REDACTED: A Level III Intensive Cultural Resource Inventory and Tribal Cultural Property Survey for the North Bend Wind Project in Hughes and Hyde Counties, South Dakota

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Abstract

North Bend Wind Project, LLC (the Proponent) has proposed the construction of the North Bend Wind Project in Hughes and Hyde Counties, South Dakota. The Proponent has requested to interconnect to the Western Area Power Administration's (WAPA) Fort Thompson to Oahe 230 kilovolt (kV) transmission line. The granting of the interconnection is considered a federal undertaking and requires review under the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). This project is also subject to the jurisdiction of the South Dakota Public Utilities Commission (PUC). The currently proposed project boundary encompasses approximately 2,034 acres. The survey area, minus any cultural resource avoidance buffers, is intended to serve as the maximum extent of the Area of Potential Effect (APE), which is defined in 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of Historic Properties, if any such properties exist."

This report details the results of a 2020 preliminary pedestrian inventory, the 2021 formal Level III pedestrian inventory of the finalized project alignment, and the 2021 tribal coordination and Traditional Cultural Property (TCP) survey that was arranged by BCA on behalf of the Proponent for the North Bend Wind Project with the three federally recognized tribes that expressed interest in the project to WAPA. A companion architectural report produced by BCA will address the visual impacts of the proposed project to architectural sites within the 1.5-mile radius of the proposed project.

The Proponent is seeking concurrence on the results from the 2021 Level III pedestrian inventory and TCP survey, as this layout represents the currently proposed construction array. However, the data from the 2020 preliminary survey are included in this report in order to provide the South Dakota State Historic Preservation Office (SHPO) with the results of the 2020 survey, which was conducted to Level III standards.

In 2020, the Proponent contracted Beaver Creek Archaeology, Inc. (BCA) to conduct a pedestrian inventory of a preliminary turbine layout during the planning stages of the project. The 2020 survey was conducted to determine the viability of the preliminary layout in regard to cultural resources. It covered approximately 359 acres and was surveyed from November 16-19, 2020.

During the 2020 pedestrian inventory, one previously recorded cultural resource was updated and 12 new cultural resources were documented, including 10 prehistoric stone feature sites and two historic archaeological sites. Each of the prehistoric stone feature sites has been recommended as eligible for nomination to the National Register of Historic Places (NRHP), while the two historic sites have been recommended as unevaluated for nomination to the NRHP. Avoidance measures are recommended for each of these sites.

Following the completion of the 2020 survey, the Proponent provided a revised layout for the proposed project that was designed to accommodate site avoidance of all 13 cultural resources documented within the preliminary project layout. The vast majority of the revised layout is different from the area surveyed under the 2020 preliminary field review, and these sites were avoided by well over 100' in the updated layout; therefore, no specific avoidance measures are recommended for these sites.

In 2021, BCA conducted the formal Level III cultural resource survey and facilitated a TCP inventory of the finalized layout for the proposed North Bend Wind Project. The 2,034-acre updated project layout was surveyed between August 3-12, 2021, by BCA archaeologists for the Level III pedestrian inventory and representatives from the Crow Creek Sioux Tribe, the Rosebud

Sioux Tribe, and the Yankton Sioux Tribe during the concurrent TCP inventory. Additional areas were surveyed for project reroutes between September 1-3, 2021.

The currently proposed project alignment is located primarily on private property, with a portion of the proposed project located on State Trust land. As currently planned, there will be 35 miles of access roads, 68 miles of collection lines, and 78 wind turbine locations, of which 7 are alternate locations. The access roads were inventoried with a total 150' corridor width (measured 75' from either side of the centerline). Each wind turbine location was centered within a 5-acre survey area.

The Level I records search for the proposed project area revealed one unevaluated prehistoric site and five architectural sites (including one eligible bridge, two ineligible bridges, one unevaluated structure, and one ineligible structure) located within a 1.5-mile radius of the preliminary project area. None of the previously recorded cultural resources were documented within the currently proposed project area.

However, during the 2021 intensive pedestrian survey, 13 new cultural resources were encountered, including 11 prehistoric stone feature sites and two architectural sites. Each of the stone feature sites has been recommended as eligible for nomination to the NRHP and avoidance measures are recommended. The two architectural sites have been recommended as ineligible for nomination to the NRHP and no specific avoidance measures are recommended.

Additionally, 30 TCPs were identified by tribal representatives during the TCP inventory, including both physical and non-physical surface expressions and an isolated find, and avoidance measures are recommended. Each of these have been documented on a TCP form and submitted to the South Dakota SHPO for their records.

The Proponent has rerouted or moved proposed project elements in order to avoid each stone feature site or TCP by a minimum of 50'. In addition, BCA recommends placing temporary avoidance fencing along the edge of the survey corridor near each of the stone feature sites and TCPs during construction activities.

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Acronyms and Abbreviations

AAA: Agricultural Adjustment Act

AMSL: Above Mean Sea Level

AOGHS: American Oil & Gas Historical Society

APE: Area of Potential Effect

ARC: Archaeological Research Center

BCA: Beaver Creek Archaeology, Inc.

BH&FP: Black Hills & Fort Pierre

CCC: Civilian Conservation Corps

CFR: Code of Federal Regulations

CM: Cultural Material

CWA: Civil Works Administration

EIA: Energy Information Administration

Elkhorn: Fremont, Elkhorn & Missouri

EMM: Extended Middle Missouri

FERA: Federal Emergency Relief Administration

FWP: Federal Writers Project

GE: General Electric

GIS: Geographic Information Systems

GSV: Ground Surface Visibility

IMM: Initial Middle Missouri

kV: kilovolt

MHA: Mandan, Hidatsa, and Arikara

Milwaukee Road: Chicago Milwaukee & St. Paul

MW: megawatts

NEPA: National Environmental Policy Act

NHPA: National Historic Preservation Act

NIRA: National Industrial Recovery Act

North Western/C&NW: Chicago & North Western

NRCS: Natural Resources Conservation Service

NRHP: National Register of Historic Places

NYA: National Youth Administration

POI: Point of Interconnection

Proponent: North Bend Wind Project, LLC

PUC: Public Utilities Commission

PWA: Public Works Administration

Quad: Quadrangle

R: Range

SCS: Soil Conservation Service

SHPO: State Historic Preservation Office

SHSND: State Historical Society of North Dakota

SOO Line: Minneapolis, St. Paul & Saul St. Marie Railway

T: Township

TCP: Traditional Cultural Property

TCS: Tribal Cultural Specialist

THPO: Tribal Historic Preservation Office

TMM: Terminal Middle Missouri

USDA: United States Department of Agriculture

USGS: United States Geological Survey

WAPA: Western Area Power Administration

WPA: Works Progress Administration

Introduction

North Bend Wind Project, LLC (the Proponent) has proposed the construction of the North Bend Wind Project in Hughes and Hyde Counties, South Dakota (see Appendix A: Maps). The Proponent has requested to interconnect to the Western Area Power Administration's (WAPA) Fort Thompson to Oahe 230 kilovolt (kV) transmission line. The granting of the interconnection is a federal undertaking requiring review under the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), Section 106. This project is also subject to the jurisdiction of the South Dakota Public Utilities Commission (PUC) since it will generate 200 megawatts (MW). The currently proposed project boundary encompasses approximately 2,034 acres. The survey area, minus any cultural resource avoidance buffers, is intended to serve as the maximum extent of the Area of Potential Effect (APE), which is defined in 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of Historic Properties, if any such properties exist."

The Proponent has contracted Beaver Creek Archaeology, Inc. (BCA) to conduct a Level III cultural resource survey and facilitate a Traditional Cultural Property (TCP) inventory of the proposed North Bend Wind Project with the three federally recognized tribes that expressed interest in the project to WAPA.

The proposed project consists of the construction of up to 71 wind turbine locations, 35 miles of access roads, and 68 miles of collector lines. Including alternate turbine locations, a total of 78 wind turbine locations were inventoried. Each wind turbine location was centered in a 5-acre survey block. The proposed collector lines, crane paths, and access roads were centered within a survey corridor a minimum of 75' on either side of the centerline, resulting in a survey corridor varying between 150-1,165' in width. A total of 2,034 acres were inventoried to Level III standards for the currently proposed array. See Table 2 for project location details.

Table 1. Project Location

USGS Quad	**REDACTED**
Project Area	**REDACTED**
Sites Identified during the Preliminary Field Review	**REDACTED**
Sites Identified during the Revised Level III Inventory	**REDACTED**
TCPs in Project Area	**REDACTED**

In 2020, the Proponent provided BCA with a preliminary turbine layout to be surveyed during the planning stages of the project. This survey was conducted to determine the viability of the preliminary layout in regard to cultural resources. The preliminary survey covered approximately

359 acres, and was surveyed from November 16-19, 2020. Following the completion of the preliminary survey, the Proponent provided a revised layout for the proposed project designed to accommodate site avoidance. The vast majority of the currently proposed array is different from the area surveyed under the preliminary field review.

In 2021, BCA conducted the formal Level III cultural resource survey and facilitated a TCP inventory of the finalized layout for the proposed North Bend Wind Project. The 2,034-acre updated project layout was surveyed between August 3-12, 2021, by BCA archaeologists for the Level III pedestrian inventory and representatives from the Crow Creek Sioux Tribe, the Rosebud Sioux Tribe, and the Yankton Sioux Tribe during the concurrent TCP inventory. Additional areas were surveyed for project reroutes between September 1-3, 2021.

This report details the results of the records search and pedestrian inventories, as well as the environmental and cultural background of the project area. Additionally, this report details the results of the tribal coordination and TCP survey arranged by BCA on behalf of the Proponent for the North Bend Wind Project. A companion architectural report produced by BCA will address the visual impacts of the proposed project to architectural sites within the 1.5-mile radius of the proposed project.

The Proponent is seeking concurrence on the results from the 2021 Level III pedestrian inventory and TCP survey, as this layout represents the currently proposed construction array. However, the data from the 2020 preliminary survey are included in this report in order to provide the South Dakota State Historic Preservation Office (SHPO) with the results of the 2020 survey, which was conducted to Level III standards.

Project Goal

The granting of the interconnection of the proposed project to the Fort Thompson to Oahe 230 kV transmission line is considered a federal undertaking requiring review under the NEPA and the NHPA, Section 106. The NHPA requires the federal agency to consider what effects the undertaking will have on historic properties within the survey area. As such, the objectives of this study are: to assist the federal agency with their Section 106 compliance obligations; to identify and assess project impacts to cultural resources located within the survey area; and to provide NRHP eligibility recommendations for historic properties encountered within the survey area. In addition, the scientific objective of the study is to gather more comparative information that can be used to answer questions posed in the state plan.

Historic Properties, as defined in the NHPA, consist of any historic or prehistoric district, site, building, structure, or object included in or eligible for inclusion on the NRHP. Cultural resources include archaeological, historical, and architectural sites, as well as properties of traditional, cultural, or religious importance.

Evaluation Criteria

To be eligible for inclusion on the NRHP, a site must usually be more than 50 years old, retain its integrity of location, design, setting, materials, workmanship, feeling, and association and it must meet one of the following criteria:

(a) Associated with events that have made a significant contribution to the broad patterns of our history; or
(b) Associated with the lives of persons significant in our past; or
(c) Embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a

significant and distinguishable entity whose components may lack individual distinctions; or

(d) Have yielded, or may be likely to yield, information important in prehistory or history.

In addition, cultural resources that hold traditional, cultural, or religious significance may be eligible for the NRHP as TCPs.

Project Description and APE

The proposed North Bend Wind Project is located along the Hughes-Hyde County line, approximately 5.5 miles southeast of Harrold and 5.5. miles southwest of Holabird, South Dakota (see Table 2 for location details). The proposed project is located on private property and state trust land. Maps of the proposed project and the 1.5-mile records search radius can be found in Appendix A.

The Proponent is considering a turbine model layout consisting of 71 General Electric (GE) turbines. The turbine proposed for the Project is the GE 2.82-127 model, which has a rated power of 2.82 MW.

Project components will include:

- Up to 71 turbines;
- Access roads to turbines and associated facilities;
- Underground 34.5-kV electrical collector lines connecting the turbines to the collection substation;
- Underground fiber-optic cable for turbine communications collocated with the collector lines;
- A 34.5- to 230-kV collection substation;
- A 230-kV interconnection switching station;
- An Aircraft Detection Lighting System;
- One permanent meteorological tower; and
- Additional temporary construction areas, including crane paths, public road improvements, laydown yard/staging area, and concrete batch plant(s), as needed.

In addition, WAPA will be constructing a temporary tap in the vicinity of the switchyard that will enable the North Bend Wind Project to interconnect into WAPA's existing Fort Thompson to Oahe 230 kV transmission line. The components of this temporary tap include approximately 0.25 miles of overhead 230-kv line and buried fiber. A layout for this temporary tap has not yet been designed; however, it will be constructed in accordance with a construction agreement between WAPA and the Proponent. Once a design is finalized, it will be necessary to determine the need for additional archaeological work. This would be addressed in a subsequent report, if necessary.

The 2,034-acre survey area was mapped over the center of the proposed construction areas and transportation corridors. A 5-acre survey area was centered on each of the 78 proposed primary and alternative turbine locations. The typical construction corridor for the access roads and collector lines is 30' in width; therefore, a 150' survey corridor was mapped over the centerline for the proposed collector lines, crane paths, and access roads (measured 75' on either side of the centerline). The survey areas for any building, laydown or staging area, or batch plant consisted of the proposed construction area footprint plus an additional 200' area on all sides. As a result, the survey corridor varies between 150' to 1,165' in width.

The survey area, minus the cultural resource avoidance buffers, is intended to serve as the maximum extent of surface disturbance (i.e., the APE). This allows for minor adjustments to be

made to the project layout and turbine locations within the bounds of the surveyed areas, while still maintaining avoidance of the cultural resources documented during the pedestrian inventories.

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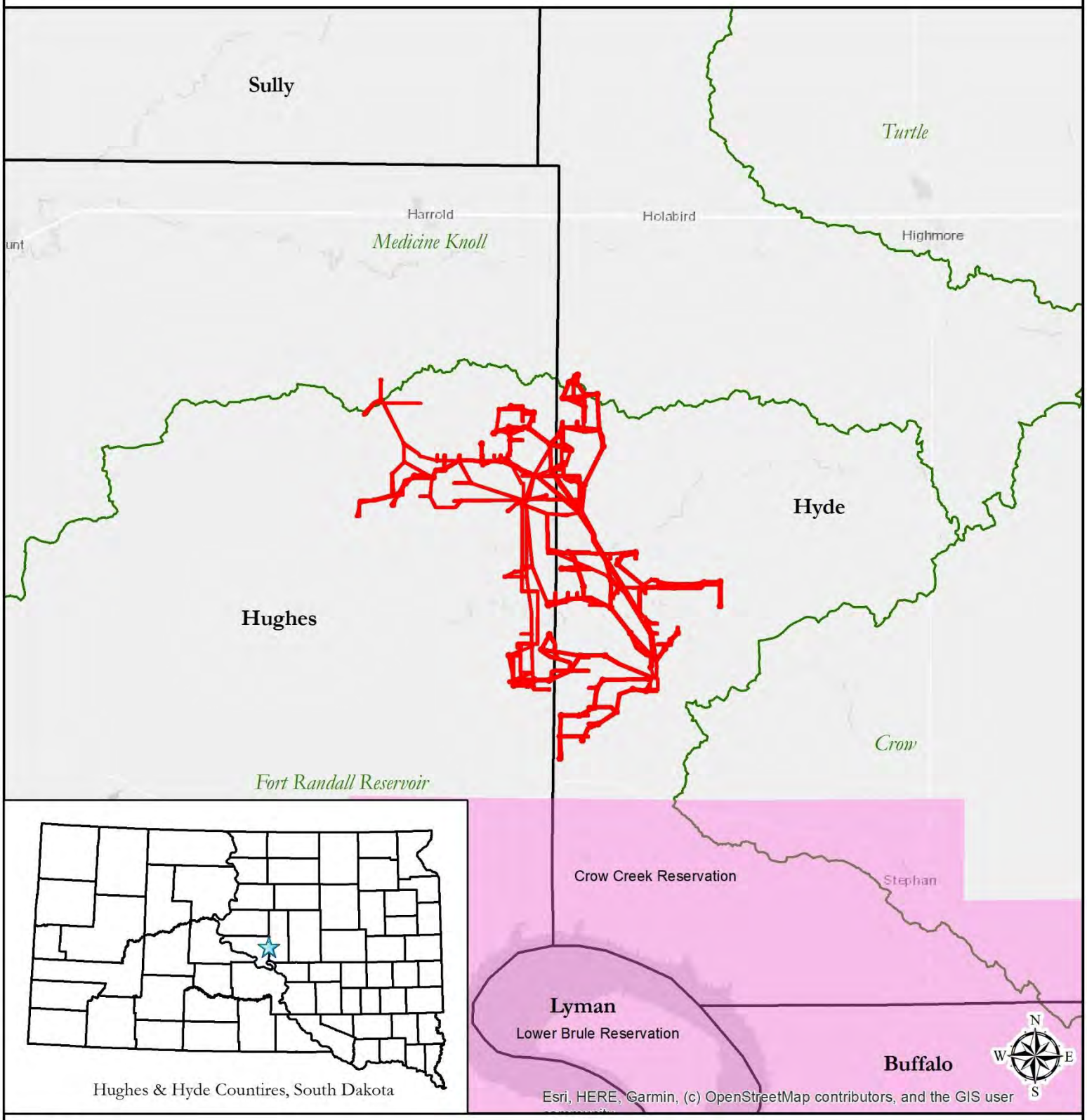
North Bend Wind Project
North Bend Wind Project, LLC
Hughes & Hyde County, South Dakota



Legend

Project Location

Survey Area (2,341 acres)

0 2,050 4,100 8,200 12,300 16,400 Meters

0 1.25 2.5 5 7.5 10 Miles

Figure 1. Location of the combined survey areas in Hughes and Hyde Counties, South Dakota.

Base Map: USGS 7.5'
Scale: 1:250,000
UTM NAD83 Zone 14

GE

Environmental Setting

The proposed project area is situated in the Big Bend Archaeological Region (Archaeological Region 13) within the Missouri Trench physiographic region in central South Dakota (Sundstrom 2019:IV-186). The Big Bend Region includes all of Brule and Buffalo Counties, most of Hyde and Lyman Counties, and portions of Aurora, Davison, Hand, Hughes, Jerauld, Jones, Stanley, and Sully Counties. The Missouri Trench is approximately 10 miles wide and cuts through the middle of the Big Bend Region, with the Missouri Coteau to the east (Sundstrom 2019).

There are several intermittent drainages and creeks within Hughes and Hyde Counties, including Medicine Creek, Baloun Creek, Chaney Rush Creek, Crow Creek, Elm Creek, Chapelle Creek, South Chapelle Creek, Arrowhead Spring Creek, Sand Creek, Spring Creek, Chantier Creek, Cherry Creek, Joe Creek, Medicine Knoll Creek, First Creek, Julius Creek, Antelope Creek, Cedar Creek, and LaRoche Creek. The predominant topographic features include glacial till plains with numerous potholes (Natural Resources Conservation Service [NRCS] 2006:144).

Geology

The geology of the area includes Cretaceous Pierre Shale beneath Pleistocene-Upper Wisconsin deposits (NRCS 2006:144). The Pierre Formation is composed of black shale and was deposited during the late Cretaceous (approximately 85 million years ago) while South Dakota was covered with a warm, shallow inland sea (Hoganson 2005). At times, this inland sea connected with the Arctic Ocean and the Gulf of Mexico, and is often referred to as the Western Interior Seaway. Fine-grained sediments, such as silt and clay, were deposited on the floor of this inland sea and have been compacted into shale to form the Pierre Formation (Hoganson 2006). Common invertebrate fossils from this formation include corals, gastropods, bivalves, cephalopods, shrimp, crabs, bryozoans, and echinoderms (Hoganson 2006). Vertebrate fossils are also found in the Pierre Formation such as fish, rays, sharks, and mosasaurs – large swimming reptiles that could reach 12 m or more in length (Hoganson 2005). The large (1 m tall) diving bird *Hesperornis*, as well as the giant (2.5–4 m from snout to tail) sea turtle, *Archelon*, have also been found in the Pierre Formation (Hoganson 2005).

Soils

The soils in this region are loamy or clayey, are very deep, and are generally well-drained or moderately well-drained, with the dominant soil orders consisting of Mollisols and Inceptisols (NRCS 2006:144). Primarily, the soils have a mesic soil temperature regime, an ustic soil moisture regime, and mixed or smectitic mineralogy (NRCS 2006:144).

Climate

The climate in the area is semi-arid and temperate, with cold, dry winters and warm summers (Sundstrom 2019:IV-191). Precipitation averages around 17” annually, most of which occurs as rain and snow during the winter months (Bryce et al. 1996; NRCS 2006; Sundstrom 2019:IV-191). On average, the summer temperature is 73°F, with the winter temperature around 20°F (Bryce et al. 1996; Sundstrom 2019:IV-191).

Hydrology

The project area is located within the Fort Randall Reservoir and Medicine Knoll drainage systems. The area drains mostly into Chapelle Creek (which intersects the project area) and ultimately into Lake Sharpe, a reservoir on the Missouri River, which is approximately 5 miles south of the proposed project area.

Flora & Fauna

The native prairie vegetation includes little bluestem, big bluestem, blue grama, sideoats grama, western wheatgrass, needle-and-thread, porcupine grass, prairie rose, cottonwood, western snowberry, sedges, and bur oak. Some of the major wildlife species include whitetail deer, mule deer, antelope, coyote, fox, skunk, raccoon, jackrabbit, prairie dogs, frogs, prairie rattlesnakes, bull snakes, garter snakes, sharp-tailed grouse, prairie chickens, Canadian geese, walleye, bluegill channel catfish, and largemouth bass (NRCS 2006:145).

Land Use

This area of South Dakota is primarily privately-owned agricultural land as pasture or cropland for alfalfa, sorghum, winter wheat, oats, sunflowers, and corn (NRCS 2006:145). As of 2012 (the most recent data available), there are approximately 338 farms in Hughes County with 62.5% of the agricultural land used for cropland and 34.9% of the agricultural land used for pastureland (United States Department of Agriculture [USDA] 2012a). Top crop items, in terms of acres, include wheat for grain, winter wheat for grain, corn for grain, sunflower seed, and sunflower seed oil (USDA 2012a). In addition, top livestock inventory items, in terms of numbers, include cattle and calves, hogs and pigs, sheep and lambs, horses and ponies, and pheasants (USDA 2012a).

Similarly, there are 207 farms in Hyde County, South Dakota with 56.0% of the agricultural land used for pasture and 42.0% of the agricultural land used for cropland (USDA 2012b). Top crop items, in terms of acres, include corn for grain, wheat for grain, winter wheat for grain, forage (land used for all hay and haylage, grass silage, and greenchop), soybeans for beans, and sunflower seed (USDA 2012b). In addition, top livestock inventory items, in terms of numbers, include cattle and calves, colonies of bees, sheep and lambs, and horses and ponies (USDA 2012b).

Cultural Background

The Big Bend Region (Archaeological Region 13) has its own historic context, which describes the different types of prehistoric and historic districts, sites, buildings, structures, and objects known from various times in the past in different parts of the state. This information provides the comparative base needed for the management of cultural resources. The following information is provided as a general overview of the entire Big Bend Region, and is not specific to the proposed project area.

Native American Cultural Background

Archaeological sites found within the Big Bend Region include cultural material (CM) scatters, stone circles, alignments, cairns, animal kill sites, burials, mounds, effigies, campsites (Sundstrom 2019). Depending on the type, these sites are found along rivers and streams, on terraces, hills, and deeps soils. Although not necessarily applicable to this particular project, the general archaeological horizons encountered are as follows:

Paleoindian Period (9500-5500 BC)

In South Dakota, the Paleoindian Period occurred between ca. 9500 to 5500 BC and included such cultural complexes as Clovis, Goshen, Folsom, Plainview, and Plano (Sundstrom 2019:II-1, 3). These complexes are identified by their tool assemblages, specifically projectile point classification. Projectile points from this period are lanceolate (leaf-shaped) spear points, either fluted (a distinctive flake removed from the proximal base) or unfluted, and are observed with or without stemmed bases. Subsistence strategies would rely on the hunting of now-extinct megafauna, such as mastodons, mammoths, and giant bison, as well as smaller animals and wild plants. Sites typically associated with the Paleoindian Period include kill sites, butchering sites, campsites, hearths, food-processing areas, quarries, chipping stations, and isolated finds (Sundstrom 2019). In the Big Bend Region, two Folsom points represent evidence of the

Paleoindian period (39HE6 and 39HU78; Sundstrom 2019:IV-194, 202). No buried sites have been found; however, "the region contains sediments of the right age to contain such sites" (Sundstrom 2019:IV-194).

Archaic Period (5500 BC-AD 500 AD)

The Archaic Period has been subdivided into three separate periods: Early, Middle, and Late. The Early Archaic Period dates between ca 5500 to 3500 BC and includes the Hawken, Logan Creek, and Meserve-Dalton complexes (Sundstrom 2019:II-37, 39). Subsistence practices included a mix of big game hunting and generalized foraging (Sundstrom 2019). These people lived in semi-subterranean pit houses that contained many storage pits and were used seasonally (Sundstrom 2019:II-38). Projectile points from this period are typically triangular, side-notched, and utilized with the atlatl.

The Middle Archaic Period, dating between ca. 3500 to 500 BC, includes the Oxbow and McKean (Duncan and Hanna) complexes (Sundstrom 2019:II-51). The variation in projectile points includes smaller, triangular to lanceolate basally-notched forms, with a wide base or stem. Innovations during the Middle Archaic Period include "pit houses, corrals and pounds for communal game procurement, tool and food caches, extensive use of grinding stones, production of microblades and microtools, large rock-filled roasting pits, diverse faunal and floral remains, and features related to pemmican production" (Sundstrom 2019:II-75).

The Late Archaic Period dates from ca. 1100 BC to AD 500 and is largely contemporaneous with the Woodland Period in South Dakota (Sundstrom 2019:II-79). Complexes associated with the Late Archaic Period include Yonkee, Pelican Lake, and Besant (which extends into the Woodland period). The Late Archaic Period reflects a continuation of Middle Archaic practices, including mobile settlement patterns, foraging subsistence, and hunting-based subsistence strategies, such as communal hunting and the use of arroyos, corrals, and jumps, and, but al (Sundstrom 2019:II-81).

Overall, sites typically associated with the Archaic Period include kill sites, game drives, butchering sites, campsites, hearths, food-processing areas, roasting pits, quarries, chipping stations, pit houses, rock art, special-use sites, and isolated finds (Sundstrom 2019: II-39, 52). In the Big Bend Region, identified Archaic sites include Medicine Crow (39BF2), Truman Mound (39BF224), Sitting Crow (39BF223, Side Hill (32BF233), Log Turkey Cabin (39LM212), and Ree Heights (39HD3; Sundstrom 2019:IV-194).

Woodland Period (500 BC-AD 1000)

The Woodland Period has been subdivided into three separate periods: Early, Middle, and Late. Only one Early to Middle Woodland Period (ca. 200 BC to AD 700) site, associated with the Fox Lake Phase, has been identified in South Dakota, as this variant typically occurs in western Minnesota and eastern North Dakota (Sundstrom 2019:II-98, 99). The Middle Woodland Period, dating between ca. AD 100 to 600, includes the Besant and Sonota complexes. The Late Woodland Period dates to ca. AD 600 to 1000 and includes the Arvilla, Great Oasis, and Blackduck-Sandy Lake complexes, as well as the Lake Benton, Loseke Creek, and Randall phases.

The Woodland Period is characterized by thick-walled, cord-roughened, elongated conical and elaborately decorated spherical/globular pottery; medium- to small-sized, corner- and side-notched projectile points; burial mounds with the remains covered in red ocher and consisting of grave goods, and long-distance trade (Sundstrom 2019:II-81, 93, 95). The majority of the sites associated with this period include surface scatters, camps, stone circles, occupation/habitation sites, bison trapping sites, burial mounds, special-use sites, and isolated finds.

Little is known about the settlement patterns during this period, as most of the Woodland Period sites consist of burial mounds and temporary sites. Dwellings appeared to have included simple

post-and-daub structures and tipis and were limited to nuclear family groups (Sundstrom 2019:II-93, 106). Subsistence practices included the hunting as well as harvesting of plants such as plum, buffaloberry, dogwood, snowberry, grape, chokecherry, and rose, and the use of corn and squash (Gregg et al. 2016:5.53). Items such as Pacific and Gulf Coast marine shell, copper, obsidian, and Hopewellian pottery influences, indicate local participation in a long-distance trade network (Sundstrom 2019:II-93, 103).

Burial mounds tend to be dome-shaped structures (but become more linear during the Late Woodland period), 30 to 100 m in diameter, roughly 2 m in height, and typically found on ridgetops and stream terraces (Sundstrom 2019:IV-195). Below the floor of the mounds were rectangular chambers containing primary (time of death) or secondary (bone bundle) burials and roofed with logs" (Neuman 1960, 1975; Sundstrom 2019).

Sites identified in the Big Bend Region as Woodland period included Talking Crow (39BF4), Truman Mound (39BF224), Arp (39BR101), Crow Creek (39 BF11), Side Hills Mounds (39BF233), and Old Quarry Mound (39BF234), and Gold Soldier (39LM238; Sundstrom 2019). "Within the Big Bend Region, most excavated Woodland sites are burial mounds. Of the 46 sites listed as Woodland in the region, approximately 19 contain mounds" (Sundstrom 2019:IV-195).

Late Prehistoric Period (AD 450-1800)

The Late Prehistoric Period (ca. AD 500 to 1800), in the western part of the state, is largely a continuation of established practices from the Archaic Period and is identified as the Plains Village period along the Missouri River and the eastern half of the state (Sundstrom 2019:II-131). Cultural traditions associated with the Late Prehistoric Period include the Avonlea Complex and nomadic plains bison-hunting groups (Sundstrom 2019).

The Avonlea Complex (ca. AD 450 to 1000) is characterized by complex, ritualized communal bison procurement, the introduction of the bow and arrow, and small, fine, side-notched projectile points (Johnson and Johnson 1998:221; Sundstrom 2019). The different complexes associated with plains bison-hunting groups (ca. 500-1800) are "recognized primarily on the basis of projectile point styles. Such points are small and may be side-notched or simple unnotched triangles" (Sundstrom 2019:II-140). Settlement patterns are highly mobile and dependent on the seasons with tipi or tipi-like habitation. Subsistence was dependent on communal bison procurement via jumps or impoundments but was supplemented by smaller game and plant foraging (Sundstrom 2019:II-135).

The majority of the sites associated with this period include surface scatters, camps, stone circles, bison jumps, animal drive lines, trapping sites, special-use sites, rock art, and isolated finds.

Plains Village Period (AD 900-1850)

The Plains Village Period partially overlaps the Late Woodland Period and dates to between ca. AD 900 and 1850 (Sundstrom 2019:IV-197). Several distinct cultural traditions are associated with this period, including the Middle Missouri Tradition, Coalescent Tradition, Central Plains Tradition, and Oneota Tradition (Sundstrom 2019). No sites associated with the Central Plains Tradition have been identified within South Dakota, as they have been documented only in Nebraska and Kansas.

Middle Missouri Tradition - The Middle Missouri Tradition (ca. AD 900 to 1675) was along the Missouri River in North and South Dakota and can be divided into the Initial, Extended, and Terminal Middle Missouri. This tradition is characterized by fortified and unfortified villages, rectangular earthlodges, unnotched or side-notched triangular projectile points, bone tools, and globular, grit-tempered pottery created via paddle and anvil (Sundstrom 2019:IV-198).

The Initial Middle Missouri (IMM) settlements contained 20-30 houses (i.e., earthlodges) arranged in rows with a possible plaza. In contrast, the Extended Middle Missouri (EMM) consisted of less than 20 earthlodges around a central plaza, and the Terminal Middle Missouri (TMM) consisted of around 100 earthlodges set in rows around a central plaza (Sundstrom 2019:IV-144). Earthlodges were long, rectangular, semi-subterranean structures supported by central posts with smaller posts along the walls. The earthlodges also included long entryways and contained a hearth and several bell-shaped storage pits, which were dug beneath the earthlodge floor. Villages were more often fortified during the IMM than the EMM, with ditches, palisades, and bastions, and were situated on high terraces or bluffs. Lower terraces and floodplains were used to cultivate corn, beans, squash, sunflowers, tobacco, and other plants. Besides seasonal, communal bison hunting, which was the primary food source, marginal game species were also hunted on occasion.

Ceramic vessels were globular with grit-temper and have flared or recurved rims (i.e., S-rims) with decorations on the rims and shoulders and were used for storage and cooking (Sundstrom 2019: II-155). The tool assemblage included bison scapula hoes, bone awls, horn scoops, stone knives, end scrapers, mauls, celts, manos and metates, abraders, and bows and arrows (Alex 1981; Lehmer 1954, Sundstrom 2019).

Sites are typically found along major rivers in the eastern part of South Dakota and included villages, hunting camps, and isolated finds (Sundstrom 2019:II-154). The Big Bend Region contains approximately 40 IMM sites, including Jigg Thompson (39LM208), Langdeau (39LM209), Pretty Head (39LM232), Pretty Bull (39BF12), and Stricker (39LM1; Sundstrom 2019:VI-199). There are only a few identified EMM sites (Hickey Brothers [39LM4], Fort Lower Brule [39LM53], Dinhart [39LM33], King [39LM55]) and no TMM sites in the Big Bend Region (Sundstrom 2019:IV-199).

Coalescent Tradition - The Coalescent Tradition (ca. AD 1300 to 1886) was located along the Missouri River in North and South Dakota and can be divided into the Initial, Extended, and Post-Contact Coalescent. The Coalescent and Middle Missouri lifeways were similar, with components "distinguished principally by the ware and types of ceramics that were produced, as well as differences in house types and village organization" (Sundstrom 2019:II-144). Post-Contact Coalescent sites are typically identified by Euro-American trade goods and horse bones (Johnson 1998; Sundstrom 2019: II-228).

Earthlodges and ceramics are similar to those of the Central Plains Tradition to the south, signifying that Central Plains villagers migrated north, possibly due to climate change (Sundstrom 2019:II-199). Smaller than the Middle Missouri Tradition earthlodges, Coalescent Tradition earthlodges were circular or rounded square with four large central posts and smaller posts along the walls. They also include a central hearth and cylindrical or bell-shaped pits. Fortified villages were more common during the Initial Coalescent, as compared to the Extended Coalescent. Additionally, fortified villages consisted of ditches, palisades, and bastions, with the earthlodges in a compact arrangement, whereas earthlodges at unfortified villages were placed randomly and widely spaced (Sundstrom 2019:II-200). Post-Contact Coalescent villages tend to be concentrated at confluences of major rivers and associated tributaries and vary in size, often with an open central plaza and frequently with more than one fortification system (Johnson 1998:321; Sundstrom 2019:II-228).

Bone, stone, and shell tools and ornamentation associated with the Coalescent Tradition include scapula hoes, awls, needles, fishing hooks, beads, pendants, bracelets, gorgets, knives, drills, gravers, endscrapers, manos and metates, mauls, and pipes (Johnson 1998:311). Projectile points are triangular unnotched or side-notched. Euro-American goods replaced many of the bone and stone tools during the Post-Contact Coalescent. Items included glass trade beads, kettle parts, gun parts, metal knives, projectile points, awls, axes, hoes, adzes, chisels, rods, fishhooks, and horse

bridles (Johnson 1998:323). Many of the Euro-American goods were remade to suit their purpose (Sundstrom 2019:II-229).

Initial Coalescent pottery consisted of constricted-mouth globular jars, with crushed igneous rock temper and either cord-roughened, simple-stamped, or smoothed exterior (Johnson 1998:311, 316). In contrast, the Extended Coalescent pottery was thin-walled, with little temper, and had straight, flared, or vertical rims with simple-stamped or smooth exterior (Johnson 1998:319; Sundstrom 2019:II-200). Post-Contact Coalescent pottery tends to have thicker walls and more temper, with decoration changing "with the addition of more cord- and finger-impressed lips or rims," more undecorated vessels, and fewer straight or curved rims (Johnson 1998:323).

Like the Middle Missouri Tradition, Coalescent sites are typically permanent to semi-permanent villages located on upper terraces along major rivers in the eastern part of South Dakota with a few hunting camps and quarries located away from core village areas (Johnson 1998:311; Sundstrom 2019:II-200). "The Big Bend Region was the core of the Coalescent Tradition," and sites associated with the Coalescent Tradition include Talking Crow (39BF3), Medicine Creek (39LM2), Crow Creek (39BF11), Clarkstown (39LM47), Two Teeth (39BF204), Black Partizan (39LM2018), Village II (39LM27), and Rattlesnake Keeper (39HU160; Sundstrom 2019:IV-199).

Oneota Tradition - The Oneota Tradition (ca. AD 900-1870) was located along the Upper Mississippi River and is associated with the Upper Mississippian Culture. The Oneota Tradition is found throughout the upper Midwest. In South Dakota, these sites are found in the southeastern portion of the state along the Missouri, James, and Big Sioux rivers and include villages, hunting camps, mounds, burials, and isolated finds (Sundstrom 2019:II-249).

Houses were "generally rectangular wall-trench structures with subterranean basins pole structures of the wigwam and longhouse type," situated in large to small unfortified villages (Henning 1998; Sundstrom 2019:II-247). Like other Plains Village traditions, the Oneota Tradition's subsistence was based on hunting, gathering, and horticulture. Ceramics included decorated, shell-tempered, globular jars with constricted openings (Henning 1998). Tools and ornamentation include bison or elk scapula hoes, awls, side-notched projectile points, side scrapers, endscrapers, manos, abraders, mauls, celts, copper ornaments, catlinite disks and inscribed plaques, and elbow pipes (Henning 1998:348-352; Sundstrom 2019). Burial practices included mounds, flat cemeteries, storage/trash pits, and house floors (Henning 1998; Sundstrom 2019).

Protohistoric Period (AD 1700-1861)

"In northern Great Plains archaeology, the term *Protohistoric* refers to the period after which European goods and species had entered the material culture assemblage but before permanent non-native settlement began" (Sundstrom 2019:II-253). In South Dakota, this period roughly corresponds from AD 1700 to 1861.

The increase in Euro-American contact brought about many changes in the traditional culture of groups of the Northern Plains, including horses, European goods, and disease. Metal tools and implements obtained via trade replaced traditional stone, bone, wood, shell, and clay items. The gun ascended to a place alongside the bow and arrow in basic weaponry. The appearance of horses in the middle of the 18th century influenced the lifeways of nomadic tribes like the Lakota, Dakota, and Assiniboine. The presence of Euro-American artifacts is the primary way of identifying protohistoric and historic sites in the region.

Epidemics of disease introduced by Europeans devastated the settled Plains Village groups and paved the way for more nomadic equestrian groups to gain dominance in the region. These groups would have utilized short-term tipi camps and many of these locations, unless repeatedly reoccupied or marked by stone circles, probably contain little in the way of identifiable material

traces in the archaeological record. Subsistence of the Equestrian groups was based on bison, but wild plants, other wild animals, and garden produce received in an exchange with or through raids on settled Village gardeners also were significant components of the diet (Gregg and Bleier 2016a:2.26-2.28).

During the Protohistoric period, intertribal interactions, as well as trade between tribes and Euro-American settlers intensified. Intertribal trade during this period is rooted in prehistoric connections. As a result of trade and Euro-American expansion, historical and ethnographic accounts of the groups using this area complement the archaeological record (Gregg and Bleier 2016b:6.49-51).

Reservation Era (AD 1859-Present)

Between 1850 and 1870, the United States government created reservations to separate Native Americans and the influx of settlers. "The Crow Creek Reservation was established on the east side of the Missouri River below Fort Pierre in 1859. … The Lower Brule Reservation soon followed under a treaty signed in 1865." (Sundstrom 2019:IV-207). Today, all of the Crow Creek Reservation and most of the Lower Brule Reservation are located within the Big Bend Region (Sundstrom 2019).

In 1887, the United States Congress passed the General Allotment Act, known more commonly as the Dawes Act. This brutal piece of legislation provided the federal government with the ability to divide communal tribal land into individual allotments. Some lawmakers, including Henry Dawes (for whom the act is named), believed that forcing Native Americans to adopt agriculture while simultaneously removing the communal element of tribal village life would help assimilate them into mainstream or "civilized" society. They did not view the act of removing cultural traditions and general lifeways as destructive but as a way of saving Native Americans from disappearing altogether, a misguided notion that many people believed. At the same time, other lawmakers saw the commercial potential in selling allotments to non-Indians, something that indeed came to fruition when certain allotments were not sold and therefore deemed "surplus." Today, the Dawes Act is considered the most destructive policy dealing with Native peoples (Mandan, Hidatsa, and Arikara [MHA] Nation 2018; State Historical Society of North Dakota [SHSND] 2008b).

As an additional means of forced integration, Christian missionaries were sent to reservations, and children were taken from their families and placed in boarding schools (Indian schools). Schools such as the Fort Stevenson Indian School, Bismarck Indian School, and the Carlisle Indian School in Pennsylvania prohibited students from using their language, practices, and culture and were subjected to a curriculum that emphasized European-American culture (MHA Nation 2018; SHSND 2008b).

In 1934, to rectify some of the damage done, the Indian Reorganization Act, which secured certain rights to Native Americans, was established. This included the reversal of the Dawes Act and a return to local self-government on a tribal basis. However, in the late 1940s and early 1950s, the Indian Reorganization Act was disassembled. The plan was to establish a policy that would eliminate tribal status altogether. In 1975, the Indian Self-Determination and Education Assistance Act was enabled. This policy was meant to allow tribal autonomy while still benefitting from government treaty obligations. The American Indian Religious Freedom Act of 1978 was created to protect and preserve the traditional religious rights and cultural practices of Native Americans. In addition to Self-Determination, other laws were passed, such as the Indian Civil Rights Act, the Indian Financing Act, and the Indian Child Welfare Act (SHSND 2008b). Today, reservations have tribal governments, which administer many governmental, economic, health, welfare, and educational programs.

European-American Cultural Background

The area known today as South Dakota was part of the 1803 Louisiana Purchase and was part of the Dakota Territory (1861-1869) until gaining statehood on November 2, 1889, as the 40th state to enter the Union. The types of historic and architectural sites found in the Big Bend Region include depressions, foundations, historic material scatters (e.g., ceramics, glass, metal nails, tin cans, masonry, cast-iron stoves, machinery), cabins, trading posts, forts/encampments, burials, railroads, roads, bridges, homesteads/farmsteads, ranches, privies, windmills, wells, towns, schools, grange hall, sanitarium, whistle stop, grain elevator, gas station, post offices, dump, dam, irrigation, Indian agency, and line camp.

Dakota Territory (1858-1889) – The Dakota Territory consisted of the northernmost part of the land acquired from France in the 1803 Louisiana Purchase, and in 1818, the United States acquired the northeastern portion of the Dakota Territory in a treaty with Great Britain. The Dakota Territory included North Dakota, South Dakota, and much of present-day Montana and Wyoming. After becoming an incorporated territory in 1861, the population was slow to increase due to Indian attacks. Eventually, the population increased during the "Dakota Boom," from 1870 to 1880, because of the railroad growth and the Homestead Act of 1862. Settlers included New England Yankees, Swedes, Czechs, German-Russians, Norwegians, Dutch, Danes, and Germans. The economic base was organized around agriculture, mining, and cattle ranching (Federal Writers Project [FWP] 1938).

Fur Trade – The earliest Europeans and Euro-Americans to venture into the region were looking for trade routes or establishing fur trading posts. Before and after the Lewis and Clark 1804-1806 expedition, notable explorers included Sieur de la Vérendrye, Jean Baptiste Truteau, Jacques d'Englise, David Thompson, Charles Chaboillez, Manuel Lisa, Andrew Henry, William Ashley, and James Dickson. Some Europeans and European-Americans settled in the area, including "Spaniards from St. Louis, Frenchmen from Quebec, Scots and Britons from Hudson's Bay and Montreal, and Americans working either as 'free traders' or *engagés* for a dozen fur companies" (FWP 1938; Lamar 1996:27; Sundstrom 2019:II-274, 275).

Forts – The majority of the forts in the region were constructed in the 19th century. Their purpose included trading outposts, primarily fur trade and military posts, to protect supply routes, trails, trade, and settlers. Before the introduction of the railroad, these forts were located along rivers such as the Missouri, Big Sioux, and James rivers. Some of the more notable forts include Fort Yates, Fort Bennett, Fort Randall, Fort Pierre, Fort Sully, Fort Thompson, Fort James, Fort Meade, Fort Sisseton, and the Whetstone Agency (FWP 1938; Sundstrom 2019:II-280).

Trails – Two significant trails, the River Trail and the Ridge Trail, branches of the network of Red River Trails in the Red River Valley, originally were Native American trails that Euro-American fur traders later used. The Red River Trails connected fur trading posts, where they hauled furs and goods by ox cart. Later, the trails also connected military posts, where military supplies and men were sent. These military posts (e.g., Fort Abercrombie, Fort Totten, and Fort Ransom) also protected the trails as well as the people traveling up and down the trails. Eventually, the trails and ox carts were replaced by the railroad (Gilman et al. 1979).

A notable trail in the western part of the region is the Fort Pierre-Deadwood Stage Trail (1876-1906). This trail was the main line that ran between Fort Pierre, where steamboats would dock, and the Black Hills gold town of Deadwood in the Dakota Territory. There were transportation and economic booms associated with this trail, and these booms ended when the railroad reached Pierre and an alternate line opened (SHSND 2008a). Other trails include Fort Bennett Army Trail, Old Dupree Trail, Cherry Creek Indian Trail, and Bad River Indian Trail (Pierre Historic Preservation Commission 2020).

Riverboats – The Missouri and Red rivers were essential to the settlement and expansion of the Dakota Territory and were used the most for river transportation. Riverboats such as rafts, sailboats, rowboats, Mackinaws, keelboats, and steamboats brought explorers and fur traders into the Dakota Territory; however, the keelboat and steamboat were probably used more often due to their carrying capacity. "Keelboats were used primarily from 1800 to 1840, when they were replaced by steamboats" (Miller 2012). This type of boat floated high in the water, allowing it to travel on shallow rivers, and was able to carry 15 to 30 tons of cargo. River transportation became increasingly important for transporting goods to outposts and returning furs downstream.

Steamboats eventually replaced the keelboats and were used for cargo and passenger transportation. The riverboat industry became an accessible mode of transportation, as it was much easier to deliver goods to remote areas by boat than overland routes. In addition, "settlers and visitors could also travel much more safely by taking steamboats" (Burns 2004:14). The demise of riverboat transportation occurred for several reasons: (1) less shipping of passengers and cargo, (2) scarcity of wood yards, (3) inconvenient climate, (4) labor unrest, and (5) the railroad. Shipping on the Red River continued until 1912 and until the 1930s on the Missouri River (Burns 2004).

Mining – In the 1860s, there were rumors of gold in the Black Hills. As a result, several expeditions were mounted in search of gold, despite the area being a part of the Great Sioux Reservation. Soon the Black Hills were over-run with Euro-American, African-America, and Chinese prospectors, too many for the United States Army to control (Sundstrom 2019:II-287). Due to increasing conflict with the Lakota and their allies, under Ulysses S. Grant, the United States government coerced the tribes into shrinking their territory and removing the Black Hills from their reservation (Sundstrom 2019).

Mining in western South Dakota "quickly shifted from individual prospectors to heavily capitalized corporate operations" (Sundstrom 2019:II-288). Placer mining was replaced with hard-rock mining and stamp processing, and eventually cyanide processing (Sundstrom 2019).

During the Cold War, uranium was mined from the southern Black Hills, Slim Buttes, and Cave Hills (Sundstrom 2019:II-289). Other forms of mining included coal, bentonite, mica, feldspar, scoria, quartz, quartzite, and oil and gas (Sundstrom 2019).

Railroad - Major development of the railroad in the Dakota Territory occurred in the 1870s and 1880s, with the Northern Pacific Railroad and the Great Northern Railroad facilitating population growth during this time. Federal land grants were given to the Northern Pacific Railroad, which, in turn, sold the land, while the Great Northern Railroad bought its lands from the federal government and promoted settlement along its lines (FWP 1938).

The first railroads in South Dakota were constructed in the southeastern part of the state, including the Chicago, Milwaukee & St. Paul (Milwaukee Road) and the Chicago & North Western (North Western or C&NW) in 1872. The Milwaukee Road was built from Sioux City, Iowa, to Vermillion, South Dakota, while the North Western was built from Marshall, Minnesota to Gary, South Dakota (Hufstetler and Bedeau 2007:79). By the early 1880s, both the Milwaukee Road and North Western railroads reached the Missouri River but were unable to go further west, as the area west of the river was part of the Great Sioux Reservation. In 1879, the Black Hills and Fort Pierre (BH&FP) was chartered by the Homestake Mining Company to transport timber needed for their mining operations and did not go beyond the Black Hills (Hufstetler and Bedeau 2007:10). The Fremont, Elkhorn & Missouri (Elkhorn), a North Western subsidiary, eventually reached western South Dakota in 1885 via Nebraska (Hufstetler and Bedeau 2007).

Between Milwaukee Road and North Western, they controlled approximately 73% of the rail lines in South Dakota (Hufstetler and Bedeau 2007:12). The railroad companies encouraged settlement

along their routes, printing promotional brochures, employing immigration agents, discount fares, and exhibition railroad cars filled with promotional items (Hufstetler and Bedeau 2007). Between 1878 and 1887, many of the townsites were platted by the railroad companies or individuals connected with the railroad companies. "The practice of railway-sponsored townsite development helped focus additional residential and commercial development along rail lines" (Hufstetler and Bedeau 2007:13).

However, "the glory years of the American railroad network ended after World War II, as automobiles" became the primary transportation mode in the United States (Hufstetler and Bedeau 2007:4). Over the last several decades, railway segments have been abandoned.

Agriculture – The Federal Homestead Act of 1862 offered free land to anyone over 21 years old who would cultivate and improve his 160 acres of land and live on it for five years. An additional 160 acres could be obtained for a tree claim, and a third tract of land could be acquired before or after the land was surveyed. Crops planted and harvested included spring wheat, durum, flaxseed, barley, oats, sugar beets, corn, hay, red clover, alfalfa, and sweet clover. Ranching of cattle and sheep, poultry raising, and beekeeping was also done on farms (FWP 1938).

During the first Dakota Boom (1878-1887), migrants settled primarily on the east side of the Missouri River (Brooks and Jacon 1994:14). Early settlers either came by riverboat via the Missouri River or overland by ox cart (Witt et al. 2013:6). Prior to the second Dakota Boom, cattle ranchers used the western part of the state for ranching operations and later leased reservation land for open-range ranching. (Witt et al. 2013). The second Dakota Boom (1902-1915), which opened former reservation land for settlement, brought an end to open range grazing as homesteaders protected their lands by erecting fencing (Brooks and Jacon 1994:9, 18; Witt et al. 2013:16). Later, settlers came by railroad, such as the Minneapolis, St. Paul & Saul St. Marie Railway (SOO Line). Most of the settlers were British, Irish, Czech, Danish, Dutch, German, German-Russians, Norwegian, and Swedish immigrants (Brooks and Jacon 1994:9; Witt et al. 2013). "Settlers intent on pursuing an agricultural operation often constructed temporary structure[s] [such as dugouts, log shacks, or sod houses] followed by permanent structures and landscape alterations as time and finances permitted" (Brooks and Jacon 1994:14). Farms included such structures as farmhouses/ranch houses, privies, barns, chicken coops, windmills, wells, corncribs, corrals, garages/carriage houses, granaries, machine storage buildings, root cellars, and other buildings and structures.

Farm homes in the eastern part of the state were typically small, located close together, and made up of well-painted modernized buildings surrounded by neat lawns and tree groves. They had modern conveniences like electricity, telephones, radios, and cars. In the central part of the state, farms were not as modernized as eastern South Dakota but were well-kept. In western South Dakota, farm homes were often little more than shacks erected to establish residence under the Federal Homestead Act. Many such buildings were still in use in the early twentieth century (FWP 1938).

In general, the east side of the Missouri River was home to crop-growing operations, while the west side of the Missouri River was more suitable for ranching. Because of the semi-arid climate, dry-farming was encouraged, which used such techniques as deep plowing (12-18 inches), cultivating fallow and drought-resistant plant varieties (Ostergren 1983:60). In the 1930s, a severe drought known as the Dust Bowl began, which occurred around the same time the Great Depression reached South Dakota. "One storm in May of 1934 carried away an estimated 300,000 tons of top soil [*sic*] from the Great Plains" (Brooks and Jacon 1994:10). The resultant overgrazing and plowing of soils in areas not suitable for raising crops was the main underlying cause of the Dust Bowl (Brooks and Jacon 1994:11; Witt et al. 2013:3).

In 1935, the Soil Conservation Service (SCS) was established and introduced various methods to fight erosion and soil moisture loss. Techniques included wind strip cropping, contour farming, rough tillage, field windbreaks, shelterbelts, and contour furrowing and pitting (Witt et al. 2013:22-23). In addition, much of the land opened for dry-farming before World War I was reseeded with native grasses and waterholes for cattle were built to revert the area back into grazing land (Brooks and Jacon 1994:11; Grant 2011).

Tourism – "Tourism is South Dakota's principal industry today, with such Black Hills attractions as Custer State Park, Mount Rushmore, Historic Deadwood, the Sturgis Motorcycle Rally, and Crazy Horse Monument, its main drivers" (Sundstrom 2019:II-298). Tourism was aided by the state's interstate system, which provided easy access to the Black Hills, Badlands, National Grasslands, and recreational areas along the Missouri River. Wind Cave National Park was established in 1903 by Theodore Roosevelt. Soon after, South Dakota created its first state park, Custer State Park, established in 1913 and named after Lieutenant Colonel George Armstrong Custer (Sundstrom 2019). Doane Robinson went to Gutzon Borglum with the idea of creating Mount Rushmore in the Black Hills as a way to promote tourism in the state (Wolff 2005:311; Sundstrom 2019). Construction started in 1927 and was completed in 1941. After the completion of Mount Rushmore, Korczak Ziolkowski, who worked on Mount Rushmore under Borglum, was commissioned to create the Crazy Horse Memorial. Construction began in 1948 and continues today.

Federal Relief – The collapse of wartime prices for grain in the 1920s instigated an economic depression in South Dakota that lasted through the 1930s, concurrent with the Great Depression (Dennis 1998:5). In 1931, more banks closed than in any other year, resulting in a wave of farm foreclosures (Dennis 1998). The Great Depression of the 1930s spurred change throughout the state. Rural populations decreased while city populations grew. Because of the price decline of farm produce, cooperatives enjoyed a renewed popularity as farmers banded together to market their products and reduce farming costs. Farmers Unions built local elevators and organized oil cooperatives that served the needs of the rural community. Despite economic problems, crop failures, dust storms, and extreme weather, South Dakota visibly modernized during the 1930s, shifting to mechanized farming operations and motorized transportation. Federal relief programs improved highways, state parks, and city services throughout the state.

Immediately after Franklin Roosevelt took the oath of office, he began passing a series of laws to put people back to work, restoring faith in the banking system, and shoring up the economy (Dennis 1998; Remele 1989). Among these efforts were the Works Progress Administration (WPA), the Civilian Conservation Corps (CCC), the Federal Emergency Relief Administration (FERA), Agricultural Adjustment Act (AAA), the National Industrial Recovery Act (NIRA), the Public Works Administration (PWA), the Civil Works Administration (CWA), and the National Youth Administration (NYA; Dennis 1998:7-8). Notable New Deal projects include the Black Hills Airport (demolished; FERA), Sioux Falls City Hall (PWA), former Roberts County Jail in Sisseton (PWA), sanitary sewers (PWA), storm sewers (PWA), street improvements (PWA), water systems (PWA), Watertown Regional Airport Hangar (CWA), Dell Rapids City Park Bathhouse (CWA), and Centerville municipal building (FERA; The Living New Deal).

CCC work projects fall into nine classifications and include structural improvements, transportation, erosion control, flood control, forest protection, landscape and recreation, range, wildlife, and miscellaneous (Dennis 1998:14). In South Dakota, most CCC projects were associated with the Forest Service, with accomplishments including forest thinning, creating fire breaks, debris removal, build and staff fire lookouts, creating 1,528 miles of truck and fire trails, constructing 1,400 miles of telephone lines, insect and rodent control, road improvements, bridge construction, dam construction, and the development of recreational facilities (Dennis 1998:17). Examples of CCC projects included the Harney Peak Lookout Tower at Mount Rushmore, Badlands National

Park in cooperation with the WPA, Horsethief Lake, Stockade Lake, Bismarck Lake, Center Lake, and Pactola Lake Camp Site (The Living New Deal; Dennis 1998). In association with the SCS, the CCC established wind and water erosion control through conservation practices, including shelterbelts, rock dams, "terraces, pasture furrows, sod waterways, contour lines, strip cropping, and rough tillage" (Dennis 1998:24).

WPA work projects fall under seven categories: municipal engineering, airport and airway, public buildings, highway and roads, conservation, engineer survey, and disaster emergency activities (Dennis 1998:39-41). In South Dakota between 1935 and 1942, the WPA built, improved, or renovated more than 18,780 miles of highways, roads, and streets, 1,303 bridges and viaducts, 11,193 culverts, 309 schools, 107 parks, 89 playgrounds and athletic fields, 15 swimming pools, 61 utility plants, 138 miles of water mains and distribution lines, 115 miles of sewers, 38,818 privies, 14 airport landing fields, 18 airport buildings, and hundreds of small dams (Dennis 1998:43-44). WPA project examples include the Amsden Dam and Lake, Aurora County Courthouse, Camp Rapid, former Governor's Mansion, telephone lines, Rapid City Library, former Spearfish City Hall, Dell Rapids City Park Amphitheater, Dinosaur Park in Rapid City, and Wind Cave National Park in cooperation with the CCC (The Living New Deal; Dennis 1998).

Post-World War II – From the 1940s to the 1960s, South Dakota continued to develop modern agriculture, industry, and infrastructure. Starting in the 1940s, favorable weather and improved crop yields coincided with higher prices stimulated by America's entry into World War II. By the end of the war, farm debt had dropped noticeably. After the war, the state's industrial economy continued to prosper. However, while some small towns prospered during and after World War II, others eventually disappeared (Dennis 2007:6). Starting in the 1940s, many farmers and small-town folk moved to the larger urban centers such as Rapid City, Sioux Falls, Aberdeen, Watertown, and Huron (Dennis 2007). Additionally, with the decreased use of railroad and the construction of Interstate-90 and Interstate-29, urban growth continued (Dennis 2007:10).

"Perhaps the biggest change in South Dakota [following World War II] was the electrification of the rural areas of the state" (Dennis 2007:6). In 1947, only 30% of the farms in South Dakota had electricity; however, by the end of the decade, 60% had power (Thompson 2005; Dennis 2007). And between 1950 and 1960, the percentage of rural South Dakotans with electricity increased to 96% (Dennis 2007:10).

Pick-Sloan Plan – As part of the Pick-Sloan Program (i.e., Missouri River Basin Project), several multi-purpose reservoirs were created, including Fort Randall Dam (construction began in 1946; completed in 1953), Oahe Dam (construction began in 1948; completed in 1962), Gavins Point Dam (construction began in 1952; completed in 1957), and Big Bend Dam (construction began in 1959; completed in 1963). These reservoirs were created as a solution for extreme flooding and irrigation and power development projects. "The construction of these dams resulted in a number of housing projects, including the construction of the town of Pickstown near Fort Randall Dam and the Oahe Addition in Pierre" (Dennis 2007:7). It also flooded lands along the Missouri River, forcing several families and, in some cases, towns to relocate.

Energy – Industrial developments included the beginning of the energy industry; in 1954, oil was discovered within the Williston Basin in the northwestern corner of the state, in Harding County (American Oil & Gas Historical Society [AOGHS] 2017). A year later, oil was found in Custer County, associated with the Powder River Basin (AOGHS 2017). With the completion of the hydro-electric dams along the Missouri River, they supply more electricity to the state (44%) than any other form of electricity: wind energy (24%), coal (21%), and natural gas (11%; Energy Information Administration [EIA] 2020).

Level I Records Search

Level I Records Search

On June 8, 2021, Brittany Brooks of BCA requested a records search for the 2021 project area from the South Dakota Archaeological Research Center (ARC), and received the results from Amber Odom on June 7, 2021. The records search is used to indicate the types, distribution, and density of cultural resources within a 1.5-mile radius of the proposed project area.

South Dakota ARC Records

The records search indicated that four projects had been conducted within a 1.5-mile radius of the survey areas. Portions of two of these projects cross into the 2021 survey area: ASD-0050 (2018) and ESD-0228 (2000). The manuscripts within the 1.5-mile radius of the project are included in tabular form in Appendix B (Table 4).

The records search also revealed that the site distribution is light within a 1.5-mile radius of the 2021 project area and included one unevaluated prehistoric site and five architectural sites (one eligible bridge, two ineligible bridges, one unevaluated structure, and one ineligible structure) on file at the time of the records search. These results are included in tabular form in Appendix B (Table 3). None of the previously recorded cultural resources are documented within the 2021 survey area; however, a companion architectural report produced by BCA will address the visual impacts of the proposed project to architectural sites within the 1.5-mile radius of the proposed project.

2020 Survey Area

In 2020, the Proponent contracted BCA to conduct a pedestrian inventory of a preliminary turbine layout during the planning stages of the project in order to determine the viability of the preliminary layout in regard to cultural resources. The data from the 2020 preliminary survey are included in this report in order to provide the South Dakota SHPO with the results of the 2020 survey; however, the preliminary alignment does not represent the currently proposed layout of the North Bend Wind Project.

The preliminary array consisted of 72 turbine pads, each with a 100’ diameter survey area, 30 miles of access roads with a 40’ wide survey corridor, 56 miles of collection lines with a 20’ wide survey corridor, a 5-mile-long general tie-in (i.e., transmission line) with a 50’ wide survey corridor, a 3-acre substation location, and a 7-acre Point of Interconnection (POI). A total of 359 acres were inventoried to Level III standards. A map of the preliminary survey area is provided in Appendix A (Figure 3).

Preliminary Field Survey

Between November 16-19, 2020, BCA archaeologists Alex Atkinson, Reilly Lembo, Liz Cheli, Silas Chapman, Larry Pallozzi, and Russell Red Horn conducted the preliminary field survey for the proposed project. Alex Atkinson served as the Principal Investigator and Wade Burns served as the Project Director.

The survey area was located entirely on private property on both sides of the Hughes-Hyde County line; however, the majority of the preliminary array was located within Hughes County. The predominant use of the land is currently agriculture, although both rangeland and cropland were encountered during the survey.

The landforms in the survey area consisted of rolling hills, small marshes, and flat tablelands. The vegetation can be divided into two sections, cropland and rangeland. Primary crops were wheat, corn, soybeans, and sorghum. Rangeland consisted of mixed native and non-native grasses, such

as crested wheatgrass, blue grama, little bluestem, needle-and-thread, thistle, snowberry, dock, curly cup gumweed, coneflower, yellow-sweet clover, alfalfa, smooth brome, and other shortgrass species. At the time of inventory, the ground surface visibility (GSV) was approximately 30-60% in cropland and 30-40% in rangeland. Weather conditions for the pedestrian survey were clear to partly cloudy, with the temperature varying from 38-60°F. The elevation of the preliminary array ranged from approximately 1,819-2,066' above mean sea level AMSL.

Results and Recommendations

One of the previously recorded cultural resources was documented as being located within the preliminary project area and was visited and updated by BCA (39HU78). During the 2020 preliminary field review, a total of 12 cultural resources were identified and recorded. A brief overview of the cultural resources is provided below, and detailed descriptions are provided in Appendix D.

REDACTED

Following the completion of the 2020 preliminary survey, the Proponent provided an updated layout for the proposed project that was designed to accommodate site avoidance of the cultural resources encountered during the 2020 survey. The updated project layout was successfully designed to avoid all 13 cultural resources documented within the preliminary project layout by well over 100'. As a result, no specific avoidance measures for these sites are recommended for this project.

2021 Level III Pedestrian Inventory

The Proponent is seeking concurrence on the results from the 2021 Level III pedestrian inventory and TCP survey, as this layout represents the currently proposed construction array. This project alignment, as mapped in Figure 2 in Appendix A, is located primarily on private property, with a portion of the proposed project located on State Trust land.

Level III Pedestrian Survey

The survey area was mapped over the center of the proposed project elements. The records search results, including cultural resources and previous surveys completed within the last 10 years, were then added to this map. All areas of the proposed project that were previously surveyed, either during the 2020 preliminary survey or under other projects, were resurveyed during the 2021 pedestrian inventory. As a result, this Level III pedestrian survey covers the entire project area. The purpose of the inspection was to identify, via a pedestrian survey, any cultural resources within the survey area.

Inventory Methodology

Prior to the inventory, the survey area and known cultural resources are mapped onto a Trimble Juno global positioning system (GPS). USGS topographic maps and the Trimble Juno GPS are used by BCA staff to navigate and orient within the survey area.

The survey area is inventoried by the BCA archaeologists and TCSs walking parallel linear pedestrian transects 10 m apart based upon terrain and probability for cultural resources. Throughout the survey, field observations are recorded as field notes in a bound notebook and digital photographs are taken. Should the ground surface visibility (GSV) fall below 30%, intervals are surveyed closer together, and shovel test probes (STPs) are implemented. If a cultural resource is encountered, the location is marked with pin flags, and the surrounding area is intensely scrutinized to determine the nature and extent of the resource. The resource is then plotted on a USGS 7.5' Quad map utilizing a Trimble GPS. Cultural material is not collected.

Project Personnel

Between August 3-12, 2021, BCA archaeologists conducted the Level III cultural resource inventory, with Alex Atkinson serving as the Principal Investigator and Wade Burns serving as the Project Director. The concurrent TCP inventory was conducted by tribal representatives from the three tribes who indicated interest in participating in the project to WAPA. These Tribal Cultural Specialists (TCSs) included Odell St. John, Jr. (Crow Creek Sioux Tribe), Dwight Luxon (Rosebud Sioux Tribe), and Lonnie Provost (Yankton Sioux Tribe).

Additionally, BCA archaeologist/Principal Investigator Alex Atkinson and Rosebud Sioux Tribe TCS David Kills in Water surveyed reroutes to the alignment between September 1-3, 2021.

Survey Conditions

Weather conditions consisted of sunny, hazy, and overcast skies, and the temperature ranging between 78-94°F. The project area was located on the flat plains and rolling hills within the Fort Randall Reservoir and Medicine Knoll drainage systems. The survey area was located within agricultural fields and rangeland. Vegetation in the area consisted of native and non-native grasses, plants, and forbs, including wheat, corn, sorghum, soybean, sunflower, alfalfa, buffalo grass, crested wheatgrass, smooth brome, blue grama, sage, cattails, ball cactus, milkweed, yarrow, sage, Canada thistle, prairie turnip, sideoats grama, thickspike wheatgrass, skeletonweed, yellow and purple coneflower, snowberry, Russian thistle, traveling jenny, morning glory, curly cup gumweed, silver leaf scurfpea, juniper, and green foxtail barley. The elevation of the survey area ranged from 1,850-2,100' above mean sea level (AMSL). During the inventory, the GSV was approximately 30-40% on average within rangeland, 50-60% within growing wheat fields, 75% within the harvested wheat fields, 30-60% within the sunflower fields, 30-40% within the soybean fields, 30-40% within the hay fields, 40-45% within the corn fields, and 30% within the sorghum fields. As a result, no STPs were implemented as a result of low GSV since the GSV never dropped below 30%. Areas of higher visibility, such as erosion features, areas of sparse vegetation, and rodent burrows, were also carefully examined for cultural material. Overview photos of the survey area are included in Appendix B.

Cultural Resource Results and Recommendations

While conducting the pedestrian survey, it was noted that the survey area is presently used for agricultural production, livestock grazing, and wildlife habitat. Previous disturbances include plowing activities, gravel pits, fence lines, overhead and underground utilities, road construction, two-track roads, field-clearing piles, stock ponds, cattle activity, shelter belts, and erosion.

No previously recorded cultural resources were located within or near the survey area. However, 13 cultural resources were discovered during the inventory. A brief overview of the cultural resources is provided below, and detailed descriptions are provided in Appendix D.

REDACTED

Following the pedestrian inventory in August 2021, the Proponent provided BCA with reroutes to avoid the documented cultural resources. These reroutes were surveyed by BCA archaeologist Alex Atkinson and Rosebud Sioux Tribe TCS David Kills in Water between September 1-3, 2021. The reroutes successfully avoid all cultural resources by over 50'. Additionally, BCA recommends placing temporary avoidance fencing along the edge of the survey area near each of the stone feature sites during construction activities.

Traditional Cultural Property Survey

The purpose of the TCP survey was to have TCSs identify cultural heritage finds within the areas surveyed. According to WAPA, three tribes expressed an interest in participating in the TCP survey: the Crow Creek Sioux Tribe, the Rosebud Sioux Tribe, and the Yankton Sioux Tribe. The primary TCP survey covered the same locations as and was conducted concurrently with the Level III archaeological pedestrian inventory between August 3-12, 2021. Tribal representatives for the project included Odell St. John, Jr. (Crow Creek Sioux Tribe), Dwight Luxon (Rosebud Sioux Tribe), and Lonnie Provost (Yankton Sioux Tribe). Additionally, Rosebud Sioux Tribe TCS David Kills in Water surveyed reroutes to the alignment with BCA archaeologist Alex Atkinson between September 1-3, 2021.

During this portion of the project, BCA did not identify features or interpret TCP finds; BCA's sole responsibility for the TCP survey was to compile the information provided by the TCSs.

Each TCP, along with each of the sites documented by BCA archaeologists during the concurrent Level III pedestrian survey, were revisited by each TCS. These revisits allowed the participating tribes the ability to survey the area within and immediately around the current TCP or site boundaries so they may give their input on how the locations are recorded and avoided. Additionally, it provided the opportunity to identify any additional TCPs within the areas surveyed. All locations identified by at least one of the participating TCSs as a TCP were provided with a BCA field code, documented by BCA on a South Dakota TCP form, and filed with the South Dakota SHPO for their records.

Survey Methods

In an attempt to provide the reviewing and consulting parties as well as the participating TCSs and archaeologists a standardized approach to the multi-tribal traditional cultural survey, the tribal review meets the South Dakota SHPO's minimum survey standards for archaeologists. This consists of walking parallel linear pedestrian transects between 10 m apart; however, tighter transects may also be conducted should the TCSs feel it to be appropriate.

United States Geological Survey topographic maps and Trimble Juno GPS units are used by BCA staff to assist with orientation and documentation. If a TCP is identified during the inventory, the location is marked with pin-flags, photographed, and coordinates are taken with a Trimble GPS unit running ArcPad. The surrounding area is intensely scrutinized to determine the nature and extent of the resource. The resource is then plotted on a USGS 7.5' Quad. map utilizing a Trimble GPS unit. The tribes will share the amount of knowledge they feel comfortable to meet these requirements.

In an effort to identify all visible cultural resources within the areas surveyed, the participating TCSs apply their specific survey standards and methods in addition to the particular methods and standards planned for this project. As such, each TCS has the right to survey under their prescribed methodology, as well as to interpret and share whatever information they deem necessary for their portion of their participation in the project.

Field Results

For each cultural heritage find encountered, GPS points of the features and/or boundary were taken. On behalf of the TCSs, the BCA staff documented any specific feature and/or details for which the TCSs wanted disclosed. At the request of the South Dakota SHPO, the information determined by the tribal representatives as allowable for documentation were detailed within a South Dakota TCP form. The TCPs and associated Geographic Information System (GIS) data were submitted to the South Dakota SHPO for their records. Copies of these forms and GIS files will also be forwarded to the Tribal Historic Preservation Offices (THPOs) for their project records.

In addition to the 11 stone feature sites co-identified by BCA archaeologists and TCSs (discussed in the 2021 Level III inventory results), a total of 30 TCPs were identified by tribal representatives during the TCP survey. Each TCP was identified by at least one of the TCSs and was assigned a BCA field code. A summary of the recorded TCPs is provided below in Table 2. Further information regarding each TCP is provided in Appendix E.

Due to the importance of these locations to local tribes, BCA recommends that each of the TCPs documented during the TCP survey be avoided. Following the original TCP survey in August 2021, the Proponent provided BCA with reroutes to avoid the documented TCPs. These reroutes were surveyed by Rosebud Sioux Tribe TCS David Kills in Water and BCA archaeologist Alex Atkinson between September 1-3, 2021. The reroutes successfully avoid all TCPs by over 50'. Additionally, BCA recommends placing avoidance fencing along the edge of the survey area near each of the TCPs during construction activities.

Table 2. Summary of TCPs identified during the TCP Survey.

TCP Identification Number	# of Features	TCP Summary
REDACTED		

Management Summary

Beaver Creek Archaeology, Inc. conducted a Level III cultural resource survey and facilitated a TCP inventory of the proposed North Bend Wind Project. A 2020 preliminary survey covered approximately 359 acres and was surveyed from November 16-19, 2020. The 2021 Level III inventory and concurrent TCP survey covered approximately 2,034 acres and was surveyed from August 3-12, 2021 and September 1-3, 2021.

The Proponent is seeking concurrence on the results from the 2021 Level III pedestrian inventory and TCP survey, as this layout represents the currently proposed construction array. However, the data from the 2020 preliminary survey are included in this report in order to provide the South Dakota SHPO with the results of the 2020 survey, which was conducted to Level III standards. Maps showing the location of the 2021 Level III pedestrian inventory/TCP survey as well as the 2020 preliminary survey area are provided in Appendix A.

The Level I records search for the proposed project area revealed one unevaluated prehistoric site and five architectural sites (including one eligible bridge, two ineligible bridges, one unevaluated structure, and one ineligible structure) located within a 1.5-mile radius of the preliminary project area. None of the previously recorded cultural resources were documented within the currently proposed project area.

During the 2020 preliminary pedestrian inventory, one previously recorded resource was updated and 12 new cultural resources were documented, including 10 prehistoric stone feature sites and two historic archaeological sites. Each of the stone feature sites has been recommended as eligible for nomination to the NRHP, while the two historic sites have been recommended as unevaluated for nomination to the NRHP. Avoidance measures are recommended for each of these sites.

Following the completion of the 2020 survey, the Proponent provided a revised layout for the proposed project that was designed to accommodate site avoidance of all 13 cultural resources documented within the preliminary project layout. The vast majority of the revised layout is different from the area surveyed under the 2020 preliminary field review, and these sites were avoided by well over 100’ in the updated layout; therefore, no specific avoidance measures are recommended for these sites.

During the 2021 intensive pedestrian survey for the revised project alignment, 13 new cultural resources were encountered, including 11 prehistoric stone feature sites and two architectural sites. Each of the stone feature sites has been recommended as eligible for nomination to the NRHP and avoidance measures are recommended. The two architectural sites have been recommended as ineligible for nomination to the NRHP and no specific avoidance measures are recommended. A companion architectural report produced by BCA will address the visual impacts of the proposed project to architectural sites within the 1.5-mile radius of the proposed project.

Additionally, 30 TCPs were identified by tribal representatives during the TCP inventory, including both physical and non-physical surface expressions and an isolated find. Each of these have been documented on a TCP form and submitted to the South Dakota SHPO for their records.

The Proponent has rerouted or moved proposed project elements in order to avoid each stone feature site or TCP by a minimum of 50’. Additionally, BCA recommends placing avoidance fencing along the edge of the survey corridor near each of the stone feature sites and TCPs during construction activities.

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Appendix A: Maps

North Bend Wind Project
2021 Survey Area & APE

North Bend Wind Project, LLC

Legend

- Survey Area (2,034 acres)
- Turbines
- NorthBend Project Substation
- NorthBend POI
- Updated Collection Lines (68 miles)
- Updated Access Roads (35 miles)
- APE (2,012 acres)
- Construction Area (363 acres)
- Previously Surveyed

0 425 850 1,700 2,550 3,400 Meters

0 0.25 0.5 1 1.5 2 Miles

T110N R73W, T110N R74W
T111N R73W, T111N R74W,
T112N R73W

Fort Randall Reservoir &
Medicine Knoll Drainages

Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE,
Chapelle Lake SW, & De Grey NE Quad. Maps

Hughes County & Hyde County, South Dakota

N W E S

Beaver Creek
ARCHAEOLOGY

Base Map: USGS 7.5'
Scale: 1:24,000
UTM NAD83 Zone 14

GE

North Bend Wind Project
2020 Survey Area

North Bend Wind Project, LLC

T110N R73W, T110N R74W
T111N R73W, T111N R74W,
T112N R73W

Fort Randall Reservoir &
Medicine Knoll Drainages

Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE,
Chapelle Lake SW, & De Grey NE Quad. Maps

Hughes County & Hyde County, South Dakota

Legend

- Survey Area (359 Acres)
- Previously Surveyed

0 425 850 1,700 2,550 3,400 Meters
0 0.25 0.5 1 1.5 2 Miles

N W E S

Beaver Creek
ARCHAEOLOGY

Base Map: USGS 7.5'
Scale: 1:24,000
UTM NAD83 Zone 14

GE

North Bend Wind Project
Combined 2020 & 2021 Survey Areas

North Bend Wind Project, LLC

T110N R73W, T110N R74W
T111N R73W, T111N R74W,
T112N R73W

Fort Randall Reservoir &
Medicine Knoll Drainages

Chapelle Lake, Chapelle Lake NW, Chapelle Lake SE,
Chapelle Lake SW, & De Grey NE Quad. Maps

Hughes County & Hyde County, South Dakota

Legend

- Survey Area (2,034 acres)
- Turbines
- NorthBend Project Substation
- NorthBend POI
- Updated Collection Lines (68 miles)
- Updated Access Roads (35 miles)
- Preliminary Survey Area (359 Acres)
- Previously Surveyed

0 425 850 1,700 2,550 3,400 Meters

0 0.25 0.5 1 1.5 2 Miles

N W E S

Beaver Creek
ARCHAEOLOGY

Base Map: USGS 7.5'
Scale: 1:24,000
UTM NAD83 Zone 14

GE

Appendix B: Survey Area Photographs

Figure 5. Overview of the survey area. View to the east.

Figure 6. Overview of the survey area. View to the west.

Figure 7. Overview of the survey area. View to the north.

Figure 8. Overview of the survey area. View to the south.

Figure 9. Overview of the survey area. View to the northeast.

Figure 10. Overview of the survey area. View to the northwest.

Figure 11. Overview of the survey area. View to the southeast.

Figure 12. Overview of the survey area. View to the southwest.

Appendix C: Records Search

June 8, 2021

REDACTED

Appendix D: Detailed Cultural Resource Descriptions

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Appendix E: Detailed Traditional Cultural Property Descriptions

REDACTED