in 2018 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota. .... 13

Figure 6. Location of raptor nests identified during surveys in 2019 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota. Shaded “No Fly Areas” included lands not surveyed in 2019. .... 15

Figure 7. Location of raptor nests identified during surveys in 2020 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota. Shaded “No Fly Area” included lands not surveyed in 2020. .... 18

Figure 8. Location and 2020 status of potential prairie grouse leks identified during surveys within the North Bend Wind Project and 1.6-kilometer (1.0-mile) buffer from the 2016, 2018, 2019, and 2020 breeding seasons, Hughes and Hyde counties, South Dakota. .... 21

Figure 9. Location of AnaBat detectors deployed during 2016 and 2018 within the North Bend Wind Project boundary in Hughes and Hyde counties, South Dakota.....25

Figure 10. Northern long-eared bat habitat assessment of the North Bend Wind Project and 4.0-kilometer (2.5-mile) buffer, Hughes and Hyde counties, South Dakota. ....28

Figure 11. Map of wetlands scored using the predictive habitat use model (Niemuth et al. 2018) for the current North Bend Wind Project boundary and surrounding area in Hughes, Hyde, and Sully counties, South Dakota.....30

## **INTRODUCTION**

North Bend Wind Project, LLC (North Bend) is considering the development of the North Bend Wind Project (Project) in Hughes and Hyde counties, South Dakota. North Bend contracted with Western EcoSystems Technology, Inc. (WEST) to conduct baseline wildlife and habitat studies to evaluate potential impacts of wind energy facility construction and operations on wildlife.

In 2016, baseline wildlife studies were completed within a previous defined wind resources area encompassing 15,822.9 hectares (ha; 39,099.3 acres [ac]) based on a 200-megawatt (MW) project. In 2017, this wind resource area was expanded to encompass 44,573.0 ha (110,142.3 ac) based on up to three separate 250 MW phases. This expanded wind resource area was the largest of the proposed boundaries. North Bend recently refined the area for the Project, which is primarily located along the western portion of the previously surveyed wind resource area and encompasses approximately 18,978.7 ha (46,897.1 ac; Figure 1, Table 1).

Baseline wildlife studies within the Project area were designed to address the questions posed under Tier 3 of the US Fish and Wildlife Service (USFWS) *Final Land-Based Wind Energy Guidelines* (WEG; USFWS 2012) and Stage 2 of the USFWS *Eagle Conservation Plan Guidance* (ECPG; USFWS 2013). Studies conducted within the Project area from 2016 to 2021 include avian use surveys, raptor and eagle nest surveys, prairie grouse lek surveys, general bat acoustic monitoring, northern long-eared bat (NLEB; *Myotis septentrionalis*) summer habitat analysis, whooping crane (*Grus americana*) stopover habitat analysis, and a land cover characterization study.

The studies conducted to date also incorporate WEST's experience working in South Dakota with USFWS Ecological Services, the USFWS Region 6 Ecological Services Field Office, and South Dakota Game, Fish, and Parks (SDGFP). The following provides a summary of studies conducted, in progress, or applicable to the current Project area.



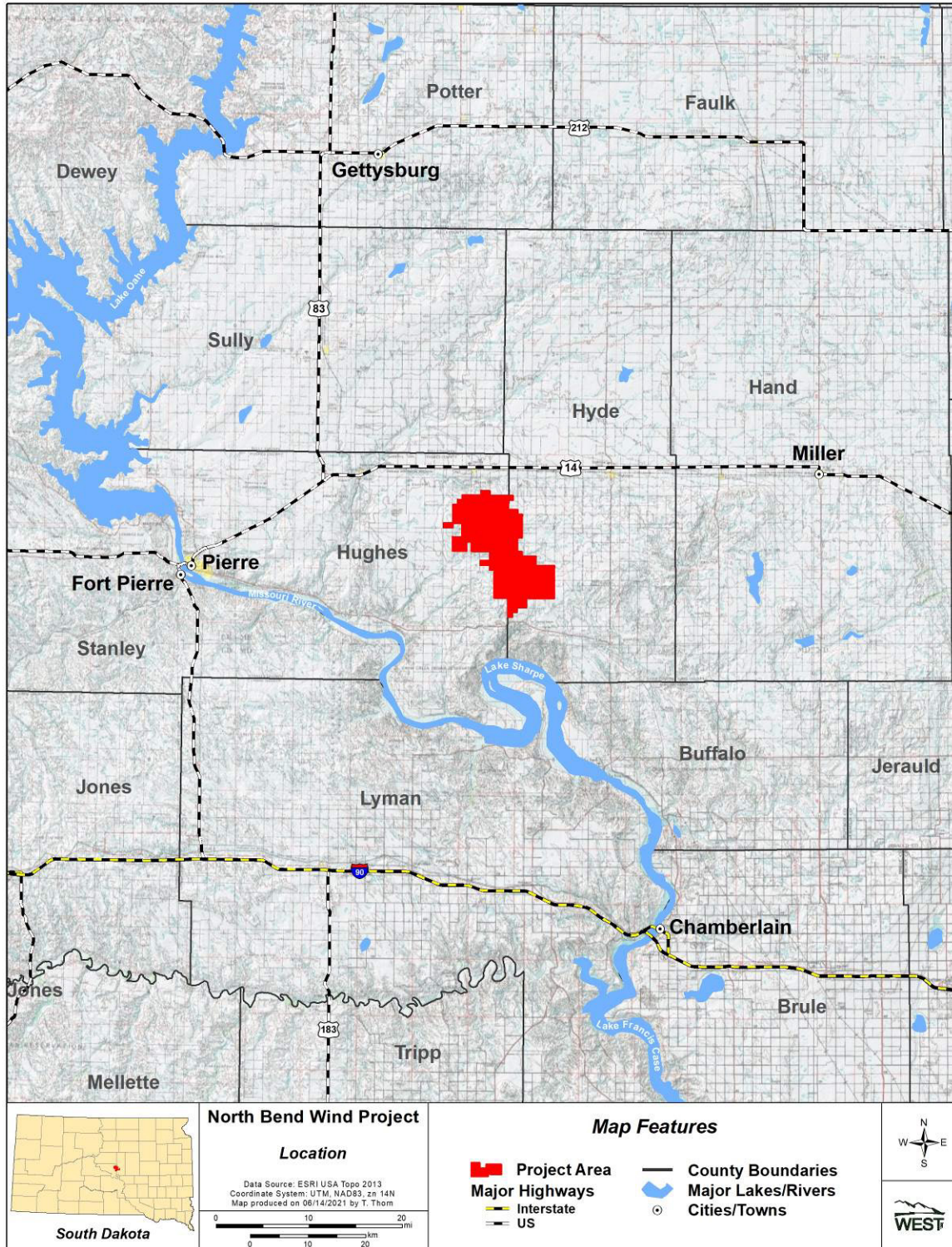


Figure 1. Location of the North Bend Wind Project, Hughes and Hyde counties, South Dakota.

## **PROJECT AREA DESCRIPTION**

The Project area is located in Hughes and Hyde counties, South Dakota, approximately six kilometers (km; four miles [mi]) south of Harrold, South Dakota. This area is within the intersection of the Northwestern Great Plains Level III Ecoregions (US Environmental Protection Agency [USEPA] 2017) and the Bird Conservation Region (BCR 11; Prairie Potholes [Bird Studies Canada and NABCI 2014]). The Northwestern Glaciated Plains ecoregion has significant surface irregularity and dense concentrations of wetlands. In contrast, this area along the Southern Missouri Coteau exhibits a topography of gentle, rolling hills rather than steep hummocks, with fewer areas of high wetland density, and more stream erosion (USEPA 2017) much of which has been converted to cultivated crops. The river breaks landform is also common near riparian areas and consists of uplands with broken terraces that descend to the Missouri River and its major tributaries. This rough and broken river break topography, with its wooded draws and uncultivated areas, provides habitat for wildlife.

The topography within the Project area consists of rolling hills, with elevations ranging from 548.5–653.8 meters (m; 1,800.0–2,145.0 feet [ft]) above mean sea level (US Geological Survey [USGS] Digital Elevation Model 2017). Land ownership within the Project area is primarily private with a few scattered State Resource Management Areas (USGS Protected Areas Database of the US 2019) one of which fall within the Project area (Figure 2). Chapelle Creek and South Chapelle Creek are the named creeks within the Project area (Figure 2; USGS National Hydrography Dataset 2019). Wetlands are dispersed throughout the Project area, but most are located in the northeastern portion of the Project area (Figure 2; National Wetlands Inventory [NWI] 2019). The majority of wetlands are herbaceous wetlands, followed by open water (i.e., freshwater pond, and lakes; Table 1).

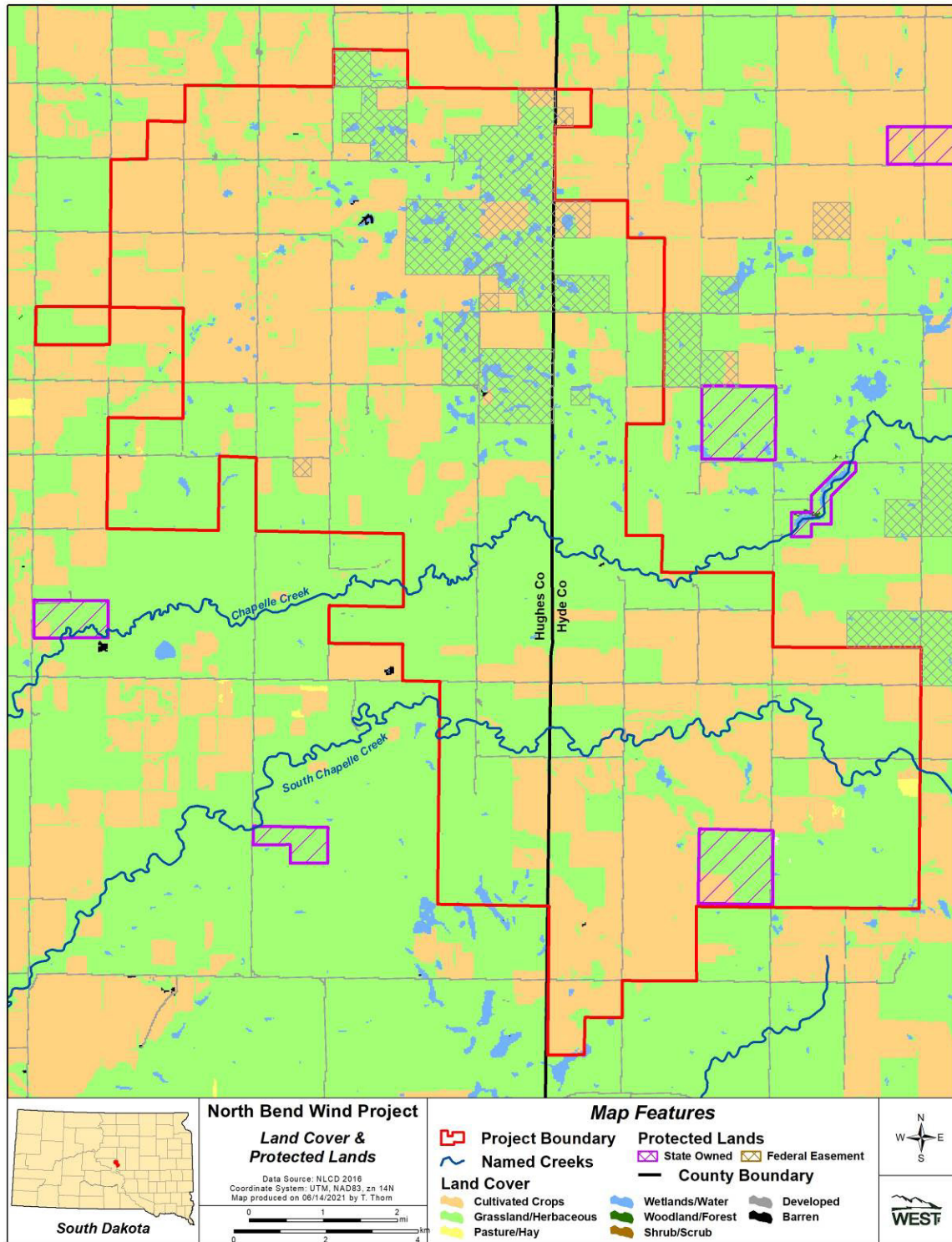


Figure 2. Land cover types and protected lands within the current North Bend Wind Project boundary located in Hughes and Hyde counties, South Dakota.

## Land Cover

Land cover types were digitized using ArcGIS (version 10.4) within the current Project area. Using US Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP [USDA 2019]) aerial imagery in combination with 2011 South Dakota Land Cover Patterns (National Land Cover Database (NLCD; 2016), USDA National Agricultural Statistics Service (NASS) National Cropland Layer (USDA NASS 2018) cropland classification, and field inspections, all lands within the current Project area were digitized and assigned one of seven cover types (Table 1). NWI data were used to represent water for the purpose of mapping within the current Project area. Water features visible on the aerial imagery, but not located in the NWI data tables, were digitized as “Wetland/Water” on the map (Figure 2).

The dominant land cover type within the current Project area is herbaceous, representing 51.9% of the land cover (9,846.3 ha [24,330.7 ac]) followed by cultivated crops (8,334.6 ha [20,595.2 ac]; 43.9%; Table 1, Figure 2). Additional land cover types included developed (389.7 ha [963.0 ac]; 2.1%) followed by herbaceous wetlands (347.7 ha [859.1 ac]; 1.8%). All remaining land cover types in the Project area were less than 0.15% (Table 1).

**Table 1. Land cover, coverage, and percent (%) composition within the North Bend Wind Project, Hughes and Hyde counties, South Dakota.**

<b>Land Cover</b>	<b>Coverage (Hectares)</b>	<b>% Composition</b>
Herbaceous	9,846.3	51.9
Cultivated crops	8,334.6	43.9
Developed	389.7	2.1
Herbaceous wetlands	347.7	1.8
Open water	29.1	0.15
Hay/Pasture	22.9	0.12
Barren land	6.6	<0.1
Shrub/Scrub	1.8	<0.1
<b>Total</b>	<b>18,978.7</b>	<b>100</b>

Source: National Land Cover Database (2016).

## AVIAN USE SURVEYS

Avian point-count surveys are the most widely used methodology for pre-construction avian use characterization and turbine siting considerations (e.g., USFWS Tier 3 studies [USFWS 2012]) because of their effectiveness and efficiency for characterizing the use of selected sites by a broad spectrum of diurnally active birds (Ralph et al. 1993, Strickland et al. 2011). The objective of the fixed-point avian use surveys was to estimate the seasonal and spatial use of the Project area by birds over the four-year period surveys were conducted. Project boundaries changed over time, and therefore altered avian use survey locations. Unless otherwise noted, surveys were conducted once a month for 70 minutes (min) each. Small bird species were recorded during the first 10 min of the survey period, and then only large bird species were recorded for the next 60 min. The initial 10-min surveys allowed for comparison of small use with the majority of wind projects in the region. The 60-min surveys encompassing large birds were consistent with the

ECPG and used to obtain a stronger dataset with which to evaluate large bird use, particularly for eagles.

Survey plots were selected to survey representative habitats and topography of the Project area, while meeting ECPG spatial sampling recommendations. The ECPG recommended at least 30% coverage of areas within 1.0 km (0.6 mi) of turbine locations or within the minimum convex polygon (MCP) of the complete turbine array (USFWS 2013) should be surveyed. As location of turbines were unknown at the time of sampling, survey coverage attempted to include 30% coverage of the Project area, at the time. Base on the final turbine layout survey coverage included 28.1% of the proposed MCP. Large birds observed within an 800-m (2,625-ft) plot and small birds within a 100-m (328-ft) plot were used for quantitative analysis and other comparative metrics. During surveys, locations of diurnal raptors, other large birds, and species of concern observed during surveys were recorded on field maps by unique observation numbers. Flight paths and perch locations were digitized using ArcGIS 10.4. Additionally, for all eagle observations, data were collected following ECPG methodology (USFWS 2013).

A number of avian protected or species of concern (SOC) have the potential to occur within South Dakota. This includes bald and golden eagles, two federally listed species, and four additional state-listed species (SDGFP 2014). Recently the USFWS has updated the Birds of Conservation Concern (BCC) for each BCR (USFWS 2021). There are 34 BCC species and 8 Tier 2a South Dakota species of greatest conservation need (SDGFP 2014).

The Project area has shifted numerous times during development (Figure 3) due to various logistic constraints. As such, avian use information from 2016 to 2019 is synthesized to provide a high level overview of the methods and results as limited sampling points overlap the most recent and constricted Project area. The conclusion of this section provides preliminary survey results of ongoing avian use efforts focused on the southern portion of the current proposed Project area.

### **Fixed-point Survey Efforts (2016 – 2017)**

The following provides a summary of the avian use survey effort conducted April 18, 2016 – March 28, 2017 within the current Project area (Figure 3). Surveys covered approximately 34% of the 2016 Project area (Figure 3). During this effort, surveys were conducted for 60 min at each survey point location with all birds recorded for the first 20 min and only large birds recorded for the following 40 min. While this methodology differs from later surveys, results from these previous efforts can provide general information on species composition and diversity within the current Project area. Sixty hours (hr) of surveys were completed at five point count locations. This effort resulted in 41 unique species being observed during surveys, regardless of bird size, with horned lark (*Eremophila alpestris*; 387 observations, 9 groups), Canada goose (*Branta canadensis*; 201, 5), and Franklin's gull (*Leucophaeus pipixcan*; 95, 1), being the most commonly observed species. Northern harrier (*Circus hudsonius*; 4, 4), bald eagle (*Haliaeetus leucocephalus*; 1, 1) and merlin (*Falco columbarius*; 1, 1) were the only identified diurnal raptors during surveys. No golden eagles (*Aquila chrysaetos*) were documented during survey effort. No federally or state-listed species were observed during surveys.

### Fixed-point Survey Efforts (2018 – 2019)

The following provides a summary of avian use survey effort conducted January 23, 2018 – January 14, 2019 within the current Project area (Figure 3). There were 27 survey locations resulting in 324 fixed-point surveys completed for each large and small bird surveys. This effort resulted in 60 unique large bird species being observed. The most commonly recorded large bird species were snow goose (*Anser caerulescens*; 19,515 observations, 19 groups), Canada goose (6,007, 31), and greater white-fronted goose (*A. albifrons*; 4,870, 14). Nine diurnal raptor species were documented during surveys with northern harrier (*Circus hudsonius*; 17, 17) as the most frequently recorded species. For small birds, western meadowlark (*Sturnella neglecta*; 197, 102) was the most regularly observed species, followed by red-winged blackbird (*Agelaius phoeniceus*; 91, 25), and brown-headed cowbird (*Molothrus ater*; 90, 31). Six golden eagles and four bald eagles were documented during survey efforts. No federally or state-listed species were observed while conducting surveys.

### Fixed-point Survey Efforts (2019 – 2020)

Surveys were conducted from April 5, 2019 – March 31, 2020 at 19 survey points (Figure 3). There were 212 fixed-point surveys completed for each large and small bird survey. Sixty unique species were recorded during surveys including 38 unique large bird and 22 unique small bird species. The most common large bird species were sandhill crane (*Antigone Canadensis*; 2,950 observations, 15 groups), Canada goose (674, 26), and mallard (*Anas platyrhynchos*; 175, 45). The most abundance raptors identified within the Project area were red-tailed hawk (*Buteo jamaicensis*; 48, 30) followed by northern harrier (16, 15). Red-winged blackbird (714, 84), brown-headed cowbird (274, 58), and western meadowlark (251, 145) were the most frequently recorded small bird species. One bald eagle was observed during fixed-point surveys. No other eagle, federal- or state-listed species were observed while conducting surveys within the Project area during the 2019 – 2020 survey year. There were four species that are identified as both BCC and SGCN including marbled godwit (*Limosa fedoa*; 22 observations), black tern (*Chlidonias niger*; 16), greater prairie-chicken (*Tympanuchus cupido*; 1), and chestnut-collared longspur (*Calcarius ornatus*; 11). Five species identified are categorized as BCC species only including: Franklin's gull (65 observations), northern harrier (27), bobolink (*Dolichonyx oryzivorus*; 73), grasshopper sparrow (*Ammodramus savannarum*; 36), and red-headed woodpecker (*Melanerpes erythrocephalus*; 2). There was also lark buntings observed (*Calamospiza melanocorys*; 45 observations) which is categorized as a SGCN species only.

### Fixed-point Survey Efforts (2020 – 2021)

Surveys were conducted from April 6, 2020 through March 13, 2021 at 23 survey points (Figure 3). There were 276 fixed-point surveys completed for large and small birds each. Sixty-nine unique species were recorded during surveys, including 37 unique large bird and 32 unique small bird species. For large birds, the most common species recorded included Canada goose (589 observations, 27 groups), snow goose (428, 6) and sandhill crane (94, 5). Five diurnal raptor species were identified within the Project area, with northern harrier (31, 31) and red-tailed hawk (25, 25) being the most abundant. For small bird species, red-winged blackbirds (211 observations, 39 groups), western meadowlark (192, 192), horned lark (177, 38) and brown-

headed cowbird (101, 22) were the most common. No eagle, federal- or state-listed species have been observed while conducting surveys within the Project area during this effort. There were three species that are identified as both BCC and SGCN including marbled godwit (1 observation), black tern (5), and chestnut-collared longspur (26). Five species identified are categorized as BCC species only including: Franklin's gull (9 observations), northern harrier (31), bobolink (4), grasshopper sparrow (56), and red-headed woodpecker (4).

### **Fixed-point Survey Efforts (2021 - 2022): Ongoing**

An additional 11 points were surveyed in the southern portion of the Project area (Figure 3; orange squares in 2019 for a brief time but were later stopped due to anticipated project development. In early 2021, it was determined that there could be potential development in this area again. These 11 survey locations were again surveyed starting February 25, 2021, and this summary includes preliminary data collected through April 2021. There were 33 fixed-point surveys completed for each large and small bird survey. Forty-four unique species were recorded during surveys including 28 unique large bird and 16 unique small bird species. The most common large bird species were Franklin's gull (153 observations, 3 groups), Canada goose (100, 5), and ring-necked pheasant (*Phasianus colchicus*; 21, 19). The most abundance raptors identified within the Project area were red-tailed hawk (9, 9) followed by northern harrier (4, 4). Red-winged blackbird (71, 10), western meadowlark (57, 57), and brown-headed cowbird (53, 20) were the most frequently recorded small bird species. No eagles, federal- or state-listed species were observed while conducting surveys within the Project area during this survey effort. There were two species that are identified as both BCC and SGCN including marbled godwit (7 observations) and chestnut-collared longspur (24). Four species identified are categorized as BCC species only including: Franklin's gull (153 observations), northern harrier (4), bobolink (4), and grasshopper sparrow (11).

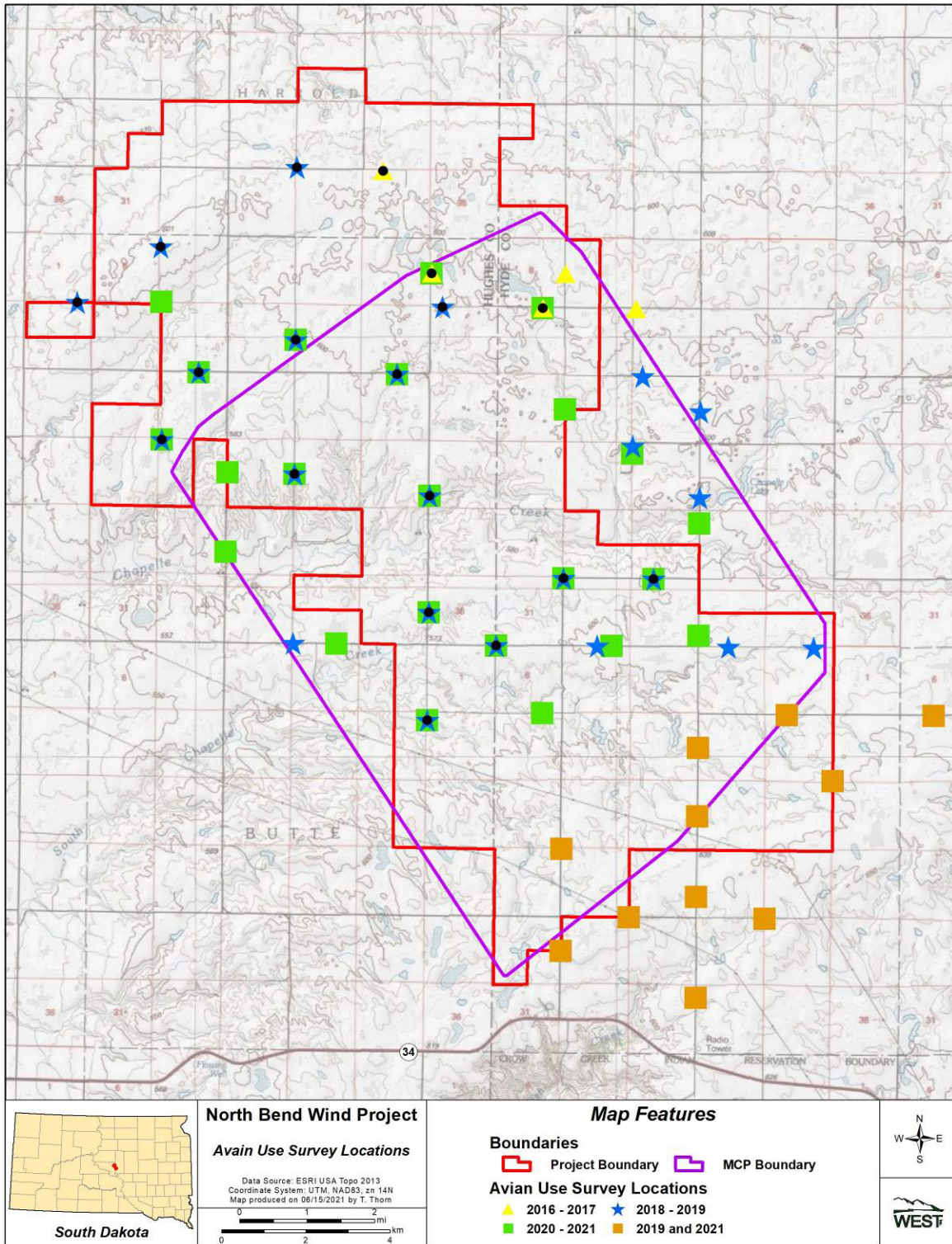


Figure 3. Location of fixed-point avian use survey stations completed in from 2016 – 2021 throughout the North Bend Wind Project boundary located in Hughes and Hyde counties, South Dakota. The MCP Boundary (purple outline) encapsulates the final proposed turbine layout.



## RAPTOR NEST SURVEYS

Raptor nest surveys were conducted in the spring of 2016, 2018, 2019, and 2020. The objectives of the nest surveys were to gather information on eagle nest locations and other raptor species nesting in the area, which may be subject to disturbance or displacement effects from wind facility construction and operation. Surveys were conducted within the Project area and a 1.0-mi buffer for all raptors. Due to various guidance from USFWS over the past several years, additional eagle nest survey efforts have included various buffers from 16.1-km (10-mi; USFWS 2013), 6.4-km (4-mi; USFWS 2020b) and 3.2-km (2-mi; USFWS 2020c). For the purposes of this section, the current 2-mi buffer was used to summarize the results of these efforts. Prior to the surveys, topographic and aerial maps were evaluated to determine where raptor and eagle nesting habitat is likely to occur (e.g., riparian habitat along creeks, open lakes with large trees) so these areas could be targeted during the aerial surveys. A biologist conducted the surveys in a helicopter operated by a pilot experienced in conducting low-altitude wildlife surveys. Surveys were generally conducted on days with good visibility and no precipitation. The locations of all raptor nests and survey paths were recorded using a hand-held onboard Global Positioning System (GPS) receiver.

For all raptor and eagle nest structures detected, the biologist recorded nest location coordinates with the GPS receiver, species present (if any), condition of the nest, presence of eggs or young (if present and visible), and the substrate of the nest (e.g., tree, power pole, rock outcrop). The status of each nest was determined as either: Occupied – an adult in incubating position, eggs, nestlings or fledglings, a newly constructed or refurbished stick nest and/or the presence of one or more adults on or immediately adjacent to the nest structure(s), or Unoccupied – a nest with no evidence of recent use, or attendance by adult raptors. Efforts were made to minimize disturbance to nesting raptors, livestock, or occupied dwellings to the greatest extent possible. Photographs were taken of possible eagle nests.

### 2016 Surveys

Aerial surveys were conducted from March 28 – April 1, 2016, to search for eagle and raptor nests. During the 2016 aerial survey, three raptor nests were documented within the Project area (Figure 4; Table 2). Two nests were occupied by red-tailed hawks, while one nest was inactive. No eagle or potential eagle nests were located within the Project area and 2-mi buffer.

**Table 2. Location of raptor nest sites observed during 2016 surveys located in the current North Bend Wind Project and surrounding 3.2-kilometer (2.0-mile) buffer, Hughes and Hyde counties, South Dakota.**

Nest ID	Northing	Easting	Species <sup>1</sup>	2016 Status
1	442383	4922347	RTHA	Occupied
2	444594	4919242	UNRA	Unoccupied
16	444423	4925361	RTHA	Occupied

<sup>1</sup> RTHA = red-tailed hawk, UNRA = unknown raptor.

ID = Identification.

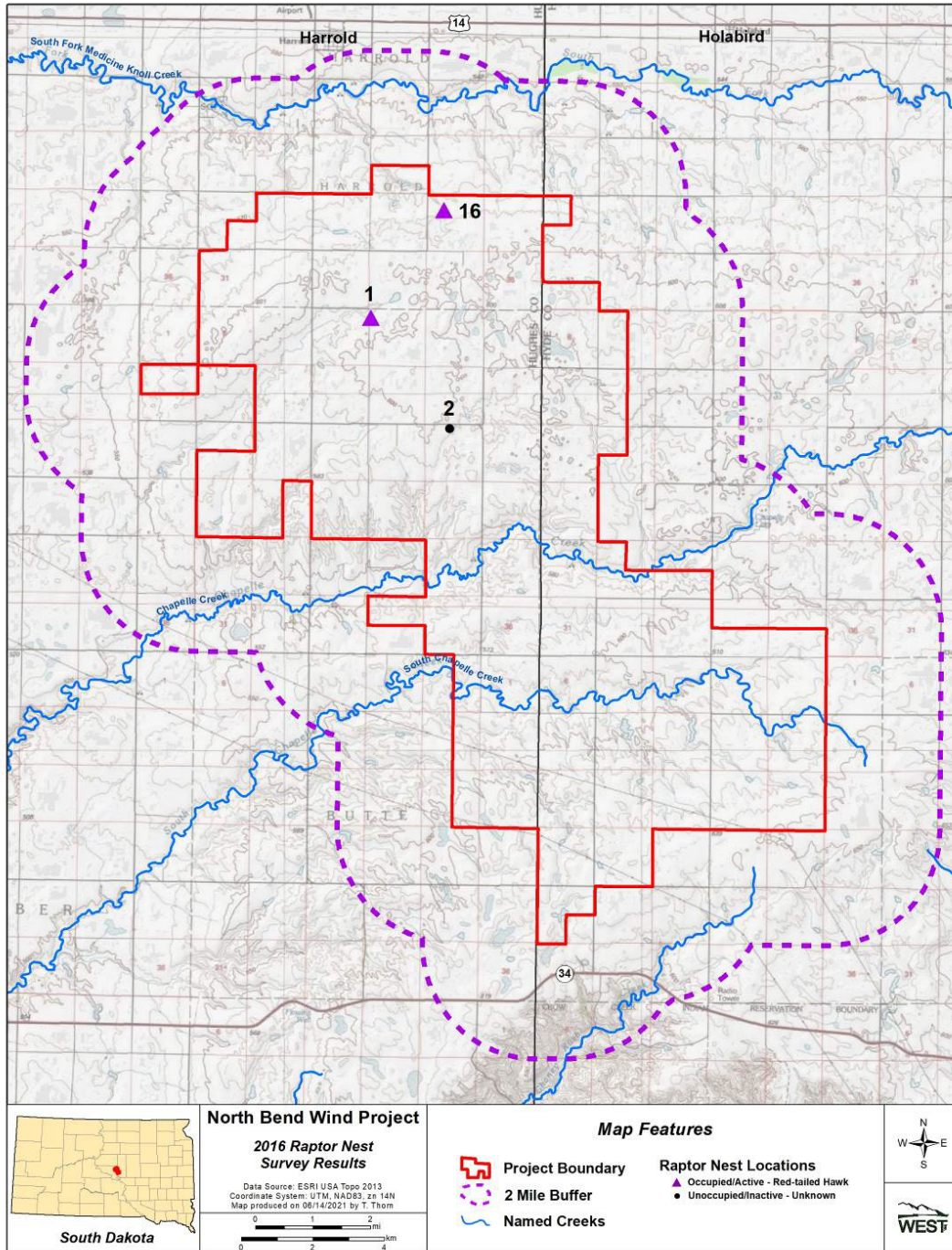


Figure 4. Location of raptor nests identified during surveys in 2016 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota.

## 2018 Surveys

An aerial survey for raptor nests was completed for the Project from March 9 – 14, 2018, with follow-up ground surveys conducted in conjunction with other work in May 2018. During these surveys, 15 raptor nests were identified (Figure 5). All three of the previously documented nests from 2016 were re-visited; one was confirmed occupied with a great-horned owl (*Bubo virginianus*) and two could not be relocated. No potential eagle nests were identified within the Project area or 2-mi buffer. Nine of the 15 nests were classified as unoccupied nests of unknown raptor. The remaining occupied nests included four great-horned owls, one Swainson’s hawk (*Buteo swainsoni*), and one red-tailed hawk (Table 3).

**Table 3. Location of raptor nest sites surveyed and/or observed during 2018 surveys located in the current North Bend Wind Project and surrounding 3.2-kilometer (2.0-mile) buffer, Hughes and Hyde counties, South Dakota.**

Nest ID	Northing	Easting	Species <sup>1</sup>	2018 Status
1	442383	4922347	GHOW	Occupied
2	444594	4919242	DNL	n/a
17 <sup>2</sup>	444423	4925361	DNL	n/a
19	447561	4925661	UNRA	Unoccupied
30	448709	4915493	GHOW	Occupied
46	451315	4923410	UNRA	Unoccupied
47	450147	4927430	UNRA	Unoccupied
48	450012	4916820	UNRA	Unoccupied
53	452476	4916512	UNRA	Unoccupied
58	445523	4914147	UNRA	Unoccupied
59	435866	4923410	UNRA	Unoccupied
60	437402	4918910	UNRA	Unoccupied
61	438491	4919700	GHOW	Occupied
62	443789	4915766	UNRA	Unoccupied
63	446691	4925852	GHOW	Occupied
69	448861	4910473	RTHA	Occupied
70	443433	4906458	SWHA	Occupied

<sup>1</sup>DNL = did not locate, GHOW = great horned owl, UNRA = unknown raptor, RTHA = red-tailed hawk, SWHA = Swainson’s hawk.

<sup>2</sup> Originally labeled Nest ID 16 in 2016 survey efforts.

ID = Identification.

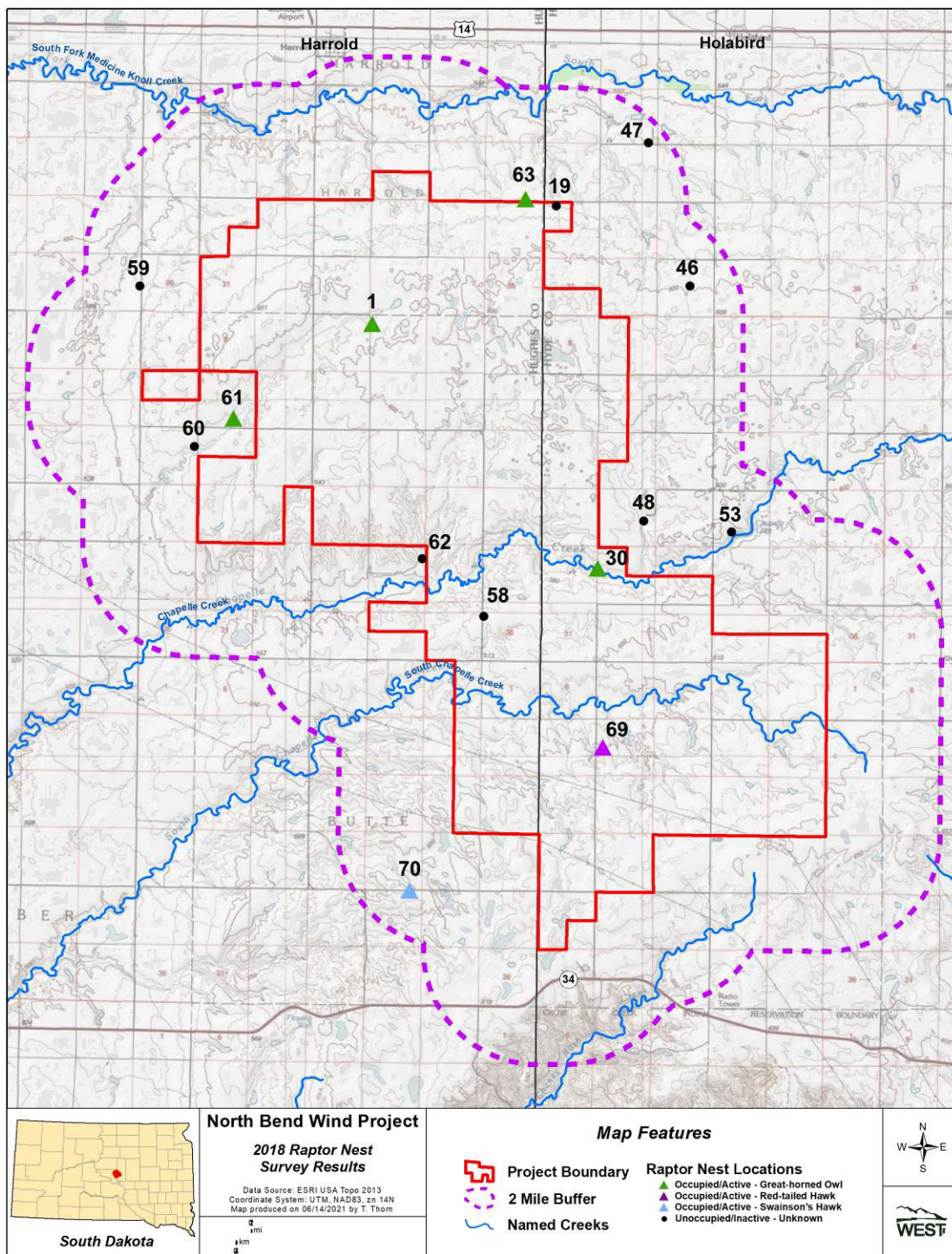


Figure 5. Location of raptor nests identified during surveys in 2018 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota.

## 2019 Surveys

Two aerial surveys for the Project were conducted on March 26 and April 16 – 17, 2019. Eighteen nests were documented during surveys (Figure 6) and seven previously identified nests were either not present or excluded from surveys due to safety considerations (Figure 6; No Fly Areas). Eleven nests were determined to be occupied with adults in the nest, perched in the same tree, or eggs in the nest. Seven nests were considered unoccupied as no activity was recorded during either survey in accordance with the ECPG (Figure 6; Table 4). Of occupied nests, five were occupied by great horned owl, one by ferruginous hawk (*Buteo regalis*), three by red-tailed hawk, and two by unidentified raptors (eggs were present in the nest or adults were not identified; Table 4). No eagle or potential eagle nests were identified within the Project area or 2-mi buffer.

**Table 4. Location of raptor nest sites surveyed and/or observed during 2019 surveys located in the current North Bend Wind Project and surrounding 3.2-kilometer (2.0-mile) buffer, Hughes and Hyde counties, South Dakota.**

Nest ID	Northing	Easting	Species	2019 Status
2	444594	4919242	DNL	n/a
17	444423	4925361	DNL	n/a
19	444179	4925747	DNL	n/a
30	448709	4915493	UNRA	Occupied
46	451315	4923410	UNRA	Unoccupied
47	450147	4927430	GHOW	Occupied
48	450012	4916820	DNL	n/a
56	459961	4913766	DNL	n/a
58	445523	4914147	UNRA	Unoccupied
59	435866	4923410	DNL	n/a
60	437402	4918910	UNRA	Unoccupied
61	438491	4919700	GHOW	Occupied
62	443789	4915766	RTHA	Occupied
63	446691	4925852	DNL	n/a
70	443433	4906458	UNRA	Unoccupied
73	437079	4918884	UNRA	Unoccupied
75	447665	4925512	RTHA	Occupied
86	447117	4911890	RTHA	Occupied
87	442263	4909846	FEHA	Occupied
89	440967	4914462	GHOW	Occupied
90	439921	4917768	UNRA	Occupied
91	439620	4917741	GHOW	Occupied
92	456143	4916029	GHOW	Occupied
94	437892	4926281	UNRA	Unoccupied
95	435635	4920750	UNRA	Unoccupied

<sup>1</sup>: DNL = did not locate, UNRA = unknown raptor, GHOW = great horned owl, RTHA = red-tailed hawk, FEHA = ferruginous hawk.

ID = Identification.

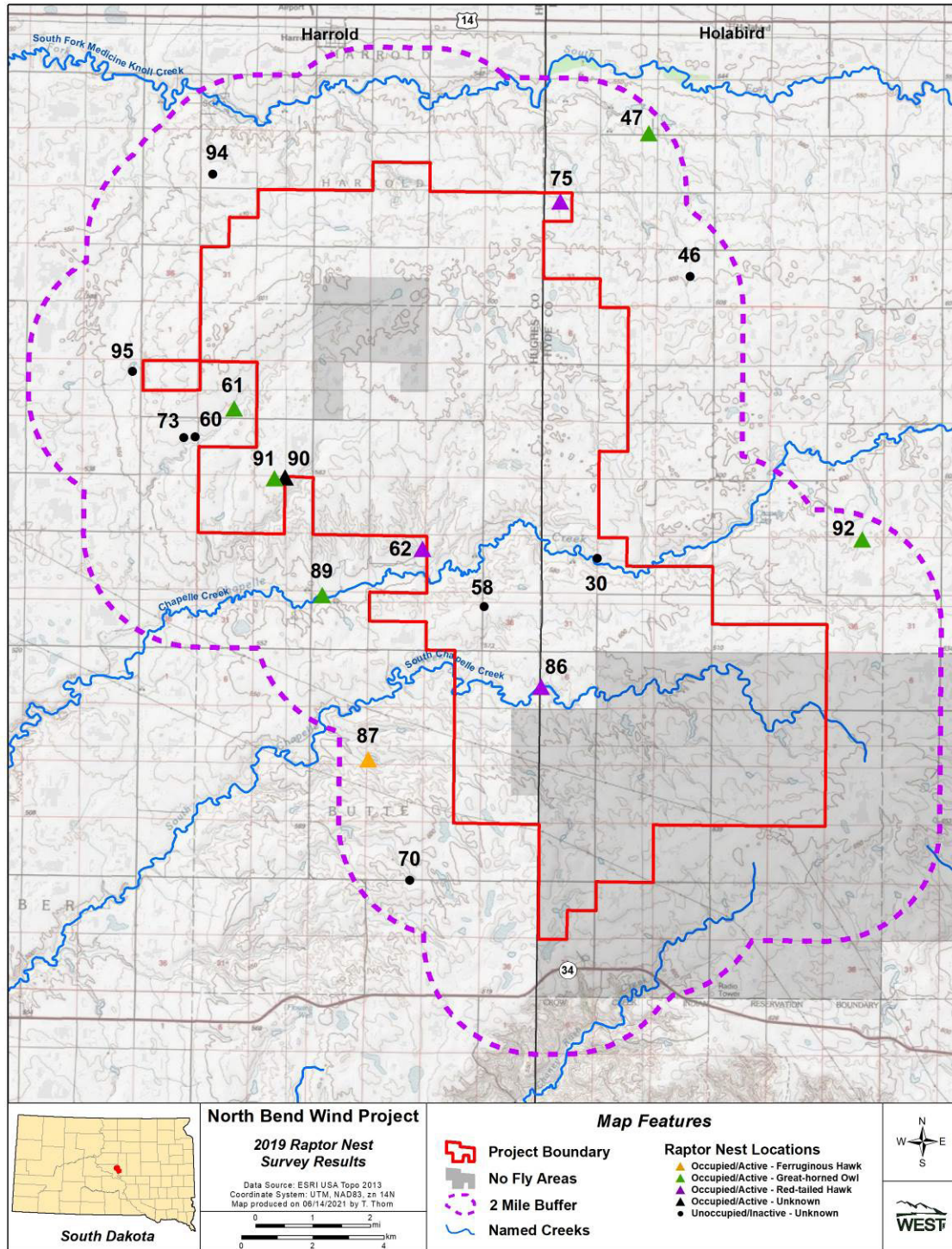


Figure 6. Location of raptor nests identified during surveys in 2019 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota. Shaded “No Fly Areas” included lands not surveyed in 2019.

**2020 Surveys**

Three surveys for the Project area were conducted on March 2 – 3, March 12 and 20, and April 20, 2020. Thirty-five nests were documented during surveys. Nineteen nests were previously identified within the Project and associated 2-mi buffer, and four previously identified nests were either not present or excluded from surveys due to safety considerations. Of the 35 observed nests, seven were occupied by red-tailed hawks, five by great horned owls, and one by ferruginous hawks. One occupied nests could not be identified to species (i.e., unknown raptor). Of special interest, two nest locations were used by two different species (Table 5, Figure 7). Nest ID 62 and 90 were first occupied by great horned owls and then by red-tailed hawks. A final nest (Nest ID 108) was a raptor stick nest with a Canada goose occupying the nest. The remaining nests were considered unoccupied as no activity was recorded during either survey in accordance with the ECPG (Figure 7). No eagle or potential eagle nests were identified within the Project area or 2-mi buffer. Table 5 presents a cumulative summary of survey results in 2016, 2018, 2019, and 2020 for occupied nests within the Project area and 2-mi buffer.

**Table 5. Yearly summary of all potential raptor nests<sup>1</sup> surveyed and/or observed during survey efforts for the North Bend Wind Project, Hughes and Hyde counties, South Dakota<sup>2</sup>.**

<b>Nest ID</b>	<b>Northing</b>	<b>Easting</b>	<b>2016 Status</b>	<b>2018 Status</b>	<b>2019 Status</b>	<b>2020 Status</b>
1	442383	4922347	RTHA	GHOW	n/a <sup>3</sup>	n/a
2	444594	4919242	UNRA	DNL	DNL	n/a
16 <sup>4</sup>	444423	4925361	RTHA	DNL	DNL	n/a
19	447561	4925661		UNRA	DNL	
30	448709	4915493		GHOW	UNRA	RTHA
46	451315	4923410		UNRA	UNRA	UNRA
47	450147	4927430		UNRA	GHOW	
48	450012	4916820		UNRA	DNL	
53	452476	4916512		UNRA		RTHA
54	452741	4916572				GHOW
56	459961	4913766		UNRA	DNL	
58	445523	4914147		UNRA	UNRA	UNRA
59	435866	4923410		UNRA	DNL	n/a
60	437402	4918910		UNRA	UNRA	UNRA
61	438491	4919700		GHOW	GHOW	UNRA
62	443789	4915766		UNRA	DNL	GHOW
62	443789	4915766			RTHA	RTHA
63	446691	4925852		GHOW	DNL	
69	448861	4910473		RTHA	n/a	
70	443433	4906458		SWHA	UNRA	
73	437079	4918884			UNRA	UNRA
75	447665	4925512			RTHA	GHOW
86	447117	4911890			RTHA	RTHA
87	442263	4909846			FEHA	DNL
89	440967	4914462			GHOW	GHOW
90	439921	4917768			UNRA	GHOW
90	439921	4917768			UNRA	RTHA
91	439620	4917741			GHOW	UNRA
92	456143	4916029			GHOW	RTHA
94	437892	4926281			UNRA	UNRA
95	435635	4920750			UNRA	UNRA

**Table 5. Yearly summary of all potential raptor nests<sup>1</sup> surveyed and/or observed during survey efforts for the North Bend Wind Project, Hughes and Hyde counties, South Dakota<sup>2</sup>.**

<b>Nest ID</b>	<b>Northing</b>	<b>Easting</b>	<b>2016 Status</b>	<b>2018 Status</b>	<b>2019 Status</b>	<b>2020 Status</b>
100	452654	4916585				UNRA
101	450680	4917677				GHOW
102	437420	4918824				UNRA
103	440497	4921656				RTHA
104	440905	4910925				UNRA
106	447119	4920622				GHOW
107	444593	4919229				UNRA
108 <sup>5</sup>	452741	4916580				CAGO
109	443810	4915783				UNRA
110	448289	4920613				UNRA
111	447491	4926950				UNRA
113	450014	4916821				RTHA
114	441881	4911305				UNRA
115	443356	4906471				FEHA
116	454972	4914450				UNRA

<sup>1</sup> UNRA = unknown raptor, GHOW = great horned owl, RTHA = red-tailed hawk, SWHA = Swainson's hawk, FEHA = ferruginous hawk, CAGO = Canada goose.

<sup>2</sup> Occupied nest sites in a given year are denoted by species code of the individuals that nested there.

<sup>3</sup> n/a denotes nests no longer available (e.g., due to being in a new No Fly Zone or falling out of a tree due to winds)

<sup>4</sup> Nest ID 16 was changed to Nest ID 17 for 2018, 2019, and 2020.

<sup>5</sup> Raptor stick nest identified with a nesting Canada goose.



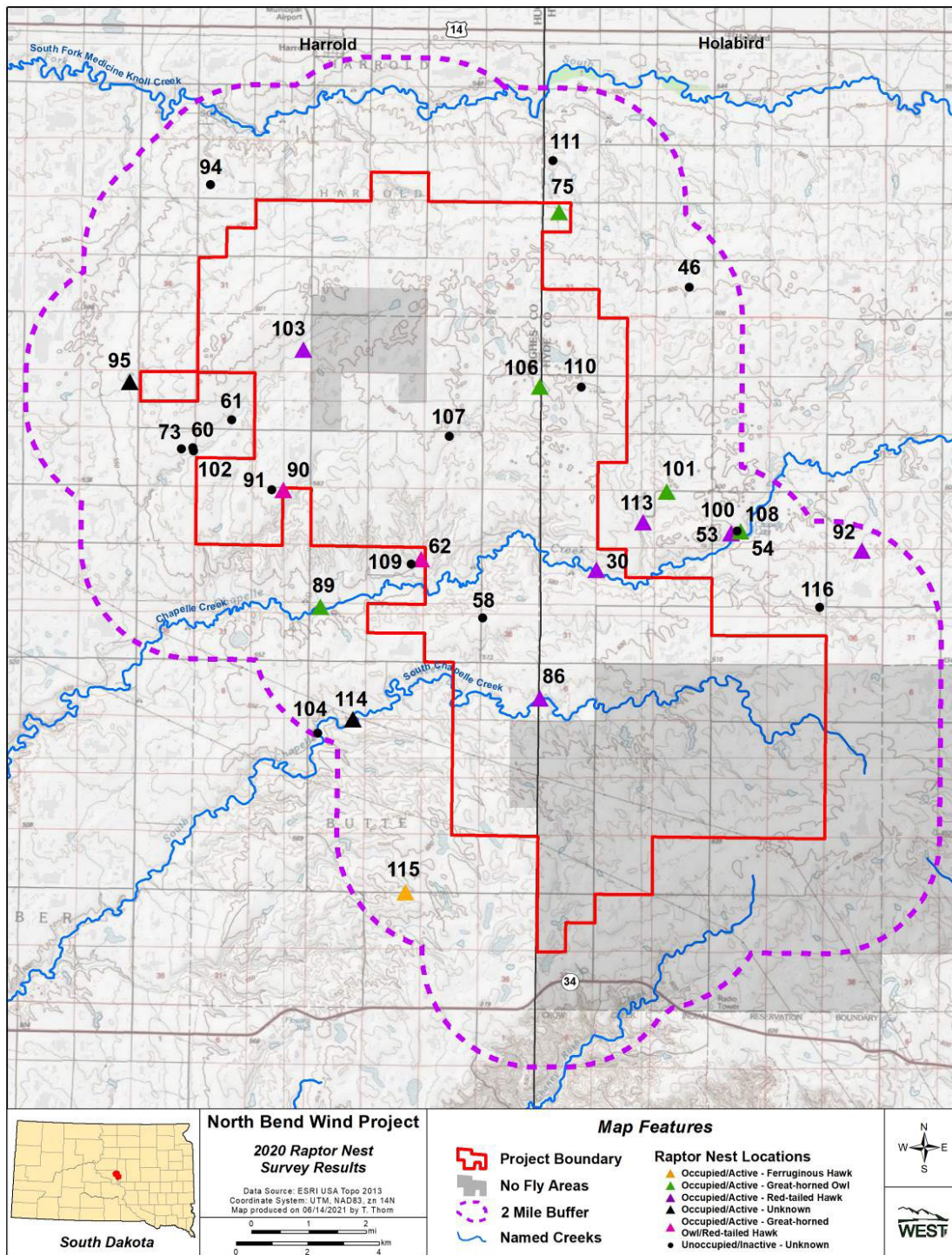


Figure 7. Location of raptor nests identified during surveys in 2020 for the North Bend Wind Project and 3.2-kilometer (km; 2.0-mile [mi]) buffer in Hughes and Hyde counties, South Dakota. Shaded “No Fly Area” included lands not surveyed in 2020.

## PRAIRIE GROUSE LEK SURVEYS

The Project area occurs within the occupied range of the greater prairie-chicken and sharp-tailed grouse (*T. phasianellus*; combined as “prairie grouse”). Greater prairie-chickens are listed as a species of greatest conservation need in South Dakota, but both species are considered upland game birds and are hunted in South Dakota (SDGFP 2014). WEST conducted surveys to document prairie grouse leks during the breeding season within the Project area. The objective of the prairie grouse lek surveys was to identify potential leks and determine status of each to help inform Project siting decisions. These surveys were conducted in 2016, 2018, 2019, and 2020 and followed Project changes as described above in “Avian Use Surveys” for their respective years (Figure 3).

Surveys were conducted three times from late March to the end of the first week of May each year (with the exception of 2019 surveys) and included their respective Project areas and 1.6-km (1.0-mi) buffer. Surveys began approximately 30 min prior to sunrise until 90–120 min after sunrise. To the extent possible, all surveys were conducted on relatively calm mornings (winds less than 24–32 km [15–20 mi] per hr) and on days with no precipitation. Surveys were conducted to document the presence and the number of male and female birds attending leks. Because both sharp-tailed grouse and greater prairie-chickens are found within the area, identification of species during the survey was recorded, when possible. Information collected during all surveys included date, time, temperature, cloud cover, precipitation, and observer(s).

The SDGFP defines a lek as “a traditional display area where two or more male sage-grouse have attended in two or more of the previous five years” (Connelly et al. 2003). “Active leks” are locations where two or more birds have been observed or heard in courtship behavior during more than one survey period. “Potential leks” are locations where birds have been observed or heard engaging in courtship behavior during only one survey period, where birds were observed in more than one survey period but not in courtship behavior, or where number of birds could not be confirmed (e.g., heard at least one bird). If no birds were seen or heard in any of the three surveys, the lek was classified as inactive for the season. Results include a cumulative summary of all survey efforts across years as it relates to the current Project area and 1-mi buffer (Figure 8).

### Aerial Surveys

Aerial surveys were conducted in 2016 and 2018 with a Cessna 172. Surveys included north/south transects across the Project area and 1-mi buffer spaced approximately 0.40 km (0.25 mi) apart at an altitude of approximately 30–45 m (100–150 ft) above ground level. An onboard GPS unit was used to keep the plane on transect, document lek locations, and record daily flight paths. Biologists recorded the number of birds on the lek and whether occupied by greater prairie-chicken or sharp-tailed grouse. The following characteristics were used to distinguish between these species from the air: a square-tail shape and dark, blocky body for greater prairie-chickens versus a pointed-tail shape with white under tail coverts and lighter body color for sharp-tailed grouse.

## **Ground Surveys**

Ground visits were conducted in 2019 and 2020 by traveling publically accessible roads (or roads where permission was previously obtained) throughout the Project area and 1-mi buffer. During ground visits, the following information was recorded and included lek ID, location, species, type of detection (auditory or visual), number of males (if possible), and number of females (if possible). If a new lek was identified during this effort it was documented with the same information and identified using a new unique lek ID.

Sixteen prairie grouse leks were identified during a combination of aerial surveys and ground lek visits during the 2016, 2018, 2019, and 2020 breeding season within the Project area and 1-mi buffer (Figure 8). One lek location was active in 2016, fourteen in 2018, six in 2019, and eight in 2020 (Table 6). Of these active and potential leks, all were greater prairie-chicken leks (Table 6).

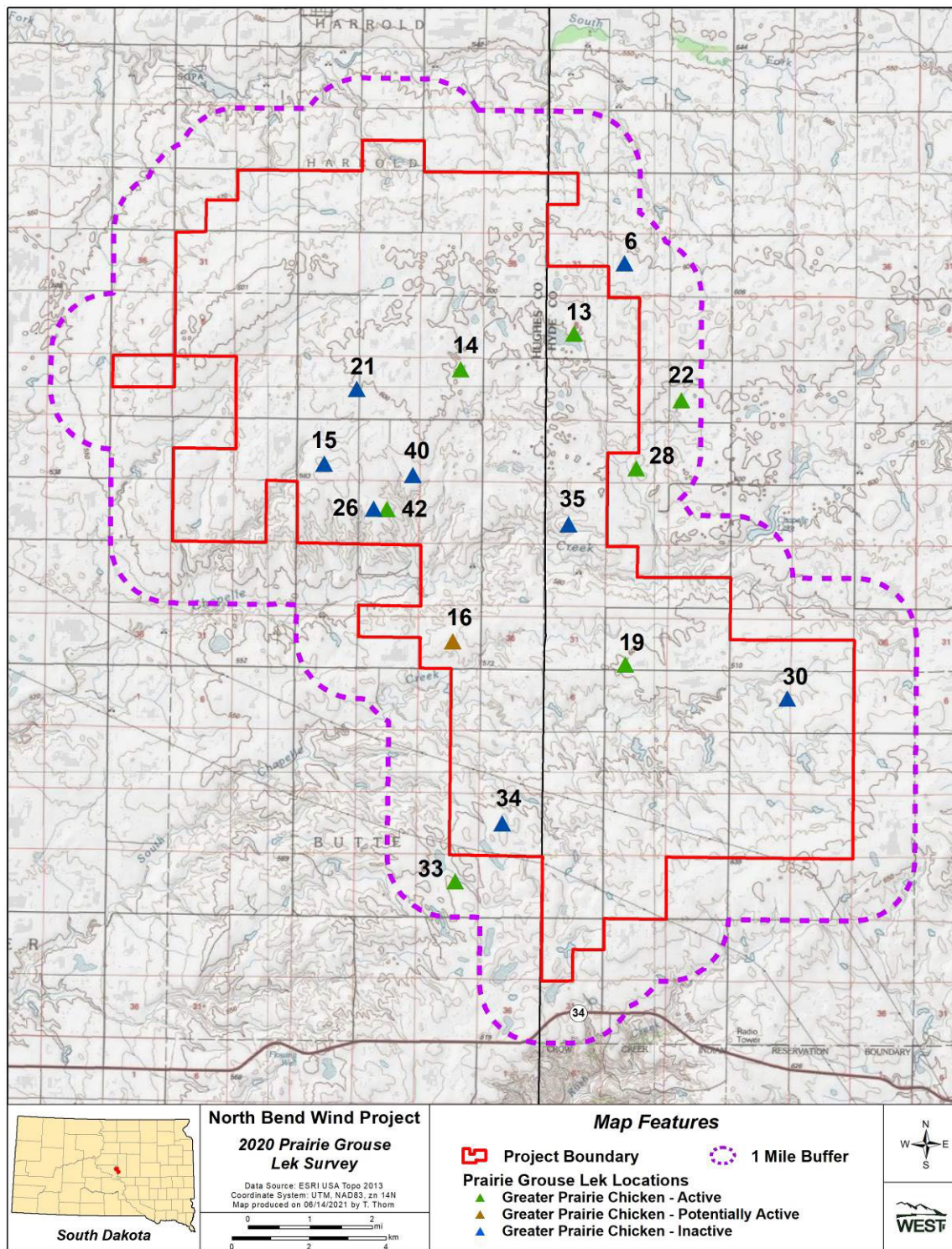


Figure 8. Location and 2020 status of potential prairie grouse leks identified during surveys within the North Bend Wind Project and 1.6-kilometer (1.0-mile) buffer from the 2016, 2018, 2019, and 2020 breeding seasons, Hughes and Hyde counties, South Dakota.

**Table 6. Location and maximum number of prairie grouse observed at potential leks during surveys for the current North Bend Wind Project and 1.6-kilometer (1.0-mile) buffer, Hughes and Hyde counties, South Dakota.**

Lek ID	Northing	Easting	Species	2016 Status	2018 Status	2019 Status	2020 Status	Grouse # (2020)
6	449195	4923428	GRPC	active	inactive	inactive	Inactive	0
13	447884	4921599	GRPC	NA	active	active	Active	5
14	444949	4920674	GRPC	NA	active	active	Active-Auditory Only	at least 3
15	441411	4918223	GRPC	NA	active	inactive	Inactive	0
16	444744	4913615	GRPC	NA	active	active-auditory only	Potentially Active	at least 1
19	449214	4913008	GRPC	NA	active	active	Active	4
21	442248	4920168	GRPC	NA	active	inactive	Inactive	0
22	450661	4919869	GRPC	NA	active	inactive	Active-Auditory Only	at least 2
26	442688	4917054	GRPC	NA	active	inactive	Inactive	0
28	449496	4918102	GRPC	NA	active	inactive	Active	5
30	453409	4912128	GRPC	NA	active	inactive	Inactive	0
33	444800	4907382	GRPC	NA	active	active	Active-Auditory Only	unknown
34	446025	4908887	GRPC	NA	active	inactive	Inactive	0
35	447735	4916644	GRPC	NA	active	inactive	Inactive	0
40	443708	4917928	GRPC	NA	active	inactive	Inactive	0
42	443038	4917050	GRPC	NA	NA	active	Active-Auditory Only	at least 3

ID = identification; GRPC = greater prairie-chicken

## BAT ACOUSTIC SURVEYS

WEST conducted acoustic monitoring studies to estimate levels of bat activity within the Project area from May 26 through October 21, 2016 and April 25 – October 25, 2018 at three locations (two cropland [representative of the Project area] and one bat feature). The bat feature included proximity with water features, trees, hedge rows, and other bat-associated habitats. AnaBat™ SD2 ultrasonic bat detectors (Titely Scientific™, Columbia, Missouri) were placed 1.5 m (5.0 ft) above the ground, to minimize insect noise were used during the study. Studies of bat activity followed the recommendations of the WEG (USFWS 2012) and Kunz et al. (2007), detectors were programmed to turn on approximately 30 min before sunset and turn off approximately 30 min after sunrise each night. The study was divided into two primary seasons (summer and fall). WEST defined the fall migration period FMP as a standard for comparison with activity from other wind energy facilities. During the FMP (July 30 – October 14), bats begin moving toward wintering areas, and many species of bats initiate reproductive behaviors (Cryan 2008). This period of increased landscape-scale movement and reproductive behavior is often associated with increased levels of bat fatalities at operational wind energy facilities (WEST 2019).

For each survey location, bat passes were sorted into two groups based on their call's minimum frequency. High-frequency (HF) bats, such as eastern red bats (*Lasiurus borealis*) and *Myotis* species (such as northern long-eared bat [NLEB; *M. septentrionalis*]) have minimum frequencies greater than 30 kilohertz (kHz). Low-frequency (LF) bats, such as big brown bats (*Eptesicus fuscus*), silver-haired bats (*Lasionycteris noctivagans*), and hoary bats (*L. cinereus*), typically emit echolocation calls with minimum frequencies below 30 kHz.

### Summarized Results

Summarized results of these efforts included three general trends. First overall bat activity varied by season with lower activity recorded in the summer and higher activity in the fall. Secondly, at all stations and frequencies, bat passes peaked during the first half of September. Finally, the bat feature recorded more bat passes/detector night than in the cropland as was expected. However, there was little variation in overall activity between seasons in croplands.

There was some variation between years in the composition of HF and LF activity. In 2016, there were more HF bat passes recorded while in 2018 more LF bat passes were recorded (Table 7). Generally, there was less activity in 2018 than in 2016.

**Table 7. Results of bat activity surveys conducted at stations within the North Bend Wind Project area, Hughes and Hyde counties, South Dakota, from May 26 – October 21, 2016, and April 25 – October 25, 2018. Passes are separated by call frequency: high frequency (HF) and low frequency (LF).**

Year	Station	Type	# of HF Bat Passes	# of LF Bat Passes	Total Bat Passes	Detector-Nights	Bat Passes/Night <sup>1</sup>
2016	West	representative	49	53	102	61	1.67 ± 0.44
	East	bat feature	128	95	223	95	2.35 ± 0.37
<b>Total</b>			<b>177</b>	<b>148</b>	<b>325</b>	<b>156</b>	<b>---</b>

**Table 7. Results of bat activity surveys conducted at stations within the North Bend Wind Project area, Hughes and Hyde counties, South Dakota, from May 26 – October 21, 2016, and April 25 – October 25, 2018. Passes are separated by call frequency: high frequency (HF) and low frequency (LF).**

Year	Station	Type	# of HF Bat Passes	# of LF Bat Passes	Total Bat Passes	Detector-Nights	Bat Passes/Night <sup>1</sup>
2018	West	representative	5	12	17	151	0.11 ± 0.04
	East	bat feature	54	79	133	127	1.05 ± 0.20
<b>Total</b>			<b>59</b>	<b>91</b>	<b>150</b>	<b>278</b>	<b>---</b>

<sup>1</sup>± bootstrapped standard error.

---Total not given due to differences in how stations were selected and their objectives.

Use of bat activity to predict post-construction mortality is difficult to relate and lacks any direct relationship based on pre-construction survey efforts (Solick et al. 2020). Furthermore, there is some evidence that activity increases from pre-construction to post-construction. Acoustic surveys can provide some level of species composition including the presence of HF bats within the Project area and possible presence of listed species such as NLEB. Though the study was not designed to survey specifically for NLEB, the presence of HF bats along with a habitat assessment for the species (see below) may help inform siting decisions for the Project.

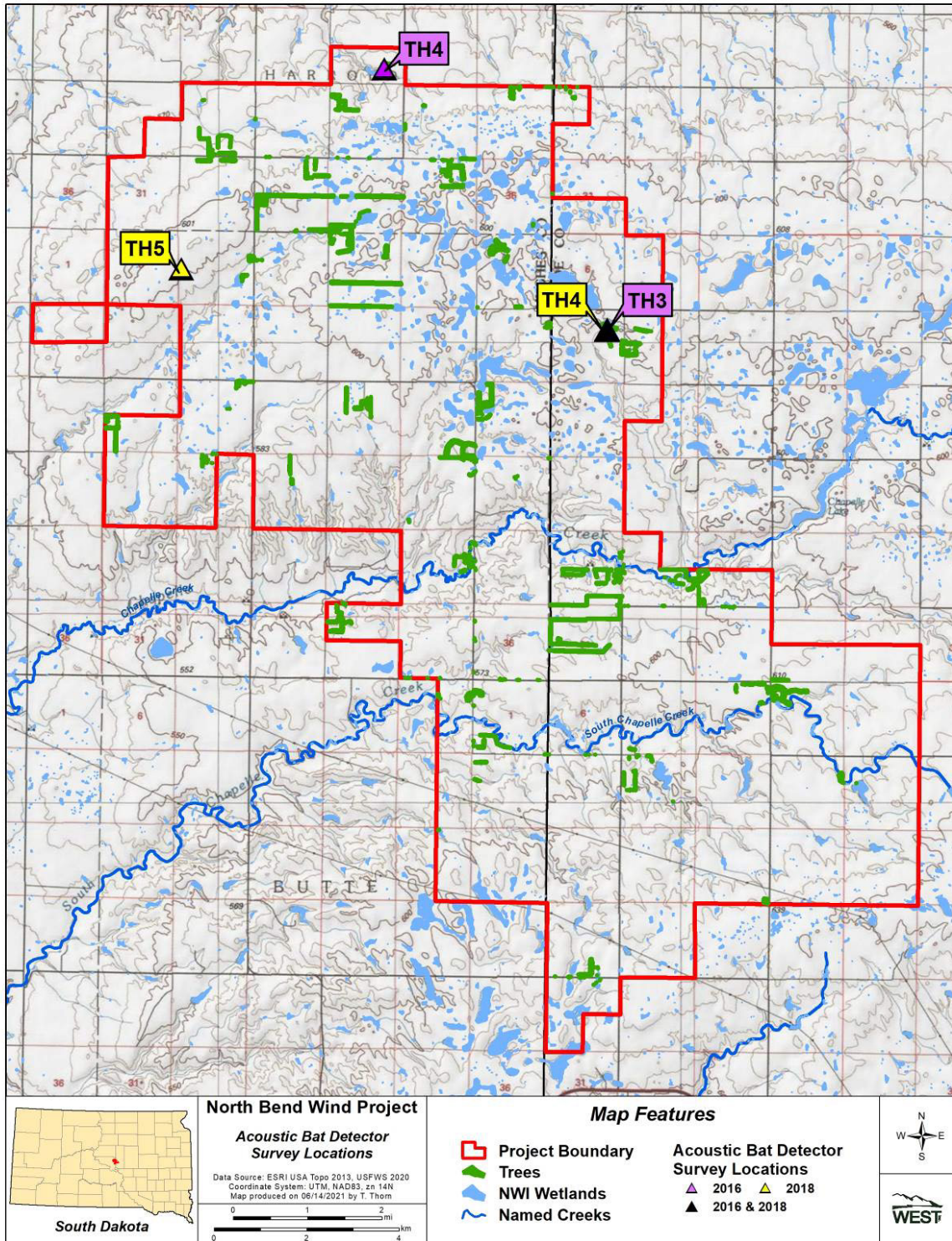


Figure 9. Location of AnaBat detectors deployed during 2016 and 2018 within the North Bend Wind Project boundary in Hughes and Hyde counties, South Dakota.



## NORTHERN LONG-EARED BAT HABITAT ASSESSMENT

The NLEB is listed as a federally threatened species. The range of the NLEB is considered to be across all of South Dakota, including Hughes and Hyde counties. A desktop assessment of the presence of potentially suitable habitat for the NLEB was conducted across the Project area in 2017 and updated in 2020 using the USFWS 2020 *Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2020a; Figure 8). Suitable habitat for this species consists of forested areas where bats might roost, forage, and commute between roosting and foraging sites. NLEB primarily forage or travel in forest habitat and are typically constrained to forest features (Boyles et al. 2009). Therefore, habitat suitability was evaluated based primarily on the presence of forested areas that NLEB might use for roosting and foraging.

WEST conducted a desktop assessment of potentially suitable NLEB habitat by reviewing the NLCD within a 4.0-km (2.5-mi) buffer of the Project area, and delineating potential suitable habitat types (i.e., deciduous forest, evergreen forest, mixed forest, and woody wetlands) using ArcGIS (version 10.4). The habitat delineations were then cross-checked and edited based on the most recent publicly available aerial imagery from the USDA NAIP for the Project area. The overall habitat layer was edited to remove areas that had been cleared of trees and to refine habitat boundaries. Narrow commuting corridors not captured by the NLCD were also added based on the aerial imagery.

Once the desktop assessment was completed, a habitat analysis was conducted to assess connectivity of suitable foraging habitats (i.e., woodlots, forested riparian corridors, and natural vegetation communities adjacent to these habitats), roosting habitats, and commuting habitats (i.e., shelterbelts/tree-lines, wooded hedgerows) as suggested in the USFWS Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects (USFWS 2011). The guidance suggests assessing the potential presence of Indiana bats (*Myotis sodalis*) and NLEB within a Project based on availability of travel/commuting corridors within the Project's boundary, and connectivity to foraging or roosting habitat within a 4.0-km buffer of the Project. The minimum size for suitable foraging/roosting habitat is not well understood, but lower estimates are approximately eight ha (20 ac; Broders et al. 2006). We used a minimum patch size of four ha (10 ac) to assign potential roosting habitat. Trees up to 305 m (1,000 ft) from the next nearest suitable roost tree, woodlot, or wooded fencerow were considered suitable habitat (USFWS 2011). The 305-m distance is based on observations of NLEB behavior indicating isolated trees might only be suitable as habitat when they are less than 305 m from other forested/wooded habitats (USFWS 2020a). Based on this informed guidance, it is reasonable to conclude NLEB are unlikely to occur within the Project area, beyond patches separated by more than 305 m from the nearest connected suitable habitat (USFWS 2011, 2020a Figure 10).

Forested patches were sorted by size into the following groups: less than four ha (small forest patches), four to 20 ha (10–50 ac; potential NLEB roost/foraging habitat), and greater than 20 ha (large potential roost/foraging habitat). All polygons representing forested habitats were buffered by 152 m (500 ft) and dissolved to group any habitat patches within 305 m of each other. This

buffer, representing all forested habitats within 305 m of each other, was then purged of small isolated patches by selecting only those connected habitats containing forested patches at least four ha in size. This selection of habitat patches was then buffered by 305 m to represent the potential foraging area for NLEB resulting in eight patches covering 1,734.4 ha (4,285.7 total ac) within the Project area and 4.0-km buffer (Figure 10). Within the Project, potentially suitable NLEB habitat was limited to two patches covered 277.6 ha (686.0 ac).

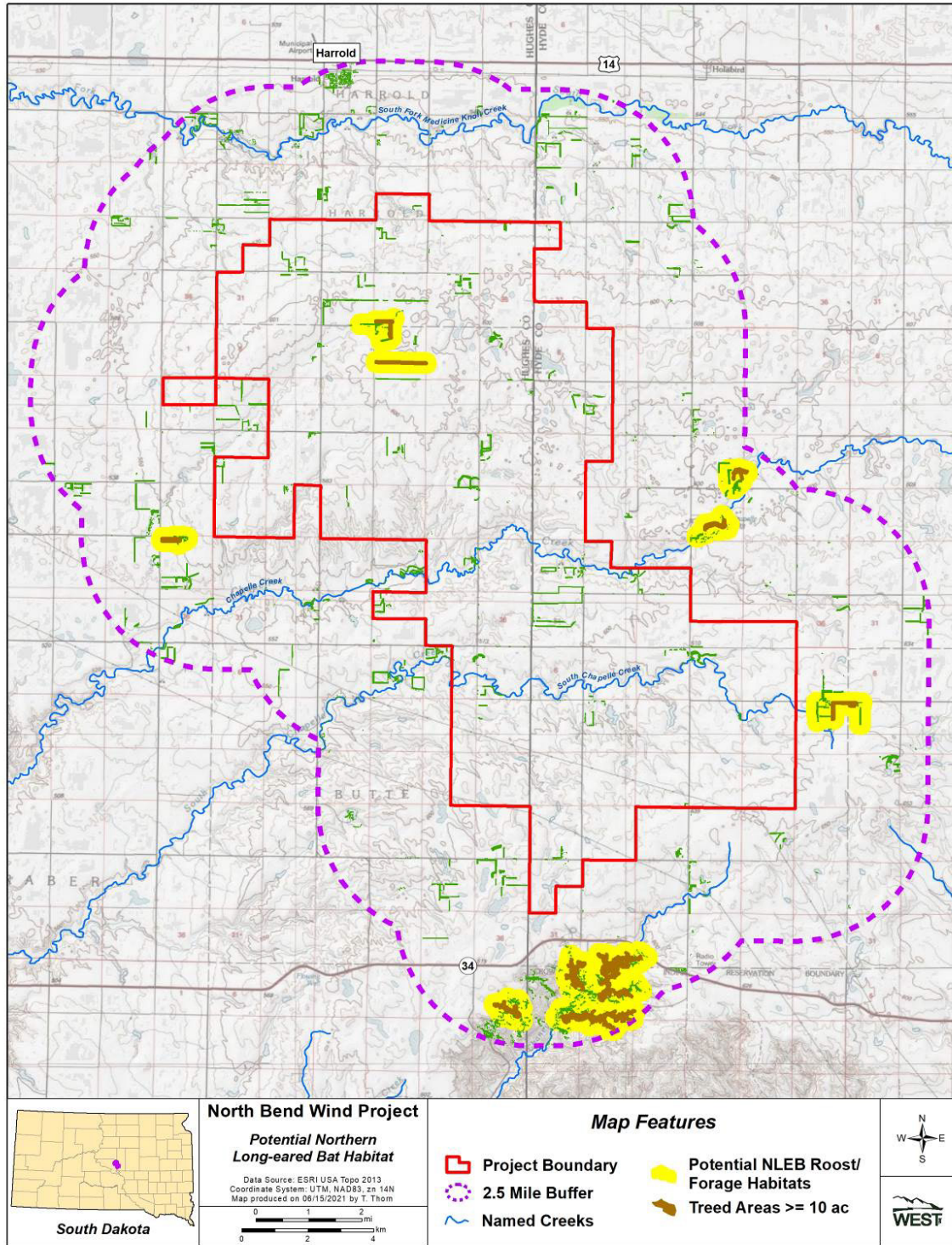


Figure 10. Northern long-eared bat habitat assessment of the North Bend Wind Project and 4.0-kilometer (2.5-mile) buffer, Hughes and Hyde counties, South Dakota.

## **WHOOPING CRANE STOPOVER HABITAT**

Whooping crane use of habitat along their migration corridor has been poorly understood and resulted in numerous approaches to identify those habitats. Niemuth et al. (2018) developed a predictive model specific for North and South Dakota to help identify areas that may be used by whooping crane during migration. They used whooping crane sightings, landscape data, and statistical models to provide a better insight into habitat use within the Dakotas. Figure 9 displays the results of this model along with whooping crane sightings in the region through fall of 2019, and telemetry data from 2009 through 2018. The entire Project area is contained within the 50<sup>th</sup> percentile of all sightings along the migration corridor (Niemuth et al. 2018, Pearse et al. 2018).

Based on this predictive model, potential stopover habitat varies across the Project area. The south and southwestern portion of the Project area has lower potential habitat quality, while the northcentral portion of the Project area potentially contains relatively high quality (Figure 11). There have been two confirmed whooping cranes within the Project area, one from telemetry data in the extreme northern portion of the Project area and one confirmed sighting along the western portion of the Project area (Figure 11). Though whooping cranes have been documented within the Project area and a 16.1-km (10-mi) buffer, most telemetry and sighting data indicated whooping crane are infrequently using the habitat within 16.1 km of the Project area. Although there is potential migratory stopover habitat within and around the Project area based on the Niemuth et al. (2018) model, only 16 whooping cranes have been confirmed within 16.1 km of the Project. In comparison, it appears that more confirmed habitat use has been to the northeast, east, and south of the Project (Figure 11).

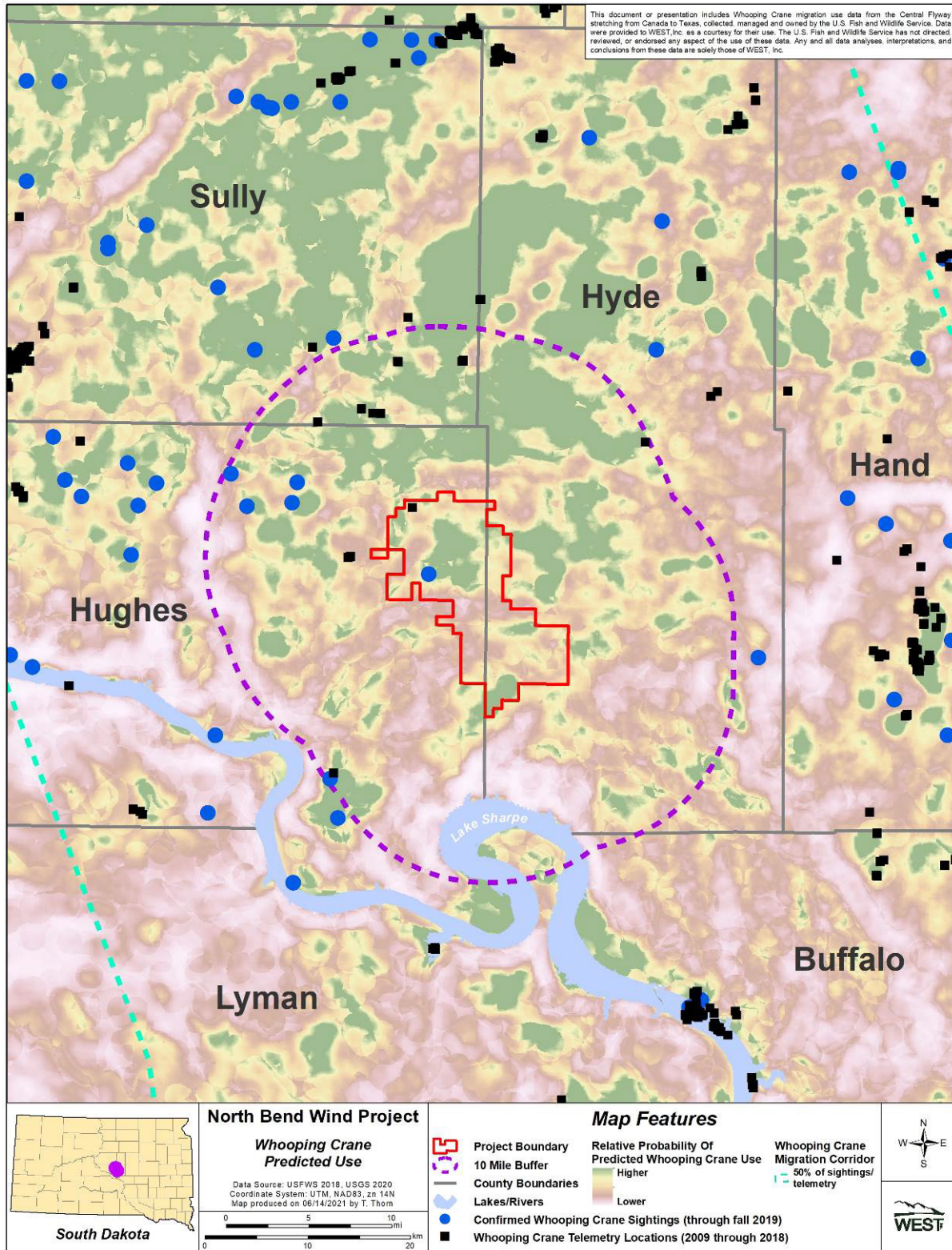


Figure 11. Map of wetlands scored using the predictive habitat use model (Niemuth et al. 2018) for the current North Bend Wind Project boundary and surrounding area in Hughes, Hyde, and Sully counties, South Dakota.

## REFERENCES

- Bird Studies Canada and NABCI. 2014. Bird Conservation Regions. Published by Bird Studies Canada on behalf of the North American Bird Conservation Initiative. <https://www.birdscanada.org/bird-science/nabci-bird-conservation-regions> Accessed June 29, 2021.
- Boyles, J. G., J. C. Timpone, and L. W. Robbins. 2009. Bats of Missouri. Indiana State University Center for North American Bat Research and Conservation, Publication Number 3. Indiana State University Press, Terre Haute, Indiana.
- Broders, H. G., G. J. Forbes, S. Woodley, and I. D. Thompson. 2006. Range Extent and Stand Selection for Roosting and Foraging in Forest-Dwelling Northern Long-Eared Bats and Little Brown Bats in the Greater Fundy Ecosystem, New Brunswick. *Journal of Wildlife Management* 70: 1174-1184.
- Connelly, J. W., K. P. Reese, and M. A. Schroeder. 2003. Monitoring of Greater Sage-Grouse Habitats and Populations. College of Natural Resources Experiment Station, Station Bulletin 80, University of Idaho, Moscow, Idaho.
- Cryan, P. M. 2008. Mating Behavior as a Possible Cause of Bat Fatalities at Wind Turbines. *Journal of Wildlife Management* 72(3): 845-849. doi: 10.2193/2007-371.
- Esri. 2013. World Topographic Map. ArcGIS Resource Center. Environmental Systems Research Institute (Esri), producers of ArcGIS software, Redlands, California. Created June 13, 2013. Updated October 14, 2020. Accessed November 2020. Information online: <https://www.arcgis.com/home/item.html?id=30e5fe3149c34df1ba922e6f5bbf808f>
- Kunz, T. H., E. B. Arnett, B. M. Cooper, W. P. Erickson, R. P. Larkin, T. Mabee, M. L. Morrison, M. D. Strickland, and J. M. Szewczak. 2007. Assessing Impacts of Wind-Energy Development on Nocturnally Active Birds and Bats: A Guidance Document. *Journal of Wildlife Management* 71(8): 2449-2486. doi: 10.2193/2007-270.
- National Land Cover Database (NLCD). 2016. *As cited* includes:
- Yang, L., S. Jin, P. Danielson, C. Homer, L. Gass, S. M. Bender, A. Case, C. Costello, J. Dewitz, J. Fry, M. Funk, B. Granneman, G. C. Liknes, M. Rigge, and G. Xian. 2018. A New Generation of the United States National Land Cover Database: Requirements, Research Priorities, Design, and Implementation Strategies. *ISPRS Journal of Photogrammetry and Remote Sensing* 146: 108-123. doi: 10.1016/j.isprsjprs.2018.09.006.
- and*
- Multi-Resolution Land Characteristics (MRLC). 2019. National Land Cover Database (NLCD) 2016. Multi-Resolution Land Characteristics (MRLC) Consortium. US Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center, MRLC Project, Sioux Falls, South Dakota. May 10, 2019. Information online: <https://www.mrlc.gov/data>
- Niemuth, N. D., A. J. Ryba, A. T. Pearse, S. M. Kvas, D. A. Brandt, B. Wangler, J. E. Austin, and M. J. Carlisle. 2018. Opportunistically Collected Data Reveal Habitat Selection by Migrating Whooping Cranes in the U.S. Northern Plains. *Condor* 120(2): 343-356. doi: 10.1650/CONDOR-17-80.1.
- North American Datum (NAD). 1983. NAD83 Geodetic Datum.

- Pearse, A. T., M. Rabbe, L. M. Juliusson, M. T. Bidwell, L. Craig-Moore, D. A. Brandt, and W. Harrell. 2018. Delineating and Identifying Long-Term Changes in the Whooping Crane (*Grus Americana*) Migration Corridor. PLoS ONE 13(2): e0192737. doi: 10.1371/journal.pone.0192737.
- Ralph, C. J., G. R. Geupel, P. Pyle, T. E. Martin, and D. F. DeSante. 1993. Handbook of Field Methods for Monitoring Landbirds. General Technical Report (GTR). PSW-GTR-144. US Department of Agriculture (USDA) Forest Service General Technical Report (GTR), Pacific Southwest (PSW) Research Station, Albany, California. Available online: <http://www.fs.fed.us/psw/publications/documents/gtr-144/>
- Solick, D., P. Diem, K. Nasman, and K. Bay. 2020. Bat activity rates do not predict bat fatality rates at wind energy facilities. Acta Chiroperologica 22(1): 135-146. doi: 10.3161/15081109ACC2020.22.1.012.
- South Dakota Game Fish and Parks (SDGFP). 2014. Species of Greatest Conservation Need. Pp. 8-23. *In*: South Dakota Wildlife Action Plan. Wildlife Division Report 2014-03. SDGFP, Pierre, South Dakota.
- Strickland, M. D., E. B. Arnett, W. P. Erickson, D. H. Johnson, G. D. Johnson, M. L. Morrison, J. A. Shaffer, and W. Warren-Hicks. 2011. Comprehensive Guide to Studying Wind Energy/Wildlife Interactions. Prepared for the National Wind Coordinating Collaborative (NWCC), Washington, D.C., USA. June 2011. Available online at: [http://www.batsandwind.org/pdf/Comprehensive\\_Guide\\_to\\_Studying\\_Wind\\_Energy\\_Wildlife\\_Interactions\\_2011.pdf](http://www.batsandwind.org/pdf/Comprehensive_Guide_to_Studying_Wind_Energy_Wildlife_Interactions_2011.pdf)
- US Department of Agriculture (USDA). 2018. Imagery Programs - National Agriculture Imagery Program (NAIP). USDA, Farm Service Agency (FSA), Aerial Photography Field Office (APFO), Salt Lake City, Utah. Accessed December 2019. Information online: <https://www.fsa.usda.gov/programs-and-services/aerial-photography/imagery-programs/index>
- US Department of Agriculture (USDA). 2019. Imagery Programs - National Agriculture Imagery Program (NAIP). USDA, Farm Service Agency (FSA), Aerial Photography Field Office (APFO), Salt Lake City, Utah. Accessed January 2019. Information online: <https://www.fsa.usda.gov/programs-and-services/aerial-photography/imagery-programs/index>
- US Department of Agriculture (USDA) National Agricultural Statistics Service (NASS). 2018. 2018 South Dakota Cropland Data Layer. USDA Nass. Metadata. Available online: [https://www.nass.usda.gov/Research\\_and\\_Science/Cropland/metadata/metadata\\_sd18.htm](https://www.nass.usda.gov/Research_and_Science/Cropland/metadata/metadata_sd18.htm)
- US Environmental Protection Agency (USEPA). 2017. Ecoregion Download Files by State - Region 8: South Dakota. Ecoregions of the United States, Ecosystems Research, USEPA. Last updated August 28, 2019. Accessed October 2020. Information online: <https://www.epa.gov/eco-research/ecoregion-download-files-state-region-8#pane-39>
- US Fish and Wildlife Service (USFWS). 2011. Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects. Revised October 26, 2011. Available online: <http://www.fws.gov/midwest/angered/mammals/inba/pdf/inbaS7and10WindGuidanceFinal26Oct2011.pdf>
- US Fish and Wildlife Service (USFWS). 2012. Land-Based Wind Energy Guidelines. March 23, 2012. 82 pp. Available online: [http://www.fws.gov/cno/pdf/Energy/2012\\_Wind\\_Energy\\_Guidelines\\_final.pdf](http://www.fws.gov/cno/pdf/Energy/2012_Wind_Energy_Guidelines_final.pdf)
- US Fish and Wildlife Service (USFWS). 2013. Eagle Conservation Plan Guidance: Module 1 - Land-Based Wind Energy, Version 2. US Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management. April 2013. 103 pp. + frontmatter. Available online: <https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>

- US Fish and Wildlife Service (USFWS). 2017. 2017 Range-Wide Indiana Bat Summer Survey Guidelines. USFWS Ecological Services, Midwest Region, Bloomington, Minnesota. May 9, 2017. Available online: <https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2017INBASummerSurveyGuidelines9May2017.pdf>
- US Fish and Wildlife Service (USFWS). 2018. Cooperative Whooping Crane Tracking Project-GIS Database (CWCTP-GIS). USFWS Nebraska Ecological Services Field Office, Wood River, Nebraska.
- US Fish and Wildlife Service (USFWS). 2021. Birds of Conservation Concern 2021. April 2021. USFWS Migratory Bird Program, Washington, D.C. Available online: <https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- US Fish and Wildlife Service (USFWS). 2020a. Range-Wide Indiana Bat Survey Guidelines. USFWS Midwest Region Endangered Species. March 2020. 65 pp. Available online: <https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/FINAL%20Range-wide%20IBat%20Survey%20Guidelines%203.23.20.pdf>
- US Fish and Wildlife Service (USFWS). 2020b. Region 6 Recommended Protocol for Conducting Pre-Construction Eagle Nest Surveys at Wind Energy Projects. USFWS, Region 6, Migratory Bird Management Office, Mountain-Prairie Region. January 14, 2020. Available online: [https://www.fws.gov/mountain-prairie/migbirds/library/USFWS%20R6%20recommended%20Eagle%20Nest%20Survey%20Protocol%20for%20wind%20projects\\_14Jan2020.pdf](https://www.fws.gov/mountain-prairie/migbirds/library/USFWS%20R6%20recommended%20Eagle%20Nest%20Survey%20Protocol%20for%20wind%20projects_14Jan2020.pdf)
- US Fish and Wildlife Service (USFWS). 2020c. Updated Eagle Nest Survey Protocol. 4 pp. Attachment to: USFWS. 2020. Eagle Surveys. Memorandum to Regional Directors, Regions 1-12. From J. Ford, Assistant Director for Migratory Birds. Ecological Services, United States Department of the Interior Fish and Wildlife Service, Washington, D.C. April 21, 2020. Available online: <https://www.fws.gov/birds/management/managed-species/eagle-management.php>
- US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI). 2019. Seamless Wetlands Data by State. Geodatabase and Shapefile data. National Wetlands Inventory website, Washington, D. C. Updated October 2019. Accessed October 2020. Information online: <http://www.fws.gov/wetlands/data/State-Downloads.html>
- US Geological Survey (USGS). 2019. National Hydrography Dataset (NHD). USGS NHD Extracts. August 8, 2019. Accessed October 2020. Information online: <https://www.usgs.gov/core-science-systems/ngp/national-hydrography>
- US Geological Survey (USGS). 2020. Location Data for Whooping Cranes of the Aransas-Wood Buffalo Population, 2009-2018. By: Pearse, A. T., D. A. Brandt, D. M. Baasch, M. T. Bidwell, J. A. Conkin, M. J. Harner, W. Harrell, and K. L. Metzger. USGS data release. USGS Reston, Virginia. May 15, 2020. doi: 10.5066/P9Y8KZJ9. Available online: <https://www.sciencebase.gov/catalog/item/5ea3071582cefae35a19349a>
- US Geological Survey (USGS) Digital Elevation Model (DEM). 2017. Digital Elevation Model (DEM) Imagery. USGS, Reston, Virginia.
- US Geological Survey (USGS) Protected Areas Database of the United States (PAD-US). 2019. Protected Areas Database of the United States Interactive Map. US Department of the Interior. Accessed October 2020. Information online: <https://maps.usgs.gov/padus/>



USA Topo. 2013. USA Topo Maps. US Geological Survey (USGS) topographical maps for the United States. ArcGIS. Environmental Systems Research Institute (Esri), producers of ArcGIS software, Redlands, California.

Western EcoSystems Technology, Inc (WEST). 2019. Regional summaries of wildlife fatalities at wind facilities in the United States. 2019 Report from the Renew Database. Published by WEST, Inc., Cheyenne, Wyoming. December 31, 2019.

## **Appendix C3. North Bend Wind Project Collision Risk Modeling Calculations**

**Appendix C3A. North Bend Wind Project Collision Risk Modeling Calculations Project Overview.**

Project Name: NorthBend  
 Project Manager: Martin Piorkowski  
 Billing Code: 661-32.003  
 Lead Analyst: Guy Didonato  
 Analyst: Tandena Wagner

<b>General Info</b>	<b>Answer</b>
Which species do you want a take prediction for?	BAEA, GOEA
What are the survey dates?	2016-2022
What is the project alias for each year of survey?	Triple H, Triple HII, NorthBend, NorthBendExp
Have the data been through QAQC?	Yes
Have any previous take predictions been calculated?	?
What is the purpose of calculating these take predictions? (ECP, EMP, client is curious, etc.)	EA
When do you need this completed? (date)	12/16/2022
<b>Project Location</b>	<b>Answer</b>
Coordinates of project center (lat/lon) (optional)	lat = 44.40888, lon = -99.68394
Nearest town	
<b>Turbine Info</b>	<b>Answer</b>
Number of layouts to consider	1
Number of turbines	71
Rotor diameter	63.55
Hub Height	?
<b>Which Points to Include</b>	<b>Answer</b>
Should all survey points be included?	different points at different project years
If points should be excluded, what points should be excluded? (List points or specify to exclude points outside of MCP, etc.)	–
What should we assume regarding risk cylinder visibility at each survey point? (Options: assume 100%; have GIS calculate a terrain-based visibility estimate)	–
<b>Spatial Data (optional)</b>	<b>Answer</b>
Do you have a shapefile of turbine locations? (Include google drive or server link)	n/a
Do you have a shapefile of survey locations? (Include google drive or server link)	n/a
Do you want to know the % coverage of the MCP by survey points?	no
<b>Analysis Options</b>	<b>Answer</b>
Would you like a seasonal or annual model run OR would you like the statistician to decide?	annual
Which collision-rate prior(s) would you like to use? (ECPG, Bay et al., MEC)	–
Daylight hours or operating hours (Daylight hours is standard, provide data from MET tower if operational hours are to be used)	Daylight hours
How should UNEA be handled?	–

**Appendix C3A. North Bend Wind Project Collision Risk Modeling Calculations Project Overview.**

<b>Season Definitions (if running seasonal model)</b>	<b>Answer</b>
Spring	–
Summer	–
Fall	–
Winter	–
<b>Desired output</b>	<b>Answer</b>
Would you like take prediction(s) and CI(s) in an Excel sheet with summary results and intermediate calculations (the standard)?	–
Would you like a summary of eagle data (survey hours, observations, risk mins, etc.) by season?	–
Would you like a summary of eagle data (survey hours, observations, risk mins, etc.) by month?	–
Would you like a summary of eagle data (survey hours, observations, risk mins, etc.) by point?	–
Would you like a several-page memo describing the statistical methods and detailing the results?	–
Do you need maps or any additional figures?	–
Do you need a data package formatted after the USFWS template for avian use survey data?	–
Do you need a data package formatted after the USFWS template for PCM data?	–
<b>Additional comments:</b>	
–	

**Appendix C3B. North Bend Wind Project Collision Risk Modeling Calculations Model Runs.**

<b>Model Run Number</b>	<b>Number of Turbines</b>	<b>Rotor Radius</b>	<b>Annual or Seasonal</b>	<b>Species</b>	<b>Priors</b>	<b>Notes</b>
1	71	63.55	Annual	BAEA	USFW_2021	0.6 quant
2	71	63.55	Annual	GOEA	USFW_2021	0.8 quant

BAEA = bald eagle; GOEA = golden eagle; USFWS = Us Fish and Wildlife service.

**DATA SUMMARY**

- Survey length: 1 hour
- Bald Eagle Risk Minutes: 18
- Golden Eagle Risk Minutes: 4
- Survey Hours: 617.3

**Appendix C3C: Bald and Golden Eagle Data Summary for the North Bend Wind Project, Hyde and Hughes counties, South Dakota.**

Season	Number of Surveys	Survey Hours	Risk Minutes(within 800 m and below 200 m)			
			All Obs	Obs in 800 m	All Minutes	
<b>Bald Eagle</b>						
Spring	161	161.0	3	3	14	14
Summer	159	158.3	0	0	0	0
Fall	148	148.0	0	0	0	0
Winter	150	150.0	1	1	6	4
<b>Total</b>	<b>618</b>	<b>617.3</b>	<b>4</b>	<b>4</b>	<b>20</b>	<b>18</b>
<b>Golden Eagle</b>						
Spring	161	161.0	1	1	4	3
Summer	159	158.3	1	1	1	1
Fall	148	148.0	0	0	0	0
Winter	150	150.0	2	1	14	0
<b>Total</b>	<b>618</b>	<b>617.3</b>	<b>4</b>	<b>3</b>	<b>19</b>	<b>4</b>

obs = observations; m = meters.

**Appendix C3D. Exposure Rates ( $\lambda$ ) for Bald (BAEA) and Golden (GOEA) Eagles at the North Bend Wind Project, Hyde and Hughes counties, South Dakota.**

Variable	BAEA	GOEA
Minutes of eagle flight in risk cylinder	18	4
Number of surveys	618	618
Length of surveys (hours)	1.00	1.00
Survey hours	617.30	617.30
Survey plot radius (meters)	800	800
Survey plot height (meters)	200	200
Average proportion of survey plot visible	1	1
Survey effort (hours x km <sup>3</sup> )	248.23	248.23
Prior for minutes of eagle flight in risk cylinder	0.08	0.29
Prior for survey effort	0.02	0.24
Posterior for minutes of eagle flight in risk cylinder	18.08	4.29
Posterior for survey effort	248.26	248.47
Mean of posterior for exposure rate	0.07	0.02

**Appendix C3E. Expansion Factors ( $\epsilon$ ) for Bald (BAEA) and Golden (GOEA) Eagles at the North Bend Wind Project, Hyde and Hughes counties, South Dakota.**

Variable	BAEA	GOEA
Daylight hours per year	44,561.74	44,561.74
Number of turbines	71	71
Turbine rotor radius (meters)	63.55	63.55
Turbine hazardous height (meters)	200.00	200.00
Total turbine hazardous volume	0.180	0.180
Expansion factor	8,028.45	8,028.45

**Appendix C3F. Collision Probabilities (C) for Bald (BAEA) and Golden (GOEA) Eagles at the North Bend Wind Project, Hyde and Hughes counties, South Dakota.**

<b>Variable</b>	<b>BAEA</b>	<b>GOEA</b>
Eagle fatalities	0	0
Years of fatality monitoring	5	5
Exposure events	2,923.01	692.60
Exposure events not resulting in fatality	2,923.01	692.60
Prior for eagle fatalities	1.61	1.29
Prior for exposure events not resulting in fatality	228.20	227.60
Posterior for eagle fatalities	1.61	1.29
Posterior for exposure events not resulting in fatality	3,151.21	920.20
Mean of posterior for collision rate	0.0005	0.0014

**Appendix C3G. Eagle Fatalities per Year (F) for Bald (BAEA) and Golden (GOEA) Eagles at the North Bend Wind Project, Hyde and Hughes counties, South Dakota.**

<b>Variable</b>	<b>BAEA</b>	<b>GOEA</b>
Mean of posterior for predicted annual eagle fatalities	0.30	0.19
Upper 60% credible limit for predicted annual eagle fatalities	0.40	–
Upper 80% credible limit for predicted annual eagle fatalities	–	0.12