Appendix C – Environmental Scan Technical Memorandum

Technical Memo

Date:	Monday, November 11, 2019
Project:	Southern Meade County Corridor Study
To:	Study Advisory Team
From:	HDR
Subject:	Environmental Scan

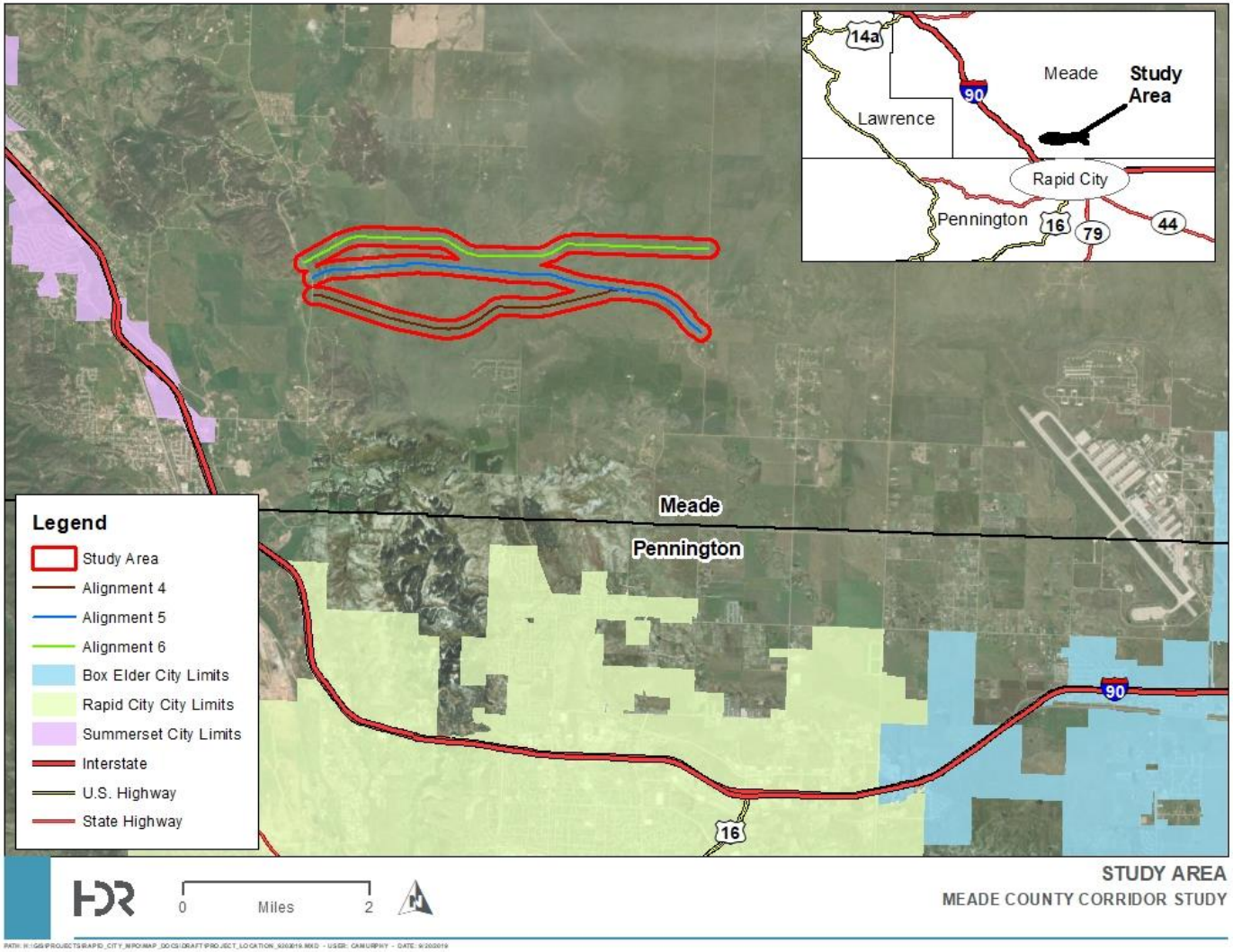
Project Background

The Rapid City Metropolitan Planning Organization (RCMPO) in conjunction with Federal Highway Administration (FHWA) and Meade County, has initiated a study to consider east/west transportation improvements to connect the local road/street network in the southernmost portion of Meade County from Erickson Ranch Road to Elk Vale Road just north of Rapid City.

The purpose of the Southern Meade County Corridor Study is to identify reasonable and feasible long-term improvements, in addition to physical constraints and environmental factors. Further refinement of corridor attributes will occur subsequent to this study. The study will evaluate three alternative routes for a new alignment which will provide transportation connectivity between western and eastern portions of north Rapid City and will connect Black Hawk. Summerset and Piedmont to the Rapid City metro area. The Environmental Scan Study Area is comprised of all three alternatives, each with a 1,000 foot corridor around the build alignment (500 feet from the centerline on either side) (Figure 1. Project Location Map). The three alternatives will be referred to as followed:

- Alignment 4 – The southernmost alternative with a total length of approximately 4.46 miles and 558 acres.
- Alignment 5 - The median alternative with a total length of approximately 4.38 miles and 548 acres.
- Alignment 6- The northernmost alternative with a total length of approximately 4.49 miles and 563 acres.

Figure 1. Project Location Map



Purpose and Need

A preliminary purpose and need statement has been developed to assist with screening alternatives for the project. Because the project is still within its preliminary phases, the purpose and need helps to frame the scope, goals and objectives for the corridor, which can be refined and further developed as needed in later phases of project development. The purpose and need is based on local and regional planning documents and input from the SAT on future development and goals for the area.

The purpose of the Southern Meade County Corridor Study is to identify a corridor that would accommodate the planned future land use as described in the Meade County Comprehensive Plan adopted January 2010, Meade Moving Forward 2040 Transportation Plan dated February 2016, Rapid City Comprehensive Plan adopted April 2014, and RapidTRIP 2040 Long Range Transportation Plan dated September 2015. The identified corridor would allow the preservation of a future route and help ensure appropriate access management for any potential growth within the area.

As noted in the Meade Moving Forward Transportation Plan, this area is projected to have medium to high residential growth. Residential development is projected to increase along Elk Creek Road, Erickson Ranch Road and Haines Avenue. Rural residential development is occurring at a higher concentration near the northern half of the Environmental Study Area and more recently immediately north of the Environmental Study Area. The growth that is occurring is inconsistent with the goals and objectives of the Meade County Comprehensive Plan which seeks to encourage orderly, efficient land development within unincorporated areas of Meade County and is directly contributing to urban sprawl and premature fragmentation of agricultural land. An adequately spaced arterial grid-like network discourages scattered, non-farm residential developments and encourages the expansion of residential development near existing incorporated communities which is consistent with the Meade County Comprehensive Plan. Identifying a corridor before the area fully develops allows for preservation and access management thereby reducing future transportation construction and maintenance costs.

Additional Goals and Objectives

The Meade County Comprehensive Plan, Meade Moving Forward Transportation Plan, Rapid City Comprehensive Plan, and RapidTRIP 2040 Long Range Transportation Plan have specific goals for planning within Meade County and the RCMPO boundary to help further develop the objectives for the project. The goals that are most applicable to this corridor are listed as follows.

- To encourage orderly, efficient land development within the unincorporated areas of Meade County (Meade County Comprehensive Plan).
- To manage growth within the framework of the Meade County Comprehensive Land Use Plan and other municipal comprehensive plans (Meade County Comprehensive Plan).
- To maintain a distinction between rural areas and municipalities and preserve and enhance community identity (Meade County Comprehensive Plan).
- To provide a transportation system that promotes the safe and efficient movement of

people, goods, and services (Meade County Comprehensive Plan).

- To preserve environmental, historical, and cultural resources (Meade County Comprehensive Plan).
- To maintain a viable agricultural economy and preserve the rural quality of life (Meade County Comprehensive Plan).
- Encourage the clustering of rural residential development to conserve natural features, limit impacts on the natural environment, and maximize infrastructure such as roads (Rapid City Comprehensive Plan).
- New East-West Connection recommended from Deadwood Ave/Erickson Ranch Road and Haines Avenue (Meade Moving Forward 2040 Transportation Plan, Rapid City Comprehensive Plan, and RapidTRIP 2040 Long Range Transportation Plan).

Environmental Analysis

This memo includes a summary of direct, indirect, and cumulative impacts anticipated for the Project, based on a preliminary review of three build alternatives. To analyze the Project's impacts, an appropriate Environmental Study Area was identified. The Environmental Study Area is a 1,493 acre area located north of Rapid City in Meade County, beginning at Erickson Ranch Road and extending to 143rd Avenue. To assist in the analysis, early coordination letters were mailed to selected state and federal agencies to receive their feedback on the proposed improvements. Copies of the responses can be found in **Appendix B, Agency Coordination.**

In addition to the evaluation of direct and indirect impacts, cumulative impacts were considered. However, because the Project is only in the initial planning phases and is being done in advance of a National Environmental Policy Act (NEPA) study, a detailed analysis of impacts was not possible at this time for all resources. The NEPA process will consider input from agencies and the public, refinement of alternatives, include detailed identification of resources (including field surveys), and a quantified assessment of potential impacts. The methods for each analysis and anticipated impacts are described in the appropriate resource sections.

This screening analyzed three build alternatives. For build alternative maps, please see **Appendix A, Alternatives.**

The screening evaluates threatened and endangered species, archaeological and historical resources, Section 4(f)/6(f) properties, wetlands and other waters of the U.S, floodplains and floodways, noise, and right-of-way, and is based on desk-top review of environmental data. Although not specifically discussed in this screening, correspondence with state agencies indicated they anticipated the Project to have little or no impact on air quality, surface water quality, fish and wildlife resources, or ground water quality. Agency coordination also provided that there are no identified chemical releases in the vicinity of the Environmental Study Area.

A. Threatened and Endangered Species

1. APPROACH

Federally listed species under the Federal Endangered Species Act (ESA) were considered for potential Project effects. For this review, the list of species identified for Meade County was reviewed. The potential for species presence within or near the Environmental Study Area was evaluated by assessing habitat using aerial photography.

There are four federally listed threatened or endangered species identified for Meade County, SD according to the U.S. Fish & Wildlife Service (USFWS) South Dakota Field Office's *Endangered Species by County List* (September 3, 2019). They are shown in Table 1 along with their potential presence in the Environmental Study Area and anticipated effects of the Project on each species. No designated or proposed critical habitat is identified for Meade County.

2. SUMMARY OF IMPACTS

Potential effects of the Project on these species were evaluated. Conclusions from this evaluation are summarized in **Table 1** and the rationale used to support those conclusions is discussed further in the following paragraphs.

Table 1. Federally Listed Threatened, Endangered, and Candidates Species for Meade County, SD

Species	Status	Species or Habitat Present in EnvironmentalStudy Area	Preliminary Effect Determination
Least tern (*Sterna antillarum*)	Endangered	No	No effect
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	Yes	May affect, not likely to adversely affect
Rufa red knot (*Calidris canutus rufa*)	Threatened	No	No effect
Whooping crane (*Grus americana*)	Endangered	Yes	May affect, not likely to adversely affect

Least Tern and Rufa Red Knot: Least terns and rufa red knots occur along the Missouri River and associated tributaries where sand bars or sandy beaches are present. In Meade County, they are associated with the Cheyenne River located approximately 38 miles east of the Project. No suitable habitat exists in the vicinity of the Project and the species are presumed to be absent. There are no known occurrences of these species within the Environmental Study Area. Therefore, the project is expected to have “no effect” on the least tern and rufa red knot.

Northern long-eared bat: Northern long-eared bats hibernate during the winter in caves or underground abandoned mines. During the summer the species roosts in trees with loose bark, cracks, crevices, or cavities and less commonly, structures such as bridges and abandoned buildings. Very few trees are present within the Environmental Study Area which may be used as summer roosting habitat. Therefore, the species may be present but it is unlikely.

On January 14, 2016, the final 4(d) rule and Programmatic Biological Opinion for the northern long-eared bat was published. With the final 4(d) rule, incidental take resulting from otherwise lawful activities is not prohibited in areas not affected by white-nose syndrome. The Project may involve tree clearing during the active season which may cause injury or mortality to roosting bats. There are no known occurrences of this species within the Environmental Study Area. Therefore, a determination of “may affect, not likely to adversely affect” applies to the Project. Because the Project is located outside the white-nose syndrome zone, incidental take associated with the Project is not prohibited under the final 4(d) rule.

Whooping Crane: Whooping cranes will use shallow wetlands with emergent vegetation as stopover habitat in South Dakota. The project is located 30 miles outside the whooping crane’s primary migratory corridor. There are 27 desktop delineated wetlands that would likely be described as palustrine emergent and six ponds located in the Environmental

Study Area that could serve as stopover habitat. However, because of the steep terrain in the area, the small size of the wetlands, and distance from the primary migratory corridor, it is unlikely the whooping crane will utilize wetlands within the Environmental Study Area as stopover habitat.

The US Fish and Wildlife Service has prescribed final critical habitat, however, the Environmental Study Area is located outside of the critical habitat. There are no known occurrences of this species within the Environmental Study Area. Therefore, a determination of "may affect, not likely to adversely affect" is recommended for the whooping crane.

Summary:

Based on preliminary analysis and study corridors, the effect determinations in **Table 1** apply to the project. The rufa red knot and least tern would not be affected. A "may affect, not likely to adversely affect" determination applies to the northern long-eared bat due to the final 4(d) rule, incidental take resulting from otherwise lawful activities is not prohibited in areas not affected by white-nose syndrome. There is potential for whooping crane habitat to be present within the Environmental Study Area due to whooping cranes commonly using palustrine emergent wetlands for feeding and habitat during migration, however, a "may affect, not likely to adversely affect" is the recommended determination.

Build Alternatives

- All alternatives are expected to have the same impact or lack thereof to the least tern and rufa red knot. There are no anticipated impacts to the least tern and rufa red knot due to the lack of connectivity to the Missouri River or affiliated tributaries. The nearest habitat is the Cheyenne River located over 38 miles from the Environmental Study Area. There is potential for northern long-eared bat habitat, however, the area within the Environmental Study Area is predominantly grassland with very few trees that would contain habitat.

- Alignment 4 – Alignment 4 is likely to have the greatest potential impact to the whooping crane. Palustrine emergent wetlands are the most common habitat for feeding for the whooping crane during its migration period. Alignment 4 has the most wetlands out of the three alternatives with a total of 15 wetlands and 6.59 acres, all suspected to be classified as palustrine emergent. However, the Environmental Study Area is located 30 miles outside of the whooping crane's primary migratory corridor and therefore a determination of "may affect, not likely to adversely affect" is appropriate.

- Alignment 5 – Alignment 5 has the least amount of potential habitat for the whooping crane with only 9 wetlands present within the Environmental Study Area and a total of 1.66 acres.

- Alignment 6 – Alignment 6 has a higher potential to impact the whooping crane than alignment 5 but less potential than Alignment 4. Although there are only a

total of 8 wetlands within the 500 foot buffer of alignment 6, there is a total of 4.68 acres of wetland present. After desktop review, it appears that Alignment 6 has the most trees within 1000 feet of an aquatic resource, therefore, this is the alternative with the highest probability for northern long-eared bat habitat.

3. LIMITATIONS

A final evaluation would be needed during the NEPA process to determine impacts to threatened and endangered species. This would use additional information from agency coordination and field observations, if required, along with further consideration of Project activities and potential effects.

As changes to the endangered species list may occur, the most recent species list should be confirmed when the Project is analyzed under NEPA. Coordination with SDDOT on the determinations of effects to threatened and endangered species would be required during that time. The SDDOT would coordinate with FHWA as necessary, who would then coordinate with USFWS to receive concurrence on the proposed effect determination for each applicable species. Coordination with SD Game, Fish, and Parks would be recommended regarding impacts to state-listed sensitive species.

B. Wildlife

1. SUMMARY OF EFFECTS

The South Dakota Department of Game, Fish and Parks conducted a search of the South Dakota Natural Heritage Database, which monitors species that are legally designated as threatened, endangered or rare. There were no known occurrences of endangered, rare or threatened species in the immediate Environmental Study Area. Further, there is no anticipated significant impact to fish and wildlife resources.

2. LIMITATIONS

As the availability and amount of data can change, additional coordination with the SD Game Fish and Parks should occur to determine if any state sensitive species are known within the Environmental Study Area. Coordination with SD Game, Fish, and Parks would be recommended regarding impacts to state-listed sensitive species.

C. Archaeological and Historical Resources

1. APPROACH

Section 106 of the National Historic Preservation Act requires projects receiving federal funding to identify cultural resources and evaluate impacts resulting from proposed projects and may require the SDDOT to consult with the South Dakota State Historic Preservation Office (SHPO). A record search was completed by the South Dakota State Archaeological Research Center (SDARC) on March 27, 2019, including review of the Environmental Study Area, the online National Register of Historic Places website, and the National Historic Landmark database. The search encompassed the Environmental Study Area and a 1-mile buffer zone to examine site records for previously identified properties.

The record search identified recorded sites and cultural surveys that were completed within the Environmental Study Area. No known sites that were listed as eligible for the National Register of Historic Places (NRHP) are located within the Environmental Study

Area. However, there are seven unevaluated cultural resources within the area analyzed for the record search. Shapefiles of these sites were imported into ArcGIS and compared against preliminary concepts to determine the potential for impacts to cultural resources. Please see **Appendix C, Cultural Resources** for more information.

Additionally, interested Tribes will be solicited for their views on the transportation improvements. Coordination with the tribes should occur during the NEPA and Section 106 process.

2. SUMMARY OF IMPACTS

Each alignment was buffered with a one mile radius. The SDARC's background research determined there are no cemeteries, miscellaneous site leads or historic districts within the one mile radius of the Environmental Study Area. SDARC's files disclosed there is one previously recorded archaeological site within the one mile radius (site 39MD0483) but not within the Environmental Study Area. Files received from SDARC identified two previously recorded architectural structures within the one mile radius, both properties are homesteads and are unevaluated for the NRHP. Neither property intersects the Environmental Study Area. There was one identified previously recorded bridge in the one mile radius, a two-span, concrete channel bridge on 143rd avenue where it crosses Boxelder Creek outside of the Environmental Study Area. The bridge has been determined not eligible for the NRHP. SDARC records search revealed a total of 9 previous surveys have been conducted within the one mile radius of the Environmental Study Area, two intersect the Environmental Study Area. Most of the Environmental Study Area has not been previously surveyed. Nineteenth-century GLO survey maps corresponding with the one mile radius were examined to identify areas that may have potential for containing historic-age cultural resources. Archaeological sites may be present where historical resources are depicted. The only cultural (i.e., human-made) features depicted within the one mile radius are unnamed roads. The two roads intersect the Environmental Study Area in sections 25 and 33 - 36 of Township 3N, Range 7E.

Given the general lack of previous survey, the local topography, and the current land use, there is a high likelihood of encountering unrecorded cultural sites in the Project Area on all three alternatives. Specifically, there is a high likelihood of encountering pre-European contact period sites in the Project Area. Any undisturbed (non-previously cultivated) prairie/pasture areas with well-sodded field stones may contain Native American stone feature sites. There is also a potential to encounter unrecorded historical archaeological sites related to the early settlement of the area, specifically in uncultivated areas or near extant farmsteads.

Build Alternatives

- Alignment 4 – The one mile buffer surrounding alignment 4 contains seven SHPO previous surveys, two SHPO previous structures and one SHPO previous bridge. One previous survey is within the Environmental Study Area.

- Alignment 5 – The one mile buffer surrounding alignment 5 contains seven SHPO previous surveys, two SHPO previous structures and one SHPO previous bridge. Two previous surveys are within the Environmental Study Area.

- Alignment 6 – The one mile buffer surrounding alignment 6 contains 4 SHPO previous surveys, one SHPO previous structure and no SHPO previous bridges. Two previous surveys are within the Environmental Study Area.

3. LIMITATIONS

Early in the NEPA process, Meade County should work with the lead federal agency to coordinate its intent to proceed with the Project and request they advise Meade County and the RCMPO on the applicability of Section 106, the need to identify consulting parties, and for a Level I cultural resource literature search, if necessary. When appropriate, Meade County and the RCMPO should anticipate that a Level III cultural resources inventory (ground survey) will be conducted, including identification of archaeological, architectural, and traditional cultural properties subject to the effects of the project. When historic properties are identified, Meade County should anticipate that avoidance or mitigation of adverse effects to such properties may be required. In general, if sites are determined to be not eligible, no avoidance measures are necessary. Any sites identified as eligible or unevaluated should be avoided if possible. If avoidance is not possible, additional evaluation of the sites would be warranted.

D. [1]Section 4(f) and Section 6(f) Properties

1. APPROACH

Section 4(f) of the Department of Transportation Act of 1966 requires federal agencies to make a special effort to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires that the U.S. Department of Transportation determine whether a proposed project would adversely affect a Section 4(f) resource. Publicly owned land is considered to be a park, recreation area or wildlife and waterfowl refuge when the land has been officially designated as such by a Federal, State, or local agency and the officials of these government entities having jurisdiction over the land determine that one of its major purposes and functions is for park, recreation, or as a wildlife/waterfowl refuge.

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 was established to protect parks and recreation areas that were acquired, developed, or rehabilitated, even in part, with the use of any Federal land and water grant funds. Section 6(f) requires approval from National Park Service for converting lands that have been paid for in part or in entirety by LWCF grants to non-park or non-recreation uses. This approval will be granted only if the action complies with the state recreation plan and an area of equal fair market value and usefulness is substituted for the land being removed from park and/or recreation use.

2. SUMMARY OF EFFECTS

There are no public parks, recreation lands, wildlife and waterfowl refuges or historic sites within the Environmental Study Area. No areas receiving LWCF funds are known within the Environmental Study Area.

As described in Section B, Archaeological and Historic Resources, further study is needed to identify potentially historic resources in portions of the Environmental Study Area. Therefore, the potential for 4(f) impacts to occur to these resources cannot be determined at this time and would be pending further evaluation during the NEPA process.

[1] Bureau of Land Management 1879a, 1879b, 1881a, and 1881b

3. LIMITATIONS

It is recommended the Environmental Study Area be reviewed during the NEPA process to confirm that no properties protected under Section 4(f)/6(f) are located within the Environmental Study Area, nor are there any planned properties in public lands within the Environmental Study Area. The programmed use of LWCF monies should be confirmed with Program Coordinator at SD Game, Fish and Parks. Coordination would also be completed with Meade County and County planner, as appropriate.

E. Wetlands and Other Waters of the U.S.

1. APPROACH

Impacts to wetlands and other waters of the U.S. may be regulated by USACE under Section 404 of the Clean Water Act. Other waters of the U.S. include rivers, streams, intermittent streams, lakes, ponds, and impoundments.

HDR conducted an off-site wetland delineation for the proposed project using desktop data to identify wetlands and other waters other waters of the U.S. within the Environmental Study Area as shown in Figure 2.

Wetland boundaries were delineated utilizing the following information:

- Aerial photography from 2010, 2011, 2013, and 2015;
- National Wetland Inventory (NWI) GIS layer;
- Natural Resource Conservation Service (NRCS) soil mapping,
- U.S. Geological Society (USGS) topographical maps,
- National Hydrography Dataset information; and
- Field reconnaissance from public right-of-way.

2. SUMMARY OF IMPACTS

- Twenty-seven wetlands totaling 12.93 acres were delineated using desktop analysis within the 1,493-acre Environmental Study Area. Wetlands extended beyond the limits of the Environmental Study Area; however, wetlands were only delineated to the boundary of the Environmental Study Area. Most of the wetland areas are associated with ephemeral drainages and shallow depressions. See **Figure 2** for more information.
- Alignment 4 – There are 15 wetlands totaling 6.59 acres located within the 500 foot buffer of build alternative 4.
- Alignment 5 - There are 9 wetlands totaling 1.66 acres located within the 500 foot buffer of build alternative 5.
- Alignment 6 - There are 8 wetlands totaling 4.68 acres located within the 500 foot buffer of build alternative 6.

3. LIMITATIONS

Wetlands and other waters of the U.S. will need to be considered as the Project moves from planning stages to final design and construction. During the NEPA process, an onsite wetland delineation of the Environmental Study Area is recommended to confirm the wetlands and other water boundaries. The boundaries identified would be used to assist in future permitting for Project impacts to wetlands and other waters of the U.S. under jurisdiction of USACE.

Per the South Dakota Department of Game, Fish and Parks, the following suggestions must be considered during the planning and construction of the project:

1. Disturbance to riparian and wetland areas should be kept to an absolute minimum.
2. If riparian vegetation is lost, it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sediment and erosion.
3. A site specific sediment and erosion control plan should be part of the Project.
4. A post construction erosion plan should be implemented in order to provide interim control prior to re-establishing permanent vegetative cover on the disturbed site.

Per the South Dakota Department of Environment and Natural Resources (SDDENR), the following suggestions must be considered during the planning and construction of the project:

1. At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities.
2. A surface Water Discharge permit may be required if any construction dewatering should occur as a result of this project.
3. Impacts to tributaries, creeks, wetlands, and lakes should be avoided by this project. These waterbodies are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that water quality standards are not violated.

This project will be in close vicinity to Box Elder Creek. West of North Haines Avenue, this creek is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

(2) Coldwater permanent fish life propagation waters;
(7) Immersion contact recreation waters;
(8) Limited contact recreation waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation waters.

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 30 mg/L is not violated.

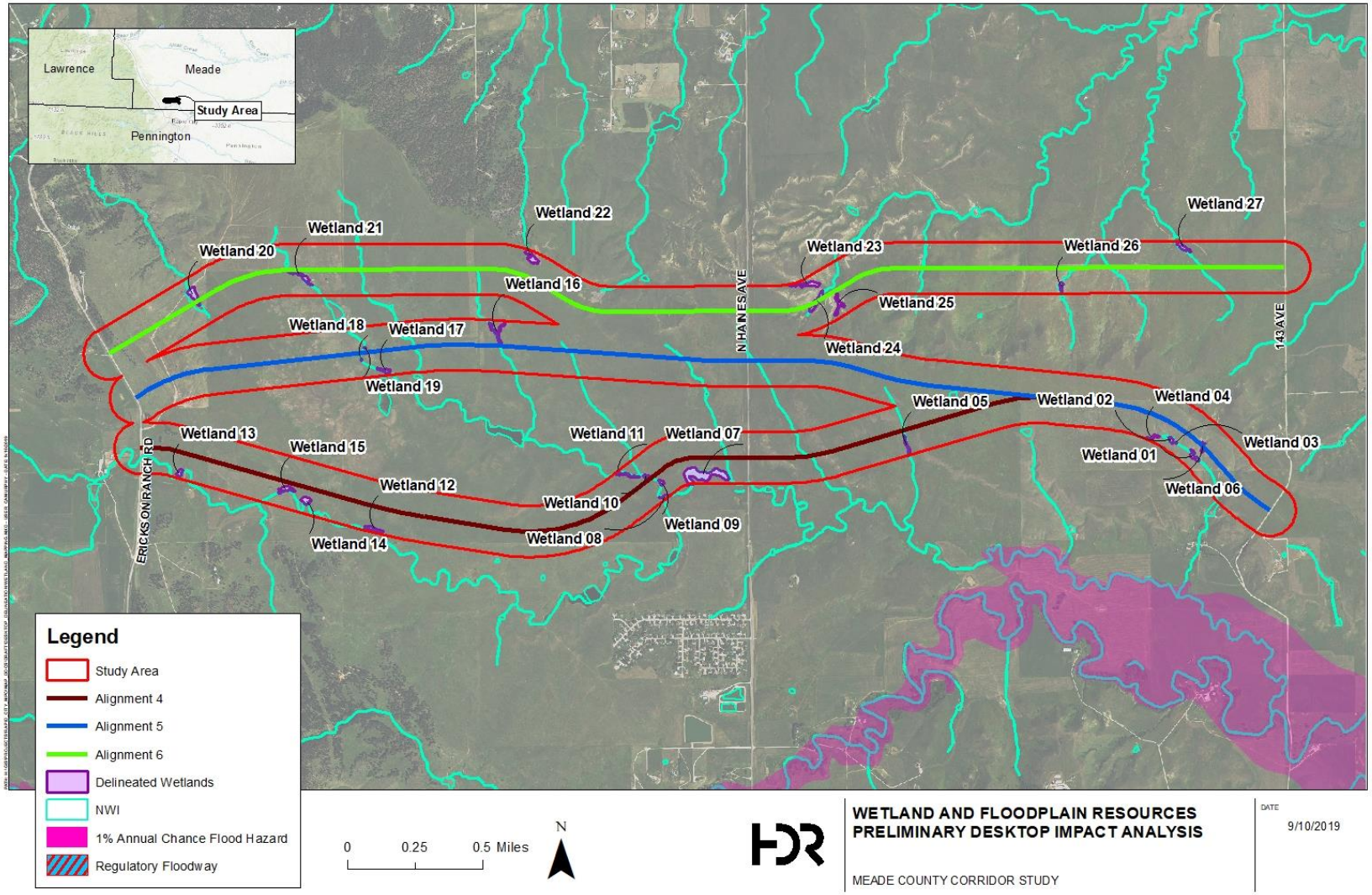
East of North Haines Avenue, Box Elder Creek is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

(4) Warmwater permanent fish life propagation waters;
(8) Limited contact recreation waters;
(9) Fish and Wildlife Propagation, recreation, and stock watering waters; and
(10) Irrigation waters

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 90 mg/L is not violated.

4. The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment except where authorized under Section 404 of the Federal Water Pollution Control Act.

Figure 2. Wetland and Floodplain Resources



F. Floodplain

1. APPROACH

A floodplain is defined by the Federal Emergency Management Agency (FEMA) as the area adjacent to a watercourse, including the floodway, inundated by a particular flood event. Meade County is a participating member of FEMA's Flood Insurance Program. The current Meade County Flood Insurance Study (FIS) that includes the Environmental Study Area was last updated on September 16, 2011.

2. SUMMARY OF IMPACTS

There are no identified floodplains or floodways located within the Environmental Study Area. The nearest 1% annual chance flood hazard area is 0.4 miles from the Environmental Study Area to the southeast. Therefore, there would be no direct, indirect, or cumulative impacts to floodplains or floodways.

3. LIMITATIONS

As no FEMA-identified floodplains or floodways are in the Environmental Study Area, no further analysis is expected for this category.

G. Noise (Pending)

1. APPROACH

Traffic noise consists of vehicular engine noise and tire noise from contact with the roadway surface. In general, noise can be defined as unwanted sound. Noise levels from highway traffic are affected primarily by three factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic.

No noise study has been completed at this time, it is recommended to be done during the NEPA process.

2. SUMMARY OF IMPACTS

A noise analysis has not been completed at this time for the Project. The noise analysis will consist of estimating noise levels at sensitive receptors and will be completed when alternatives are fully developed for this Project.

3. LIMITATIONS

It is recommended a more detailed study be completed during the NEPA process when more refined alternatives are available to determine if noise-related impacts would occur.

H. Hazardous Material

1. APPROACH

Hazardous material is defined by the United States Environmental Protection Agency as a substance with properties capable of having a harmful effect on human health or the environment. To identify any hazardous material present within or near the Environmental Study Area, coordination with The SDDENR was necessary. The SDDENR Ground Water Quality Program reviewed the Project for potential impacts to ground water quality, storage tank presence and chemical spill history.

2. SUMMARY OF IMPACTS

The review revealed SDDENR does not anticipate any adverse impacts to ground water quality by the Project. SDDENR did not identify any petroleum or other chemical release cases in the vicinity of the Environmental Study Area. Further, the nearest recorded above ground storage tank is more than 1.5 miles from the Environmental Study Area.

3. LIMITATIONS

As this hazardous review is preliminary, it is recommended a more detailed study be completed during the NEPA process when more refined alternatives are available to determine if any hazardous materials would be encountered. Per SDDENR, if construction for the Project disturbs one or more acres of soil, a storm water permit may be required for construction. In the event that contamination is caused or encountered during construction activities, Meade County or RCMPO must report to SDDENR.

I. Right-of-Way

Anticipated right-of-way for the Project was reviewed based on preliminary intersection alternatives developed for the Project. Proposed acreages of right-of-way acquisition will be finalized when the alternatives are further developed in the design phase. Build alternative maps are located in **Appendix A, Alternatives.**

1. SUMMARY OF IMPACTS

The planned alternatives would result in some additional right-of-way. No relocations or displacements are expected from the planned improvements. The impacts to landowners are summarized below per alignment.

Build Alternatives

- Alignment 4 – This alternative would affect 7 unique landowners and cause a total of 66.59 acres of impact.

- Alignment 5 – This alternative would affect 7 unique landowners and cause a total of 66.16 acres of impact.

- Alignment 6 – This alternative would affect 6 unique landowners and cause a total of 53.66 acres of impact.

2. LIMITATIONS

As projects are further refined in the future, the anticipated right-of-way requirements could change. It is recommended the necessary right-of-way is confirmed during the NEPA process. Any conversion of undeveloped land should be reviewed to determine if it is protected under the Farmland Protection Policy Act.

J. Cumulative Impacts

The following section contains a summary of potential cumulative impacts that may occur from the project and would need to be further analyzed in the future as part of the NEPA process. Cumulative impacts are those impacts that could result from the incremental impact of a project, when taken into consideration with other past, present, and reasonably foreseeable future actions.

1. THREATENED AND ENDANGERED SPECIES

A. Resource Study Area

Of the species identified as potentially occurring in the County, the whooping crane and northern long-eared bat were identified as potentially being directly or indirectly affected by the project. The Environmental Study Area for analyzing threatened or endangered species is typically done on a population level, due to the reduced numbers for the species. For this analysis, the Resource Study Area was narrowed to the County-level, due to the type of species being analyzed.

B. Current Status/Historical Context/Future Projects

Currently, the potential for direct and indirect impacts to threatened or endangered species is focused on whooping cranes and the northern long-eared bat based on the presence of local suitable habitat. The addition of one of the three build alternatives may result in urbanization around the area due to improved community connectivity which may lead to other future projects. These projects may result in additional tree clearing or wetland removal.

C. Potential Cumulative Impacts\Further Analysis Needs

If future development would result in removal of habitat for northern long-eared bats or whooping cranes, this could result in cumulative impacts to those species. During the NEPA phase, once more information is available on direct impacts resulting from the project, the potential for cumulative impacts should be further analyzed, taking into account any changes that may occur, specifically, as it relates to northern long-eared bats, as white-nose syndrome continues to spread.

2. WETLANDS

A. Resource Study Area

To analyze cumulative impacts to wetlands, it was determined an appropriate Resource Study Area for wetlands would be to review the watershed. The catchments and watersheds were reviewed of the water resourced within the Environmental Study Area via Google Earth.

B. Current Status/Historical Context/Future Projects

Past, present, and reasonably foreseeable future development were reviewed to identify those projects which may have or could affect water resources in the area. As development in the area continues, it is likely that development impacted wetlands and drainages in the surrounding watershed. The construction of any of the

three alternatives may result in the loss of wetlands. Therefore, it is possible these projects may have cumulative impacts to wetlands within the watershed.

C. Further Analysis Needs

During the NEPA phase when more information is known on potential wetland impacts and a field delineation has been conducted, the potential for cumulative impacts should be confirmed. Additionally, to identify any new projects that may have been planned since this analysis was completed, reasonably foreseeable projects should be reviewed at the time various parts of the improvements are proposed.

3. ARCHAEOLOGICAL AND HISTORICAL RESOURCES

D. Resource Study Area

The Resource Study Area for archaeological and historical resources was limited to those resources located within the Meade County area, in order to limit the area to a size which could be feasibly analyzed. Depending on which cultural resources may be identified in the Environmental Study Area when field studies are completed, this Resource Study Area may need to be reevaluated.

E. Current Status/Historical Context/Future Projects

Several cultural resource inventories have been completed in the Rapid City area, and known archaeological, historical, and Tribal Cultural Properties are located throughout the area. Tribal involvement on the proposed improvements will be determined in later phases of the project. At this time, it is difficult to fully analyze cumulative impacts based on known information. It is likely in the past that cultural resources may have been impacted development of Rapid City Metropolitan area, both from private and non-private projects. It is also likely that future projects may impact cultural resources, especially if they are privately-funded projects that would not be required to complete the Section 106 process.

Of the known cultural resources, there are expected to be no direct or indirect impacts from the improvements and therefore, no cumulative impact analysis would be needed if no project impacts are expected to occur. However, because not all cultural resources have been identified, further analysis would be required.

F. Further Analysis Needs

During the NEPA phase when more information is known on impacts to cultural resources, the potential for cumulative impacts should be confirmed. Additionally, reasonably foreseeable projects should be reviewed at the time various parts of the improvements are proposed, to identify any new projects that may have been planned since this analysis was completed

Environmental Analysis Summary

A summary of potential environmental impacts associated with the proposed improvements is included in **Table 2.** Potential impacts have been separated by each build alignment.

Table 2. Environmental Impacts Summary

Alternatives	*Threatened and Endangered Species*	*Archaeological/Historical*	*Section 4(f)/6(f)*	*Wetlands and Other Waters of the U.S.*	*Floodplains*	*Right-of-Way (Acres)*	*Hazardous Material*
Alignment 4	May affect, not likely to adversely affect applicable to the northern long-eared bat and the whooping crane. Most likely alignment for the whooping crane due to the most wetlands being present here. No anticipated effect on the least tern and rufa red knot.	The one mile radius surrounding Alignment 4 contains seven SHPO previous surveys, two SHPO previous structures and one SHPO previous bridge.	There are no 4(f) or 6(f) properties near the alignment.	There are 15 wetlands totaling 6.59 acres located within the 500 foot buffer of build alternative 4.	There are no floodplain areas within the Environmental Study Area.	This alternative would affect 7 unique landowners and cause a total of 66.59 acres of impact.	No anticipated effect
Alignment 5	May affect, not likely to adversely affect applicable to the northern long-eared bat and the whooping crane. No anticipated effect on the least tern and rufa red knot.	The one mile radius surrounding alignment 5 contains seven SHPO previous surveys, two SHPO previous structures and one SHPO previous bridge.	There are no 4(f) or 6(f) properties near the alignment.	There are 9 wetlands totaling 1.66 acres located within the 500 foot buffer of build alternative 5.	There are no floodplain areas within the Environmental Study Area.	This alternative would affect 7 unique landowners and cause a total of 66.16 acres of impact.	No anticipated effect
Alignment 6	May affect, not likely to adversely affect applicable to the northern long-eared bat and the whooping crane. No anticipated effect on the least tern and rufa red knot.	The one mile radius surrounding alignment 6 contains 4 SHPO previous surveys, one SHPO previous structure and no SHPO previous bridges.	There are no 4(f) or 6(f) properties near the alignment.	There are 8 wetlands totaling 4.68 acres located within the 500 foot buffer of build alternative 6.	There are no floodplain areas within the Environmental Study Area.	This alternative would affect 6 unique landowners and cause a total of 53.66 acres of impact.	No anticipated effect

Appendix A. Alternatives

RHIAN, MELANIE A

OLDHAM, S.L. TRUST

Section 28

ERICKSON, KIRK A

Section 27

SELADOR RANCHES INC

SIEVEKE, JERRY ETAL

SIEVEKE, TROY A

Section 26

SELADOR RANCHES INC

MC PHERSO JAY F

Section 25

Alternative 6 (Segment A)

700+00 710+00 720+00 730+00 740+00 750+00 760+00 770+00 780+00 790+00 800+00 810+00 820+00 830+00

Alternative 5 (Segment A)

400+00 410+00 420+00 430+00 440+00 450+00 460+00 470+00 480+00 490+00 500+00 510+00 520+00

1080+00 1090+00 1100+00 1110+00 1120+00 1130+00

Alternative 13 (Segment A)

1050+00 1060+00 1070+00

Alternative 4 (Segment A)

100+00 110+00 120+00 130+00 140+00 150+00 160+00 170+00 180+00 190+00 200+00 210+00 220+00

1000+00 1010+00 1020+00 1030+00 1040+00

ERICKSON, KIRK A

SELADOR RANCHES INC

Section 34

Section 35

SELADOR RANCHES INC

N. Haines Ave.

Section 36

Section 33

Erickson Ranch Rd.

SCHUTZ, ROBERT J

Section 4

SCHUTZ, BENJAMIN

SCHUTZ, ROBERT J

SCHUTZ,SCOTT M REV LIVINING TR

SCHUTZ,SCOTT M TRUST

ERICKSON, KIRK A

Section 3

SMITH,LARRY R

PAULOS, MARGARET TRUSTEE

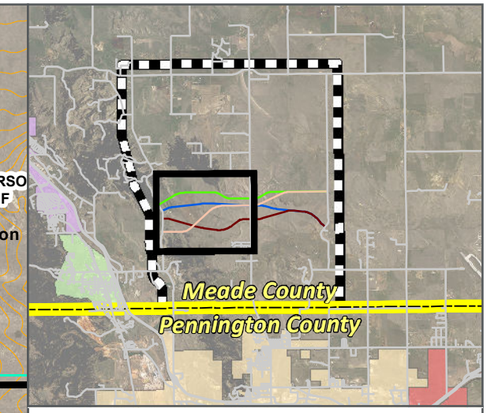
SMITH,LARRY R

Section 2

SMITH,LARRY R

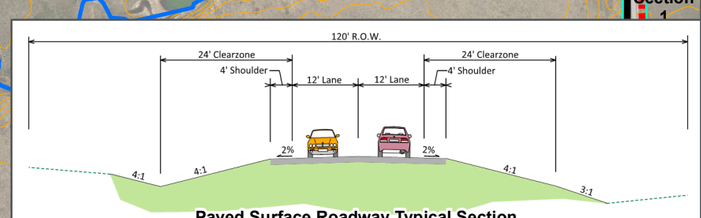
ROCKING P, LLC

Section 1



LEGEND

- Study Area
- County Line
- Blackhawk
- Piedmont
- Rapid City
- Summerset
- Existing Roads
- Section Lines
- Parcels
- Contours (10' Interval)
- NHD Stream
- Desktop Wetlands
- 100-Year Floodplain
- Overhead Electric Lines
- Alternative 13
- Alternative 6
- Alternative 5
- Alternative 4
- Approx. Grading Limits
- Proposed Right-of-Way
- Approx. Existing Right-of-Way



Paved Surface Roadway Typical Section

BUILD ALTERNATIVES

SEGMENT A
(ERICKSON RANCH RD TO HAINES AVE)

N

0 0.2 0.4
MILES

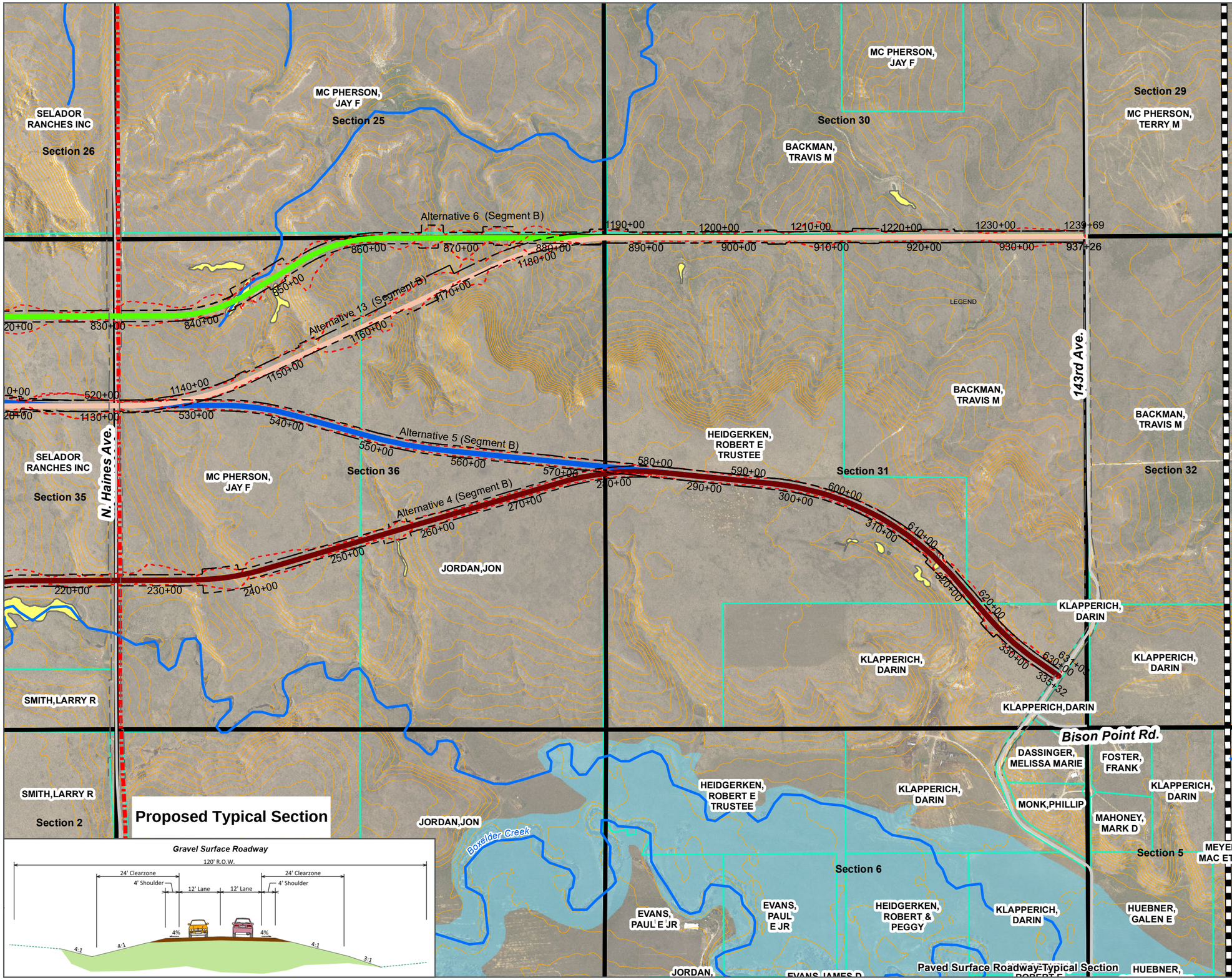
MEADE COUNTY

RAPID CITY AREA Metropolitan Planning Organization

HDR

EXHIBIT A-1

PATH: Z:\PROJECTS\10151083 - RCMPO MEADE CTY CORRIDOR STUDY\GIS\HDR\ALTERNATIVE ANALYSIS\APPENDIX A - EXHIBIT A1 - SEGMENT A - PLAN VIEW OF SELECTED BUILD ALTERNATIVES.MXD - USER: SSLOWEY - DATE: 8/7/2019



Proposed Typical Section

Paved Surface Roadway Typical Section

BUILD ALTERNATIVES

SEGMENT B
(HAINES AVE TO 143RD AVE)

N
0 0.2 0.4
MILES

MEADE COUNTY

RAPID CITY AREA Metropolitan Planning Organization

HDR

EXHIBIT A-1

PATH: Z:\PROJECTS\10151083 - RCMPO MEADE CTY CORRIDOR STUDY\GIS\HDR\ALTERNATIVE ANALYSIS\APPENDIX A - EXHIBIT A2 - SEGMENT B - PLAN VIEW OF SELECTED BUILD ALTERNATIVES.MXD - USER: SSLOWEY - DATE: 8/7/2019

Appendix B. Agency Coordination

July 22, 2019

Patrick Snyder
SD Dept. of Environment & Natural Resources
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501-3181

RE: Project - Southern Meade County Corridor Study

Rapid City Area, South Dakota

Dear Mr. Snyder:

The Rapid City Metropolitan Planning Organization (RCMPO) in conjunction with Federal Highway Administration (FHWA) and Meade County, has initiated a study to consider east/west transportation improvements to connect the local road/street network in the southernmost portion of Meade County from Erickson Ranch Road to Elk Vale Road just north of Rapid City. In order to meet future planning needs and to promote efficient and organized development, this preliminary study will identify reasonable and feasible long-term improvements, in addition to physical constraints and environmental factors. Further refinement of corridor attributes will occur subsequent to this study. A new route in this area will provide transportation connectivity between western and eastern portions of north Rapid City and will connect Black Hawk, Summerset and Piedmont to the Rapid City metro area north of the Rushmore Mall and ultimately to I-90/US16B.

This study will evaluate up to three alternative routes for a new alignment within this 4 mile corridor and includes intersections at the west terminus at Erickson Ranch Road (north of Deadwood Ave.), North Haines Avenue, 143rd Avenue and the east terminus at Elk Vale Road. Planning the expansion of the local street network in this location is necessary to avoid, minimize or mitigate environmental and human impacts prior to development confining that effort. The corridor study area, potential alignments and intersection locations can be found in the attached location map.

Please comment on any of the following topics that pertain to you agency for this corridor:

1. Wetland Locations	8. Section 404 Permits
2. Threatened or endangered Species	9. Section 10 Permits
3. Refuges	10. Air Quality
4. SDGF&P Game Production Areas	11. Hazardous Waste
5. SDGF&P Recreation Area	12. Land & Water conservation Funds
6. Parks	13. Underground Storage Tanks
7. Water Quality Standards	14. Contaminated Soils

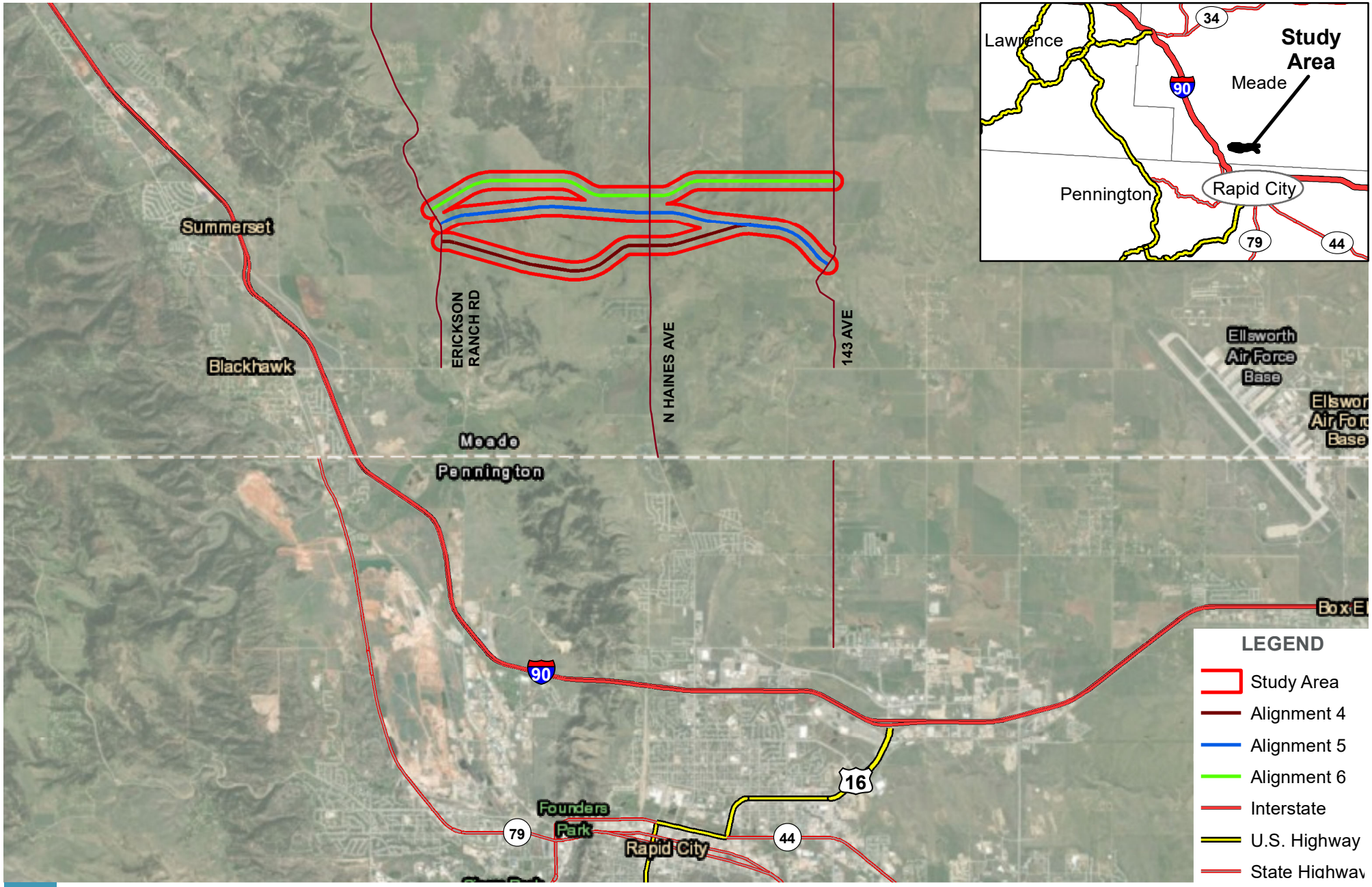
Please submit your comments as soon as possible, so that the project's environmental documentation can be completed in a timely manner.

Sincerely,

Jill Rust
Senior Environmental Scientist
HDR
605.782.8124

Attachment: Project Location Map

Cc: Doug Miller, DENR



STUDY AREA

MEADE COUNTY CORRIDOR STUDY

PATH: H:\GIS\PROJECTS\RAPID_CITY_MPO\MAP_DOCS\FINAL\PROJECT_LOCATION_MEADECOUNTY.MXD - USER: CAMURPHY - DATE: 7/10/2019

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

July 26, 2019

Jill Rust
Senior Environmental Scientist
HDR
703 Main Street
Suite 200
Rapid City, SD 57701

Re: Southern Meade County Corridor Study

Dear Ms. Rust:

The South Dakota Department of Environment and Natural Resources' (DENR) Ground Water Quality Program has reviewed the above-referenced project for potential impacts to ground water quality. Based on the information submitted in your letter, dated July 22, 2019, DENR does not anticipate adverse impacts to ground water quality by this project.

If construction for this project disturbs one or more acre(s) of soil, a storm water permit may be required. For more information or to obtain a storm water permit, please contact the Department at 1-800-SD-Storm or visit: http://denr.sd.gov/des/sw/StormWaterandConstruction.aspx.

There have been numerous petroleum and other chemical releases throughout the state. Of the releases reported to DENR, we have not identified any release cases in the vicinity of your project. However, the locational information provided to us regarding releases is sometimes inaccurate or incomplete. If you would like to do more research, additional information on reported releases in South Dakota may be obtained at the following website: http://arcgis.sd.gov/server/denr/spillsviewer/.

In the event that contamination is encountered during construction activities or is caused by the construction activity, the City of Rapid City, or its designated representative, must report the contamination to DENR at 605-773-3296. Any contaminated soil encountered or caused by the construction must be temporarily stockpiled and sampled to determine disposal requirements.

Thank you for providing DENR the opportunity to comment on this project. If you have any questions regarding the information provided, please contact me at 605-773-3296.

Sincerely,

Katherine Miller
Environmental Scientist
Ground Water Quality Program

cc: Doug Huntrods, Meade County Emergency Manager, Sturgis, SD

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

August 19, 2019

Jill Rust
HDR
6300 S. Old Village Place
Suite 100
Sioux Falls, SD 57108-2102

RE: Environmental Assessment – Request for Comments
Southern Meade Corridor Study, Rapid City, South Dakota

.

Dear Ms. Rust:

The South Dakota Department of Environment and Natural Resources (DENR) Surface Water Quality Program has reviewed the information provided regarding the Southern Meade Corridor Study, in Rapid City, South Dakota. Based on the information provided, DENR has the following comments:

1. At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM (1-800-737-8676) or http://denr.sd.gov/des/sw/stormwater.aspx.

2. A Surface Water Discharge permit may be required if any construction dewatering should occur as a result of this project. Please contact this office for more information.

3. Impacts to tributaries, creeks, wetlands, and lakes should be avoided by this project. These waterbodies are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that water quality standards are not violated.

   This project will be in close vicinity to Box Elder Creek. West of North Haines Avenue, this creek is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

   (2) Coldwater permanent fish life propagation waters;
   (7) Immersion contact recreation waters;
   (8) Limited contact recreation waters;
   (9) Fish and wildlife propagation, recreation, and stock watering waters; and
   (10) Irrigation waters.

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 30 mg/L is not violated.

East of North Haines Avenue, Box Elder Creek is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

(4) Warmwater permanent fish life propagation waters;
(8) Limited contact recreation waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation waters.

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 90 mg/L is not violated.

4. The discharge of pollutants from any source, including indiscriminate use of fill material, may not cause destruction or impairment except where authorized under Section 404 of the Federal Water Pollution Control Act. Please contact the United States Army Corps of Engineers for more information 605-224-8531.

If you have any questions concerning these comments, please contact me by email at Shannon.Minerich@state.sd.us. Thank you.

Sincerely,

Shannon Minerich

Shannon Minerich
Environmental Scientist
Surface Water Quality Program

July 23, 2019

Hilary Meyer
SD Dept. of Game, Fish & Parks
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501

RE: Project - Southern Meade County Corridor Study

Rapid City Area, South Dakota

Dear Ms. Meyer:

The Rapid City Metropolitan Planning Organization (RCMPO) in conjunction with Federal Highway Administration (FHWA) and Meade County, has initiated a study to consider east/west transportation improvements to connect the local road/street network in the southernmost portion of Meade County from Erickson Ranch Road to Elk Vale Road just north of Rapid City. In order to meet future planning needs and to promote efficient and organized development, this preliminary study will identify reasonable and feasible long-term improvements, in addition to physical constraints and environmental factors. Further refinement of corridor attributes will occur subsequent to this study. A new route in this area will provide transportation connectivity between western and eastern portions of north Rapid City and will connect Black Hawk, Summerset and Piedmont to the Rapid City metro area north of the Rushmore Mall and ultimately to I-90/US16B.

This study will evaluate up to three alternative routes for a new alignment within this 4 mile corridor and includes intersections at the west terminus at Erickson Ranch Road (north of Deadwood Ave.), North Haines Avenue, 143rd Avenue and the east terminus at Elk Vale Road. Planning the expansion of the local street network in this location is necessary to avoid, minimize or mitigate environmental and human impacts prior to development confining that effort. The corridor study area, potential alignments and intersection locations can be found in the attached location map.

Please comment on any of the following topics that pertain to you agency for this corridor:

1. Wetland Locations	9. Section 10 Permits
2. Threatened or endangered Species	10. Air Quality
3. Refuges	11. Hazardous Waste
4. SDGF&P Game Production Areas	12. Land & Water Conservation Funds
5. SDGF&P Recreation Area	13. Underground Storage Tanks
6. Parks	14. Northern Long-eared Bat Hibernacula Sites
7. Water Quality Standards	15. Northern Long-eared Bat Maternity Roost Sites
8. Section 404 Permits	

Please submit your comments as soon as possible, so that the project's environmental documentation can be completed in a timely manner.

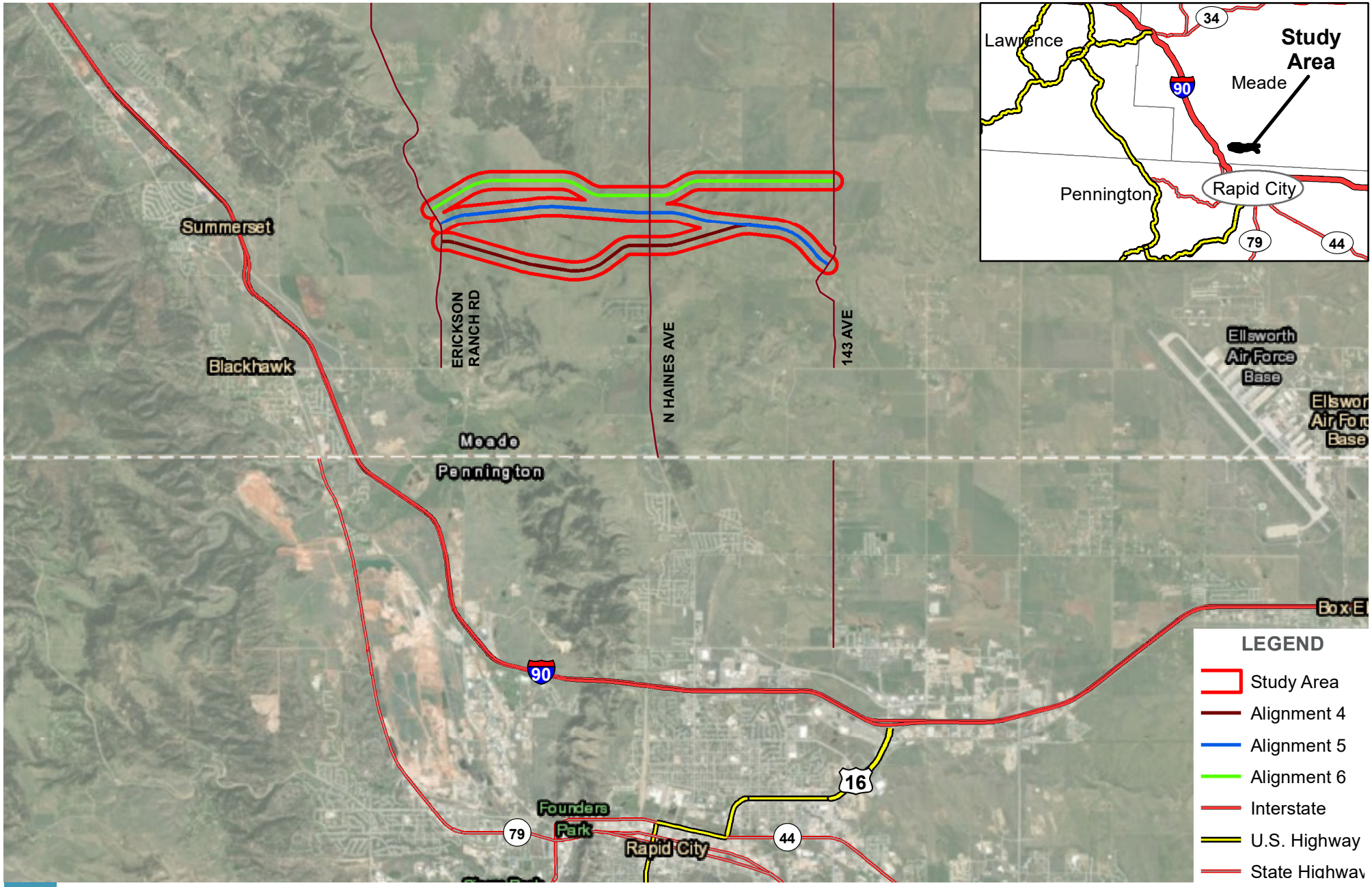
Sincerely,

Jill Rust
Senior Environmental Scientist
HDR
605.782.8124

Attachment: Project Location Map

Cc: Casey Heimerl

Kelly Brennan, RC MPO



STUDY AREA

MEADE COUNTY CORRIDOR STUDY

PATH: H:\GIS\PROJECTS\RAPID_CITY_MPO\MAP_DOCS\FINAL\PROJECT_LOCATION_MEADECOUNTY.MXD - USER: CAMURPHY - DATE: 7/10/2019

SOUTH DAKOTA DEPARTMENT OF
GAME, FISH AND PARKS
523 EAST CAPITOL AVENUE | PIERRE, SD 57501

August 21, 2019

Jill Rust
HDR Inc.
6300 S. Old Village Place
Suite 100
Sioux Falls, SD 57108-2102

RE: Review of Project-Southern Meade County Corridor Study
Rapid City Area, South Dakota

Dear Jill,

The Department of Game, Fish and Parks has reviewed the above project involving improvements to connect the local road network in Meade County, South Dakota.

We have conducted a search of the SD Natural Heritage Database for the above referenced project. This database monitors species at risk, specifically those species that are legally designated as threatened, endangered or rare. We did not find any occurrences of endangered, rare or threatened species in the immediate project area. Based on the information provided, there is no anticipated significant impact to fish and wildlife resources and would anticipate that to remain if the following suggestions are considered during the planning and construction of the project.

1. Disturbance to riparian and wetland areas should be kept to an absolute minimum.
2. If riparian vegetation is lost it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sediment and erosion.
3. A site specific sediment and erosion control plan should be part of the project.
4. A post construction erosion control plan should be implemented in order to provide interim control prior to re-establishing permanent vegetative cover on the disturbed site.

If you have any questions, please feel free to contact me at 605-773-6208.

Sincerely,

Hilary Meyer
Environmental Review Senior Biologist
523 East Capitol Avenue
Pierre, SD 57501
hilary.meyer@state.sd.us

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Dakota Ecological Services Field Office
420 South Garfield Avenue, Suite 400
Pierre, SD 57501-5408
Phone: (605) 224-8693 Fax: (605) 224-9974
http://www.fws.gov/southdakotafieldoffice/

In Reply Refer To:
Consultation Code: 06E14000-2019-SLI-0928
Event Code: 06E14000-2019-E-02223
Project Name: Meade County

September 03, 2019

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

To Whom It May Concern:

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

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

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

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

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

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

Please be aware that bald and golden eagles are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-712, as amended), as well as the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may benefit from the development of an Eagle Conservation Plan (ECP), see guidance at this website (http://www.fws.gov/windenergy/eagle_guidance.html). An ECP can assist developers in achieving compliance with regulatory requirements, help avoid “take” of eagles at project sites, and provide biological support for eagle permit applications. Additionally, we recommend wind energy developments adhere to our Land-based Wind Energy Guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

We have recently updated our guidelines for minimizing impacts to migratory birds at projects that have communication towers (including meteorological, cellular, digital television, radio, and emergency broadcast towers). These guidelines can be found at:

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm
http://www.towerkill.com

According to National Wetlands Inventory maps, (available online at http://wetlands.fws.gov/) wetlands exist adjacent to the proposed construction corridor. If a project may impact wetlands or other important fish and wildlife habitats, the U.S. Fish and Wildlife Service (Service), in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible. If this is not possible, attempts should be made to minimize adverse impacts. Finally if adverse impacts are unavoidable, measures should be undertaken to replace the impacted areas. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted, and the methods of replacement should be prepared and submitted to the resource agencies for review.

Please check with your local wetland management district to determine whether Service interest lands exist at the proposed project site, the exact locations of these properties, and any additional restrictions that may apply regarding these sites. The Offices are listed below. If you are not sure which office to contact, we can help you make that decision.

U.S. Fish and Wildlife Service, Huron Wetland Management District, Federal Building, Room 309, 200 4th Street SW, Huron, SD 57350; telephone (605) 352-5894. Counties in the Huron WMD: Beadle, Buffalo, Hand, Hughes, Hyde, Jerauld, Sanborn, Sully.

U.S. Fish and Wildlife Service, Lake Andes Wetland Management District, 38672 291st Street, Lake Andes, South Dakota; telephone (605) 487-7603. Counties in the Lake Andes WMD: Aurora, Bon Homme, Brule, Charles Mix, Clay, Davison, Douglas, Hanson, Hutchinson, Lincoln, Turner, Union, Yankton.

U.S. Fish and Wildlife Service, Madison Wetland Management District, P.O. Box 48, Madison, South Dakota, 57042, telephone (605) 256-2974. Counties in the Madison WMD: Brookings, Deuel, Hamlin, Kingsury, Lake, McCook, Miner, Minnehaha, Moody.

U.S. Fish and Wildlife Service, Sand Lake Wetland Management District, 39650 Sand Lake Drive, Columbia, South Dakota, 57433; telephone (605) 885-6320. Counties in the Sand Lake WMD: Brown, Campbell, Edmunds, Faulk, McPherson, Potter, Spink, Walworth.

U.S. Fish and Wildlife Service, Waubay Wetland Management District, 44401 134A Street, Waubay, South Dakota, 57273; telephone (605) 947-4521. Counties in the Waubay WMD: Clark, Codington, Day, Grant, Marshall, Roberts.

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

You are welcome to visit our website (listed above) or to contact our office at the address or phone number above for more information.

Thank you.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

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

This species list is provided by:

South Dakota Ecological Services Field Office
420 South Garfield Avenue, Suite 400
Pierre, SD 57501-5408
(605) 224-8693

Project Summary

Consultation Code: 06E14000-2019-SLI-0928

Event Code: 06E14000-2019-E-02223

Project Name: Meade County

Project Type: TRANSPORTATION

Project Description: Determining the optimal build alternative for a bypass within Meade County.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.176902131960944N103.21111876233553W

Counties: Meade, SD

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

---

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Least Tern *Sterna antillarum* Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Critical habitats

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

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Burrowing Owl *Athene cunicularia* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31

NAME	BREEDING SEASON
Ferruginous Hawk *Buteo regalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6038	Breeds Mar 15 to Aug 15
Golden Eagle *Aquila chrysaetos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lark Bunting *Calamospiza melanocorys* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Aug 15
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds May 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

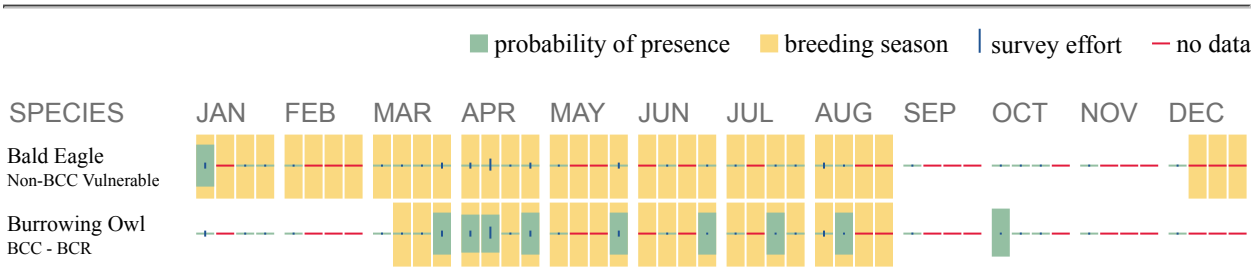
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

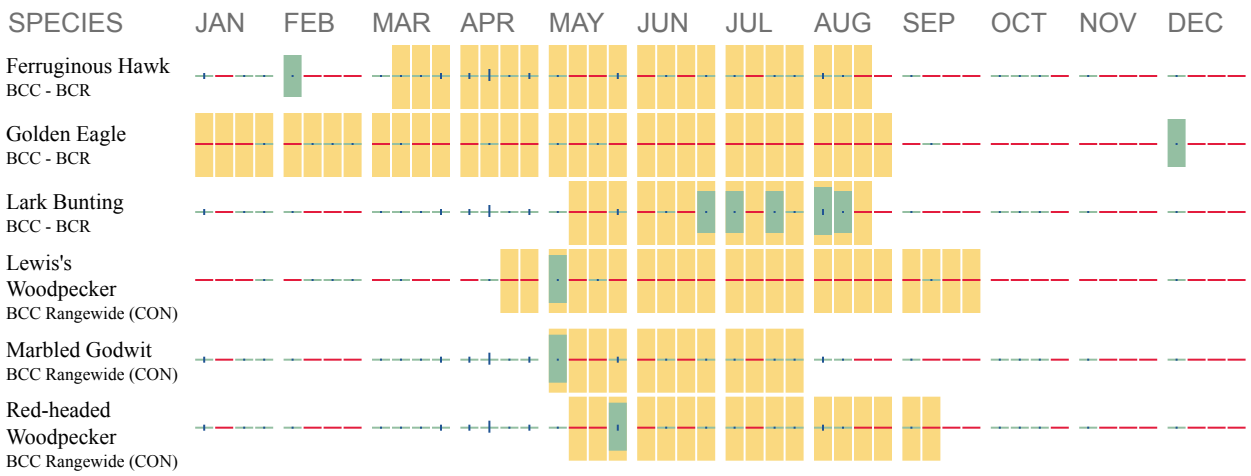
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as

occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC

species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C

FRESHWATER POND

- PABFh

RIVERINE

- R4SBC
- R5UBH

Appendix C. Cultural Resources Memorandum

Memo

Date: August 8, 2019

Project: Southern Meade County Corridor Study, Meade County, South Dakota

To: Jill Rust (HDR)

From: Pamela Flynn M.A. (HDR)

Subject: Southern Meade County Corridor Study – Cultural Resources Critical Issues Analysis

SOUTHERN MEADE COUNTY CORRIDOR STUDY – CULTURAL RESOURCES CRITICAL ISSUES ANALYSIS

This memorandum presents the results of a cultural resources Critical Issues Analysis (CIA) completed for the proposed Southern Meade County Corridor Study Project (Project) in Meade County, South Dakota. Meade County, in partnership with Rapid City Area Metropolitan Planning Organization and South Dakota Department of Transportation, is conducting a study to identify a route for a new transportation corridor. The purpose of the Project is to identify a corridor to accommodate planned future land use. At this time, the Project is not federal undertaking subject to Section 106 of the National Historic Preservation Act.

The Project Area includes three build alternatives—Alignment 4, Alignment 5, and Alignment 6—with a 1000-foot-wide corridor (500 feet on each side of the route centerline) along each alternative (**Figure 1**). Alignment 4 is approximately 4.46 miles long and 558 acres, Alignment 5 is approximately 4.38 miles long and 548 acres, and Alignment 6 is approximately 4.49 miles long and 563 acres. The Project Area is in sections 2 and 3 of Township 2N, Range 7E; sections 25–28 and 33–36 of Township 3N, Range 7E; and sections 29–32 of Township 3N, Range 8E, and encompasses approximately 1,669 acres.

In order to establish a context and adequately address resources that may be affected by the Project, a larger Study Area was created. The Study Area is defined as a 1-mile buffer from the build alternatives (**Table 1** and **Figure 1**).

Table 1. Study Area Legal Description

County	Township	Range	Sections
Meade County	2N	7E	1-5
	2N	8E	5-6
	3N	7E	25-29, 32-36
	3N	8E	29-32

HDR conducted a records search for the Project in March 2019 and a windshield survey in July 2019. The records search focused on previously identified archaeological sites, previously identified architectural resources, and previously conducted archaeological surveys within the Study Area. In addition to the files obtained from SDARC, HDR completed a review of General Land Office (GLO) maps accessed online.

The purpose of this CIA is to reveal potential issues and cultural resources that may be encountered. This document presents the results of a cursory desktop analysis that was completed using files obtained from SDARC, select web sources, and the windshield survey. The document provides a brief overview and is not meant to replace a literature search or field survey.

SOUTH DAKOTA REGULATORY FRAMEWORK

State laws that may apply to the Project include: Preservation of Historic Property (South Dakota Codified Law [SDCL] -19A-11.1) and the Reporting Discovery of Human Skeletal Remains (SDCL 34-27-25).

Preservation of Historic Property (SDCL 1-19A-11.1) states that any state or political subdivision within the state may not undertake a project which encroaches on, damages, or destroys a historic property. SDCL 1-19A-11.1 requires that the South Dakota State Historic Preservation Office (SHPO) have opportunity to investigate and comment on the effects government projects may have on historic properties. Historic properties are defined as properties included on the state register or the National Register of Historic Places (NRHP).

Reporting Discovery of Human Skeletal Remains (SDCL 34-27-25) pertains to the protection of human skeletal remains. Any suspected discovery of human skeletal remains, buried or on the ground, must be reported to the appropriate law enforcement officer within 48 hours.

The Project is currently not subject to federal oversight. If the Project triggers federal oversight, the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969 will apply.

Section 106 of the National Historic Preservation Act of 1966, and its implementing regulations (36 CFR Part 800), requires federal agencies to take into account the effects of their undertakings on historic properties (any prehistoric or historic district, site, building, structure, or object listed on or eligible for listing on the NRHP).

The National Environmental Policy Act of 1969, as amended (42 USC 4321, and 4331-4335) declares that it is a federal policy to “preserve important historic, cultural, and natural aspects of our national heritage.” It requires federal agencies to use a systematic and interdisciplinary approach that incorporates the natural and social sciences in any planning and decision making that may impact our environment.

BACKGROUND RESEARCH RESULTS

A records search request was sent to SDARC on March 18, 2019, and search results were received on March 27, 2019. The records search request included previously conducted archaeological surveys and previously recorded archaeological sites, structures, bridges, cemeteries, miscellaneous files/site leads, and historic districts in the Study Area. Files returned include NRHP eligibility and GIS shapefiles of previous cultural resources. According to the files received from SDARC, there are no cemeteries, miscellaneous site leads, or historic districts in the Study Area.

Previously Recorded Archaeological Sites

According to files received from SDARC, there is one previously recorded archaeological site within the Study Area (**Table 2**). Site 39MD0483 is a stone feature site consisting of a cairn of

unknown cultural affiliation. The site form notes that another potential stone feature site was observed nearby but not recorded. The site does not intersect the Project Area and is not evaluated for the NRHP.

Table 2. Previously Recorded Archaeological Site within the Study Area

Site Number	Site Type	NRHP Eligibility
39MD0483	Unknown cairn	Unevaluated

Previously Recorded Architectural Structures

Files received from SDARC identified two previously recorded architectural structures within the Study Area (**Table 3** and **Figure 2**). Both properties are homesteads and are unevaluated for the NRHP. Neither property intersects the Project Area.

Table 3. Previously Recorded Architectural Structures within the Study Area

SHPO Number	Township	Range	Section	Structure Type	NRHP Eligibility
MD00000094	2N	8E	6	Homestead	Unevaluated
MD00000095	3N	8E	32	Homestead	Unevaluated

Previously Recorded Bridges

Files received from SDARC identified one previously recorded bridge in the Study Area (**Table 4** and **Figure 2**). The two-span, concrete channel bridge is on 143rd Ave where it crosses Boxelder Creek outside the Project Area. The bridge has been determined not eligible for the NRHP.

Table 4. Previously Recorded Bridge within the Study Area

SHPO Number	Township	Range	Section	Bridge Type	Construction Date	NRHP Eligibility
MD00000303	2N	8E	5	Concrete	1966	Not eligible

Previous Surveys

Nine previous surveys have been conducted within the Study Area (**Table 5** and **Figure 2**). Of these nine previous surveys, two intersect the Project Area (AMD-0092 and BLH-0154). Surveys intersecting the Project Area were conducted for an SDDOT project and an electrical utility company. Most of the Study Area has not been previously surveyed.

Table 5. Previous Archaeological Surveys within the Study Area

Report Number	Title	Author	Year
AMD-0092*	An Intensive Cultural Resource Inventory of a Major Collector Road 8 Miles East of Piedmont, Meade County, South Dakota. SDDOT Project No. P 6501(2) PCEMS 4640. CIS No. 1246	Byrne, Daniel	1997

Report Number	Title	Author	Year
AMD-0206	A Short Format Report of a Cultural Resources Inventory Survey of the Weston Heights Wastewater Treatment Facility Expansion in Meade County, South Dakota. Project No. 05-37	Buechler, Jeffrey V.	2005
AMD-0296	Letter Format Report of a Cultural Resources Inventory Survey of West River Electric Association Inc,'s Erickson Ranch Road Service Line in Meade County, South Dakota. Project No. 08-45	Buechler, Jeffrey V.	2008
AMD-0301	Letter Format Report of a Cultural Resources Inventory Survey of West River Electric Association Inc.'s 143rd Avenue Service Line in Meade County, South Dakota. Project No. 08-75	Buechler, Jeffrey V.	2008
BLH-0123	A Letter Report on an Intensive Cultural Resource Survey of the Small Roads Project PH 8052(33), PCEMS 3831, Pennington and Meade Counties, South Dakota. CIS No. 873	Abbott, Jane P.	1994
BLH-0154*	Letter Format Report of Cultural Resources Inventory Survey - West River Electric's 1999 Powerline Routes in Meade and Pennington Counties, South Dakota. Project No. 99-13	Buechler, Jeffrey V.	1999
WSD-0390	Letter Format Report of a Cultural Resources Inventory Survey of Four West River Electric Association Inc. Service Lines in Meade and Pennington Counties, South Dakota. Project No. 09-59	Buechler, Jeffrey V.	2009
WSD-0413	Letter Format Report of a Cultural Resources Inventory Survey of the Madsen (W.O. 29299) and Sieveke (W.O. 29301) Service Lines Conducted for West River Electric Association, Inc. in Meade and Pennington Counties, South Dakota. Project No. 10-47	Buechler, Jeffrey V.	2010
WSD-0415	Letter Format Report of a Cultural Resources Inventory Survey of the Madsen (W.O. 29299) and Sieveke (W.O. 29301) Service Lines Conducted for West River Electric Association, Inc. in Meade and Pennington Counties, South Dakota. Project No. 10-47	Buechler, Jeffrey V.	2010

*Intersects the Project Area

General Land Office Maps

Nineteenth-century GLO survey maps corresponding with the Study Area were examined to identify areas that may have potential for containing historic-age cultural resources (Bureau of Land Management 1879a, 1879b, 1881a, and 1881b). Archaeological sites may be present

where historical resources are depicted. The only cultural (i.e., human-made) features depicted within the Study Area are unnamed roads. The two roads intersect the Project Area in sections 25 and 33–36 of Township 3N, Range 7E.

Table 6. General Land Office Map Features within the Study Area

Year	Township	Range	Sections	Feature
1881	3N	7E	32–36	Unnamed road* runs generally east-west through the N 1/2 of the sections
1881	3N	7E	25, 26, 36	Unnamed road* runs generally north-south through the W 1/2 of Section 25, the SE 1/4 of Section 26, and the NW 1/4 of Section 36

*Intersects the Project Area

WINDSHIELD SURVEY

A windshield survey was conducted for the Project on July 11, 2019. The windshield survey consisted of a visual inspection of the Study Area from public roadways and from a two-track intersecting the Project Area one of the parcels. The purpose of the windshield survey was to confirm land use and local topography, and to note any particular areas of concern for cultural resources. It is anticipated that the results of the windshield survey will be used in the development of a cultural resources survey strategy as the Project progresses.

The general setting of the Study Area is an upland prairie at the foot of the Black Hills (**Figure 3**). Most of the Study Area encompasses east-west bluffs on either side of a valley with numerous small ridges, intermittent streams, and drainages running through the lower elevations. Drainages flow generally toward Boxelder Creek which intersects the southern side of the Study Area. At the time of the field visit, the Study Area was covered by mature summer vegetation which obscured the ground visibility and large areas of pasture were covered by invasive yellow sweet clover (**Figure 4**). Wetlands were observed at the eastern edge of the Project Area and at the lower elevations west of N. Haines Ave. At the western edge of the Study Area where it intersects Erickson Ranch Road, steep rocky slopes with pockets of evergreen trees mark the beginning of more mountainous terrain.

The visual inspection of the Study Area confirmed that the majority of the area is prairie used for cattle or horse grazing, with a small portion of the Study Area dedicated to hay and alfalfa. The Project Area (all three alternatives) appears to be entirely within prairie/pasture. Visible portions of the Project Area traverse the prairie along the bluffs, ridges, slopes, and valley lowland (**Figure 5**). Areas with well-sodded stones were observed along Alignment 4 west of N Haines Ave. Several well-sodded stones were also observed on bluff crest area around the eastern end of Alignment 4 and 5 west of 143rd Ave. The higher elevations afford good views of the surrounding landscape and the hills in the distance (**Figure 6**).

Architectural structures observed in the Study Area include widely scattered homesteads and modern housing subdivisions. These are mostly around the edges of the Study Area. Many of the architectural structures in the area are hidden from the Project Area and public roads by local topography. An additional, unrecorded farmstead (homestead with associated outbuildings) was observed near the southeastern end of the Project Area between the two previously recorded homesteads.

SUMMARY AND RECOMMENDATIONS

A review of the Study Area identified one previously recorded archaeological site (39MD0483), two previously recorded structures, and one previously recorded bridge in the Study Area. The previously recorded bridge has been determined not eligible for the NRHP. The remaining cultural resources are unevaluated for the NRHP. None of the previously recorded resources intersect the Project Area. A review of nineteenth-century GLO maps identified two cultural features within the Study Area. Both depicted features are unnamed roads intersecting the Project Area; these do not appear to directly correspond to the modern roadways.

Nine previous surveys have been completed within the Study Area. Of these, two surveys (AMD-0092 and BLH-0154) intersect the Project Area. Site 39MD0483 was identified during survey AMD-0093 and another potential stone feature was noted but not recorded (Byrne 1997). Most of the Project Area has not been previously surveyed.

A visual inspection of the Study Area confirmed that the majority of the area is prairie used for cattle or horse grazing, with a small portion of the Study Area dedicated to hay and alfalfa. The Project Area appears to be entirely within prairie/pasture. Structures observed in the Study area include widely scattered farmsteads and associated outbuildings. These are mostly around the edges of the Study Area and do not intersect the Project Area. At the time of the visual inspection, mature vegetation mostly obscured the ground surface; however, areas with well-sodded stones were observed at the higher elevations.

Given the general lack of previous survey, the local topography, and the current land use, there is a high likelihood of encountering unrecorded cultural sites in the Project Area on all three alternatives. Specifically, there is a high likelihood of encountering pre-European contact period sites in the Project Area. Any undisturbed (non-previously cultivated) prairie/pasture areas with well-sodded field stones may contain Native American stone feature sites. There is also a potential to encounter unrecorded historical archaeological sites related to the early settlement of the area, specifically in uncultivated areas or near extant farmsteads.

The Project Area does not intersect any previously recorded architectural resources and the majority of the development in the area appears to be relatively recent. There is a likelihood of encountering unrecorded architectural resources nearby, especially at the eastern and western ends of the build alternatives. In addition, the two previously recorded homesteads are at least 50 years old and have not been assessed for their potential historical significance.

A literature search and a Level III cultural resources survey is recommended for the Project. The literature search should include a review of historical maps and aerial imagery, if available, to use as a guide the identification of historical resources during the Level III survey. Because of the high probability of Native American stone feature sites in the Project Area, it is recommended that the Level III survey include survey by Traditional Cultural Specialists with the knowledge and expertise to recognize and fully record potential stone feature sites. Consultation with SHPO is recommended to determine the appropriate survey area and full survey methodology. All work should be conducted in accordance with the *South Dakota Guidelines for Compliance with the National Historic Preservation Act and South Dakota Codified Law 1-19A-11.1* (South Dakota State Historical Society 2012) and the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (National Park Service 1983).

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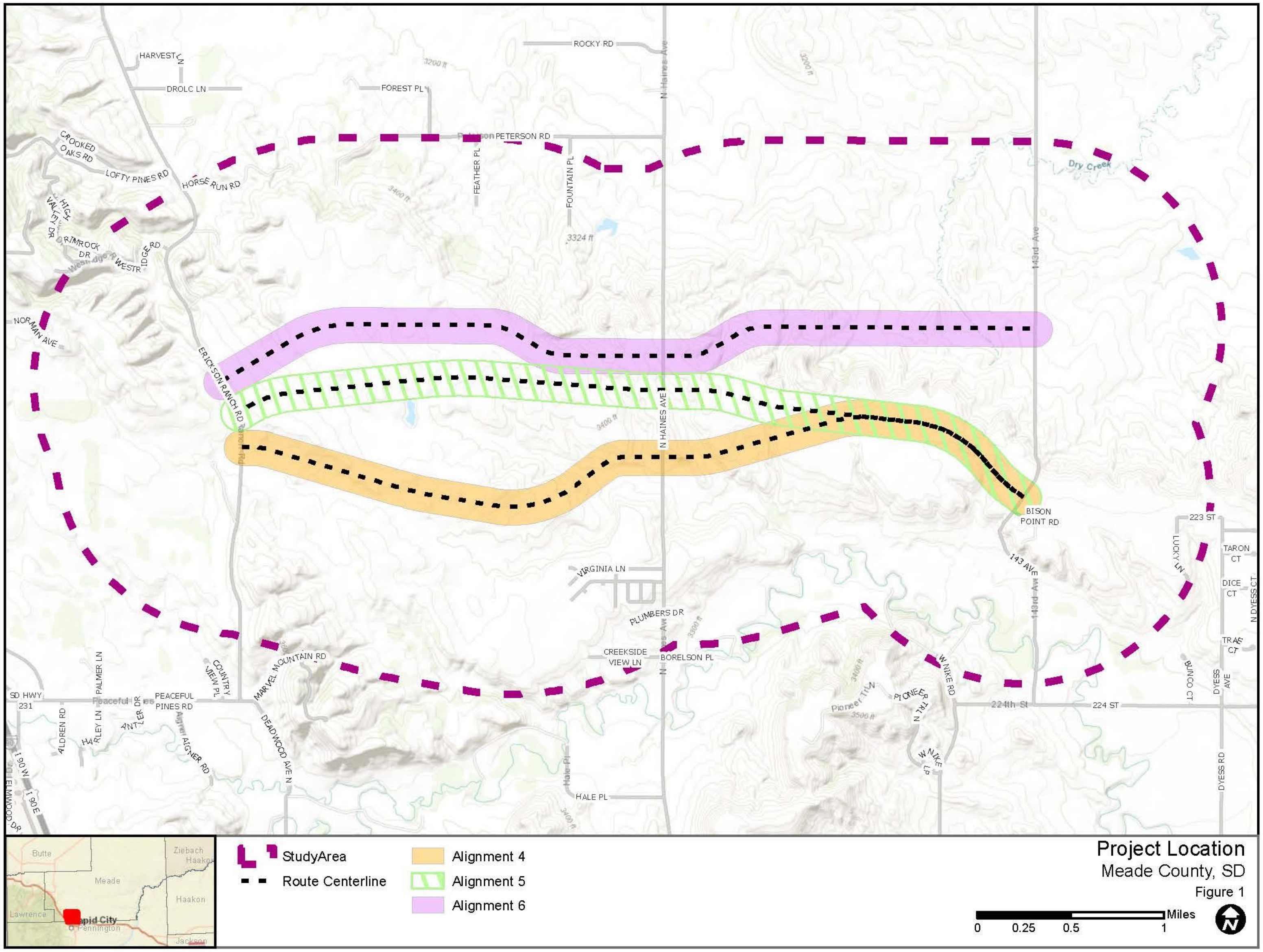
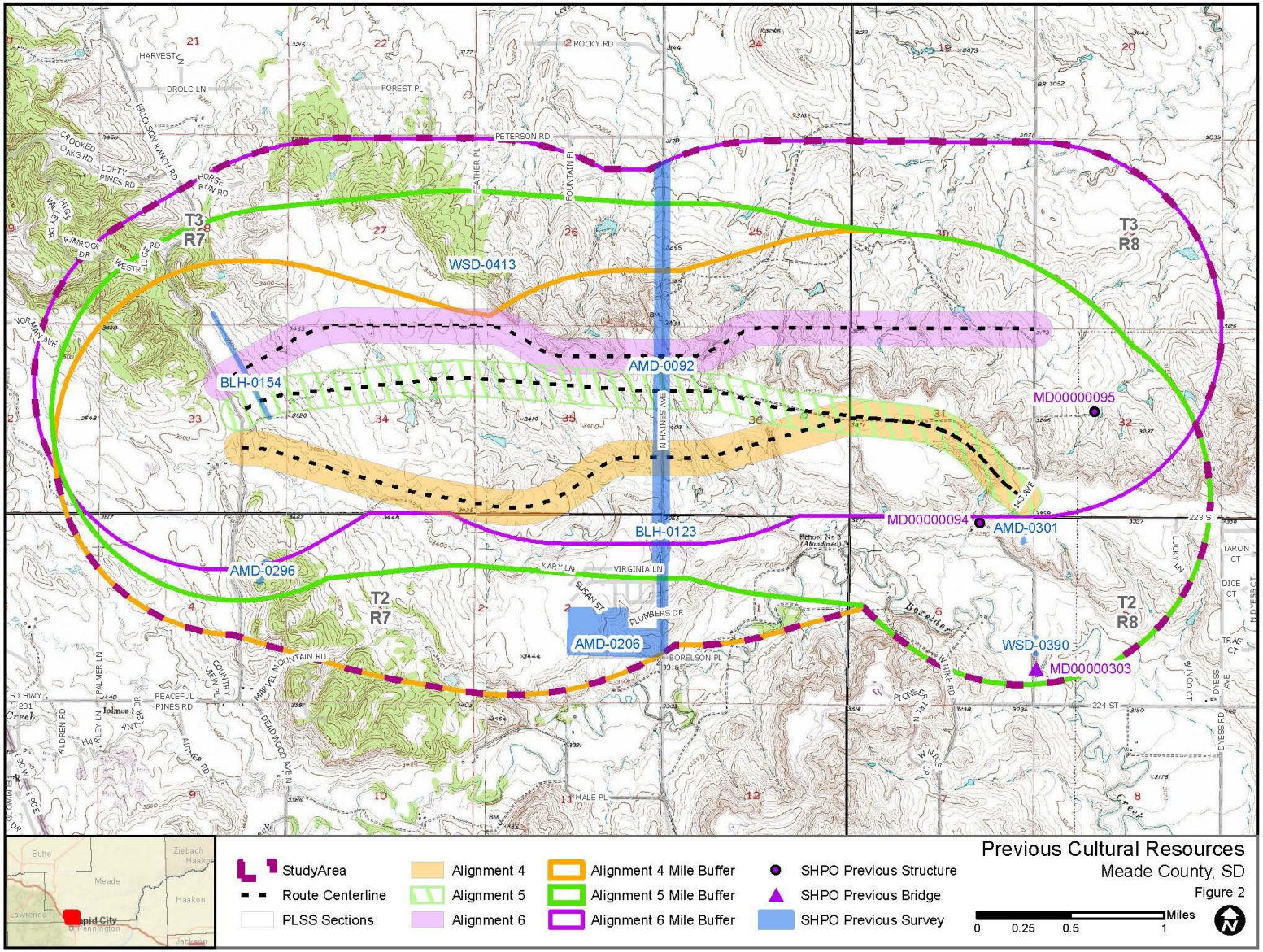
1879b *General Land Office Survey Map of Township 2N, Range 8E*. Available online at https://glorecords.blm.gov/

1881a *General Land Office Survey Map of Township 3N, Range 7E.* Available online at https://glorecords.blm.gov/

1881b *General Land Office Survey Map of Township 3N, Range 8E*. Available online at https://glorecords.blm.gov/

South Dakota State Historical Society
2012 *South Dakota Guidelines for Compliance with the National Historic Preservation Act and South Dakota Codified Law 1-19A-11.1*. Available online at https://history.sd.gov/preservation/docs/SDGuidelinesSec10611.1.pdf


StudyArea
Route Centerline
Alignment 4
Alignment 5
Alignment 6
Project Location
Meade County, SD
Figure 1
Miles
0
0.25
0.5
1
ROCKY RD
HARVEST LN
DROLC LN
FOREST PL
PETERSON RD
FEATHER PL
FOUNTAIN PL
N HAINES AVE
143rd Ave
Dry Creek
ERICKSON RANCH RD
BISON POINT RD
223 ST
VIRGINIA LN
PLUMBERS DR
BORELSON PL
224th St
224 ST
HALE PL
DEADWOOD AVE N
PEACEFUL PINES RD
SD HWY 231
W NIKE RD
PIONEER TRL N
Butte
Meade
Ziebach
Haakon
Lawrence
Pennington
Jackson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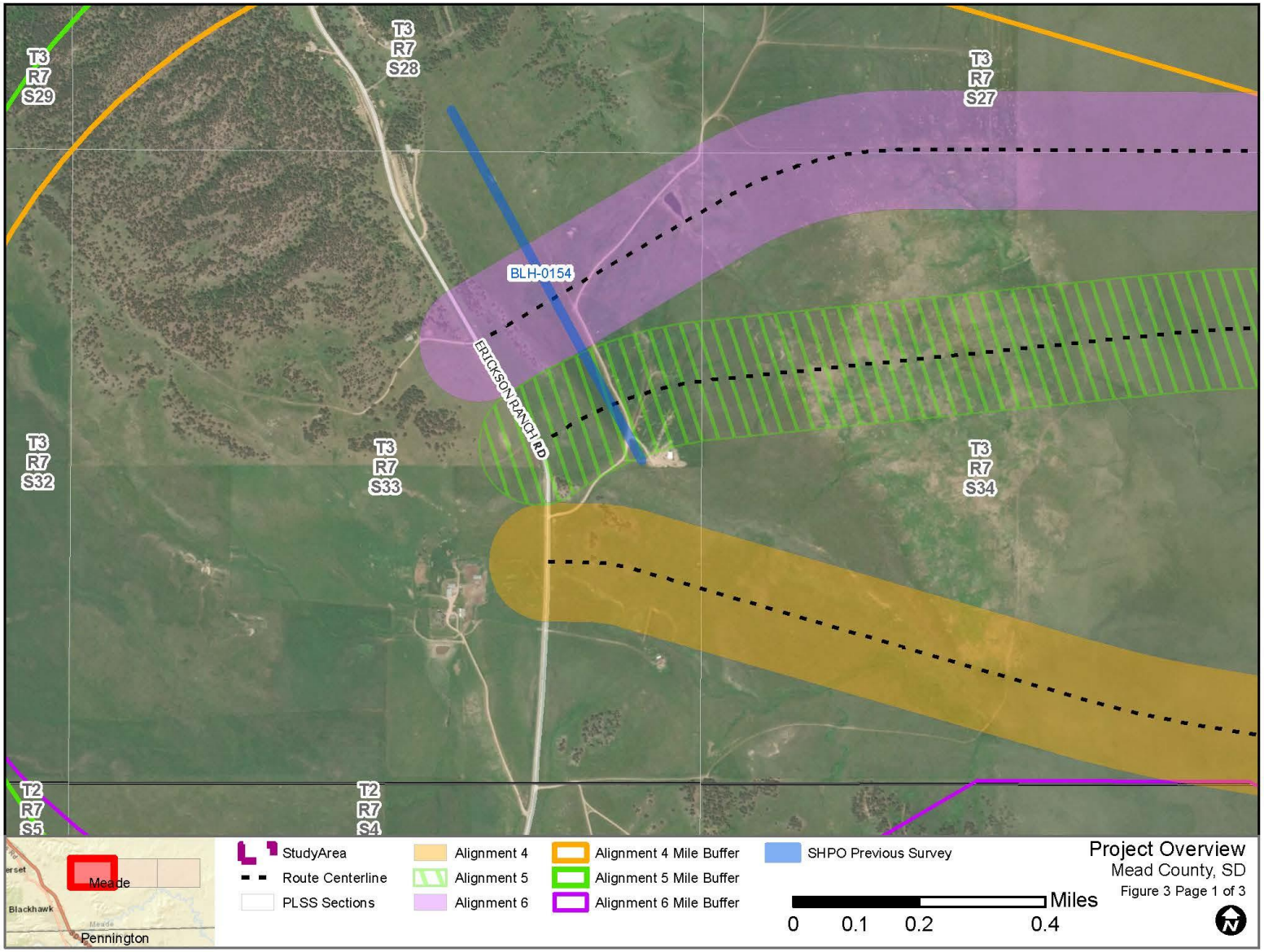
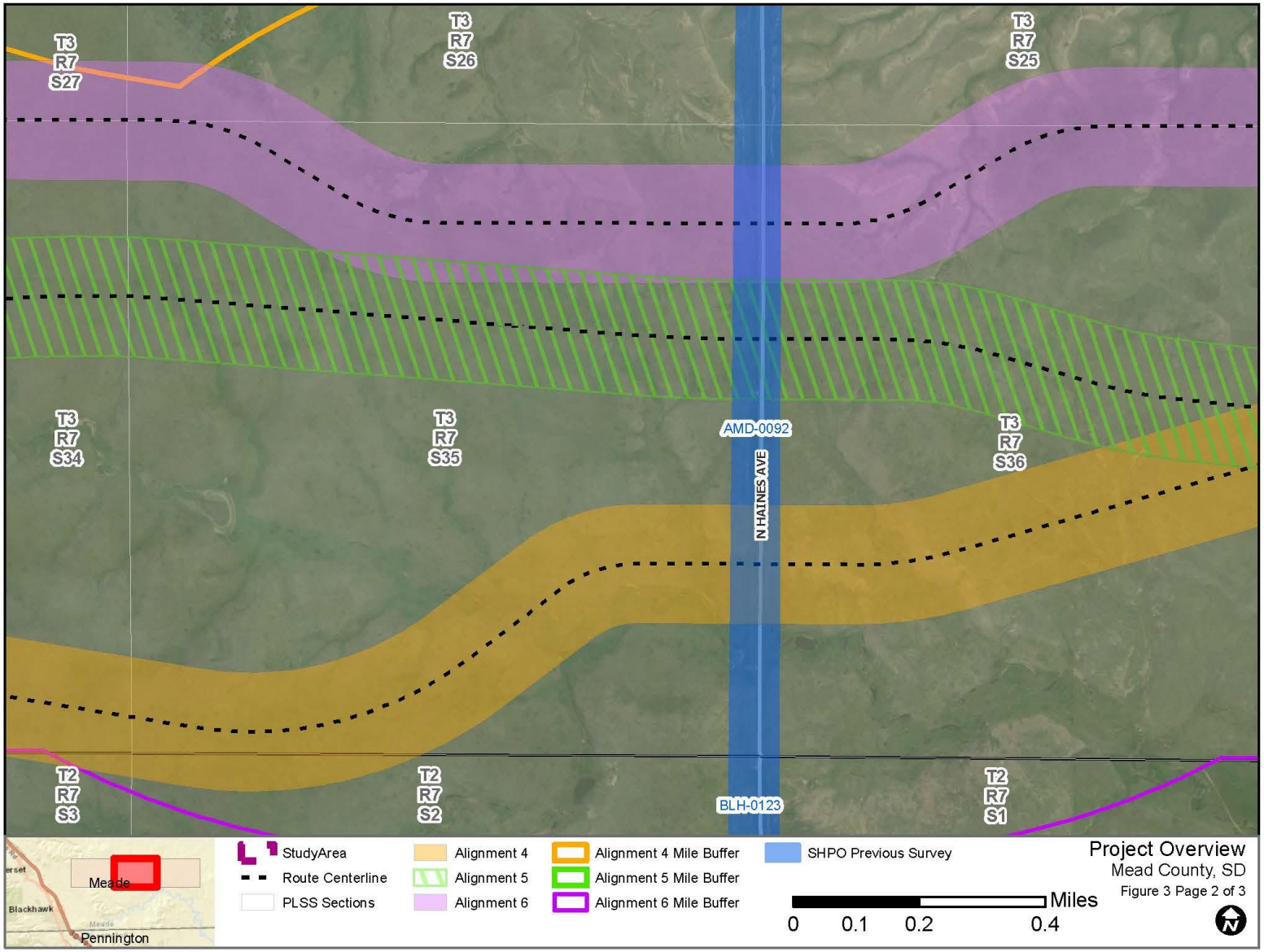
T3 R7
T3 R8
T2 R7
T2 R8
HARVEST LN
DROLC LN
FOREST PL
ROCKY RD
PETERSON RD
CROOKED OAKS RD
LOFTY PINES RD
HORSE RUN RD
ERICKSON RANCH RD
HIGH VALLEY DR
RIMROCK DR
WESTRIDGE RD
NORTHVIEW AVE
FEATHER PL
FOUNTAIN PL
N HAINES AVE
143 AVE
223 ST
224 ST
KARY LN
VIRGINIA LN
SUSAN ST
PLUMBERS DR
BORELSON PL
HALE PL
MARVEL MOUNTAIN RD
COUNTRY VIEW PL
PEACEFUL PINES RD
PALMER LN
ALDREN RD
HARLEY LN
ANTLER DR
ALGNER RD
DEADWOOD AVE N
SD HWY 231
Tolmie Creek
Bazelman
PIONEER TRL
W NINE RD
TARON CT
DICE CT
TRAE CT
LUCKY LN
N DYESS CT
DYESS AVE
DYESS RD
BRADON CT
School No 5 (Abandoned)
StudyArea
Route Centerline
PLSS Sections
Alignment 4
Alignment 5
Alignment 6
Alignment 4 Mile Buffer
Alignment 5 Mile Buffer
Alignment 6 Mile Buffer
SHPO Previous Structure
SHPO Previous Bridge
SHPO Previous Survey
Previous Cultural Resources
Meade County, SD
Figure 2
Miles
0 0.25 0.5 1
Butte
Meade
Lawrence
Rapid City
Pennington
Ziebach
Haakon
Jackson


T3 R7 S29
T3 R7 S28
T3 R7 S27
BLH-0154
ERICKSON RANCH RD
T3 R7 S32
T3 R7 S33
T3 R7 S34
T2 R7 S5
T2 R7 S4
Meade
Blackhawk
Pennington
StudyArea
Route Centerline
PLSS Sections
Alignment 4
Alignment 5
Alignment 6
Alignment 4 Mile Buffer
Alignment 5 Mile Buffer
Alignment 6 Mile Buffer
SHPO Previous Survey
Miles
0 0.1 0.2 0.4
Project Overview
Mead County, SD
Figure 3 Page 1 of 3


T3
R7
S27
T3
R7
S26
T3
R7
S25
T3
R7
S34
T3
R7
S35
AMD-0092
N HAINES AVE
T3
R7
S36
T2
R7
S3
T2
R7
S2
BLH-0123
T2
R7
S1
Meade
Blackhawk
Pennington
StudyArea
Route Centerline
PLSS Sections
Alignment 4
Alignment 5
Alignment 6
Alignment 4 Mile Buffer
Alignment 5 Mile Buffer
Alignment 6 Mile Buffer
SHPO Previous Survey
Miles
0
0.1
0.2
0.4
Project Overview
Mead County, SD
Figure 3 Page 2 of 3

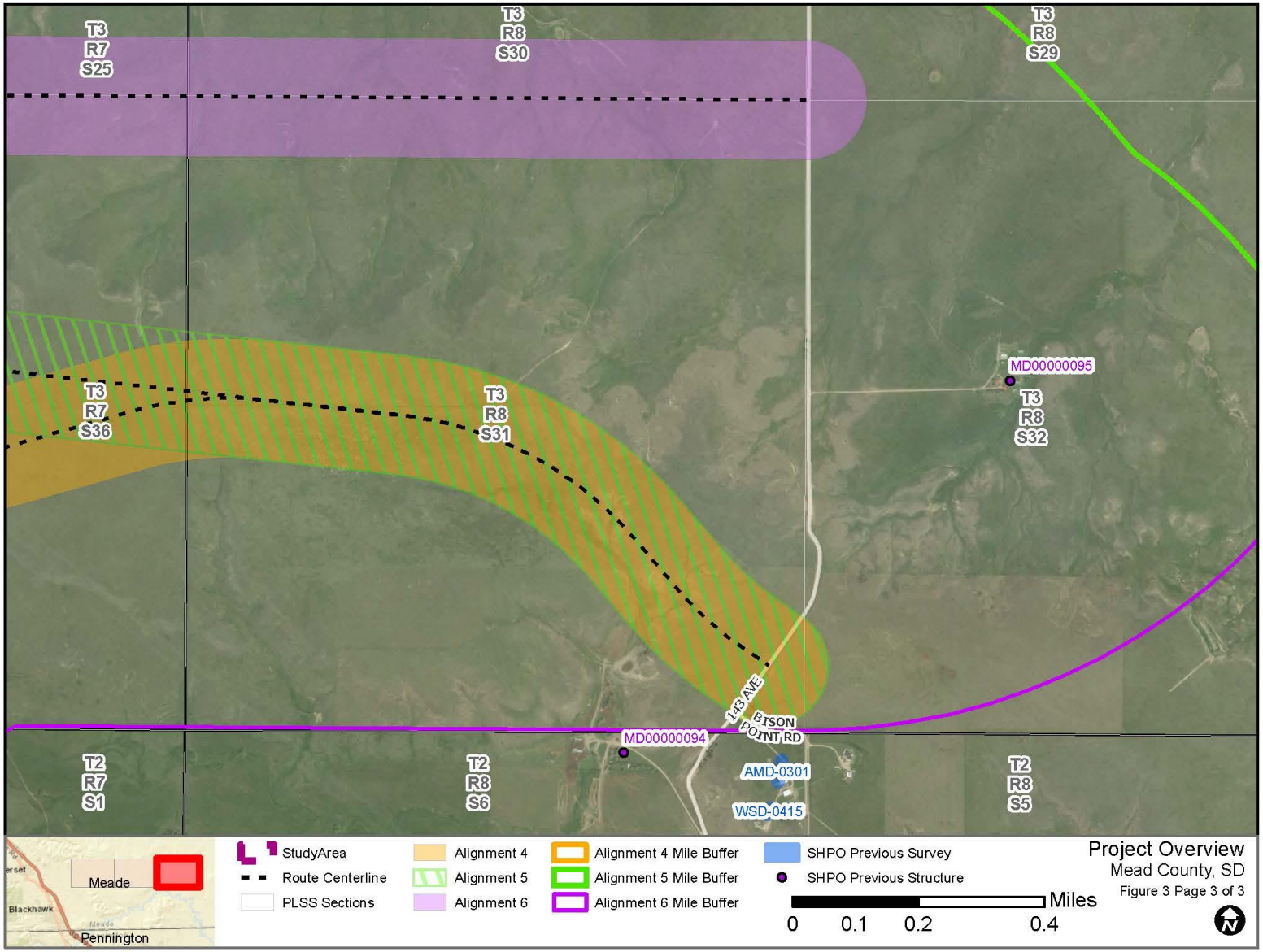

T3
R7
S25
T3
R8
S30
T3
R8
S29
T3
R7
S36
T3
R8
S31
MD00000095
T3
R8
S32
143 AVE
BISON
POINT RD
MD00000094
AMD-0301
WSD-0415
T2
R7
S1
T2
R8
S6
T2
R8
S5
Meade
Blackhawk
Pennington
StudyArea
Route Centerline
PLSS Sections
Alignment 4
Alignment 5
Alignment 6
Alignment 4 Mile Buffer
Alignment 5 Mile Buffer
Alignment 6 Mile Buffer
SHPO Previous Survey
SHPO Previous Structure
Miles
0
0.1
0.2
0.4
Project Overview
Mead County, SD
Figure 3 Page 3 of 3

Figure 4. Upland prairie/pasture, view from 143rd Ave along the eastern end of Alignment 4 and 5, view to the northwest

Figure 5. Upland prairie/pasture, view from 143rd Ave towards Alignment 4 and 5, view to the southwest

Figure 6. Alignment 4 on bluff crest (left) with view of valley and distant hills (right), view to the northwest