

**Appendix E**  
**Cultural Resources**

---

This page intentionally left blank.



**Memo**

To:	Angela Piner, Alec More		
From:	Stephen Sabatke	Project:	Brookings CapX2020
cc:			
Date:	10/04/10	Job No:	

**Re: Brookings CapX2020 Cultural Resource Literature Search**

This memorandum presents the results of a cultural resource file search for the CapX Brookings 345 kV Transmission Line (Facility). The Applicants contracted with HDR Engineering, Inc. (HDR) to conduct a cultural resource file search in the Project Study Area (route plus surrounding one mile buffer to either side of the Facility), a preliminary field review, and provide recommendations for future Project-specific cultural resource identification activities. For the Facility, HDR and the Applicants understand that South Dakota Public Utilities Commission (PUC) will be the State agency responsible for permitting of the proposed transmission line facility (Facility). HDR suspects requirements such as South Dakota Codified Law: Chapter 1-19A Preservation of Historic Sites, Chapter 1-20 Archaeological Exploration, and Chapter 49-41B Energy Conversion and Transmission Facilities will be related to the permitting of this Facility. As such, it is may be appropriate for the Applicants to coordinate with the South Dakota State Historic Preservation Office (SHPO) and possibly the regional Native American Tribes. HDR limited its review of existing documentation to readily available sources, namely the files of the South Dakota Archaeological Research Center, Rapid City SD (SDARC), and the Government Land Office (GLO) maps housed with the Bureau of Land Management, Montana State Office (BLM).

HDR contacted SDARC in September 2010 (File Search Number S11-104) and acquired data for the Project Study Area (see map in Appendix A). SDARC provided Geographic Information System (GIS) shapefiles and excel data for 24 archaeological sites, eight previous cultural resources reports, four bridges, four miscellaneous resources, and 44 building/structure resources. The resources and previous cultural resource reports are spread throughout the Project Study Area and indicated the types of resources present in the proposed Facility's vicinity, the methodology of previous work, and the physical coverage of the previous work. The BLM provided GLO township maps that covered the Project study area. In addition, HDR also reviewed other literature sources related to the regional prehistory of the area, namely the Handbook of North American Indians Plains volume 1 and 2, Southwestern Minnesota Archaeology 12,000 Years in the Prairie Lake Region, South Dakota State Plan for Archaeological Resources, 1990-1991 Update, and Physiography of Minnesota.

This memorandum is divided into four parts. The first part provides a general background overview of the environmental and cultural context near the Facility's vicinity. The second part describes the resources identified through the SDARC file search and the preliminary field review. The third part reviews the 19<sup>th</sup> century GLO maps. The fourth part describes implications for future Project-specific cultural resources identification activities.

### General Background

The Facility is located on the Coteau des Prairies, a prominent plateau that extends southeast across eastern South Dakota from North Dakota border into southwester Minnesota. The Coteau des Prairies is broken up into an inner and outer part. The Facility is located on the outer part of the Coteau. The outer Coteau des Prairies (Wright: 1972) is located between the Minnesota River and James River in South Dakota. This wedge-shaped upland pointing north is remarkably straight with a steep eastern escarpment that trends southeast. The upland and scarp are composed of glacial deposits over shale. The western edge is defined by a series of moraines created during the Altamont and Bemis advance of the Des Moines Lobe. These moraines create a rolling, hilly environment with numerous gullies of median slope. In these gullies patches of deciduous woods, including oak, elm, ash, and basswood are protected from the strong winds, previous wild grass land fires, and nourished by melt-water from the snows of winter.

Currently the landscape consists of primarily agricultural fields, but the predominant pre-settlement vegetation was tall grass prairie. The following data is compiled from Wedel and Frison, *Environment and Subsistence*, Handbook of North American Indians: Plains. The common vegetation for this biome may have included, but is not limited to: big and little bluestem, Indian grass, prairie dropseed, porcupine grass, sideoats grama, plains muhly, blue grama, hairy grama, sedges prairie cord-grass, switchgrass, mat muhly, blue-joint, and northern reed grass. This prairie environment supported pre Euro-American herds of bison and elk. The current environment supports white tail deer and numerous small mammals, such as; gophers, white-tailed jackrabbits, badgers, red foxes, ground squirrels, coyotes, raccoons, skunks, weasels, voles, shrews, mice, and in wet areas, beavers, muskrat, and mink. The lakes of the region supported numerous fish and waterfowl, such as; bull heads, fathead minnows, and other stocked fish, gulls, terns, herons, ducks, geese, tundra swan and swallows. Other native prairie birds of this region include, but are not limited to; prairie-chickens, sparrows, meadowlarks, red-winged blackbirds, yellow-headed blackbirds, owls, and hawks.

Data described here is compiled from the United States Forest Service, Department of Agriculture, Chapter 28 Ecological Subregions of the United States: *North Central Glaciated Plains*. Bed rock geology in the region is comprised of Pleistocene till, stratified drift, and lacustrine sand and clay. Depths of these soils can be from 30 to 300 feet thick. A significant part of the area is capped with up to 20 feet of aeolian silt. Cretaceous shale, limestone, and sandstone form the bedrock in this region. Small but significant outcrops of Proterozoic quartzite occur

across the region. Soil types are mostly Mollisolls, with some Alfisols and Entisols. Drainage in this region is to the Mississippi via the Minnesota, Big Sioux, Des Moines, and Missouri Rivers. The drainage network is well established in this region and small, saucer-shaped wetlands called prairie potholes are common. Annual precipitation of this region averages 20 to 33 inches. Mean annual temperature is about 40 to 48 degrees F and the growing season lasts 120 to 160 days.

The Facility route is located within the Upper Big Sioux Archaeological Region, defined in *South Dakota State Plan for Archaeological Resources* (Winham and Hannus 1991). Additional resources, such as *Southwestern Minnesota Archaeology* (Anfinson 1997) and *Handbook of North American Indians Plains: Yankton and Yanktonai* (DeMallie 2001) were examined to study the broader Prairie Lake Region within the northeastern subarea of the Great Plains and were used to develop a prehistoric and historic cultural context relevant to the data gathering area. Below is a brief discussion of this context.

**Prehistoric: Paleoindian, Plains Archaic, Plains Woodland, Plains Village**

**Paleoindian**

Paleo-Indian sites found in the area are scattered and diagnostic artifacts have not been recovered through excavation (Anfinson 1997). Sites in the area are represented by a handful of artifacts. This time period is generally considered to fall between 11,500 and 7,500 years ago. The tradition is characterized by hunting now-extinct big game animals and gathering other local resources for human use. Diagnostic artifacts from the time period are: Clovis, Goshen, Folsom, Hell Gap-Agate Basin, Cody knives, Parallel Oblique Flaked, Pryor Stemmed, and Caribou Lake Paleo-Indian complexes. Lifestyles of these people are not well known, but site types include camps, lithic procurement areas, lithic workshops, and isolated artifact finds.

**Archaic**

Sites from this time period are also relatively few in number, but sites located in the region, such as Granite Falls Bison, Goodrich, and Cherokee Sewer, give specialists a better opportunity to understand this time period (Anfinson, 1997). In general, habitation sites would have been occupied for longer periods of time and contain larger amounts of artifact deposition. Other smaller sites can be found scattered throughout the environment. These smaller sites are often tied to a specific resource extraction such as a bison kill sites, flora gathering sites, or waterfowl breeding sites. This time period is considered to be between 7,500 to 3,000 years ago (Anfinson, 1997). The tradition is characterized by development of the atlatl along with hunting and gathering of essentially modern flora and fauna. Diagnostic artifacts include Browns Valley, Oxbow, Scotts Bluff, Eden, Malloy, McKean Duncan, and Hanna projectile points.

**Plains Woodland**

This time period is considered to begin around 3,000 years ago and end around 1100 years ago. Sites from this time period contain elongated pottery vessels with conoidal bottoms and are



associated with corner notched projectile points and burial mounds (Anfinson, 1997). Artifacts, features, and cultural patterns identified in the area suggest association with proto-plains tribal groups.

Site locations for this time period are often tied to large river basins and to the numerous lakes in the region (Anfinson, 1997). Site locations would have changed with the seasons to take advantage of flora and fauna life cycle behaviors. Site distribution and population density increase in size and heavier depositions of artifacts are documented. Subsistence economy for this time period seems to rely on bison and elk with opportunistic harvesting of wild grape, chokecherries, chenopodium, and marsh elder. Housing seems to be tied to skin tipis in the warmer months and wood structures in the winter months. This period is characterized by continued hunting and gathering adaptations, mound burial, mortuary ceremonialism, production and use of ceramic vessels, and intensified use of indigenous grasses and seeds. The bow and arrow replaces the atlatl during this time period.

#### **Plains Village/Coalescent Period**

The time period is considered to begin around 1100 and end around 350 years ago. The principle sites are located along the large rivers and tributaries, such as the Missouri River, James River, Shyenne River, Minnesota River, and Big Sioux. Village sites represent the continuation of permanent occupation of the Plains Woodland time period. The people populating these villages were primarily sedentary horticulturalists with some seasonal movement to take advantage of seasonal cycles in flora and fauna (Anfinson, 1997).

Excavated sites support the evidence that buffalo was the predominate animal used for food and other resources during this time period. Small amounts of deer, elk, antelope, canids, birds, and fish have also been recovered. A heavy reliance seems to be placed on maize during this time period (Anfinson, 1997) with an intensified use of beans, squash, sunflower, chokecherry, wild blackberry, cherry, grape, plum, chenopodium, marsh elder, rose, dogwood, and buffaloberry.

#### **Equestrian Nomadic/Fur Trade/Contact**

This time period is defined by the gathering and self-asserted identity of the contact period tribal groups. This evolution of the tribal units is attributed in part to the increased and rapid social, cultural, and political interaction with Euro-American populations. Self-defined social and cultural patterns separated and unified contact period tribal groups. These differences in social and cultural patterns can be seen in the assemblage records of the sites in the area along with the types of features present on those sites.

This time period is considered to be from 350 to 150 years ago. The time period is characterized by a more sedentary life style, with a focus on horticulture, storage pits, fortified and unfortified villages, ceramic vessels, heavy reliance on bison for food and material, ceremonialism,

intensified use of indigenous grasses and seeds, and the gradual increase in Euro-American trade goods (Swagerty, 2001).

Horses appeared on the Plains around 350 years ago (Swagerty, 2001). Horses spread through the plains from the south to the north. This adoption of the horse into the Plains cultural allowed for increased trade between the tribes and Euro-American peoples because transportation times decreased. Trade centers developed in southwestern Wyoming, along the Missouri River, and on the James River. Trade patterns linked the Pacific Northwest to the Middle Missouri, the Gulf Coast to Hudson Bay, and the Pacific to the Atlantic. By 200 years ago horses were widespread on the plains and horse culture was the way of life.

Around 1600 the social, cultural, political, and economic patterns of the plains tribes would drastically change (Swagerty, 2001). The previous lifeways of the natives in this region would change with reliance on more and more of Euro-American goods. Increasing numbers of explorers and fur traders would reach the area in the years following 1750 AD. Those tribes fortunate enough to be positioned as middlemen capitalized on the exchange of goods with the Euro-American trade companies. This critical position allowed specific tribes to wield advanced technology and economic leverage against their neighbors. As a result, numerous tribal, traditional, cultural, and political boundaries shifted in favor of those tribes which controlled access to the coveted trade goods.

**Contact: Yankton and Yanktonai**

In the mid-18th Century the Yankton and Yanktonai lived on the Coteau des Prairies between the Minnesota and Missouri rivers (DeMallie 2001). Yankton territory was considered to be on the southern part of the Coteau des Prairies around the lower Sioux, and the heads of the Floyd's, Little Sioux, and De Moines Rivers (DeMallie 2001). Yanktonai territory was to the north, from Big Stone Lake and Lake Traverse to the Missouri River (DeMallie 2001).

The Yankton and Yanktonai were described as living in hide tipis, approximately 14 feet in diameter, and having a great many horses and dogs which were used to move camp when necessary. They are noted to be constantly at war with their neighbors and were always vigilant when traveling lest they be attacked unaware. Men carried rawhide shields and wore shirts of several layers of hide to provide protection from arrows. Wood was scarce in the region and dried buffalo dung was used as an alternative source of fuel for fire. It is noted that the Yanktonai did not carry on direct trade regularly with Euro-American traders. However, the Yanktonai would trade at trade fairs such as those held at the Des Moines River and James River.

**Cultural Surveys and Resources**

HDR reviewed SDARC files for the following townships, in Brookings County (Table 1).

Table 1. Legal Description of the Project Study Area

HDR Engineering, Inc.

701 Xenia Avenue South, Suite 600  
Minneapolis, MN 55416

Phone (763) 591-5400  
Fax (763) 591-5413  
www.hdrinc.com

Page 5 of 10

Township Name	Township	Range	Section(s)
Richland	110	47	4-6
Sherman	111	48	24-26, 35, 36
Lake Hendricks	111	47	3-5, 8-10, 15-17,
Richland	111	47	19-22, 27-34
Lake Hendricks	112	47	22, 27, 28, 33, 34

The townships represent the study area and include the propose Facility route and a one mile radius from it. For purposes of this background research and the knowledge gained from it that helps direct cultural resource planning efforts, the study area is an effective data gathering area within which the researcher needs to understand the previous surveys, known resources, and potential for yet undocumented cultural resources. Confirmed archaeological site types and contexts are captured in the SDARC database, as well as consultant recommendations, and federal agency and SHPO determinations regarding eligibility for listing on the National Register of Historic Places (NRHP).

A total of eight previous cultural resource investigations have occurred within portions of the study area (Table 2). SDARC provided brief file information on these eight previous cultural resource investigations. Further examination of these reports should be completed before field inventory investigation is initiated for this Facility's construction.

Table 2. Previous cultural resource reports crossed by or within one mile of the proposed route

Manuscript No.	Author	Year
ABK-0082	Vaillancourt	2005
ABK-0088	Vaillancourt	2006
ABK-0093	Terrell	2006
ABK-0108	Eigenberger	2007
ABK-109	Justin	2007
ESD-0001	Sigstad	1973
ESD-0047	Newkirk	1982
ESD-0102	Lueck	1989

#### Archaeological Sites

According to SDARC files, 24 archaeological resources have been identified within the study area. These sites reflect long term occupation of the area by Native and Euro-American people. The archaeology sites previously identified within the study area include eight prehistoric artifact scatters, three prehistoric isolated finds, one prehistoric/historic isolated fine, one cairn, two prehistoric rock alignments, four historic artifact scatters, two historic dumps, and one prehistoric stone circle. The proposed route crosses one archaeological resource. This is a prehistoric artifact scatter and is considered not eligible for listing on the National Register of Historic Places. Fourteen of the sites are considered not evaluated and nine of the sites are considered not eligible.



### **Structures and Bridges**

SDARC records identify 50 previously inventoried standing structures in the study area (Table 5). Single numbers variously represent single structures or complexes of more than one structure, so the number of actual buildings represented by these inventory numbers is not readily quantifiable from the SDARC data. Some inventory numbers may represent structures or structure complexes that are represented by one or more additional inventory numbers. Also, some legal location information was found to be incorrect in the SDARC database. Although this information has been corrected by HDR for this report based on UTM data, only a few have been field verified. Field verification was possible in some location because of the site's proximity to the proposed route. Nevertheless, the information acquired from SDARC is an indicator of the level of survey effort to date.

These standing structures are represented by bridges, a town hall, farmsteads, other farm related facilities, and a light industrial structure. None of these standing structures identified through the SDARC file search are listed on the NRHP. Twenty six of the standing structures are not evaluated for listing on the NRHP. The remaining twenty two standing structures are not eligible for listing on the NRHP.

No historic districts or landscapes eligible for listing in the NRHP were previously identified in the study area. The previous surveys are recent enough that investigators would have made such considerations. In Brookings County, it appears that most of the structures in the study area have been inventoried, but the accuracy of the information should be verified by detailed review of the previous technical reports combined with field review. Standing structures not inventoried or unevaluated within the immediate construction area or adjacent to the construction area should receive further review to determine their NRHP eligibility.

SDARC data indicates three distinct bridges in the study area. One of the bridge structures is documented by two SHPO resources numbers. These bridges have all been determined not eligible for listing on the NRHP.

### **Other Recorded Resources**

SDARC records identify five additional resources as *miscellaneous*; these resources consist of two farmstead foundations, one historic scatter, and two isolated finds. One of the farmstead foundation resources has a historic structure resource number and is counted in the *Structures and Bridges* section. The miscellaneous resources provide additional indications that the area has a high probability of containing additional resources of this nature and type.

### **Preliminary Archaeological Field Review**

From September 7<sup>th</sup> through 9<sup>th</sup> HDR completed a preliminary archaeological field review of the Facility route. The preliminary field review covered approximately four miles of on the ground inspection and nine miles of visual inspection via public rights-of-way. On the ground inspection of the Facility route occurred for all of T 111N, R 47W, Section 30, T 111N, R 47W, Section 21, T 111N, R 47W, Section 16, the south half of T 111N, R 47W, Section 9, and the west half of T 111N, R 47W, Section 28. During this review, HDR identified one prehistoric cairn/rock alignment location consisting of four individual features, four abandoned buildings/structures, and one additional building/structure that could not be verified, but is suspected because of a treed shelter belt. It is highly likely that more resources will be identified during the inventory survey for this Facility.

The prehistoric cairns/rock alignments are located on the north side of Deer Creek under and adjacent to the proposed Facility route. HDR identified four individual features associated with this location. The main cairn/rock alignment is located right at the edge or lip of the ridge extending out over an eastern tributary of the Deer Creek drainage system. The drop from the main cairn/rock alignment to the creek floor is approximately 20-30 feet and quite abrupt. The other three cairns/rock alignments are located north of the main cairn/rock alignment by approximately 60 meters. These cairns/rock alignments are located at the toe of the slope below the highest part of the upper ridge. These three cairns/rock alignments run in an east-west direction, are approximately the same size, and seem to be in a line.

Four abandoned buildings/structures were found under or just outside the proposed Facility route. One of the abandoned building/structure locations HDR visually inspected has been previously inventoried, but has not been evaluated for listing on the NRHP. Three of the buildings/structures are farmsteads or farm associated facilities, and the other is a school or town hall. In the north section of the Facility route, where HDR was unable to gain access because the Applicants had not secured the ROW at the time of the field review, a fifth building/structure or resource may also exist. HDR recommends that once the Applicant obtains access to this parcel, this location be investigated and documented.

#### **General Land Office Map Review**

HDR observed no cultural features during review of the 19th century GLO maps. However, it should be noted that later 19th century and early 20th century county plats are available for Brookings counties and should be examined, especially when compared to extant structures and farmstead complexes and any historic-period archaeological sites previously identified during the field effort.

#### **Cultural Resource Impacts**

The construction of the Facility is suspected to trigger documentation of a survey to fulfill requirements under South Dakota Codified Law: Chapter 1-19A Preservation of Historic Sites, Chapter 1-20 Archaeological Exploration, and Chapter 49-41B Energy Conversion and

Transmission Facilities. Additionally, other South Dakota laws may be triggered if Facility plans change in the future. It is believed South Dakota PUC and SHPO will request cultural resource documentation of the Facility route before construction activities can begin. HDR recommends that at a minimum the construction footprint should be subject to a Phase I cultural resource inventory/field investigation.

The presence of previous documented resources in the Facility area and those resources identified during archaeological field review strongly suggests that additional unknown properties exist within the proposed Facility route. These properties will probably be of a type and nature that is similar to those already documented in the Facility study area. Ultimately the Phase I cultural resource inventory/field investigation survey will allow for the identification and categorization of any additional resources found during survey of the proposed route. If needed, those resources should be analyzed for further consideration and brought to the attention of PUC and SHPO for comment. In some cases, it may also be applicable for the Applicants to engage other specialists in the region for comment on particularly sensitive resources.

HDR recommends the Applicants archaeologist, and possibly an architectural historian, design a survey methodology to document the existing conditions within the construction foot print, identify existing archaeological and/or building/structure resources within the proposed route, and offer recommendation for resource avoidance, impact minimization, or mitigation.

The Applicants should make every effort to avoid impacts to NRHP-eligible cultural resources. The Applicants should note that since a portion of the previously known sites within or adjacent to their proposed route are unevaluated and that any new sites found will be considered unevaluated; further work will be needed for these resources to understand their relation to the NRHP. In the event that an impact would occur, the Applicants, PUC, and SHPO would determine the nature of the impact and determine the process moving forward for the impacted resource. Avoidance of the resource could be accomplished by movement of ground disturbing activities to span sensitive areas. In some cases it may be appropriate for the Applicants to consider revising their route to avoid particularly sensitive resources. In locations where avoidance is not applicable mitigation for impacts, an effort to minimize impacts on the resource through additional documentation may be appropriate.

HDR recommends the Applicants design a discovery plan to be in place prior to construction in the event previously unknown archaeological resources or human remains be inadvertently encountered during Facility construction. The plan should outline the framework for handling such discoveries in an efficient and legally compliant manner. The discovery plan may include the following topics: construction contractor training, identification of resources in the field, contact information for the Applicants designated professionals to address discovery, procedures for avoidance, and associated tasks in the event of work stoppage. With regard to discovery of human remains, procedures should be followed to ensure that the appropriate authorities would



become involved quickly and in accordance with local and state guidelines (SDCL Chapter34-27).

**References Cited**

Anfinson, S.F.

1997 *Southwestern Minnesota Archaeology, 12,000 Years in the Prairie Lake Region.*  
Minnesota Historical Society Press, St. Paul, Minnesota.

DeMallie, R.J.

2001 *Sioux Until 1850.* In Handbook of North American Indians Volume 13 Part 2 of 2 Plains,  
edited by Raymond J. DeMallie, pp. 718-760. Smithsonian Institution, Washington, DC.

2001 *Yankton and Yanktonai.* In Handbook of North American Indians Volume 13 Part 2 of 2  
Plains, edited by Raymond J. DeMallie, pp. 777-793. Smithsonian Institution,  
Washington, DC.

Swagerty, W.R.

2001 *History of the United States Plains Until 1850.* In Handbook of North American Indians  
Volume 13 Part 1 of 2 Plains, edited by Raymond J. DeMallie, pp. 256-279. Smithsonian  
Institution, Washington, DC.

Winham, P.R. and L.A. Hannus

1991 *South Dakota State Plan for Archaeological Resources, 1990-1991 Update.*  
Prepared under a Grant-In Aid (46-90-50121.015) from the State Historical Preservation  
Center, Vermillion, SD

Wright, H.E. JR

1972 *Physiography of Minnesota.* In Geology of Minnesota: A Centennial Volume, edited by  
P. K. Sims and G. B. Morey. Minnesota Geological Survey, University of Minnesota, St.  
Paul.



