KILLDEER TO MOUNTAIN TRANSMISSION PROJECT

PRE-DECISIONAL ENVIRONMENTAL ASSESSMENT

MAY 5, 2009

DOE/EA-1644

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Acronyms, Abbreviations, and Definitions

Abbreviation	Definition
Access Road	A dirt or graveled road or driveway used in areas where structures are not adjacent to township roads.
ACSR	aluminum core steel reinforced
ACSS	aluminum core steel supported
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
Applicant	McKenzie Electric Cooperative (MEC)
BCC	Birds of Conservation Concern
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
dB	Decibel
dBA	A-weighted sound level recorded in units of decibels
DOE	Department of Energy
EA	Environmental Assessment
EMF	Electric and Magnetic Fields
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
G	Gauss
kV	Kilovolt
MBTA	Migratory Bird Treaty Act
MDU	Montana Dakota Utility
MEC	McKenzie Electric Cooperative
MFSA	Major Facility Siting Act
NAIP	National Agriculture Imagery Program
NDDH	North Dakota Department of Health
NDPRD	North Dakota Parks and Recreation Department
NDGF	North Dakota Game and Fish Department
NDSLD	North Dakota State Land Department
NDSWC	North Dakota State Water Commission
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
NRCS	National Resources Conservation Service
NRHP	National Register of Historical Places
NWI	National Wetlands Inventory

Abbreviation	Definition
PEP	Population Estimates Program
PLOTS	Private lands open to sportsmen
ROW	right-of-way
RUS	Rural Utilities Service
SH	State Highway
SHPO	State Historic Preservation Office
SoPC	species of priority concern
SPCC	Spill Prevention Control and Countermeasure Plan
Tariff	Notice of Final Open Access Transmission Service Tariff
UMGT	Upper Missouri Generation and Transmission Electric Cooperative
USCB	U.S. Census Bureau
U.S.C	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Western	Western Area Power Administration

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1.0 INTRODUCTION

McKenzie Electric Cooperative (MEC), through Upper Missouri Generation and Transmission Electric Cooperative, Inc. (UMGT), has applied to the U.S. Department of Energy (DOE) Western Area Power Administration (Western) for a new electrical interconnection. This project would require the construction of temporary interconnection at Western's Killdeer Substation and a new 115-kilovolt (kV) transmission line which would extend about 13 miles northward from Western's Killdeer Substation to a new MEC Mountain Substation, all in Dunn County, North Dakota (figure 1.1-1). The Killdeer Substation is scheduled for improvements by Western in 2011/2012. These scheduled improvements would replace the temporary interconnection with permanent facilities and would accommodate additional equipment should the load requirement for MEC continue to increase.

Since the future Killdeer Substation expansion has not been designed, this proposed project is not ripe for inclusion in this EA. However, given the potentially small size of the expansion and the homogeneity of the Killdeer Substation site, it is expected that the environmental impacts of the expansion would be similar to those described for the temporary interconnection. Western will conduct appropriate National Environmental Policy Act (NEPA) compliance on the Killdeer Substation expansion at a future date.

In order for the Proposed Project to be constructed, Western must approve UMGT's interconnection request. Western's approval or denial of UMGT's interconnection request constitutes a Federal action under NEPA, Section 102(2) (1969), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulation [CFR] parts 1500-1508), DOE NEPA Implementing Procedures (10 CFR part 1021), and other regulations. Western has prepared this environmental assessment (EA) under these regulations to analyze the environmental effects of Western's Federal action and MEC's Proposed Project and alternatives, including the No Action alternative.

1.1 PURPOSE OF AND NEED FOR ACTION

1.1.1 PROJECT PURPOSE

The Purpose of the project is to provide reliable electrical service to existing and future customers served by MEC in the Killdeer, North Dakota, area.

1.1.2 WESTERN'S PURPOSE AND NEED

Western needs to respond to MEC's interconnection request, and consider whether the requested interconnection would negatively affect power system operation or delivery of power to existing customers. Should system impact studies confirm that the interconnection request could be accommodated and Western approve the interconnection request, Western would also

need to construct the temporary interconnection point at its Killdeer Substation, and make any other identified system improvements, at MEC's expense.

In responding to the interconnection request (need for agency action), Western must abide by the following purposes:

- **Providing Transmission Service.** Western published its *Notice of Final Open Access Transmission Service Tariff (Tariff)* in the Federal Register on January 6, 1998 amended on January 25, 2005. Under Western's *Tariff*, Western offers transmission capacity in excess of the capacity Western requires for the delivery of long-term, firm capacity and energy to current contractual electrical services customers of the Federal government. The *Tariff* also requires Western to provide firm and non-firm, point-to-point transmission service and network integration transmission service to the extent that Western has available transmission capability.
- **Addressing Interconnection Requests.** Western's *General Guidelines for Interconnection* provides a process for addressing applications for interconnection. The process dictates that Western respond to an application as presented by an applicant. Section 211 of the Federal Power Act requires transmission service be provided upon application if transmission capacity is available.
- **Protecting Transmission System Reliability and Service to Existing Customers.** Western's purpose is to ensure that existing reliability and service is not degraded. Western's *General Guidelines for Interconnection* provides for transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected.
- **Consideration of the Applicant's Objectives.** Since the statement of purpose and need affects the extent to which alternatives are considered reasonable, it is important to understand both the agency's purpose and need and that of the Applicant.

1.1.3 MEC'S NEED FOR THE INTERCONNECTION REQUEST

MEC is experiencing load growth related to new oil and gas production development between Watford City and Halliday in west-central North Dakota, including multiple requests to serve gas compressors with electrical service north of Killdeer. MEC's 1972 long-range plan identified the need for an additional transmission line and substation to meet the oil and gas activity load requirements. Although much of this early activity has subsided, there has been a significant resurgence in the oil and gas development activity in the area in the past several years. MEC has

received requests for additional capacity associated with oil and gas development. MEC also anticipates future load growth associated with this increased development activity.

The current 41.6-kV transmission system that serves the MEC Killdeer area is not capable of reliably meeting this load growth due to existing demands and system design limitations. Currently, MEC uses two to three additional regulators to maintain acceptable voltage on the current distribution system north of Killdeer. This is not a sustainable solution. It is a stopgap measure put into place until future improvements can be made to the system. The new load growth in the area includes two 1500-horsepower (hp) motors for supporting oil and gas activity. A motor starting analysis showed an excessive voltage dip. This reduces power quality to MEC's existing consumers. MEC is currently using UMGT's mobile substation with a temporary tap at Western's Substation to help meet this load growth.

MEC is proposing to construct the new transmission facility to meet the increased current demand and future demands in the most reliable manner possible without jeopardizing the existing transmission system and service. The new transmission line and substations would ensure that the area has reliable infrastructure for existing and future load demands.

1.2 AUTHORIZING ACTIONS

In addition to Western's action, other Federal, State, and local agencies have jurisdiction over certain aspects of the MEC's proposed project. Table 1.2-1 provides a listing of agencies with permitting and authorizing responsibilities for the Proposed Project, and the status of these permits when this EA was published.

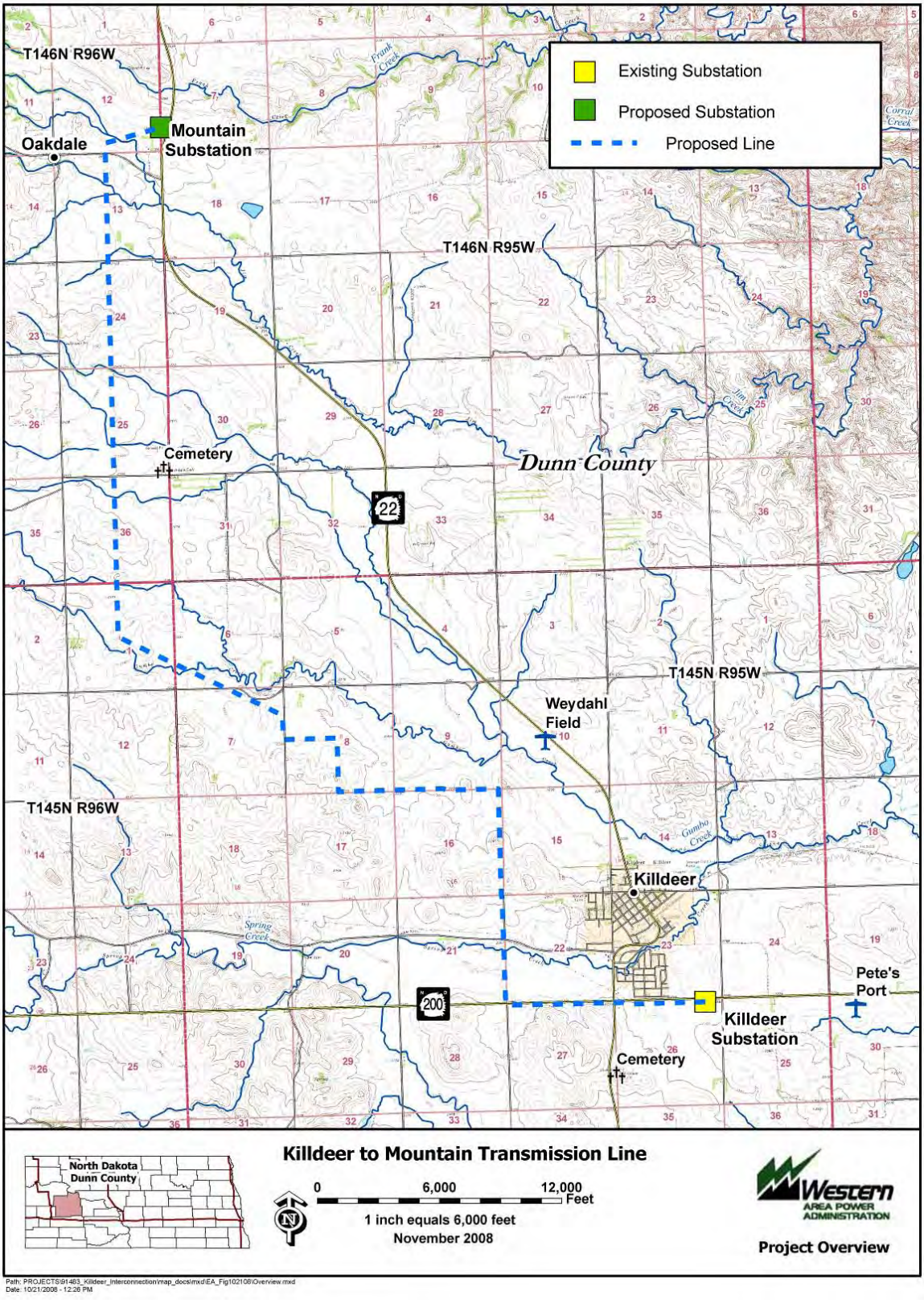
TABLE 1.2-1:
PERMITS THAT MAY BE REQUIRED

Permit	Jurisdiction	Status
Local Approvals		
Conditional Use Permits (for Mountain Substation)	Dunn County, North Dakota	Obtained on June 2, 2008
Variance for Highway Setback (for Mountain Substation)	Dunn County, North Dakota	Granted June 2, 2008.
Variance for Highway Setback (Transmission Line)	Dunn County, North Dakota	Granted June 2, 2008
State[1] of North Dakota Approvals		
Utility Occupancy Agreement	North Dakota Department of Transportation	Pending

[1] Approval by the North Dakota Public Service Commission is not required as the transmission line is below the threshold set by Chapter 49-22 Energy Conversion and Transmission Facility Siting Act.

Permit	Jurisdiction	Status
Right-of-Way Grant	North Dakota State Land Department	Pending
National Pollutant Discharge Elimination System Permit	North Dakota Department of Health	To be applied for where ground disturbance would disrupt more than 1 acre.
Section 401 Water Quality Certification	North Dakota Department of Health	To be applied for, if necessary
Federal Approvals		
Interconnection Approval	Western Area Power Administration	Pending
Endangered Species Act (ESA) Section 7 Consultation	U.S. Fish and Wildlife Service	Biological assessment to be completed as part of the NEPA process
National Historic Preservation Act Section 106 Consultation	North Dakota State Historic Preservation Officer	To be completed concurrent with theNEPA process
Section 404 Approval	U.S. Army Corps of Engineers	To be applied for, if necessary.

FIGURE 1.2-1: PROJECT OVERVIEW



1.3 AGENCY CONSULTATION AND PUBLIC PARTICIPATION

Western has consulted with the various Federal and State agencies and tribes in the development of this analysis (see section 4.0 for a list of agencies consulted). Agency responses are provided in appendix A. In addition to these consultations, Western will consider comments to this EA from agencies, tribes, landowners, and other interested persons or organizations.

Project notices were mailed to agencies and adjacent landowners on September 23, 2008. Western held a scoping meeting for the Proposed Project on October 7, 2008, in Killdeer, North Dakota at the American Legion Hall. The meeting was to inform landowners and other interested parties about the project. Western staff and MEC representatives were available to address questions and concerns. The meeting was advertised in the Dunn County Herald on September 26 and October 3, 2008. The scoping comment period for the Proposed Project ended on October 24, 2008.

Most individuals that attended the meeting wanted information about the project as it relates to their property. Comments were raised regarding the route in T145N R95W, Section 22. A request was made that the route be moved west to the section line rather than the route shown at the scoping meeting. The Proposed Project route reflects the route shift to address that comment. A single written comment was received by a person who requested a copy of the EA.

Western has considered all comments received during the scoping process in the development of this draft EA, including the shift in the Proposed Project route. Alternatives to the Proposed Project are evaluated in section 2.5, environmental impacts are evaluated in section 3.0, and cumulative impacts are evaluated in section 3.7.

2.0 PROPOSED PROJECT AND ALTERNATIVES

2.1 WESTERN'S FEDERAL ACTION – INTERCONNECTION AT KILLDEER SUBSTATION

Western would design and construct a temporary interconnection (Killdeer interconnection or interconnection) at its existing Killdeer Substation. The temporary interconnection would include a platform switch structure approximately 70 feet east of the existing Western 115-kV structure "74/1." Structure 74/1 is located approximately 750 feet west of the existing Killdeer Substation in Section 26 of T145N R95W, within Western's existing right-of-way (ROW). The switch structure would be constructed about 25 feet south of the Western 115-kV centerline, with temporary line taps to the existing transmission conductors, and would occupy 0.10 acre. The new MEC 115-kV transmission line structure would be located 25 feet south of the switch structure and would be the temporary start of the new MEC transmission line to the Mountain Substation. The interconnection would be owned, operated, and maintained by Western. The new interconnection would include a temporary metering structure that would only be used until Western completes additional Killdeer Substation upgrades, potentially as soon as 2011 or 2012, but possibly later, subject to need. The temporary interconnection would enable MEC's facilities to access power from Western's existing 115-kV transmission line. All grading, initial site preparation work, and construction at the Killdeer Substation would be completed by Western within their existing ROW which is characterized by short grasses

Western expects to rebuild and upgrade the existing Killdeer Substation in 2011/2012 as part of their long range planning process. This upgrade would incorporate a new permanent interconnection by installing a new 115-kV circuit breaker bay to permanently serve the new Killdeer to Mountain 115-kV transmission line and Mountain Substation.

2.2 PROPOSED PROJECT

The Proposed Project, as shown in figure 2.5-1, consists of the components identified below:

- A new Mountain Substation that would be owned and operated by MEC. The new Mountain Substation would provide a 115- to 24.9/14.4-kV service outlet to meet increased demand on the northern end of the proposed Killdeer to Mountain transmission line.
- A new, approximately 13-mile-long 115-kV transmission line, constructed, owned, and operated by MEC, between the Killdeer Substation and the proposed Mountain Substation.

Table 2.1-1 provides legal descriptions of where the proposed facilities would be located in Dunn County:

TABLE 2.1-1
LOCATION OF PROPOSED PROJECT IN DUNN COUNTY

Township	Range	Sections
145 N	95 W	6-9, 16, 21-22, 26-27
	96 W	1
146 N	95 W	7
	96 W	12, 24-25, 36

2.2.1 MOUNTAIN SUBSTATION

MEC would construct own, operate, and maintain the new Mountain Substation in Dunn County just west of Highway 22 approximately 13 miles northwest of Killdeer in Section 7 of T146N R95W (see figure 1.2-1). The substation site would be located in a pasture within an irregularly shaped parcel of about 6.36 acres that has been acquired by MEC. The Mountain Substation would permanently occupy an area approximately 165-feet by 235-feet-wide, or 0.9 acre, within the parcel. Access to the substation site would be from an existing private drive on the southwest portion of the parcel that would be shared for 0.2 miles by permanent access easement with the adjacent landowner. The access would then enter the MEC parcel and proceed north-northeast approximately 360 feet from the existing road into the substation facility. The new permanent access road would be about 20 feet wide and would impact about 0.2 acres. The temporary construction area required for the substation facility would be within an area approximate 300- by 300-foot-wide, or 2.1 [2] acres. Table 2.1-2 summarizes the equipment to be installed at the Mountain Substation. The proposed Mountain Substation is anticipated to begin constructed after environmental requirements are met and all necessary permits are obtained.

[2] The permanent impact (0.9 acre) would be located within the acreage disturbed for construction.

TABLE 2.1-2
MOUNTAIN SUBSTATION EQUIPMENT

Equipment	Installation (Total)
Control House	1
10.0/12.5 MVA, 115-24.9/14.4 kV Transformer	1
24.9 kV Circuit Recloser	3 initial, 6 ultimate
24.9 kV Voltage Regulator	3

2.2.2 TRANSMISSION LINE

Figure 2.2-1 and figure 2.2-2 illustrate the proposed types of structures to be installed for the transmission line. MEC is proposing to use single-pole wooden structures placed approximately 350 to 400 feet apart along most of the length of the transmission line. Two-pole wooden H-frame structures would be placed 600-800 feet apart at a crossing of an existing transmission line operated by Western; H-frame structures may also be used where longer spans are necessary to avoid environmentally or culturally sensitive areas. The proposed permanent ROW width would be 80 feet.

During construction of single- or two-pole structures, each pole and anchor facility would typically involve up to 10,000 square feet, or about 0.2 acre, of temporary ground disturbance. The permanent impact would be approximately 100 square feet, or about 0.002 acre. The height of the new structures would vary from 60 to 90 feet above ground, depending on terrain and structure type. Based on structure type, the total permanent ground disturbance impact for pole and anchor placement for the entire project has been estimated to be about 0.4 acre.

2.3 PRECONSTRUCTION ACTIVITIES

Preconstruction activities include literature searches, site engineering surveys, environmental and cultural surveys and studies, landowner agreements, and engineering design. Preconstruction activities would apply to all components of the Proposed Project.

FIGURE 2.2-1:
STANDARD SINGLE POLE 115-KV STRUCTURE

FIGURE 2.2-2:
STANDARD H-FRAME 115-KV STRUCTURE

2.3.1 PRECONSTRUCTION SURVEYS AND STUDIES

A summary of completed and planned surveys are as follows:

- Geotechnical borings to provide detailed information for foundation design of the proposed facilities; and
- Cultural and biological surveys to assess existing sensitive resources. These surveys identify sensitive resources and assure the placement of proposed facilities avoid them or minimize impacts in the event avoidance is not possible. Landowner Agreements

2.3.2 LANDOWNER AGREEMENTS

MEC has been working directly with affected landowners to negotiate agreements for the Proposed Project, including obtaining easements for the transmission line route. The parcel for the proposed Mountain Substation has been acquired.

2.3.3 PROJECT PLANNING AND DESIGN

MEC's Proposed Project has been designed to comply with applicable Federal, State, and local regulations. All facilities would be constructed in accordance with the Western's construction standards; National Electrical Safety Code (NESC); U.S. Department of Labor Occupational Safety and Health Standards; and Rural Utilities Service (RUS) Transmission Engineering and Construction Standards, Substation and Design Standards, Vegetation Management Guidelines, and the Control Engineering and Design Standards, as applicable. In addition, MEC's Proposed Project would avoid sensitive resources, such as sensitive habitat, native prairie remnants, wetlands, cultural resources, and residential areas; and construction schedules would be planned to avoid breeding seasons for nesting birds and other sensitive wildlife, to the extent practicable. General land requirements and disturbance areas for each of the components are shown in table 2.3-1.

2.4 CONSTRUCTION ACTIVITIES

2.4.1 CONSTRUCTION OF THE SUBSTATION COMPONENTS

Construction of the Killdeer interconnection and Mountain Substation would begin once all environmental requirements are met and permits obtained, and final design is completed. Construction impacts would be temporary and would include the use of bulldozers, graders, concrete trucks, tractor-trailer trucks, and large cranes. A detailed construction schedule would be developed based upon availability of crews, outage restrictions, weather conditions, biological and cultural resource restrictions, spring load restrictions on roads, and any other restrictions placed on certain areas for minimizing permanent impacts from construction.

The new interconnection and substation sites would be surveyed, cleared, and graded prior to construction. Work for the Killdeer interconnection at the Killdeer Substation would be

completed by Western, while work on the Mountain Substation would be completed by MEC. Because the existing vegetation is pasture grasses, no clearing would be required for construction. Each site would need to be graded to create structure foundations and proper facility drainage. For all facilities, crews would excavate and trench, and then place concrete foundations to accommodate the appropriate equipment and facilities.

TABLE 2.3-1:
SUMMARY OF DISTURBANCES ASSOCIATED WITH THE PROPOSED PROJECT

Component	Impact (acres)[1]	
	Construction Requirements (temporary)	Maintenance Requirements (long-term)
Mountain Substation	2.1	0.9
115-kV transmission line	40.0	0.4
Material Storage Area	Storage would be at MEC's maintenance yard and existing distribution substation ~ 2 acres.	0
Permanent Access at Mountain Substation[2]	0.2	0.2
Access Road #1	2.3	0
Access Road #2	1.5	0
Access Road #3	1.5	0
Access Road #4	2.7	0
Access Road #5	0.8	0
Total Impacts	53.1	1.5

[1] Impacts were calculated based on preliminary design layouts for the substations and preliminary structure type and span lengths for the transmission lines. Temporary construction impacts include temporary impacts associated with pole and substation construction, as described in sections 2.3 and 2.4. As described, an estimated 175 structures would be placed along the route with about 10,000 square feet of temporary impact each, totaling about 40.0 acres.

[2] Temporary access roads impacts were developed by multiplying the length of the road by a width of 25 feet. Permanent access roads were developed by multiplying the length of the road by a width of 20 feet.

Once grading is complete, each site would be leveled with imported gravel purchased from a commercial gravel supplier. Gravel would be delivered and each site leveled following completion of all subsurface work, including concrete pads or footings and the installation of control cables. Cables would be housed in trenches within four feet of the surface. Transformer foundations would be placed at-grade and crews would then erect the control houses and substation equipment. The 115-kV dead-end structure would be on drilled piers, consisting of structures that are anchored in concrete placed in holes approximately 15 to 20 feet deep. Smaller pole structures on the distribution side would be on drilled piers, constructed in holes approximately 10 to 15 feet deep. The control houses for the new substations would be approximately 12 feet long by 16 feet wide. Substation equipment would be delivered on tractor-

trailer trucks and installed atop concrete foundations. During construction and before the facility is energized and placed in service, a grounded perimeter fence would be installed to secure each site.

The proposed Mountain Substation would require MEC to obtain a Stormwater Construction General Permit (National Pollutant Discharge Elimination System [NPDES] permit) for stormwater runoff because the proposed project would be disturbing more than an acre of land. All new transformers and other oil-filled equipment would be installed in accordance with Western's construction standards, applicable codes for the State of North Dakota, and a Spill Prevention Control and Countermeasure Plan (SPCC) developed for the facilities prior to construction.

Upon completion of construction, disturbed areas around the Mountain Substation site outside the fenced areas and the permanent access would be restored to pre-existing conditions. Post-construction reclamation activities would include removing and disposing of debris, dismantling all temporary facilities (including material storage areas), employing appropriate erosion control measures, as needed, and reseeding areas disturbed by construction activities with vegetation similar to that removed.

2.4.2 CONSTRUCTION OF THE TRANSMISSION LINE

2.4.2.1 Site Clearing

Because the majority of the proposed 115-kV transmission line would be constructed in cultivated agricultural fields and pastures, minimal vegetation clearing would be required. No site grading is needed for the 115-kV transmission line for the majority of the ROW. In some isolated cases, where there is sloping or uneven ground, grading may be necessary to provide a level working area. Trees would be cleared within the ROW; the ROW crosses three shelter belt areas and one wooded lowland where would likely be removed. Equipment used for this grading would likely consist of a front-end loader or a small bulldozer. A summary of disturbances is included in table 2.3-1 in section 2.2.

2.4.2.2 Equipment Delivery and Transportation

Most of the material required for construction of the transmission line (e.g. poles, conductors, insulator bells) and substations would be delivered to temporary material storage areas located in the existing MEC maintenance yard and the existing distribution substation. The materials and equipment would then be transported to the construction ROW along the route as construction progresses. Where the transmission line parallels existing county or township roads, access to the structures would be obtained from existing roads. In a few instances, cross-county access roads and trails would be used. These roads and trails would not be graded or maintained. The width of the access road would be approximately 25 feet. Table 2.3-1 identifies the locations of the temporary access roads

TABLE 2.3-2:
TEMPORARY ACCESS ROADS

Access Road	Location	Distance (feet)	Total Temporary Impact (Acres)	Figure Number
1	T145N R96W, Section 12	4,000	2.3	Appendix B – Sheet 5
2	T145N R96W, Section 36	2,600	1.5	Appendix B – Sheet 3
3	T145N R96W, Section 1	2,600	1.5	Appendix B – Sheet 3
4	T146N R95W, Section 7	4,700	2.7	Appendix B – Sheet 2
5	T145N R95W, Section 16	1,400	0.8	Appendix B – Sheet 2

2.4.2.3 Excavation, Foundations and Structure Erection

Insulators and other hardware would be attached to each structure while on the ground. Each wooden pole structure would require excavating or auguring a hole approximately 8.5 to12 feet deep and approximately 2 to 4 feet in diameter. Excavation dimensions would depend upon soil conditions, whether the structures would support an angle, and guying room available. Guying would be used on large angle structures and where the MEC transmission line crosses the existing Western facility, or approximately 20 locations along the route. The pole would then be lifted and placed in the hole by a crane or similar heavy-duty equipment. The holes would be back-filled with native material or select backfill. Leftover material would be spread evenly at the base of the poles. Backfill would be used for better compaction around structures when guying is not possible.

2.4.2.4 Conductor Stringing

Conductors would be installed by establishing stringing setup areas within the ROW, typically every two miles, which would store the spools of conductor cable. Temporary guard or clearance poles would be installed as needed over existing distribution or communication lines, streets, roads, highways, or other obstructions after any necessary notifications are made and permits obtained. This ensures that conductors would not obstruct traffic or contact existing energized conductors or other cables. Once the structures have been erected, crews would drive along the ROW, securing the conductor line through the insulators on the poles and installing shield wire clamps once final sag is established. The structures would be accessed by a hydraulic bucket system vehicle or "cherry picker."

2.4.2.5 Gravel and Fill

Various construction activities associated with the Proposed Project would require the use of gravel. The proposed Mountain Substation and Killdeer Substation interconnection may require

fill materials and would be surfaced with gravel. Gravel would be obtained from a commercially available source at an already disturbed gravel pit. Gravel would not be needed for any of the transmission structures.

2.4.2.6 Construction Waste Management

All waste and scrap, such as wire reels and pallets, would be removed from the area and disposed of properly at an approved disposal site. Personal waste generated by the construction crew, such as bottles, cans, and paper would be disposed of in receptacles placed at the construction sites and disposed of at approved disposal sites. Sanitary facilities will be provided by the construction contractor.

2.4.2.7 Environmental Protection Measures

All facilities would be constructed in accordance with the Western's construction standards; NESC, U.S. Department of Labor Occupational Safety and Health Standards, and Rural Utilities Service (RUS) Transmission Engineering and Construction Standards; Substation and Design Standards; Vegetation Management Guidelines; and the Control Engineering and Design Standards, as applicable. MEC would further minimize impacts during construction by implementing Best Management Practices (BMPs) (i.e. silt fencing, spanning sensitive habitat) as outlined in the resource discussions contained in chapter 3.

2.4.2.8 Right-of-Way Restoration Procedures

During construction, crews would limit ground disturbance wherever possible. Temporary disturbance areas would be restored to their original condition to the extent practicable, as negotiated with the landowner. Reclamation activities would include removing and disposing of debris, dismantling all temporary facilities (including staging and temporary material storage areas), leveling or filling tire ruts, decompaction of soil that has become compacted, and installation of erosion control measures. Reseeding areas disturbed by construction activities would be done with a seed mix, free of noxious weeds, containing vegetation similar to that which was removed. County or agriculture extension office seed mixes would be used if there are local recommendations.

2.5 OPERATION AND MAINTENANCE ACTIVITIES

2.5.1 OPERATION AND MAINTENANCE OF THE SUBSTATION COMPONENTS

MEC maintenance personnel would perform periodic inspection of the Mountain Substation facilities, maintain equipment, and make repairs over the life of the Project. MEC would also manage vegetation within their facility site.

2.5.2 OPERATION AND MAINTENANCE OF THE TRANSMISSION LINE

2.5.2.1 ROW Maintenance Procedures

The ROW defines the area where the proposed transmission line can be operated safely and reliably. Maintenance crews would perform inspections, maintain equipment, and make repairs over the life of the transmission line. Inspection would occur by vehicle or on foot along the ROW. Routine maintenance would be performed approximately every five years, or more frequently if necessary, to remove any vegetation that may interfere with the safe and reliable operation of the proposed transmission line such as in the shelter belt areas crossed by the transmission line. Weeds would be controlled through mechanical means or spraying, as necessary. If spraying is used, it would be done in accordance with Federal, State, and local laws and would be applied by a licensed applicator in strict compliance with all label requirements. Spraying would be coordinated with landowners.

2.5.2.2 Decommissioning

If the Proposed Project were decommissioned in the future, the decommissioning would follow MEC's typical decommissioning process. The transmission line would be de-energized, and crews would move along the transmission line in a bucket truck and trailer removing conductors. After the conductors are removed, crews would remove the wooden poles. Holes would be filled with clean fill. In areas that are within cultivated agricultural fields, the landowner could re-seed the pole locations with whatever crop is planted that season. In pasture and other non-cultivated areas, disturbed areas would be re-seeded by MEC with an approved weed-free seed mixture similar to nearby vegetation. MEC would work with the local land management agencies, as necessary.

2.6 ALTERNATIVES

In evaluating the purpose and need for this project, MEC considered three system alternatives and the No Action alternative during project development. However, as described below, only the Proposed Project and the No Action were found to be viable for further analysis. Multiple route variations of MEC's Project were also considered and are shown in figure 2.5-1 on page 2-16. A summary of alternative and route variations considered is provided below followed by Western's determination regarding how these alternatives compare to the Proposed Project.

2.6.1 NO ACTION OR NO BUILD ALTERNATIVE

Under the No Action alternative, Western would not approve the MEC's interconnection request and MEC would not be allowed to interconnect to serve the new loads in the vicinity of the proposed Mountain Substation. If the interconnection request is not approved, the proposed facilities would not be constructed and associated environmental impacts, the overall benefits of developing the proposed facility would not be realized. However, MEC by law is responsible for supplying enough electricity to meet loads in the area. Currently, oil and gas development in the

area is limited to what can be extracted from individual wells that are typically powered by either gas or diesel engines, ranging from about 60 to 75 hp each. As these individual wells decrease in production over time, additional wells are being drilled (up to a current maximum of about four wells per square mile) to maximize recovery of oil and gas resources.

Further recovery of oil and gas resources may be sought by "enhanced recovery methods," which involves injecting pressurized water, CO_2, air, nitrogen, or a combination of these into the oil or gas-bearing formation at selected well sites. Each injection site can increase well yields in the surrounding wells (typically one injection site can increase yields at up to 40 nearby wells). These methods involve using much larger motors that drive compressors of between 600 hp and 4,000 hp. Each site typically has multiple compressors requiring a total of between about 2,000 to 32,000 hp (4.5 to 7.5 megawatts) at each injection site. Due to the large power requirements of enhanced recovery methods, and the current limitations of power supply in the area, enhanced recovery methods using electric-driven motors would not be possible under the No Action alternative

Under the No Action scenario, current electrical service capacity would remain unchanged and MEC and would need to seek other energy alternatives or its customers would need to seek alternate recovery methods which may be less attractive economically and environmentally. It would be speculative to try to guess what alternative generation energy sources or recovery methods that would be used. However, it is likely that that oil and gas developers would increase the density of wells per mile to achieve the same production. More wells would require the use of the smaller, inefficient on-site generation units. Drilling more wells may be less desirable in terms of cost, energy efficiency, and other environmental impacts such as increased ground disturbance, air emissions, noise and visual impacts to the landscape.

Alternatives to using electric-powered engines for the enhanced recovery methods could include using large diesel or natural gas powered engines. Using those types of engines and providing the regular energy supplies needed to run them at each injection site would result in environmental impacts are likely to be greater than using electric driven motors. Electric-powered motors are generally quieter than gas- or diesel-powered engines, can be powered with a more efficient use of natural resources (e.g., from a centralized power plant), and would avoid local air emissions and spills. Large natural gas or diesel powered engines may be more expensive to operate, and create more noise than electric-driven motors. Internal combustion engines would require regular refueling through local supply lines or truck delivery that may cause environmental impacts that could be greater than using electric-driven motors.

No alternative power generation facilities are known to have been proposed in the study area that could meet the purpose and need of the Proposed Project, or are known to be under consideration as reasonable, technically feasible, or economically viable alternatives. Therefore,

the No Action alternative would delay or limit new oil and gas development activities. The potential impacts of the No Action alternative on specific resources are analyzed further in section 3.0.

2.6.2 ALTERNATIVES AND ROUTE VARIATIONS

MEC evaluated several alternatives and route variations before selecting a final project. After MEC finalized their Project, they applied for an interconnection with Western. The Mountain Substation was proposed in its current location to improve reliability for customers north of Killdeer and to facilitate the load growth needs. MEC selected the location after careful analysis of regional electrical system factors related to construction and operation requirements. This analysis was focused on sites that would: 1) meet the project purpose and need, 2) be consistent with planned and anticipated system needs, 3) meet design and reliability standards, 4) avoid and minimize impacts to environmentally-sensitive resources, 5) be reasonable, 6) technically feasible, and 7) be economically viable. A variety of data sources, including regional electrical system models, system plans, aerial photographs, topographic maps, geographic information system (GIS) data, site visits, and landowner input were considered prior to selection of the Mountain Substation. The site was determined to be available from the landowner for development and no environmental factors have been identified that would make this site unacceptable.

Given the nature of the existing electrical system surrounding Killdeer, options to the Proposed Project for energizing the new Mountain Substation are limited. MEC identified the following sources as potential alternatives for energizing the new Mountain Substation:

- Montana Dakota Utility (MDU) Tap
- Watford City Substation
- Charlie Creek Substation.

2.6.2.1 Montana Dakota Utility Tap

Currently, MEC is served via a 41.6-kV substation that taps off of the MDU 41.6-kV transmission line just outside of the Western Killdeer Substation. An additional tap on this line to energize the proposed Mountain Substation was considered. However, preliminary motor starting analysis revealed that the 41.6-kV system would experience an almost seven percent voltage dip and would not be adequate to serve the load growth MEC is experiencing. From a system operation perspective this level of voltage dip would not be allowed; therefore, the alternative was not considered reasonable.

2.6.2.2 Watford City Alternative

The Watford City Substation is located approximately 40 miles northwest of the proposed Mountain Substation. MEC considered two options for connecting the proposed Mountain

Substation to this substation. The first option would require replacement of 18 miles of existing 69-kV transmission line from Watford City to the Blue Buttes Junction, and the construction of 22 miles of new 69-kV transmission line from the Blue Buttes Junction to the proposed Mountain Substation. Alternatively, 40 miles of new 115-kV transmission line could be constructed. However, a 115 to 69-kV step down substation would be required at Blue Buttes, and the Johnson Corner Substation would need to be converted to 115-kV. This option is considerably more expensive than the first option.

Under either transmission line option, the transmission line would have to cross through or go around the Killdeer Mountains. Neither option was specifically laid out, however both would add substantial distance and cost to the transmission line when compared to the Proposed Project. By increasing the length, the transmission line would disturb more land, require more permanent ROW, and would add additional costs associated with construction and materials. The increased length is likely to have potentially more environmental or cultural resource impacts than the Proposed Project due to the necessary crossing of the Little Missouri National Grasslands, Little Missouri River, and rugged terrain associated with the Killdeer Mountains and surrounding areas.

The preliminary motor starting analysis indicated that the voltage dip for a transmission line from the Watford City Substation was would not efficiently accommodate the load growth. Due to the construction costs and marginal results for supporting the load growth, this alternative was not considered reasonable to MEC.

2.6.2.3 Charlie Creek

The Charlie Creek Substation is located approximately 17 miles west of the existing Killdeer Substation. This substation provides capacity to the Killdeer Substation, which is served by an existing 115-kV transmission line from Charlie Creek Substation to the Killdeer Substation. MEC considered two options for a transmission line from the Charlie Creek Substation to the proposed Mountain Substation: (1) A cross country transmission line, totaling 18 miles, or (2) A new transmission line that would parallel the existing Western 115-kV transmission line for approximately 17 miles and then turn north for an additional 13 miles to the proposed Mountain Substation. In effect, both options would require construction of unnecessary infrastructure, or a duplication of Western's already existing 115-kV transmission line to energize the Mountain Substation. Additionally, both options would require more permanent ROW and have more land disturbance than the Proposed Project as well as cost substantially more than the Proposed Project. Therefore, this alternative was not considered reasonable.

2.6.2.4 Killdeer Alternative Route Variations

MEC considered three route variations to the Proposed Project for energizing the proposed Mountain Substation from the Killdeer Substation. These route variations, identified as A

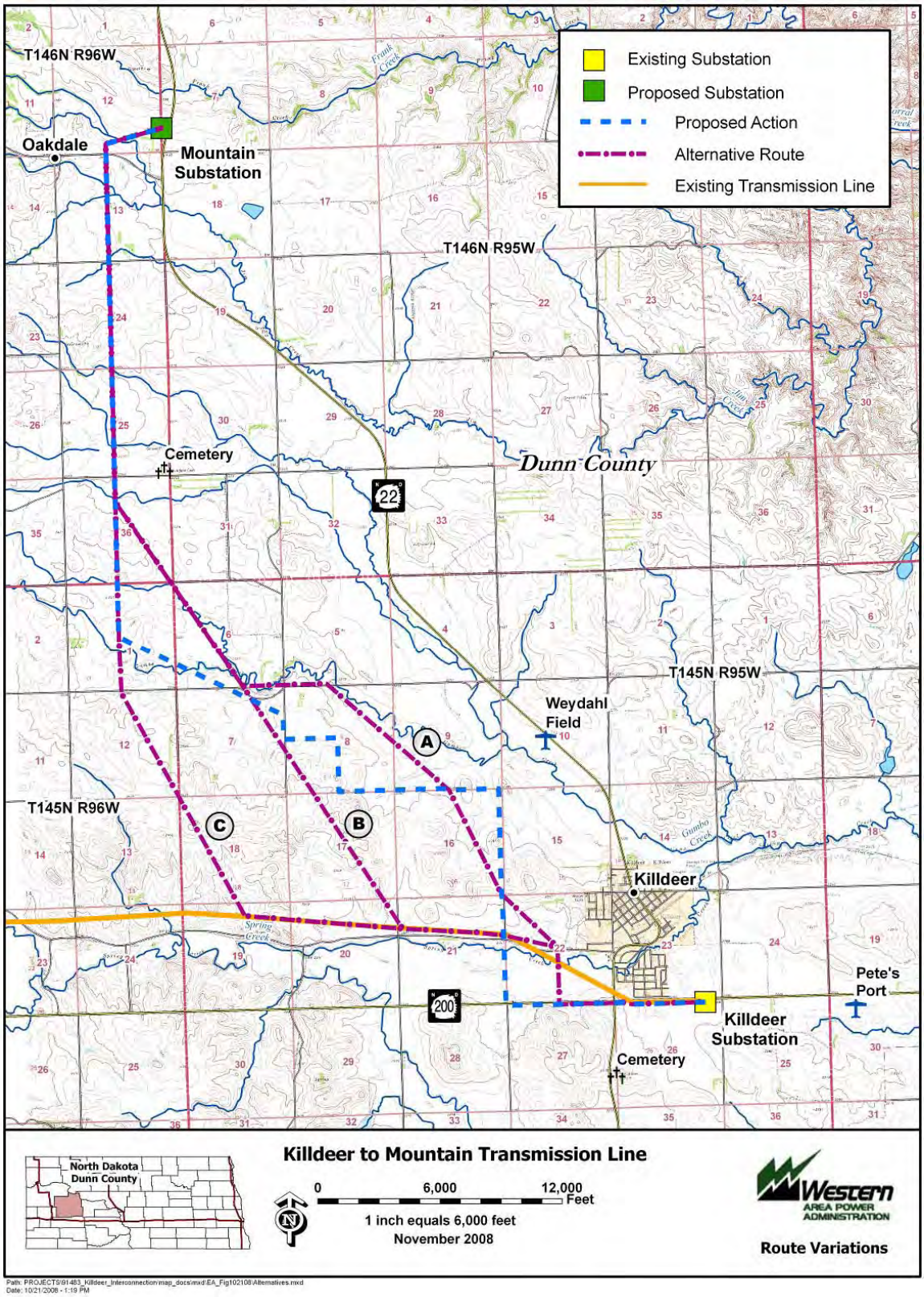
through C, are shown in figure 2.5-1 and were the result of MEC's efforts to minimize landowner impacts and avoid impacts to sensitive environmental and community resources, such as the Killdeer golf course, while minimizing the length of transmission line. Additionally, these routes avoid constraints such as the Dunn County Airport along State Highway 22 and utility crossings of Highway 22.

Generally, the environmental impacts were similar between the route variations and the Proposed Project. The only notable difference between route variations A, B, and C and the Proposed Project is that they are slightly shorter (between three-tenths of a mile to just over a mile shorter). However, because the Proposed Project represents the route preferred by the landowners as it does not disturb their agricultural operations, and there are no notable or significant differences in environmental resource impacts, the route variations were not pursued further.

2.6.3 WESTERN'S REVIEW

Western reviewed the alternatives and options developed by MEC prior to their application for interconnection. Based on the summary of evaluations, impacts, and considerations discussed above, Western found that, compared to the Proposed Project, neither the Watford City nor Charlie Creek alternatives were reasonable, technically feasible, and/or economically viable alternatives. Further, none of the Killdeer route variations offered substantive environmental and/or economic benefits that would warrant further, more detailed investigation. These variations were not preferred by the affected landowners. Since Western's review did not identify any potentially superior alternatives, the alternatives and route variations described above were not further analyzed in this EA.

FIGURE 2.5-1: PROPOSED PROJECT ROUTE VARIATIONS



3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the existing environmental resources in the study area and the direct, indirect, and cumulative impacts that could result from the construction, operation, and maintenance of Western's Killdeer Substation temporary interconnection and MEC's Proposed Project. Impacts related to Western's interconnection are discussed in section 3.2 and impacts of the Proposed Project are discussed in section 3.3. An environmental impact is a change in the status of the existing environment as a result of the implementing the project. Direct impacts are those that result from construction, operation, and/or maintenance. Indirect impacts generally occur following construction and may or may not be directly related to the project. Impacts can be positive (beneficial), negative (adverse), permanent (long-term) and/or temporary (short-term). Short-term impacts are generally associated with the construction phase of the project, while long-term impacts can remain for the life of the project and possibly beyond.

The following environmental resource areas and factors are analyzed for direct and indirect impacts in this EA: Soils; Air; Water; Wetlands; Vegetation; Wildlife; Endangered, Threatened, Proposed, and Candidate Species, and Designated Critical Habitat; Socioeconomics; Environmental Justice; Land Use; Visual; Noise; Safety and Health; Cultural and Historic; and Native American Religious Concerns.

For those resources that would be impacted, the measures that would be implemented to avoid, minimize, or mitigate environmental impacts are analyzed to assess their effectiveness in reducing impacts and environmental consequences. This includes an analysis of cumulative impacts and a comparison to resource impacts under the No Action alternative.

3.2 ENVIRONMENTAL IMPACTS OF WESTERN'S INTERCONNECTION

Western's Federal action is to consider approval of MEC's interconnection application and, if approved, Western would be committed to construct, own, operate, and maintain a temporary interconnection structure within their existing ROW. The interconnection would require 0.1 acres of permanent impact. All impacts to environmental resources from Western's Federal action would be restricted to the existing ROW.

Construction, operation, and maintenance of the temporary interconnection would not affect recreation, geology and paleontology, environmental justice, or cultural resources.

Soil erosion impacts would be minimized by BMPs. Vehicle emissions and fugitive dust would occur during construction of the temporary interconnection, but would be short term and minimized by dust suppression measures as necessary. No surface water bodies or wetlands are found on the site, and soil erosion measures will prevent material from leaving area surrounding the temporary interconnection and entering surface waters.

The vegetation immediately around the temporary interconnection structure would be converted from non-native grasses. The area is already within existing ROW. Wildlife would relocate during the construction period, and return to the area following construction. Construction would not occur during the April 15 – June 15 bird nesting season. No federally listed species are found on the site, and the switchyard would not pose a hazard to migrating whooping cranes. None of the habitat types for SoCP identified by the NDGF are present at the interconnection site.

Construction of the temporary interconnection would result in a small, temporary, positive impact on socioeconomics. Land use on the site would not change as it is within the existing transmission line ROW. The interconnection would be visible from Highway 200 but would not appear much different to passing motorists from the existing Western transmission line. Temporary noise would be generated during construction of the interconnection, but as the interconnection would be located along an existing State highway, the amount of noise will not exceed existing noise levels. The interconnection would generate a low level of noise when in operation, but would be no different from the existing transmission line. No residences are located near the interconnection.

Health and safety issues during construction would be managed by compliance with applicable worker safety laws and regulations. As with all construction activities, there would still be a risk of worker injuries, but the risk should be low. Health and safety issues for local residents include electrocution hazards, stray voltages, electric and magnetic fields, and intentional destructive acts. Electrocution hazards would be minimized by compliance with utility industry standards for clearances and grounding. Severe weather could cause damage to the transmission line and allow conductors to reach the ground. Grounding would cause substation relays to trip, de-energizing the line and rendering it safe. Stray voltages, induced currents, and nuisance contact shocks are well understood and would be avoided by proper grounding of the transmission line and of large metallic objects near the transmission line, such as fences. The possible effects of electric and magnetic fields have been debated by researchers for over 30 years, and as yet no cause/effect relationship has been demonstrated. Field levels would drop to background levels within 100 feet of the switchyard fence, and there are no residences nearby. Intentional destructive acts would likely be confined to random vandalism, such as equipment damage or theft of metals. To date, little vandalism has occurred on any of the existing electric transmission and distribution infrastructure. The effects of an outage would be localized, and would not result in major system disruptions. None of the health and safety issues would be of concern providing applicable laws and standard utility practices are followed.

Oil and gas development is expected to occur in proximity to the proposed interconnection, but exact locations and scope of these future developments are not known. This information is generally confidential and proprietary, is still being defined, or is subject to further analysis as

noted in section 3.6. These facilities are not expected to contribute to cumulative impacts when combined with the interconnection.

The interconnection would not have significant direct, indirect, or cumulative impacts to the human environment resulting from the construction, operation, and maintenance of Western's proposed interconnection.

3.3 ENVIRONMENTAL IMPACTS OF MEC'S PROPOSED PROJECT

The Proposed Project would not affect the following resource areas:

Recreational Areas

The predominant recreational activities in the area near the Proposed Project are hunting and snowmobiling. There are no designated snowmobile or multi-use trails that would be crossed by the Proposed Project (North Dakota GIS 2008). Review of pertinent data bases showed that there are no designated recreational lands that would be affected by the Proposed Project. The nearest recreation area is the Little Missouri River State Park approximately six miles east-northeast of the proposed Mountain Substation. The Little Missouri River, located approximately seven miles from the Proposed Project, is North Dakota's only designated State Scenic River (NDPRD 2008a). Due to the local topography, the Proposed Project would not be visible from the Little Missouri River.

Geologic Hazards and Paleontology

A review of geologic maps did not identify any areas of geologic instability in the immediate vicinity of the Proposed Project. According to the USGS Earthquake Center, "No earthquakes of intensity V or above (modified Mercalli Scale) have occurred in North Dakota during historical times" (USGS 2008). According to the Seismicity Map of North Dakota, no earthquakes have occurred in the last 12 years (Bluemle et al. 2003). The Proposed Project is located in an area of low earthquake probability. Infrequent, small earthquakes may occur near or within the State, but it is unlikely they would cause any damage. A web search of the Paleontology Portal and the USGS website showed no known paleontological resources in the study area and none are locally known (USGS 2008b).

3.4 PHYSICAL RESOURCES

3.4.1 SOILS AND GEOLOGY

The soils and geology study area includes the area crossed by the proposed ROW, temporary access roads, temporary material storage area, and the proposed Mountain Substation.

3.4.1.1 Existing Environment

The underlying geology in the study area consists of subunits from the Pleistocene and Tertiary periods. The majority of the study area crosses the Sentinel Butte Tertiary Formation, which

consists of alternating beds of grayish brown to gray sandstone, siltstone, mudstone, claystone, and lignite. The Proglacial Channel Pleistocene Formation also underlies the study area; this formation generally contains 50 to 200 feet of sand and gravel, silt, clay, and till (meltwater – channel fill overlain by recent alluvium of variable thickness). The remaining formation that underlies the study area is the Pediment Deposits from the Pleistocene, which consist of slopes inclined away from the Killdeer Mountains, capped with layers of gravel consisting primarily of carbonate and chert cobbles and gravel.

Soils crossed by the Proposed Project include Amor Series loam, Arnegard Series loams, Baahish Series fine sandy loams, Belfield-Grail Series silty clay loam, Belfield-Farland Series silt loams, Cabba Series loam, Cohagen-Vebar series fine sand loams, Daglum Series silt loam, Ekalaka Series sandy loam, Farland Series silt loam, Harriet Series silt loam, Hidatsa Series loams, Lefor Series fine sandy loams, Lihnen Series loamy fine sand, Morton-Rhoades Series silt clay loams, Parshall Series fine sandy loam, Regent Series silty clay loam, Rhoades Series silt loams, Ruso Series sandy loams, Shambo Series loam, Straw Series loam, Vebar-Parshall Series fine sandy loams, and Wayden Series silty clay.

Over the past 100 years, soil resources in the study area have been suitable for agricultural activities (e.g., crops or pastureland), and rangeland and this is expected to continue for the reasonably foreseeable future. Slopes range from nearly flat to up to 65 percent, which is characteristic of the topography in the area. The typical landscape is gently rolling, with some steep coulees. Soils of the Ekalaka, Parshall, Lefor, Linhen, Ruso, Straw, and Vebar Parshall Series are highly susceptible to water or wind erosion, while other soil types in the area have moderate erosion potential (SCS 1982). Erosive soils account for approximately 38 percent of the soils disturbed by the Proposed Project. The majority of these soils are located in T145N R95W, Sections 26 and 27, and T146N R96W, Sections 24 and 36.

3.4.1.2 Environmental Consequences

A significant impact to soils would occur under the following conditions:

- Erosion or siltation resulting in measurable loss in soil productivity (e.g., loss of topsoil), or which contributes to air or water degradation; or
- Contamination causing a decline in agricultural or habitat productivity.

Proposed Project

Construction Impacts

Soil disturbance would result from site clearing and excavation activities at structure locations; pulling and tensioning sites; substations; setup and staging areas; and during transport of crews, machinery, materials, and equipment over access roads and through the ROW. Access roads would be overland travel only; they would not be graded. To the extent practicable, excavation

activities would be limited to locations of pole placement and would avoid steep slope areas. Where excavation in steep slope areas cannot be avoided entirely it would be minimized and Best Management Practices (BMPs) would be implemented to minimize erosion during construction. BMPs would include installation of silt fencing, straw bales, ditch blocks, covering bare soils with mulch, plastic sheeting, or fiber rolls as necessary to ensure that disturbed areas are protected from erosion, and drainageways and streams are not impacted by sediment runoff from exposed soils, especially during significant precipitation events.

Disturbed areas would be revegetated with an approved native seed mix after construction is completed. Because of these activities a measurable loss in soil productivity and a contribution to air or water degradation would not occur as a result of the Proposed Project. There is the possibility with any construction activity of spilling fuel, hydraulic fluid, or other regulated materials. MEC would minimize the likelihood of such an event by ensuring that refueling takes place at secure areas. Spill kits would be maintained at these sites to contain and clean up any spills that may occur. Construction crewmembers would be trained in spill prevention to properly clean up any accidental spill.

Operational Impacts

During operation of the Proposed Project, maintenance personnel traveling along gravel roads and the ROW, would impact soils. Vehicles would not be operated on cross country or dirt access roads during wet conditions when the potential for rutting or other adverse impacts could occur, except in emergency situations. Due to the temporary and intermittent nature of these activities a measurable loss in soil productivity and a contribution to air or water degradation would not occur as a result of the day to day operation of the Proposed Project.

No Action (No Build)

As discussed in section 2.5.1, if the transmission line is not built it could result in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, inefficient power generating engines to facilitate continued oil and gas development. Or the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to soils would occur under the No Action alternative. However, it is likely that greater impacts to soils would occur under either drilling scenario. If more drill sites are developed soil impacts would be associated with increase in number of well pads, access roads, and supporting utilities. If larger engines and enhanced recovery methods are used, impacts associated with developing

fuel supply lines to support the large engines are likely. The use of fuels at these individual sites could also potentially increase the likelihood of accidental spills and soil contamination.

Cumulative Effects

The Proposed Project would take a relatively small amount of soil out of agricultural use approximately 0.4 acres for the transmission line and 1.5 acres for all facilities combined. With implementation of the BMPs, soil erosion would be prevented and contained. Farming practices and unimproved roads would contribute far more effects on soil resources in the study area than the Proposed Project. BMPs would be implemented to ensure that erosion is avoided, minimized, and contained during construction. Adherence to NPDES permit would require adequate design, grading, and use of BMPs to ensure that the water quality is not affected by these projects. The wide spacing of the transmission line poles associated with the project would take a relatively small area of soils out of agricultural uses. The Proposed Project and reasonably foreseeable projects, therefore, would not result in erosion or siltation that would lead to measurable degradation, and would not result in a loss of topsoil that would cause a measurable decline in agricultural or habitat uses.

No substantive direct, indirect, or cumulative impacts to soils would result from the Proposed Project or the No Action Alternative.

3.4.2 AIR RESOURCES

The study area for air quality includes west central North Dakota.

3.4.2.1 Existing Environment

The North Dakota Department of Health (NDDH), Environmental Health Section, Division of Air Quality, ensures North Dakota's ambient air quality is in compliance with all Federal Ambient Air Quality Standards. The NDDH operates seven air quality monitoring sites across the State. The Dunn Center monitoring site is the closest to the project site. According to the 2007 North Dakota Air Quality Monitoring Data Summary Annual Report, the State of North Dakota is one of 13 states to comply with all Federal and State ambient air quality standards (NDDH 2008). Present air quality trends in the area are affected primarily by fugitive dust from agricultural operations, oil and gas drilling activities, and traffic along unimproved roads. These effects may be exacerbated by wind conditions.

3.4.2.2 Environmental Consequences

A significant impact to air quality would occur under the following condition: Violation of Federal or State Ambient Air Quality Standards.

Proposed Project

Construction Impacts

During construction of the Proposed Project, there would be limited, temporary emissions from construction vehicles and equipment and fugitive dust from construction activities, especially on unpaved roads. Emissions would be influenced heavily by weather conditions and the specific construction activity occurring. Exhaust emissions, primarily from diesel equipment, would vary according to the phase of construction. Fugitive dust would be controlled by spraying the work area with water, as needed. Due to the temporary and intermittent nature of these emissions and the fact that the study area is currently in attainment for both Federal and State ambient air quality standards, impacts anticipated from the Proposed Project would not result in a violation of ambient air quality standards.

Operational Impacts

During operation of the Proposed Project, there would be temporary emissions from maintenance vehicles as personnel inspect the transmission line and proposed Mountain Substation. Due to the temporary and intermittent nature of these emissions and the fact that the study area is currently in attainment for both Federal and State ambient air quality standards, impacts anticipated from the Proposed Project would not result in a violation of ambient air quality standards.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built, an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems. The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to air quality would occur under the No Action alternative.

However, it is likely that there would be a minor increase in local particulate emissions if more drill sites are developed as there would be more exposed soil areas along additional well pads and access roads. Under the enhanced methods recovery scenario, an increase in emissions is also likely if diesel-driven engines are used

Cumulative Effects

Neither the Proposed Project nor the No Action Alternative, in combination with other projects, would result in a violation of Federal or State air standards. Predicted emission levels during construction and maintenance of any facilities would be low and the resulting concentrations would not exceed State or Federal standards.

No substantive direct, indirect, or cumulative impacts to air resources would result from the Proposed Project or the No Action Alternative.

3.4.3 WATER RESOURCES AND WATER QUALITY

The groundwater study area is the Fort Union Formation Tertiary aquifer. The study area for surface water is the proposed ROW and adjacent drainages. Water quality was considered in the study areas for groundwater and surface water. The study area for wetlands includes the proposed transmission line ROW, temporary material storage areas, access roads, substation, and surrounding lands that may be affected by temporary construction.

3.4.3.1 Existing Environment

West central North Dakota is a semi-arid region, receiving approximately 18 inches of moisture annually (SCS 1982). Water resources within the study area include groundwater aquifers, streams and associated wetlands, isolated prairie pothole wetlands, and reservoirs. Agricultural runoff, cattle grazing, and oil facility developments are the primary threats to water quality in the area.

Groundwater

Groundwater resources in the study area are included in the Fort Union Formation Tertiary aquifer. The Fort Union Formation is the oldest water bearing formation located in Dunn County, and is comprised of the Upper Sentinel Butte Formation and the lower Tongue River member. The Sentinel Butte Formation is more extensive. Groundwater is the most common source for drinking water, although the Knife and Little Missouri Rivers are important water sources for the region. According to the North Dakota State Water Commission (NDSWC), water supply wells typically access groundwater resources as shallow as 20 feet below the ground surface (NDSWC 2008).

Surface Water

Surface water resources in the study area are found within the Lower Little Missouri River and Knife River watersheds (NDSWC 2008). No major rivers are found in the study area. Nine streams and several lesser intermittent streams cross the proposed alignment (NDDH 2007). These streams include Spring, Gumbo, and Jim creeks, and their tributaries. Individual stream crossings are listed in table 3.4-1. In general, surface water in the study area drains southeast toward the Little Missouri River. The perennial surface waters (i.e., Spring Creek, Gumbo Creek, and Jim Creek) crossed by the alignment are all less than about 25 feet wide. Tributaries are generally 10 feet wide or less.

TABLE 3.4-1:
WATER CROSSINGS

Waterbody Name	# of Crossings
Spring Creek	1
Gumbo Creek and Tributaries	5
Jim Creek and Tributaries	3

Source: (USGS 1982)

Water Quality

Widespread agricultural practices in the region (e.g., feedlots; application of pesticides, herbicides, and fertilizers; cattle grazing and trampling of streams and riparian areas; and absence of erosion control) have contributed to a general decline in surface water quality over the last 100 years. Recent and ongoing oil extraction may also contribute to surface and groundwater quality degradation. According to the North Dakota Geographic Targeting System for Groundwater Monitoring, the level of pesticides and nitrates in Dunn County's groundwater is well within human health and aquatic life standards.

Wetlands

Typical wetland vegetation is emergent vegetation with seasonally saturated to ponded hydrologic regimes, and the majority of the wetlands are associated with streams and stream impoundments. Isolated prairie pothole wetlands also occur in the area.

Wetland resources within the study area were initially identified by reviewing National Agriculture Imagery Program (NAIP) aerial photographs (NAIP 2006), and Dunn County Soil Survey data published by the Soil Conservation Service (SCS 1982) (now known as the Natural Resources Conservation Service (NRCS)), and National Wetlands Inventory (NWI 2008) data. Following review of this information, on-site wetland delineations were performed according to the 1987 Army Corps of Engineers Field Guide for Wetland Delineation methods in September and October 2008.

Wetlands in the ROW are associated with streams and stream impoundments used for livestock ponds. Sixteen wetlands would be located within the proposed ROW. Wetlands and other surface water features are shown in appendix B. Wetland acreage calculations and type are shown in table 3.4-2. The listed wetlands are temporarily or seasonally flooded, palustrine, emergent-type wetlands. Some of the wetlands were created or modified by earth dams to create livestock ponds. Wetlands in the study area have been affected by agricultural practices, grazing and trampling by cattle and by runoff of fertilizers and herbicides.

Wetland vegetation observed includes cattail (*Typha angustifolia*), green bulrush (*Scripus atrovirens*), prairie cord grass (*Spartina pectinata*), foxtail bristlegrass (*Setaria italica*), and curly dock (*Rumex*

crispus). Wetlands found in pasture areas are used by cattle for watering. Species diversity within these areas is low, and impacts from soil disturbance by cattle are noticeable in many locations. Hydrologic regimes included temporarily saturated in swales, to deep-water habitat at man-made stock ponds that were created by stream impoundments.

TABLE 3.4-2:
WETLANDS WITHIN ROW

Wetland Number	Cowardin Classification	Acres[1]
1	PEMA	0.001
2	PEMB	0.00002
3	PEMB	.14
4	PEMA	0.01
5	PEMA	0.09
6	PEMA	0.03
7	PEMC	0.01
8	PUBGx/PEMC/PEMB	0.25
9	PEMC/PEMB	0.32
10	PEMA	1.68
11	PEMB	0.11
12	PEMB	0.07
13	PEMA	0.12
14	PEMB	0.60
15	PEMCx	0.05
16	PUBG/PEMC/PEMB	0.38
Total Count: 16	-	3.86

[1] Acres of wetland within a 80-foot-wide ROW.

3.4.3.2 Environmental Consequences

A significant impact to water resources would occur under any of the following conditions:

- Groundwater, surface water quality, or wetland degradation resulting in violations of Federal and/or State standards; or
- Increased susceptibility to on-site or off-site flood damage due to altered surface hydrology; or
- Unmitigated discharge of dredged or fill material into jurisdictional waters of the United States under Section 404 of the Clean Water Act or in violation of a Section 404 permit or applicable State wetland regulations; or

- Unmitigated drainage or dewatering of jurisdictional waters of the United States under Section 404 of the Clean Water Act or in violation of a Section 404 permit or applicable State wetland regulations; or
- Net loss of wetland area.

Proposed Project

Construction Impacts

Groundwater may be encountered during excavations for transmission line structures; however, the Proposed Project is not expected to require dewatering that could affect groundwater resources. If dewatering is found to be necessary during construction (i.e., during pole embedding), the effects on water tables would be localized and short-term. Dewatered groundwater would be properly discharged and the proper permit obtained to minimize erosion and facilitate infiltration back into the ground. The Proposed Project would have no impact on either municipal or private water uses in the study area. No water storage, reprocessing, or cooling is required for either the construction or operation of the transmission line or the substation. Therefore, the Proposed Project would not result in violations of groundwater quality standards.

The 115-kV transmission line and the Mountain Substation would be designed to span and/or avoid surface water features, including 9 creeks and their tributaries and 16 wetlands; the largest wetland to be crossed is 1.68 acres. Construction of the transmission line would not be expected to alter existing surface water drainage patterns due to the small cross-section per pole and their relatively wide spacing. The typical distance between structures would be 350 feet. No wetlands or wetland complexes within the ROW are wider than the maximum span distances. The actual poles would be placed outside of the stream crossings by 50 to 150 feet and wetlands by 20 to 100 feet. One stream crossing would be 30 feet from the creek tributary, but the tributary appears to be dry frequently.

Access roads for construction and maintenance have been routed to avoid wetlands. Although construction of the proposed Mountain Substation would involve a very small increase in impermeable surfaces (from the control houses and structure footings), the change to local surface drainage patterns due to this and any necessary grading would be negligible. The small area of impermeable surfaces created by the pole structures and substation outbuildings would not cause an increase in the susceptibility of the region to flooding.

Sediment reaching tributaries to the Knife River or Little Missouri River has the potential to adversely affect water quality downstream. MEC would employ BMPs and adhere to the terms and conditions of the NPDES permits during construction. These actions would protect topsoil and adjacent water resources and minimize and trap soil erosion before it would reach surface water resources.

Operational Impacts

Maintenance and operation activities for substation or transmission line facilities are not expected to have an adverse impact on surface water quality. The small increase in impermeable surface area resulting from construction and expansion of the Mountain Substation could increase the likelihood of sediment in runoff reaching surface water features. However, the majority of the substation area would remain permeable, and erosion potential is not expected to be noticeably higher than under the existing land use at the sites. A berm would be placed, as needed, around the substation to keep runoff from leaving the site.

There is the possibility with any construction activity of spilling fuel, hydraulic fluid, or other regulated materials that could reach surface water resources. MEC would minimize the likelihood of such an event by ensuring that refueling takes place at secure areas away from drainages. Spill kits would be maintained at these sites to contain and clean up any spills that may occur. Construction crewmembers would be trained in spill prevention and clean up to insure proper handling of any accidental spill.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built, an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods, which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to surface water and groundwater would occur under the No Action alternative. If additional well pads and access roads are developed, there is an increased possibility of surface waters being impacted as it would be more difficult to avoid these water bodies. If enhanced recovery methods are used, there is an increased chance of fuel spills and increase the potential for groundwater or surface water impacts if a spill were to occur.

Cumulative Effects

The effect of the Proposed Project on water resources, in combination with the projects described in section 3.7, would not be expected to degrade water resources as waters are already dramatically altered from past and current agricultural practices. BMPs would be employed by MEC to ensure that erosion and sedimentation is avoided, minimized, and contained during construction, and that sediment does not reach surface water bodies. Adherence to NPDES

permits would require adequate design, grading, and use of BMPs to ensure that water quality is not affected by these projects

No substantive direct, indirect, or cumulative impacts to surface water resources would result from the Proposed Project or the No Action Alternative.

3.5 BIOLOGICAL RESOURCES

Biological resources evaluated for the Proposed Project include vegetation, wildlife, and special status species. The study area for vegetation comprised one mile on either side of the proposed route, the proposed Mountain Substation, and material storage area of the Proposed Project with some discussion of regional resources. The study area for wildlife resources is the ROW, proposed Mountain Substation, and material storage area of the Proposed Project with some discussion of regional resources based on surround vegetation. The study area for special status species is the ROW, proposed Mountain Substation, and temporary material storage area of the Proposed Project, with a regional discussion on the Missouri Slope geographic region and surrounding vegetation.

3.5.1 VEGETATION

3.5.1.1 Existing Environment

Historically, vegetation in the study area consisted of shortgrass and mixed prairie. Aerial photograph interpretation and on-site habitat verification took place in September and October of 2008. The present vegetative covers are primarily row crops, pasture, and grassland. During the field survey, one small native prairie remnant (approximately 1.9 acres), several wetlands, and shelterbelts were found in the proposed ROW.

Most of the vegetation found within the study area consists of cropland, hay land, and pastureland. Most information on land cover can be found in section 3.4. Crops, mostly wheat and hay, dominate the tilled land. Pastureland is dominated by common grasses and forbs typical of pasture in the region, such as smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum),* buffalo grass, (*Bouteloua dactyloides*), blue grama (*Bouteloua gracilis*), silverleaf scurfpea (*Pediomelum argophyllum*), curlycup gumweed (*Grindelia squarrosa*), cudweed sagewort (*Artemisia ludoviciana*), and common dandelion (*Taraxacum officinale*). Woodlots and shelter breaks associated with homesteads are common in the region. These wooded areas are made up of commonly occurring trees, such as rural windrow evergreens, green ash (*Fraxinus pennsylvanica*), eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), and box elder (*Acer negundo*). Wetlands in the area, as noted in section 3.4.3, include mostly palustrine emergent vegetation.

One native prairie remnant was observed in T146N R96W, Section 36, which would be crossed by the Proposed Project would be crossed by the Proposed Project ROW, showed no signs of tillage or overgrazing. The remnant was approximately 1.9 acres in size. The remnant was

characterized by little bluestem (*Schizachyrium scoparium*), prairie cordgrass (*Spartina pectinata*), cudweed sagwort, and blue grama grass.

One wooded swale was located in NE of the NW quarter of Section 25 in T146N R96W, which would be crossed by the Proposed Project ROW. The swale was dominated by snowberry (*Symphoricarpos alba*), silver buffaloberry (*Shepherdia argentea*), green ash, box elder, smooth brome, hawthorne (*Craetegus sp*), chokecherry (*Prunus virginiana*), Russian olive (*Elaeagnus angustifolia*).

A search of the North Dakota Natural Heritage conservation database indicated three significant ecological communities within a one-mile radius of the Project, including *Distichils spicata – Hordeum jubatum/Puccinellia nuttalliana* saline meadow (saltgrass saline meadow), *Pascopyrum smithii – Bouteloua gracilis/Carex filifolia* prairie (Western wheatgrass prairie), and *Quercus macrocarpa/Corylus cornuta* woodland (bur oak/hazelnut woodland) (NDPRD 2008b). These communities are not within the study area. The saltgrass meadow community was located approximately one-quarter mile from the transmission line alignment. Western wheatgrass and blue grama were observed but not in an identifiable prairie association.

Noxious Weeds

North Dakota has listed twelve species are noxious weeds (North Dakota Century Code chapter 63-01.1). Neither Dunn County nor the city of Killdeer have additional listed noxious weed species (NDDA 2008). Five of these listed species are known to occur in Dunn County (NDDA 2003). Table 3.5-1 shows the North Dakota noxious weed list and those noxious weeds that have been identified in Dunn County. Although these species occur in Dunn County, they were not identified during the field survey, except Canada thistle (*Cirsium arvense*). Canada thistle was observed along the transmission line but not as a dominant species.

TABLE 3.5-1:
NORTH DAKOTA NOXIOUS WEEDS

Common Name	Scientific Name	ND	Dunn County
Absinth Wormwood	*Artemesia absinthium* L.	X	X
Canada thistle	*Cirsium arvense* (L.) Scop.	X	X
Dalmatian toadflax	*Linaria genistifolia ssp. dalmatica*	X	
Diffuse knapweed	*Centaurea diffusa* Lam.	X	
Field bindweed	*Convolvulus arvensis* L.	X	X
Leafy spurge	*Euphorbia esula* L.	X	X
Musk thistle	*Carduus nutans* L.	X	
Purple loosestrife or *Lythrum*	*Lythrum salicaria, L*. virgatum L. and all cultivars	X	
Russian knapweed	*Acroptilon repens* (L.) DC	X	
Saltceder (tamarisk)	*Tamarix ramosissima Ledeb*., including *T. chinensis* and *T. parvidflora* DC.	X	X

Common Name	Scientific Name	ND	Dunn County
Spotted knapweed	*Centaurea maculosa* Lam.	X	
Yellow starthistle	*Centaurea solstitialis* L.	X	

Source: North Dakota Noxious Weeds List Regulations – Chapter 7-06-02 – Noxious Weeds Listed and North Dakota Department of Agriculture Noxious Weed Species Information http://www.agdepartment.com/Programs/Plant/NoxiousWeeds.html

CRP Areas

The USDA Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA) administer a Conservation Reserve Program (CRP) to conserve soil and water resources and provides wildlife habitat by removing enrolled tracts from agricultural production for a period of 10 to 15 years. Crested wheat grass, smooth broom grass, or western wheat grass typically dominate vegetation on CRP lands. There is one CRP parcel found within the study area.

3.5.1.2 Environmental Consequences

A significant impact to vegetation resources would occur under the following conditions:

- Loss of vegetation resulting in the listing of or jeopardizing the continued existence of any non-noxious plant species; or eliminate or decrease a local plant population to below self-sustaining levels
- Introduction of noxious weeds to areas presently free of noxious weeds.

Proposed Project

Since the Proposed Project would be constructed along a portion of Highway 200 and along section and quarter section lines, minimal impacts to agricultural vegetation and CRP would be anticipated. No sensitive vegetation communities were identified during field surveys that would be affected by the Proposed Project. The Proposed Project would limit impacts to existing vegetation primarily to the locations where poles are located. Areas disturbed due to construction activities would be restored to pre-construction contours and, if acceptable to the affected landowner, would be reseeded with weed-free regionally native seed mixes recommended by local land management agencies. The native prairie remnant and wooded swale would be spanned. It is possible that some trees would be removed in the ROW of the wooded swale if the trees reach a height that interferes with the transmission line operation. Some trees will be removed in the windbreak in the property adjacent to the Mountain Substation.

Introduction of noxious weeds would be minimized through prompt re-vegetation with regionally native species. Additionally, all vehicles would be washed, especially the undercarriage, prior to construction start. Vehicles would also be washed when traveling from an area identified as contaminated by noxious weeds to an uncontaminated area.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built, an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to vegetation would occur under the No Action alternative. However, it is likely that greater permanent impacts to vegetation and potentially sensitive habitat areas would occur if more drill sites were developed due to the associated increase in number of well pads, access roads, and supporting utilities. Under the enhance recovery scenario impacts to biological resources would depend on the location and number of fuel supply lines that would need to be constructed to support the large fuel engines. The impacts could be much greater than the Proposed Project if the supply lines are not located away from sensitive biological resources or sited to shortest distance possible.

Cumulative Effects

The effects on vegetation from the Proposed Project, in combination with projects described in section 3.7, would not be expected to significantly impact vegetation, as a majority of the native prairie vegetation has already been disturbed by agricultural practices. Almost all of the past (non-agricultural), present, and reasonably foreseeable projects involve temporary or permanent loss of vegetation in a small footprint. These losses are not expected to contribute to a measurable change to the vegetative landscape in the study area. Any resulting changes in vegetation would neither jeopardize the continued existence of any non-noxious plant species nor contribute to its listing.

No substantive direct, indirect, or cumulative impacts to vegetation resources would result from the Proposed Project or the No Action Alternative.

3.5.2 WILDLIFE

Existing literature and data related to known species distributions were reviewed for relevance to the Proposed Project. A biological survey of the Proposed Project study area was conducted in September and October 2008. This included an assessment of habitats up to one mile from the centerline and the area where the route was rerouted following the scoping meeting. Appropriate agency personnel were contacted by telephone, mail, e-mail, or in person to collect additional

information relevant to this study. Sensitive species within the study area are discussed in section 3.3.3.

3.5.2.1 Existing Environment

In general the wildlife species present within the study area are typical of agricultural landscapes, pasture grasslands, and wetland habitat in the region. Common mammals for these habitats include raccoon *(Procyon lotor)*, mink *(Mustela vison)*, skunk *(Mephitis* spp.*)*, weasel *(Mustela nivalis)*, white-tailed deer *(Odocorleus virginianus)*, coyote *(Canis latrans)*, red fox *(Vulpes vulpes)*, badger *(Mustilidae* family), and rabbit *(Syvilagus* spp.*)*. Common birds include songbirds such as the western meadow lark *(Sturnella neglecta),* Say's phoebe *(Sayornis saya)*, and dark-eyed junco *(Junco hyemalis)*, waterfowl such as blue-winged teal *(Anas discors)*, and Canada goose *(Branta canadensis)*, raptors such as American kestrel *(Falco sparverius)* and red-tailed hawk *(Buteo jamaicensis)* and upland game birds, such as ringneck pheasant *(Phasianus colchinus)* or wild turkey *(Meleagus gallopavo)*. Most of the bird species nest in fencerow trees and on the ground in the grasslands associated with the prairie remnant, CRP lands, other grasslands, and riparian corridors. Terrestrial wildlife is most common in farm fields, hayfields, pasture, fencerows, woodlots, small creeks, and wetland areas. These areas provide corridors for migration and foraging as well as ample cover for small mammals, raptors, waterfowl, upland game birds, and other common wildlife in the area.

A review of the North Dakota Natural Heritage conservation database indicated observations of the *Phyciodes batesii* (tawny crescent) within a one-mile radius of the Project (NDPRD 2008b). The species would not be expected to be found given the intensive grazing in the study area and lack of native prairie; only one approximately 1.9-acre native prairie remnant was observed.

No game production areas, State Recreation Areas, lakeside use areas, or State game refuges are located within one mile of the Proposed Project. The Killdeer Mountains Wildlife Management Area (WMA) is approximately five miles west of the Proposed Project. The Proposed Project does not affect any U.S. Fish and Wildlife Service (USFWS) easements or other federally owned land and is approximately 2.5 miles from the Lake Ilo National Wildlife Refuge. There are two Private Land Open to Sportsmen (PLOTS) parcels 5.5 miles southwest and 4 miles northeast of the Proposed Project (NDGF 2008).

3.5.2.2 Environmental Consequences

Impacts to wildlife would be short-term if they impact one or two reproductive seasons, generally during the construction period; or long-term if they affect several generations during the life of the Proposed Project. Impacts would be direct if they affect an individual, population, or its habitat, or indirect if the effect results from other actions. A significant impact to wildlife resources would occur under the following condition: Loss of habitat resulting in the listing of or jeopardizing the continued existence of any wildlife species

Proposed Project

Minor temporary displacement of wildlife and alteration of habitat would occur from construction of the Proposed Project. No designated wildlife areas occur in the study area and undesignated areas of high-quality wildlife habitat, including native prairie and wetlands, are not common. Wildlife species may be temporarily displaced during construction, however due to their mobility and ability to use habitat altered by the Proposed Project, impacts would be minor. Habitat fragmentation would not occur as a result of the Proposed Project.

Raptors, waterfowl, and other bird species may be affected by the construction and placement of the transmission lines. MEC avoided areas known migratory resting spots to the extent that none were identified during review of the study area. Avian collisions would be a possibility after the completion of the transmission line. Waterfowl, wading birds, and shorebirds are typically more susceptible to transmission line collision, especially if the transmission line is placed between agricultural fields that serve as feeding areas, or between wetlands and open water, which serve as resting areas. However, impacts to bird species due to collisions with the transmission line would be minimized by use of bird diverter devices in areas of more likely wildlife foraging and movement, which make the transmission lines easier to see. MEC has developed an avian protection plan (APP) for the Project and would install line marking devices in four locations where the transmission line would cross waterbodies to increase line visibility and reduce the potential for avian collisions. See appendix D for a copy of the APP. Based on these measures, migratory bird impacts would be minimized to the extent practical, and would not be expected to be significant or to jeopardize the continued existence of any bird species.

Electrocution of large birds, such as raptors, can occur when birds come in contact with either two conductors or a conductor and a grounding device. Larger voltage lines, those above 69-kV, are less likely to cause electrocution because the wires are spaced further apart than on lines that are less than 69-kV. MEC's transmission line design would meet Avian Power Line Interaction Committee (APLIC 2006) guidelines to provide adequate spacing between the conductors to minimize risk of raptor electrocution.

Nesting bird species may be affected by the operation of vehicles, equipment, and personnel associated with construction of the Proposed Project. These bird species and their young would be expected to occur in pasture, grassland, and prairie areas. Nesting season is approximately February 1 to July 15 according to USFWS (2008a). Construction activities are planned for early spring. MEC would survey work and temporary work areas prior to work to identify and avoid nest locations. Construction would not occur within 100 feet of any active nest.

Raptors may use the transmission structures as hunting perches. Concerns have been raised that raptors could impact the prairie nesting bird populations due to this increase in perch availability. While this may occur, impacts are expected to be minor and localized to areas near the

transmission line. Raptor perches already exist in the study area such as existing distribution lines.

Based on these measures, the Proposed Project would not result in the listing of or jeopardizing the continued existence of any wildlife species.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built, an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to wildlife would occur under the No Action alternative. However, it is likely that greater impacts to potentially sensitive habitat areas would occur if more drill sites were developed due to the associated increase in number of well pads, access roads, and supporting utilities. Increases in noise from additional motors may disrupt wildlife species. This is especially true for the large fuel engines that would be used under the enhanced recovery methods scenario. Potential impacts to avian species would be less under the No Action alternative due to the absence of new transmission line facilities under this scenario.

Cumulative Effects

The effects on wildlife from the Proposed Project, in combination with projects described in section 3.6 would not be expected to have a substantive adverse impact on wildlife. Past, present, and anticipated developments with transmission and distribution lines could cause avian collisions to increase over current conditions, however with proper mitigation there shouldn't be an increased electrocution hazard. The Proposed Project would conform to APLIC guidelines to insure that proper designs are incorporated into electrical transmission and distribution development; it is anticipated that at some of the entities responsible for designing and construction electrical and distribution lines would also adhere to the APLIC guidelines.

No substantive direct, indirect, or cumulative impacts to wildlife resources would result from the Proposed Project or the No Action Alternative.

3.5.3 SPECIAL STATUS SPECIES

The study area for special status species is the ROW, proposed Mountain Substation, and temporary material storage areas of the Proposed Project, with a regional discussion on the

Missouri Slope geographic region. Threatened and endangered species within the study area were identified using data obtained from the North Dakota Natural Heritage conservation database and the USFWS, and by conducting field surveys for identified habitats. The Endangered Species Act of 1973 (ESA) (16 U.S.C 1531–1544) requires protection of federally listed threatened or endangered species and any habitat designated as essential to maintenance and recovery of a listed species designated as critical habitat. Critical habitat areas are designated by the USFWS.

3.5.3.1 Existing Environment

The USFWS identified six federally protected species and one candidate species that could occur in the study area (table 3.5-2). Pallid sturgeon (*Scaphirhynchus albus*), the interior least tern (*Sterna antillarum*), the whooping crane (*Grus americana*), the black footed ferret (*Mustela nigripes*), and the gray wolf (*Canis lupus*) are federally listed as endangered, and piping plover (*Charadrius melodus*) is federally listed as threatened. Designated critical habitat for the piping plover occurs along the Missouri River in Dunn County. The Dakota skipper (*Herperia dacotae*) is federally listed as a candidate species.

North Dakota Game and Fish (NDGF) indicated that there are several SoCP that have been documented in the Missouri Slope geographic region, within Dunn County (table 3.5-3). These species do not have specific legal status under North Dakota Statute, but NDGF indicated that they would like to see conservation measures implemented for Level I SoCP, including avoidance and minimization of impacts to suitable habitat (Isakson 2008). Surveys for wetland, native prairie, and woodland habitat as well as rock outcrops that support the federally protected species and SoCP were conducted in September and October 2008. Wetlands are addressed in section 3.2.3. Native prairie is addressed in section 3.3.1.

TABLE 3.5-2:
FEDERALLY LISTED SPECIES THAT MAY OCCUR IN THE STUDY AREA

Species		Habitat and Range	ESA Status[1]
Common Name	**Scientific Name**		
Pallid sturgeon	*Scaphirhynchus albus*	Bottom dwelling, Missouri and Yellowstone Rivers	E
Piping plover	*Charadrius melodus*	Missouri River sandbars, alkali beaches	T, CH
Interior least tern	*Sterna antillarum*	Missouri River and Yellowstone sandbars; beaches;	E
Whooping crane	*Grus americana*	Wetlands; migrant western ND	E
Black footed ferret	*Mustela nigripes*	Prairie dog complexes	E
Gray wolf	*Canis lupus*	Frequently observed in Turtle Mtns.	E
Dakota skipper	*Hesperia dacotae*	Native prairie with high diversity of wildflowers and grasses.	C

[1] E = Endangered, T = Threatened, CH = Critical Habitat, C = Candidate

TABLE 3.5-3:
STATE SPECIES OF CONSERVATION PRIORITY THAT MAY OCCUR IN THE PROJECT AREA

Species			Habitat Type	Habitat Details
Common Name	**Scientific Name**	**Type of Species**		
Swainson's Hawk	*Buteo swainsoni*	Bird	Native Prairie/ Grassland/Forests	Require native prairie or cropland that includes thickets of natural tree growth, brush martins of native forested tracts, or shelterbelts and tree claims.
Ferruginous Hawk	*Buteo regalis*	Bird	Native Prairie	Confined to very limited areas of native prairie, usually those with hilly terrain or with low-grade topsoil that has not been altered by the plow or lower quality from overgrazing.
Upland Sandpiper	*Bartramia longicauda*	Bird	Native Prairie/ Grassland	Inhabit mixed-grass prairie, local extensive tracts of wet meadow, grazed tall-grass prairie, tame haylands, CRP fields, and mowed or burned railroad or highway rights-of-way.
Long-billed Curlew	*Numerius americanus*	Bird	Native Prairie/ Grassland	Dry, native grasslands.
Wilson's Phalarope	*Phalaropus tricolor*	Bird	Wetland	Found in swales along ephemeral streams and various types of ponds and lakes that contain expanses of shallow water that are interspersed with or adjacent to wet-meadow vegetation.

Species			Habitat Type	Habitat Details
Common Name	Scientific Name	Type of Species		
Sprague's Pipit	*Anthus spragueii*	Bird	Native Prairie	Native medium to intermediate height prairie. In short grass prairie landscape, can often be found in areas with taller grasses. More abundant in native prairie than in exotic vegetation. Requires relatively large areas of appropriate habitat.
Grasshopper Sparrow	*Ammodramus savannarum*	Bird	Native Prairie	Open prairies with intermittent brush, avoids heavy brush cover.
Baird's Sparrow	*Ammodramus bairdii*	Bird	Native Prairie /Grassland	Native prairie; structure may be more important then plant species composition. Nesting may take place in tame grasses (found in Crested Wheat, while avoids Smooth Brome). Areas with little to no grazing activity are required.
Lark Bunting	*Calamospiza melanocorys*	Bird	Native Prairie/ Grassland	Short-grass and mixed-grass communities as well as fallow fields, roadsides, and hayfields.
Chestnut-collared Longspur	*Calcarius ornatus*	Bird	Native Prairie/ Grassland	Located in tracts of heavily grazed or hayed mixed-grass prairie or mixed-grass/short-grass prairie.
Plains Spadefoot	*Spea bombifrons*	Toad	Native Prairie/ Grassland/Cropland	Found in the dry prairies, sagebrush communities, and farm fields.
Western Hognose Snake	*Heterodon nasicus*	Snake	Native Prairie	Prefers sandy or gravelly habitats like sand prairies, very open portions of prairies, or sand dunes with very little cover.
Black-tailed Prairie Dog	*Cynomys ludovicianus*	Mammal	Native Prairie/ Grassland	Require short-grass prairie habitats. They avoid heavy brush and tall grass areas due to the reduced visibility these habitats impose.

Pallid Sturgeon

The pallid sturgeon's native habitat in the Mississippi and Missouri rivers and their tributaries includes large river ecosystems with high turbidity, free flow, and warm water, according to the Pallid Sturgeon Recovery Plan (USFWS 1993). Preferred habitat includes a diversity of depths and velocities formed by braided channels, sandbars, islands, and sandy and gravely bottom areas. Current pallid sturgeon populations near the Proposed Project are fragmented by dams on the Missouri River. Pallid sturgeon are scarce in the upper Missouri River above Ft. Peck Reservoir; in the Missouri and Lower Yellowstone Rivers between Ft. Peck Dam and Lake Sakakawea; and in the Missouri River downstream of Gavins Point Dam. The pallid sturgeon has been listed as endangered under the ESA since 1990.

Pallid sturgeon are long-lived, with some individuals reaching 60 years of age or more. Spawning likely occurs from early June until mid July, coinciding with increased river flows, which initiate the spawning migrations. Their diet is primarily composed of aquatic invertebrates and small fish. Human alteration of river systems due to dams and shoreline modification are the primary cause of decline in pallid sturgeon survivability.

Currently, the nearest suitable habitat for pallid sturgeon to the Proposed Project is the Lower Yellowstone River and the main stem of the Missouri River. The Missouri River is approximately 25 miles from the Proposed Project, while the Lower Yellowstone River is over 50 miles from the Proposed Project.

Piping Plover

The piping plover breeding range stretches from south central Canada into the Midwest United States. The majority of piping plover breeding pairs found in the United States are concentrated in Montana, the Dakotas, and Nebraska. This population of piping plover winters in the Gulf of Mexico. In North Dakota, the piping plover nests on midstream sandbars along the Missouri and Yellowstone Rivers and along shorelines of saline wetlands. More piping plovers nest in North Dakota than any other state (USFWS 2008a).

Current boundaries of their breeding range are thought to be similar to historic boundaries, but distribution is much more fragmented with population isolation is now common. The piping plover has been listed as threatened under the ESA since 1985 (Atkinson and Dood 2006). USFWS designated critical habitat for the piping plover along the Missouri River and Little Missouri River in North Dakota in 2002 (USFWS 2002).

Piping plover nest along sparsely vegetated sand and gravel bars of the Missouri River and alkali lakes and wetlands, including: 1) shallow, seasonally to permanently flooded, mixosaline to hypersaline wetlands with sandy to gravelly, sparsely vegetated beaches, salt-encrusted mud flats, and/or gravelly salt flats; 2) springs and fens along edges of alkali lakes and wetlands; and 3) adjacent uplands 200 feet (61 meters) above the high water mark of the alkali lake or wetland (USFWS 2008a). None of these wetland types were observed during the field survey.

Increasing raptor predation, reduced habitat availability caused by shoreline housing development, habitat degradation caused by alteration of river flow dynamics due to channelization and dams, and impoundment and drainage of prairie wetlands and other agricultural impacts are the leading causes of species decline.

There is no USFWS-designated critical habitat for the piping plover in the study area (50 CFR Part 17). The Missouri River in most of Dunn County has been designated critical habitat; however, the Proposed Project would be about 25 miles south of that area. Other suitable habitat for the piping plover is found along the Lower Yellowstone, over 50 miles from the study area. The species has been observed at the Lake Ilo National Wildlife Refuge (USFWS

2008b). Dunn County has not been identified as a primary wintering or breeding area for the species (USFWS 1988a).

Interior Least Tern

The interior least tern is a migratory species that breeds along the Pacific, Atlantic, and Gulf coasts as well as the major interior rivers of North America. Historically the interior population bred along the Mississippi, Missouri, Arkansas, Red, Rio Grande, and Ohio River systems (USFWS 1994). While the current breeding range is similar to historic boundaries, the interior least tern distribution is fragmented. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea. Approximately 100 pair breed in North Dakota (USFWS 2008c). The Missouri River is approximately 25 miles from the study area while the Yellowstone River is over 50 miles from the study area. No known breeding areas exist on the Missouri River in Dunn County (USFWS 1990).

Breeding interior least terns typically nest on sandbars and sandy islands in the Missouri and Mississippi Rivers and their tributaries (Sidle et al 1988). Gravel pits, river channel environments, and lake and reservoir shorelines are also used for nesting and foraging. Nest sites include gravelly substrate, lack of vegetative cover, existence of favorable water conditions, and proximity to food sources (Atkinson and Dood 2006). Characteristic riverine nesting sites are dry, flat, and barren to sparsely vegetated sections of sand or pebble beach within a wide, unobstructed, river channel. Nests are usually located on dry, isolated sandbars after the spring high flows recede.

Whooping Crane

Historic nesting ranges for the whooping crane are thought to have extended throughout the northern Great Plains (Whooping Crane International Recovery Plan, USFWS 2007). Principal wintering range was the tall grass prairies in southwestern Louisiana, along the Gulf Coast of Texas, and in northeastern Mexico near the Rio Grande Delta. USFWS estimates that 10,000 whooping cranes once ranged across North America (Stehn and Wassenich 2008). In 2007, 509 birds survived in North America, including only 360 in the wild. The whooping crane has been federally protected since 1967 and was grandfathered into the ESA as an endangered species in 1973 (USFWS 2007).

The Aransas-Wood Buffalo population of whooping cranes winters in the Aransas National Wildlife Refuge on the Texas Gulf Coast, and then migrates across the Great Plains to breed in the summer in the Wood Buffalo National Park in Northwest Territories, Canada. This population contained 236 individuals in October 2007 (Stehn and Wassenich 2008), and is the only self-sustaining wild population (USFWS 2007).

Whooping cranes are diurnal migrants, using daily thermal drafts and prevailing winds to make the more than 2,000-mile migration possible. Whooping cranes are opportunistic, fly when conditions are favorable, and roost whenever they are not. Roosting and stopover sites include prairie pothole wetlands and other wetland complexes within the migratory corridor. Whooping cranes appear to use the nearest suitable roosting site when favorable migratory conditions deteriorate, typically at the end of the day. Whooping cranes primarily utilize shallow, seasonally and semi-permanently flooded palustrine wetlands with open water that is deepest in the middle at depths from six- to not greater than 18 inches deep for overnight roosting, and with adjacent crop fields for feeding. In addition, they seem to prefer wetlands that are between 0.5 to 20 acres in size, with no trees or cattails on the edge for good visibility and room to get elevation when taking flight (Ellsworth 2008, and Austin and Riechert 2001).

The study area is within the 200-mile wide migratory corridor based on sightings since 1975 (USFWS 2007). In Dunn County 19 whooping crane sighting have been documented (Tacha 2009). Whooping cranes have been observed at Lake Ilo NWR over three miles southeast of the study area; however, based on the field surveys, suitable roosting and stopover sites associated with wetlands in the study area do not exist.

Black-footed Ferret

Historically, black-footed ferrets occupied much of the Great Plains region of North America, collocating with prairie dog (*Cynomys* sp.) colonies and complexes. Suspected to be extinct by 1973, a re-discovery of the black-footed ferret near Meeteetse, Wyoming, in 1981 initiated recovery efforts and a captive breeding program. The black-footed ferret has been federally protected since 1967 and was grandfathered into the ESA as an endangered species in 1973 (USFWS 1988b).

Black-footed ferrets depend on prairie dog complexes for food and habitat. With conversion of prairie lands to agriculture, poisoning of prairie dogs, and disease epidemics, prairie dog and black-footed ferret populations have declined dramatically from their historic levels. Black-footed ferrets use prairie dog burrows for shelter. Only large prairie dog complexes of at least 30 acres can support and sustain a breeding population of black-footed ferrets (Miller et al. 1996). Prairie dogs and black footed ferrets prefer level topography in grasslands, steppe, and shrub steppe. Plowed lands, forests, wetlands, and water are avoided (USFWS 1988b).

There are no records of recent black-footed ferret occurrences in North Dakota but there is potential for reintroduction in the future (USFWS 2008a). Black-footed ferrets are found exclusively associated with prairie dog colonies. No prairie dog colonies were identified during the field survey.

Gray Wolf

The gray wolf was historically found throughout North America, with the exception of parts of the southwest and southeast United States. The gray wolf was historically present throughout North Dakota where it was known as the Plains wolf, the buffalo wolf, or the lobo wolf. The gray wolf is extirpated from the lower 48 states, with the exception of Minnesota, Wisconsin, Michigan, Montana, Idaho, and Washington. There have been documented occurrences of gray wolves in North Dakota during the 1990s. The presence of wolves in most of North Dakota would likely remain sporadic and consist of occasional dispersing animals from Minnesota and Manitoba (USFWS 2008d). Wolves have most frequently been observed in the Turtle Mountains of North Dakota (USFWS 2008a). The gray wolf was federally listed as endangered in 1978.

Gray wolves once ranged North America coast to coast from Alaska to Mexico. Wolf groups, or packs, typically include a breeding pair (the alpha pair), their offspring, and other non-breeding adults. Wolf packs live within territories, which they defend from other wolves. Their territories range in size from 50 square miles to more than 1,000 square miles, depending on the available prey and seasonal prey movements. Wolves travel over large areas to hunt, as far as 30 miles in a day. Lone, dispersing wolves have traveled as far as 600 miles in search of a new home (USFWS 2007a).

During the field survey no gray wolves were observed in or near the study area. The occurrences of the gray wolf have been primarily in the Turtle Mountains, approximately 250 miles from the study area.

Dakota Skipper

The Dakota skipper is as a candidate species. Candidate species are those species for which the USFWS has sufficient information to list the species as threatened or endangered. Candidate species receive no legal protection under the Federal Endangered Species Act. However, USFWS works to implement conservation actions for candidate species that may eliminate the need to list the species as threatened or endangered.

Dakota skippers have been recorded from southern Saskatchewan, across the Dakotas and Minnesota, to Iowa and Illinois. However, Dakota skippers are believed to no longer occur in Illinois and Iowa, and occur no farther east than western Minnesota. The most significant remaining populations of Dakota skippers occur in western Minnesota, northeastern South Dakota, and north-central and southeastern North Dakota (USFWS 2008e).

The Dakota skipper is found in high quality native prairie containing a high diversity of wildflowers and grasses. Habitat includes two prairie types: 1) low (wet) prairie dominated by bluestem grasses, wood lily, harebell, and smooth camas; and 2) upland (dry) prairie dominated by bluestem grasses, needlegrass, pale purple and upright coneflowers, and blanket flower.

Although it likely occurred throughout a relatively unbroken area of grassland in the north-central United States and south-central Canada, it now occurs in scattered remnants of native prairie. Its current distribution straddles the border between tall-grass prairie ecoregions to the east and mixed-grass prairie ecoregions to the west (USFWS 2008e).

During the field survey no high quality native prairie habitat was observed in or near the study area. The prairie conditions surrounding and within the study area are not suitable for Dakota skippers, based on species present and level of grazing.

State Species of Conservation Priority

NDGF has identified 100 SoCP across the State in its Wildlife Action Plan (Hagen et al. 2005). These species are considered important for conservation in the State of North Dakota but do not have any legal protection. Thirty-four species have been identified in the Missouri Slope geographic region, including thirteen level I species, twelve level II species, and nine level III species. NDGF places the most emphasis on level I species (Isakson 2008).

No SoCP are known to occur within one mile of the proposed transmission line according to the records obtained from the North Dakota Natural Heritage biological conservation database appendix A. The database records indicated three ecologically significant ecological communities within a one-mile radius of the Project, including *Distichils spicata – Hordeum jubatum/Puccinellia nuttalliana* saline meadow (saltgrass saline meadow), *Pascopyrum smithii – Bouteloua gracilis/Carex filifolia* prairie (western wheatgrass prairie), *Quercus macrocarpa/Corylus cornuta,* and woodland (bur oak-hazelnut woodland). These communities are not within the ROW or area of construction impact and would not be affected by the Project as noted in sections 3.3.1 and 3.3.2. The records also indicated surveys that found occurrences of the *Phyciodes batesii* (tawny crescent). The occurrences for this species were outside of the area of construction impact.

Areas of suitable and potentially suitable habitat for level I SoCP were reviewed during the field surveys in September and October 2008. No high quality habitat was observed in the study area (See appendix C for land cover observed in the study area). If the SoCP, in particular the bird species, the plains spadefoot, and the Western hognose snake, were present it is likely that they would avoid the area during construction when crews are present. No black-tailed prairie dogs were found during the surveys as noted above.

3.5.3.2 Environmental Consequences

A significant impact to endangered, threatened, and candidate species would occur under the following conditions:

- Loss of individuals that would jeopardize the continued existence of a species; or
- Loss of individuals leading to their being listed or a change in listing from threatened to endangered, or the addition of a species to the Federal list.

Proposed Project

No permanent, adverse impacts to special status species would be expected from the Proposed Project. Habitat for many of the listed species includes large river or lake habitats, wetlands, or remnant prairies. No large river or lake habitats are present in the study area. Direct permanent impacts to the one prairie remnant would be avoided by placement of pole structures outside of the remnant. Additional species-specific analyses are provided below.

Pallid Sturgeon

The nearest large river habitat necessary for pallid sturgeon is located more than seven miles from the study area. Based on this information, the Proposed Project would have no effect on the pallid sturgeon.

Piping Plover and Interior Least Tern

Large river sandbars and shoreline habitat of the Missouri and Lower Yellowstone Rivers are preferred by both piping plover and interior least tern. The Missouri River is located more than seven miles from the study area, and the Yellowstone River is located more than 50 miles from the study area. No piping plover or interior least tern habitat is in the study area or in the Missouri Slope geographic region consistent with North Dakota Wildlife Action Plan (Hagen et al. 2005). The Proposed Project would have no effect on the piping plover or interior least tern.

Whooping Crane

Wetlands in the study area may provide suitable roosting and stopover habitat for migrating whooping cranes. Collisions with power lines are a cause of whooping crane mortality during migration. Since whooping cranes migrate at high elevations above transmission lines, collisions are most likely to occur when the species is approaching or leaving wetland roost and stopover areas.

Surveys for whooping crane are impractical and not likely to give conclusive results, as migration paths and stop-over areas vary from year to year, therefore, during wetland surveys potential suitable roosting and stopover habitat was identified. The boundaries of wetlands have been delineated along the transmission line and wetland areas have been identified within one mile of the proposed centerline by analysis of aerial photography, hydric soils, and field surveys (see section 3.2.3). The Proposed Project would cross small palustrine wetlands that don't meet the characteristics of suitable roosting and stopover habitat for migrating whooping cranes. If whooping cranes should frequent the study area, potential collisions with transmission lines during take-off and landing would be a concern. MEC has prepared an APP (appendix D) and would implement the measures in that plan to minimize any negative effects associated with the project on avian species, including whooping cranes. By following these mitigation measures, we

determined that the Proposed Project may affect, but is not likely to adversely affect, whooping cranes.

Black footed Ferret

The existence of prairie dog colony complexes would indicate suitable black-footed ferret habitat. During the field surveys, no prairie dog colonies or complexes were observed. Based on this information, the Proposed Project would have no effect on the black footed ferret.

Gray Wolf

During the field survey no gray wolves were observed near the proposed transmission line. The occurrences of the gray wolf have been primarily in the Turtle Mountains, approximately 250 miles from the study area. Therefore, the Proposed Project would have no effect on the gray wolf.

Dakota Skipper

During the field survey no Dakota skippers were observed in or near the study area. Only one native prairie remnant was observed in the proposed study area. This remnant only contained one of the plant species (little bluestem) that is typically associated with the Dakota skipper. Grazing can adversely affect the Dakota skipper, so while the remnant was not overly grazed, it was grazed and the surrounding landscape was heavily grazed (USFWS 2007b). It is unlikely that this prairie remnant would provide suitable habitat for the Dakota Skipper.

The prairie remnant would be spanned by the transmission line structures so no long-term primary or secondary impacts are expected. Therefore, the Proposed Project would not likely y affect the Dakota skipper.

Species of Conservation Priority

Correspondence with NDGF and review of the North Dakota Wildlife Action Plan indicated that SoCP may occur in the Missouri Slope geographic region where the Proposed Project would be located. Surveys for native prairie, rock outcrops, wetlands, and suitable grasslands were conducted in September and October 2008 to document suitable habitat for these species. Habitat in the study area was not high quality and it is unlikely that these species would be affected by the Proposed Project.

No substantive direct or indirect impacts to special status species resources would result from the Proposed Project.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built in an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and

gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to special status species would occur under the No Action alternative. However, it is likely that greater impacts to special status species could occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts to special status species could be in the form of noise could increase if larger engines are used under the enhanced recovery method scenario. Additionally, depending on the location of the fuel supply lines needed to fuel large engines used habitat for the sensitive species could be disturbed.

3.5.3.3 Cumulative Effects

The effects on special status species from the Proposed Project, in combination with the projects described in section 3.6, would not be expected to result in significant impacts to any species.

Pallid sturgeon

Future distribution projects in the area would have no effect on pallid sturgeon individuals or populations.

Piping plover and Interior least tern

Future distribution projects in the area would have no effect on piping plover or least tern individuals or populations.

Whooping crane

Any additional distribution or transmission line construction throughout the principal migration corridor would increase the opportunity for whooping crane collision mortalities. Assuming future projects would also mark lines in the vicinity of suitable whooping crane roosting and feeding areas, it is anticipated that these future facilities may affect, but are not likely to adversely affect, whooping crane populations.

Black-footed ferret

Since large prairie dog colonies are generally are not negatively affected by structures such as oil wells or transmission lines (USFWS 1988), impacts from future distribution lines to existing or possible new prairie dog colonies and black-footed ferret reintroduction would be minimal. These projects would be likely to have negligible effect on black-footed ferret individuals or populations if the ferrets are reintroduced to North Dakota.

Gray Wolf

Wolves, should they pass through the area, would generally avoid areas of human presence. Wolves may avoid construction of distribution lines or the oil field areas if crews are frequently servicing the installations. Once the distribution lines are operational, wolves would not be expected to be impacted by the presence of the distribution lines. If wolves should pass through the area, the impact to these species would be negligible.

Dakota Skipper

The Dakota skipper requires high quality, unfragmented prairie to survive. It is unknown whether new oil and gas wells and the associated distribution lines would be located in areas of high quality prairie. However, where oil and gas drilling are occurring in prairie areas, the habitat for this species could be further fragmented.

Species of Conservation Priority

Since pole placement takes up minor areas of land, and pole placement for distribution lines in wetlands and rock outcrops is structurally undesirable, future oil and gas projects in the area would be expected to have a minimal effect on rock outcrops and wetland habitats. The oil and gas wells may disturb areas of native prairie.

No substantive direct, indirect, or cumulative impacts to special status species resources would result from the Proposed Project or the No Action Alternative.

3.6 SOCIAL RESOURCES

3.6.1 SOCIOECONOMICS

The socioeconomic setting (study area) and potential impacts of the Proposed Project were evaluated for the town of Killdeer and Dunn County.

3.6.1.1 Existing Environment

The Proposed Project would be located near Killdeer in Dunn County, North Dakota. Killdeer, the only community in the study area, is located about 13 miles south and east of the proposed Mountain Substation, and has a population of approximately 670. Table 3.6-1 shows the demographic characteristics of the town of Killdeer, Dunn County, and the State of North Dakota.

TABLE 3.6-1:
DEMOGRAPHIC CHARACTERISTICS OF THE PROJECT AREA

Area	Population			Percent Change 2000-2007	Percent White*	Percent in Poverty*	Median Household Income*
	1990	2000	2007				
North Dakota	638,800	642,200	639,715	-0.4%	91.0%	11.9%	$34,604
Dunn County	4,005	3,600	3,308	-8.1%	86.6%	17.5%	$30,015
Killdeer	722	713^	670	-6.0%	95.0%	12.8%	$32,750

^North Dakota Department of Commerce-Division of Economic Development and Finance, 2008
*United States Census Bureau (USCB) 2000

Dunn County is a rural county with primarily an agriculture-based economy. The town of Killdeer, the County, and the State all experienced a decrease in population from 2000 to 2007. The County experienced the greatest population decrease of eight percent. The town of Killdeer experienced a decrease in population of six percent. This same trend is also present in the State of North Dakota which experienced a marginal decrease of 0.4 percent. However, the county is currently experiencing a substantial amount of oil and gas drilling activities. The unemployment rate for Dunn County was 2.6 percent in September compared to a State unemployment rate of 2.8 percent. The national unemployment rate was 6.1 percent (ND Job Service 2008).

The town of Killdeer offers a range of services, including a grocery store, banks, churches, emergency services, community pools, parks, a health and wellness center, and Killdeer Public School. Weydahl Field, also known as the Dunn County Airport, is located north of Killdeer and east of the Proposed Project.

3.6.1.2 Environmental Consequences

Socioeconomic impacts of the Proposed Project are mostly positive effects to community facilities, residences, businesses, or the overall economic status of Killdeer and Dunn County. A significant adverse impact to socioeconomic conditions would occur under the following conditions: Uncompensated relocation of residences or businesses resulting in unrecoverable economic loss.

Proposed Project

Construction Impacts

The transmission line and substation would not impact any community facilities in Killdeer or the county. No residences or agricultural buildings in the county would be displaced. Socioeconomic impacts resulting from the Proposed Project would be primarily positive. There is a one-time influx of money into the study area for purchase of the transmission line easements and of proposed Mountain Substation site. Construction of the Proposed Project is expected to

occur over approximately six months and would require up to approximately 16 workers, who would likely be hired from outside the study area. These temporary construction jobs would provide a one-time influx of additional income to the area through increased spending on lodging, meals, and other consumer goods and services during construction. There would also be a one-time influx purchase of gasoline, concrete, and gravel associated with construction of the transmission line and substation adding additional income into the study area.

Operation Impacts

The socioeconomic impacts from the Proposed Project on a long-term basis would be primarily positive. The additional power that would be supplied to the area would allow oil extraction activities to continue to grow, resulting in new job opportunities. Contractors would be needed for drilling activities like concrete work and well completion. Once a well is in production, a variety of support personnel would be needed. These individuals would perform such tasks as hauling water, maintaining pipelines, doing road work, maintaining pads (e.g., weed control, fence repair), maintaining the pumps and other machinery necessary for production, and administrative support work. Oil development activities have had a ripple effect throughout the local economy thereby reducing unemployment rates, evidenced by the lower unemployment rates in Dunn County. Personal income would increase and workers would come into Killdeer and Dunn County for both short- and long-term assignments. These individuals would spend money on services in the community, boosting the economy. However, an over-commitment of local economic resources is not expected with the influx of these workers.

Local businesses and residents would be provided reliable power and would not experience brownouts that currently occur on the north end of the MEC service area. The increased availability of reliable power in the area would have a positive effect on local businesses and the quality of service provided to the general public.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to socioeconomics would occur under the No Action alternative. Local farmers would not receive the ROW payments that they would receive under the Proposed Project. Additionally, it is likely that more construction and maintenance trips and personnel would be necessary to develop an

increase in the number of well pads. Additionally, more pads could result is in additional roads which could negatively affect the operations of local farmers and ranchers through fragmented fields, damage to private roads, and disruption to livestock. If enhanced recovery methods are utilized instead of additional well pads and access roads, it is likely that local farmers and ranchers would still be negatively affected through fragmented fields and disruption to livestock for construction of fuel supply lines. Under the No Action Alternative, Killdeer would not benefit from a more reliable power source. Cumulative Effects

No substantive negative direct, indirect, or cumulative impacts to socioeconomic resources would result from the Proposed Project or the No Action Alternative. The Proposed Project would increase economic wealth in the area.

3.6.2 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) is intended to ensure that adverse human health and environmental effects of agency actions would not disproportionately impact minority and low-income populations, including Native American Indian tribes. For the purposes of this section, minority and low-income populations are defined as follows:

Minority Populations

Ethnic origins include blacks or African Americans, American Indians or Alaska Natives, Asians, Hispanics or Latinos, and Native Hawaiian and other Pacific Islanders.

Low-Income Populations

Low-income populations include people living below the national poverty level. In 2007, the weighted-average poverty threshold for a family of four was $21,386 and $10,787 for an individual (USCB 2008). The poverty threshold is calculated by the U.S. Census Bureau each year as a means to estimate the number of Americans living in poverty.

3.6.2.2 Existing Environment

The Project Area is located in a rural, predominantly ethnically white area that has historically been an agricultural economy. Currently, oil and gas exploration and drilling activities are being undertaken. Table 3.6-1, above, shows the minority and low-income populations for North Dakota, Dunn County, and Killdeer. The town of Killdeer has the highest percentage of white residents (95 percent) (USCB 2000).

Based on the information gathered from the U.S. Census Bureau, the percentage of people who reside in Killdeer and live below the national poverty level (12.8 percent) is slightly higher than for the State (11.9 percent) but below the county (17.5 percent).

3.6.2.3 Environmental Consequences

A significant impact would occur under the following condition: Low-income, minority, or subsistence populations in the region of the Proposed Project are disproportionately affected by the Proposed Project.

Proposed Project

There are no low-income, minority, or subsistence populations in or around the study area that would be disproportionately affected by the Proposed Project. The proposed transmission line has been routed to avoid placing the line within 500 feet of occupied residences.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to environmental justice populations would occur under the No Action alternative. In the area around the Proposed Project, there are no environmental justice populations; therefore, under the No Action Alternative, no low-income or minority populations would be disproportionately affected near the Proposed Project.

Cumulative Effects

No substantive direct, indirect, or cumulative impacts to minority or low-income populations would result from the Proposed Project or the No Action Alternative.

3.6.3 LAND USE

The study area for land use is a one-mile buffer centered on the Proposed Project route with a discussion of regional land use issues.

3.6.3.1 Existing Environment

The study area is located in rolling hills, cropland, and pasture typical of west central North Dakota. Land use in the area is predominantly agricultural and grassland. A number of pasture tracts as well as an elk farm are also found in the study area. Oil wells and oil infrastructure have become common in the past 10 years, and are found throughout the area. Wetlands, coulees, woodlands, and native prairie are also found scattered in the landscape, although these habitats occupy a very small percentage of the land area.

Ten different land cover types were documented along the proposed route based on aerial photo analysis and visits to the study area. These include row crops and hay, grassland (pasture, fallow, and potential native vegetation), road and grass ROW, stream/ditch and riparian zone, farmstead, oil and gas, wooded, elk farm, and potential wetland. Maps of land cover are shown in appendix C and a summary of the land cover analysis within a quarter mile of the proposed route is presented in table 3.6-2.

The major crops in the area are wheat and other small grains, corn, and hay (USDA 2007). Within a quarter mile of the Proposed Project, 37.8 percent of land is considered row crop. Based on field visits and aerial imagery analysis, no center pivot or other irrigation appears to be in use within a quarter mile of the route. Based on input received at the public meeting, one landowner is considering center pivot irrigation in an area that would be avoided by the proposed facilities.

Grassland includes pasture, fallow field, unmanaged grassland, and native prairie. Pasturelands are grazed predominately by cattle. Fallow and unmanaged lands are naturally reclaimed by invasive and native grasses and forbs. Native prairie remnants are usually found only in areas that have not been tilled and that do not experience intensive grazing. The delineation between degraded grassland and native prairie can be difficult in some areas. See the discussion on Native Prairie in section 3.3.1.

TABLE 3.6-2:
EXISTING LANDCOVER WITHIN A QUARTER MILE OF ALIGNMENT

Habitat and Land Use Type	Approximate Acres*	Land Area
Row Crop	1654.1	37.8%
Elk Farm	51.6	1.2%
Wooded	73.8	1.7%
Farmstead	41.5	0.9%
Road and Grass ROW	104.3	2.4%
Grazed Pasture	2121.7	48.5%
Hay Land	117.1	2.7%
Industrial	48.4	1.2%
Residential	22.8	0.5%
Wetlands	26.9	0.6%
NWI	109.1	2.5%
Total	4371.3	100.0%

* Land use types were identified based on 2008 site visits, 2006 NAIP aerial photos, hydric soils maps, and USGS 1:24.000 topographic maps. Acreage calculated by overlaying 1/2-mile-wide corridor (centered on transmission line) over land use types.

A farmstead, barns, a shop, and other structures are a minor portion of the land use near the transmission line, but are outside of the proposed ROW. Wetlands, streams, and woodlands

compose a minor portion of the land in the study area. Woodlands are typically scattered trees, wind shelters, and small areas of unmanaged wooded areas associated with small streams and coulee and swale bottoms. Wetlands are addressed in section 3.2.3.

3.6.3.2 Environmental Consequences

Land use impacts would pertain to physical and operational effects of the Proposed Project on existing and future land use. In the study area, these impacts are primarily related to agricultural practices.

A significant impact to land use would occur under the following conditions:

- Uncompensated loss of crop production or fragmentation affecting viability of continued agricultural operations; or
- Foreclosure of future land uses due to conversion of land use beyond project ROW.

Proposed Project

Construction Impacts

The Proposed Project would result in permanent and temporary impacts to farmland. Temporary and short-term impacts would occur from construction activities due to removal of existing agricultural land from crop or forage production. During construction, temporary impacts such as soil compaction and crop damage are likely within the working ROW and along any temporary work space such as access roads and material storage areas. MEC would compensate landowners for crop damages that may occur as the result of the Proposed Project. This compensation may be by either providing financial compensation to landowners, or by using contractors to chisel plow the disturbed area.

Operation Impacts

Permanent impacts would result from the construction of the proposed Mountain Substation and at pole locations. Long-term impacts would include:

- Loss of pastureland under the substation sites and a small amount of pasture land and row crop area immediately around structures;
- Modified farming operations around transmission structures; and
- Modified aerial application of herbicides and fertilizers to avoid transmission structures.

Permanent impacts to cropland would be localized to pole placement with 0.002 acres of impact per pole structure. The total impact would be minimal with 1.5 acres of permanent impact associated with the transmission line and substation compared to 4,171 acres of agricultural land within a quarter mile of the transmission line. The proposed route segments minimize impacts to farmland by paralleling existing road section lines, quarter section lines, and property lines

wherever possible. The route for the transmission line was identified based on landowner preference to minimize loss of farmland and ensure access to the land near the poles.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built an increase in the number and density of oil and gas extraction wells on the ground surface could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to land use would occur under the No Action alternative. However, there would be an increase in the acres of land converted from agricultural use to industrial use if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. If enhanced recovery methods are used, less land would be converted from agricultural use directly, however, there could be indirect impacts from disruption to agricultural practices from installation of fuel supply lines need to be constructed to fuel large engines used for enhanced recovery methods. These impacts may diminish farming but would probably not lead to a conversion of agricultural land use.

Cumulative Effects

Almost all of the past, present, and reasonably foreseeable projects involve temporary and permanent loss of land use. Agricultural, in particular has dramatically altered the landscape from its native prairie ecosystem. Losses from present and reasonably foreseeable projects are not expected to contribute to a measurable change to the long-term agricultural land uses in the study area. In most cases, except where permanent disturbance would be located at well pads or along access roads, current uses would continue. The total land removed from agricultural production under the Proposed Project would be a very small fraction of the total land currently in production, less than 0.1 percent of the agricultural land within a quarter mile of the Project. The total land removed from agricultural production under the No Action Alternative would vary depending on the drilling methods used and the current demand for oil and gas resources, however, the overall land use in the area is expected to remain agricultural.

No substantive direct, indirect, or cumulative impacts to land use would result from the Proposed Project or the No Action Alternative.

3.6.4 VISUAL

The study area for visual resources includes the foreground, middleground, and background along the route. Scenic quality is determined by evaluating the overall character and diversity of

landform, vegetation, color, water, and cultural or manmade features in a landscape. Typically, more complex or diverse landscapes are considered to possess higher scenic quality than those landscapes with less complex or diverse landscape features.

3.6.4.1 Existing Environment

The topography in the study area corridor is mostly flat with some rolling hills in the middle and foreground. The Killdeer Mountains can be observed in the background. The landscape is characterized by grass pastures interspersed with crop fields. Large portions of the study area are used for grazing livestock and for hay production. Small wooded areas, mostly associated with windbreaks and shelterbelts, and wetlands are scattered throughout the study area. There is an elk farm located along the proposed transmission line route. A large windbreak exists adjacent to the proposed Mountain Substation.

Existing electric infrastructure, such as transmission lines, distribution lines, and substations, as well as oil and gas facilities, are also scattered throughout the landscape. The settlements in the study area (outside of Killdeer) are residences and farm buildings (inhabited and uninhabited) scattered along the county roads. These structures are focal points in the dominant open space character of the vicinity. Typically, the farmsteads and residences are located at lower elevations and/or are surrounded by windbreaks to avoid winds common to the area. Roads generally follow sections lines following the topography.

Highway 22, visible from the north and south termini of the proposed transmission line route, is a State-designated scenic corridor. The Killdeer Mountain Four Bears Scenic Byway was designated to capture views of the Killdeer Mountains and Little Missouri River Breaks and Badlands. It is within the vicinity of the Little Missouri State Park, Medicine Hole (located on the top of south Killdeer Mountain), Killdeer Battlefield State Historic Site (west of the proposed transmission line), and Lake Ilo NWR (southeast of Killdeer). The Little Missouri River is North Dakota's only designated State Scenic River (NDRPD 2008). While Highway 22 is visible from the proposed transmission line at the north and south, none of these scenic places along the highway are visible from the proposed transmission line route.

3.6.4.2 Environmental Consequences

Visual resources in the landscape are viewed by both local residents in the area and motorists using Highway 22. A significant impact to visual resources would occur under the following condition: Visual interruption that would dominate a unique viewshed or scenic view.

Proposed Project

Construction Impacts

During construction there would be temporary visual impacts associated with seeing equipment and construction crews along the transmission line and at the substation. However, these crews would only be at a particular location along the transmission line for a few days at a time, while

poles are being delivered, set, or strung with wire. The crews would be at the proposed Mountain Substation for a longer period of time. Minimal clearing of trees or grasslands would be needed and the landscape and the vegetation would be reseeded upon completion of the transmission line minimizing visual changes in the landscape. The equipment in the area and amount of vegetation clearing would be comparable to or less than that resulting from oil and gas drilling activities in the area.

Operation Impacts

The proposed Mountain Substation would occupy approximately 0.9 acres and would be located in an old pasture area. The substation would consist of a fenced, graveled area with a control house, transformer, regulator, and recloser, and would be located adjacent to Highway 22. It would be visible to travelers in the middle and foreground. One residence would be located approximately 800 feet from the new the substation, but views would be partially blocked by an existing windbreak.

The proposed 115-kV transmission line structures would consist of single poles, set approximately 350 feet apart. The height of the poles would depend on the topography of the landscape but would generally be about 60 to 90 feet above ground. Structures are described in sections 2.3 and 2.4. The transmission line would pass through primarily agricultural land and by a few rural residences, all which are located farther than 500 feet from the transmission line. Views would be blocked in the foreground by shelterbelts surrounding the residences and the rolling topography. The residences may have specific views of few poles in the middleground, but the views in the background are not expected to change.

The Proposed Project would be visible (in the middle and foreground) to those traveling on highways and county and township roads. Isolated trees may need to be removed for the Proposed Project, but large-scale tree clearing would not be required. For most of the route, the visual impact from the proposed transmission line would be negligible or only incremental compared to existing conditions. The background views of the Killdeer Mountains would remain unchanged.

The views for which the Killdeer Mountain Four Bears Scenic Byway (Highway 22) was designated would not be compromised by the Proposed Project. Overall the Proposed Project would not dominate the viewshed or visual resources in the area.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built it an increase in the number and density of oil and gas extraction wells on the ground surface, resulting in an increase in the use of associated small, inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder,

less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to visual resources would occur under the No Action alternative. However, it is likely that greater visual impacts would occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. Impacts would also occur if enhanced recovery methods were used as the larger motors would be more visible and well as the presence disturbed vegetation from construction of fuel supply lines across the landscape. The impacts would depend on the location of the larger motors and fuel lines and their proximity to local residents or travelers.

Cumulative Effects

Almost all of the past, present, and reasonably foreseeable projects would involve long-term visual impacts. Since settlement occurs, the landscape had undergone a dramatic visual change from native prairie to row crop and pastoral agricultural. The increased presence of industrial facilities in the agricultural landscape is again changing the visual quality of the landscape, resulting in cumulative effects to the visual setting. However, the change is not considered adverse by local landowners, based on the necessity of oil resources to local landowners and the general public. No substantive direct, indirect, or cumulative impacts to visual resources would result from the Proposed Project or the No Action Alternative.

3.6.5 NOISE

The study area for noise was limited to the nearest residential receptors to the Proposed Project.

3.6.5.1 Existing Environment

Noise is defined as unwanted sound. Conductors on transmission lines and transformers at substations produce noise under certain conditions. The level of noise, or its loudness, depends on conductor conditions, voltage level, and weather conditions. Construction equipment and crews can also produce noise temporarily. Noise is measured in units of decibels (dB) on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The A-weighted (dBA) scale corresponds to the sensitivity range for human hearing. A 10 dBA change in noise levels is perceived as a doubling of noise loudness.

Noise levels decrease with increasing distance from the source. From a point source, such as a substation, noise levels decrease by 6 dBA for every doubling of distance; for a line source, such as a transmission line, noise levels decrease between 3 and 4.5 dBA, depending on ground cover. If the noise emitted from a source is doubled, there is a 3 dBA increase in noise, which is barely

discernible to the human ear. When looking at multiple sources of noise of different magnitudes, the rule of thumb is that if there is a difference of greater than 10 dBA between noise sources, there would be no additive effect (only the louder source would be heard and the quieter source would not contribute to noise levels). Table 3.6-3 shows noise levels associated with common, everyday sources, and places the magnitude of noise levels discussed here in context.

TABLE 3.6-3:
COMMON NOISE SOURCES AND LEVELS

Sound Pressure Level (dB)	Typical Sources
120	Jet aircraft takeoff at 100 feet
110	Same aircraft at 400 feet
90	Motorcycle at 25 feet
80	Garbage disposal
70	City street corner
60	Conversational speech
50	Typical office
40	Living room (without TV)
30	Quiet bedroom at night

Source: Environmental Impact Analysis Handbook, ed. by Rau and Wooten 1980

The study area is located in a rural area. Ambient noise in rural areas is commonly made up of wind and rustling vegetation, intermittent farm equipment operation, and infrequent vehicle pass-bys. The area in the vicinity of the proposed Mountain Substation and transmission line experiences steady and sometimes high winds. The substation is adjacent to Highway 22. Highway 22 is a scenic byway and experiences these travelers in addition to local users and truck traffic associated with the oil exploration activities in the area.

Noise levels in agricultural areas are typically in the 40-dBA range and are considered acceptable for residential land use activities. Higher ambient noise levels, typically 40 to 55 dBA, are expected near rural roadways during peak traffic hours, such as Highways 22 and 200. Due to the prevalence of wind-induced noise, it is expected that the current, average, background noise levels in the vicinity of the proposed Mountain Substation are higher than typical background noise levels in agricultural areas. Noise levels associated with the transmission line would generally be lower than background noise levels. It is possible that noise levels could increase in the study area due to increased oil and gas production.

While businesses are located along Highway 22, the nearest receptor is located approximately 800 feet west of the proposed Mountain Substation. Existing background noise levels of 40 to

55 dBA would be expected at this property due to the oil exploration activities and presence of Highway 22.

3.6.5.2 Environmental Consequences

A significant noise impact would occur under the following condition: Violation of local, State, or Federal noise standard or guidance.

Proposed Project

Construction Impacts

The Proposed Project would result in construction noise from equipment such as heavy trucks and bulldozers. To avoid and minimize construction noise, MEC would fit internal combustion engines associated with construction activities with approved mufflers and spark arresters, and conform to any county or other applicable regulations that restrict construction hours. Construction noise would be temporary, occurring over a few months during daylight hours.

Operation Impacts

Transmission Line Noise - Transmission line conductor noise levels were estimated using the CFIX8 model distributed by Bonneville Power Administration. The maximum conductor noise levels would occur at the conductor itself; noise levels drop off as the distance from the conductor increases. Worst-case noise emissions from the single proposed 115-kV transmission line are predicted to be approximately 9 dBA in fair conditions directly on the centerline. In foggy, damp, or rainy weather conditions, powerlines can create a subtle crackling sound due to the small amount of electricity ionizing the moist air near the wires. During heavy rain the general background noise level is usually greater than the noise from the transmission line. Additionally few people are out near the transmission line during heavy rain. During light rain, dense fog, snow and other times when there is moisture in the air the proposed transmission lines would produce audible noise higher than rural background levels but similar to household background levels. During dry weather, audible noise from transmission lines is an imperceptible, sporadic crackling sound.

There are no sensitive noise receptors with in 500 feet off the proposed transmission line, the nearest receptor to the proposed 115-kV line would be a gas station directly adjacent to the line and right off Highway 200. However, gas stations are not usually considered sensitive noise receptors due to the presence of vehicles coming and going. The transmission line noise level at this receptor is expected to be less than the background noise levels, and would not contribute to a change in overall noise levels.

Substation Noise - The proposed Mountain Substation would consist of one 115-24.9-kV transformer. The nearest receptor, which is a residence, is approximately 800 feet from the proposed Mountain Substation. This receptor would be further blocked from the substation by an adjacent shelterbelt. Substation noise would likely be inaudible at the nearest residence.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what noise impacts would occur under the No Action alternative. If more drill sites are developed there would be an increase in the operating well pads during both construction and maintenance of these sites related to an increase in traffic. If large diesel or natural gas-driven engines are used for enhanced recovery methods at well injection sites, rather than electric driven engines, noise is likely to increase over present conditions.

Cumulative Effects

No substantive direct, indirect, or cumulative noise impacts would result from the Proposed Project or the No Action Alternative as noise levels are below noise thresholds relative to noise receptor locations.

3.6.6 HEALTH AND SAFETY

Evaluation of safety and health issues was focused on the construction and maintenance activities associated with the Proposed Project and nearby residents[3].

3.6.6.1 Existing Environment

Public and Worker Safety

The predominant activities that currently occur within the study area include agriculture, oil and gas development, and vehicular travel.

Electric and Magnetic Fields

The Proposed Project would result in electric and magnetic fields (EMFs) created by the flow of electricity and the voltage of transmission lines. The voltage of the transmission line, current flow in the conductors, weather conditions, and the design of the transmission line influence the levels of EMF.

[3] The nearest residence is 800 feet from the transmission line.

Electric Fields

Voltage on any wire (conductor), be it home wiring or a transmission line, produces an electric field in the area surrounding the wire. The electric field associated with transmission lines extends from the energized conductors to other nearby objects, such as the ground, towers, vegetation, buildings, and vehicles. The electric field from a transmission line gets weaker with increasing distance from the transmission line. Nearby trees and building material can reduce the strength of transmission line electric fields.

The intensity of electric fields is associated with the voltage of the transmission line and is measured in kilovolts per meter (kV/m). Transmission line electric fields near the ground are designated by the difference in voltage between two points (usually one meter) because people are not near the electric fields for extended periods, and the fields drop to background levels a short distance away. With respect to public health and safety, the presence of an electric field is not a concern. The principal safety concern would be direct contact with a downed conductor.

Magnetic Fields

Current passing through any wire conductor produces a magnetic field in the area around the wire. The magnetic field associated with a high voltage transmission line surrounds the conductor and decreases rapidly with increasing distance from the conductor. The magnetic field is expressed in units of magnetic flux density, expressed as gauss (G). The magnetic field can interfere with telephone and railroad communications equipment very near the line.

The magnetic field associated with transmission line operation can induce currents and voltage in long, parallel conductors such as fences or telephone cables, if they are not properly grounded. The potential induced voltage is dependent on line geometry, the current carried on the line, the distance to the conducting object, the length of parallel structures, the grounding of the conducting object, and the shielding of the conducting object. There are no Federal regulations establishing maximum magnetic field levels. Approximately 30 years of research have shown inconclusive evidence that EMF is a health issue.

Stray Voltage

Stray voltage is a natural phenomenon that can result in low levels of electrical current between two contact points where electricity is grounded. By established electrical code, electrical systems, including farm systems and utility distribution systems, must be grounded to the earth to ensure continuous safety and reliability. Some current flows through the earth at each point where the electrical system is grounded and a small voltage develops. This voltage is called neutral-to-earth voltage (NEV). When a portion of this NEV is measured between two objects that may be simultaneously contacted by an animal, it is frequently called stray voltage. Stray voltage does not cause electrocution and is not related to ground currents, EMFs, or earth currents.

Environmental Consequences

A significant impact would occur under the following conditions:

- Design of components causes an increase in the frequency or severity of worker injuries to a level above average;
- Children are disproportionately impacted by adverse human health and environment effects;
- Increase of electric and magnetic fields at or outside the ROW to levels above best industry practice; or
- Increase in risk of injuries or fatalities to the public from construction and operation of the Proposed Project.

3.6.6.2 Proposed Project

Public and Worker Safety

The Proposed Project would be designed to comply with applicable local, State, and NESC standards regarding worker safety, clearance to ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths. Construction crews would comply with local, State, NESC, and Western regulations, and MEC standards regarding installation of facilities and standard construction practices. Established MEC and industry safety procedures would be followed during and after installation of the transmission line. This would include clear signage during all construction activities. Workers would be trained regarding applicable safety regulations to minimize the risk of accidents to workers.

The proposed transmission line would be equipped with protective devices to safeguard the public from the transmission line in the unlikely event that an accident occurs and a structure or conductor falls to the ground. The protective devices are breakers and relays located where the line connects to the substation. This protective equipment would de-energize the line in the unlikely event that such a situation occurs. In addition, the substation facility would be fenced and access limited to authorized personnel. Therefore, the Proposed Project would not be expected to cause an increase in the frequency or severity of worker injuries to a level above the national average.

Electric and Magnetic Fields

Electric Fields

Electric field levels at electric substations drop off rapidly. At 100 feet away from a substation fence, the electric field levels from the substation equipment are typically at background levels. Any measured fields in that area and beyond would be from transmission and distribution lines entering and exiting the substation, and not from the substation. While there are structures closer, the nearest residence to any of the project facilities is located about 800 feet from the

proposed Mountain Substation. The proposed 115-kV transmission line would have a maximum magnitude of electric field density of approximately 0.78 kV per meter underneath the conductors one meter above ground level in a single circuit configuration.

Since the Project is located in a rural area and there are no (0) residences within 500 feet of the proposed facilities, there would be no long-term human exposure to electric fields.

Magnetic Fields

Magnetic field levels at electric substations also drop off rapidly from transformers, which are the main source of magnetic fields from the substation equipment. At 100 feet away from a substation fence, the magnetic field levels from the substation equipment are at background levels. Any measured fields in that area and beyond would be from transmission and distribution lines entering and exiting the substation, and not substation equipment. The proposed Mountain Substation is approximately 1,000 feet from the nearest residence.

The maximum calculated ground level magnetic field produced by the normal operating current for the 115-kV portion of the Proposed Project is 42 milligauss (mG) for the proposed transmission line. This maximum reading would be directly under the conductors at mid-span, where the conductors would be closer to the ground.

The proposed transmission line has been routed to avoid placing the line within 500 feet of occupied residences. Maximizing the distance from residences was a primary factor in choosing the preferred route.

Since the location of the Project is in a rural area and there are no residences nearby, magnetic field level would not be a concern. No impacts to human health and safety from electric and magnetic fields are anticipated

Stray Voltage

The transmission line is not likely to increase stray voltage levels above existing conditions since the transmission line would be properly grounded. Therefore, no impacts associated with stray voltage issues are anticipated due to the Proposed Project.

Intentional Destructive Acts

Transmission line projects may be the subject of intentional destructive acts ranging from random vandalism and theft to sabotage and acts of terrorism intended to disable a facility. Acts of vandalism and theft are more likely to occur than acts of sabotage and terrorism and most likely to occur in remote areas and at substations. Theft frequently involves equipment and salvageable metal at substations. Vandalism often includes shooting out insulators. Sabotage and terrorism would most likely involve destruction of key transmission line components with the intent of interrupting the electrical grid.

Intentional destructive acts can result in financial and environmental impacts and impacts to consumers and businesses that rely on power. Financial impacts are ultimately passed on to the rate payers. Environmental impacts related to intentional destructive acts could range from electrocution of perpetrators, line crews, or the public; wildfire ignition from downed lines; or oil contamination from damaged equipment. Impacts to consumers and business could range from minor annoyance to economic hardship.

Vandalism and theft within the substation would be minimized as equipment would be protected by fencing; however, preventative measures are not readily available to protect the transmission line from vandalism or sabotage. These facilities are not any more likely to be targeted than other facilities in the area, which have not been vandalized.

3.6.6.3 No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built it an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to health and safety would occur under the No Action alternative. However, it is likely that safety impacts would be relatively similar except that additional traffic could increase the potential for accidents than under the No Action alternative. There would be no increase to electric or magnetic fields or stray voltage.

3.6.6.4 Cumulative Effects

No substantive direct, indirect, or cumulative noise impacts would result from the Proposed Project or the No Action Alternative.

3.6.7 CULTURAL RESOURCES

Cultural resources include archaeological and historical sites, buildings, structures, and objects of historic, scientific, or social value, or places of spiritual and cultural significance. The primary legislation that mandates Federal management and protection of cultural resources is the National Historic Preservation Act (NHPA) of 1966 (as amended in 1976, 1980 and 1992), specifically Section 106, and its implementing regulations in 36 CFR 800. Also considered are the Protection of Unmarked Human Burials Act (ND Century Code 23-06-27), and the Protection of Historic and Prehistoric Sites (ND Century Code 55-02.07) If Section 106

regulations are triggered, consultation with the North Dakota State Historic Preservation Office (SHPO), tribes, and interested members of the public would need to be completed.

In compliance with the Section 106 regulations, a Class I cultural resources records search was performed by Metcalf Archeological Consultants, Inc (Metcalf) in July 2008, for previous surveys and reports that had been conducted within one mile of the proposed transmission line, the proposed Mountain Substation, and access roads. The records search included a review of existing cultural resources documentation on file at the SHPO and a review of Government Land Office (GLO) records and maps.

In addition, a Class III intensive pedestrian survey was conducted within the Area of Potential Effect (APE), including within a 150-foot-wide corridor centered on the transmission line, which included portions of the proposed Mountain Substation and within a 100-foot-wide corridor centered along the temporary access roads. The surveys were conducted in July and November 2008. A small portion of the proposed Mountain Substation facility site (approximately 1 acre) was not surveyed in 2008. The area missed would be surveyed as soon as weather allows in the spring of 2009 and an addendum report would be submitted to the SHPO for review and concurrence.

3.6.7.1 Existing Environment

Archaeological and Historic Resources

Nineteen previously recorded surveys or investigations fall within one mile of the APE in Dunn County. The SHPO files indicate that there are 55 previously recorded historic properties within one mile of the project. The historic properties are composed of 41 archaeological sites, six isolated finds, six historic sites, and two architectural structures. The vast majority of the identified resources are cultural material or lithic scatters. The Class I literature search revealed that all previously recorded sites are located well away and outside the study area with exception of one. That one site was not relocated during the field inventory and is believed to have been lost to erosion.

During the Class III archeological survey, seven archaeological sites and eight isolated finds were identified. No historic resources were found during the field surveys, only pre-historic archaeological sites. One previously recorded lithic scatter within the APE could not be re-located, as noted above. No historic structures survey was completed, because no buildings or structures are located within the APE.

Eight Native American Tribes or Communities have historical affiliation to the general study area. Consultations with these tribes were initiated by Western in September 2008. The Tribes or Communities contacted are identified in section 4.3. Based on these consultations, no traditional cultural properties (TCP) have been identified within the APE. No Native American Religious Concerns were identified.

3.6.7.2 Environmental Consequences

A significant impact to cultural resources would occur under the following condition: Unmitigated adverse effect to an eligible cultural resource or traditional cultural property

Proposed Project

The Proposed Project would not result in an adverse impact to cultural resources. Since only archaeological resources were identified within the APE, permanent operational impacts to these properties can be avoided where necessary by spanning the archaeological site areas. Construction impacts to these properties can also be avoided where necessary by avoiding the archeological site areas. The properties would be marked in the field with lath and flagging tape or temporary fencing prior to construction so the areas would be avoided by construction crews. In the event that an unanticipated discovery of cultural resources occurs during construction, MEC and Western would stop construction work in the vicinity of the discovery, notify the SHPO and Western's archaeologist, and the significance of the find would be evaluated to ensure no significant impacts to cultural resources would occur. In the event an impact may occur, MEC would cooperate with the SHPO and Western to develop an appropriate treatment plan to address any impacts.

No traditional cultural properties or areas of Native American Religious Concerns were identified in the APE that would be affected by the Proposed Project.

No Action (No-build)

As discussed in the section 2.5.1, if the transmission line is not built an increase in the number and density of oil and gas extraction wells on the ground surface, and an increase in the use of associated small, noisy and inefficient power generating engines to facilitate continued oil and gas development could result. Alternatively, the oil and gas developers could chose to use louder, less efficient local power sources (e.g., large diesel- or natural gas-driven engines) for enhanced recovery methods which would require regular refueling through local supply lines or delivery systems.

The exact locations and scope of these future developments are not known. This information is generally confidential and proprietary; therefore, it is difficult to define exactly what impacts to cultural resources would occur under the No Action alternative. However, it is likely that greater impacts could occur if more drill sites are developed due to the associated increase in number of well pads, access roads, and supporting utilities. The impacts are also likely to be greater under the enhanced recovery scenario as the increased of number of fuel supply lines increase the probability of encountering a cultural site.

Cumulative Impacts

No significant direct, indirect, or cumulative impacts to cultural resources would result from the Proposed Project or the No Action Alternative.

3.7 CUMULATIVE EFFECTS

The CEQ Regulations for Implementing the Procedural Provisions of the NEPA defines cumulative impacts as:

> … the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).

Cumulative impacts are considered direct effects, which are "caused by the action and occur at the same time and place" (40 CFR 1508.8). The CEQ regulations require a discussion of cumulative actions and connected actions in the scope of the environmental review. These terms are defined as follows:

- Cumulative actions are those "which when viewed with other Proposed Actions have cumulatively significant impacts and should therefore be discussed in the same [environmental review]" [40 CFR 1508.25(a) (2)].
- Connected actions are those that are closely related. "Actions are connected if they: (i) automatically trigger other actions which may require environmental review; (ii) cannot or will not proceed unless other actions are taken previously or simultaneously; or (iii) are interdependent parts of a larger action and depend on that larger action for their justification" [40 CFR 1508.25(a) (1)].

Indirect effects, also termed secondary effects, are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8).

Cumulative impact analyses are based on the existing conditions and consider those issues identified in individual resource sections. Discussions focus on critical resources. The past, present, and reasonably foreseeable future projects are analyzed according to incremental impacts in combination with the Proposed Project.

3.7.1 PAST AND PRESENT

Agricultural practices, oil and gas development, vehicle travel along gravel and paved township, county, State, and Federal roadways and related vehicle travel, and operation of existing electric transmission facilities are the primary activities that have occurred and are presently occurring in the study area and more generally in Dunn County. Agricultural practices have dramatically changed the historic native prairie landscape into a primarily row crop and pasture landscape.

3.7.2 REASONABLY FORESEEABLE FUTURE

Reasonably foreseeable development activities and projects have been identified that may impact resources common to this Project. Projects considered as part of this analysis include:

- **Western Area Power Administration Killdeer Substation Upgrade:** Western is planning to upgrade their existing Killdeer Substation in 2011/2012. However, design has not yet been completed for the substation upgrade. This upgrade may occur later than 2012. The substation rebuild would include a permanent interconnection for the Proposed Project.
- **Oil and Gas Development:** Oil and gas development is ongoing in the study area. According to the North Dakota Department of Mineral Resources, over 500,000 barrels of oil have been produced in Dunn County. Currently, there are 18 rigs actively drilling in Dunn County (NDDMR 2008). Dunn County is located in a prime location of the Bakken formation. Production in the Bakken formation increased 329 percent from 2006 to 2007. Production is expected to increase. Advancements in drilling technology have allowed the expansion in the Bakken formation (ND Petroleum Council 2008).

Based on the current demand for new energy supplies, including crude oil, oil and gas development is likely to continue occurring for the foreseeable future. Information about the exact locations and scope of future developments was not available as it is generally confidential and proprietary. As a result, the specific well locations, the number of new wells, and associated impacts are not known at this time.

It is reasonable to assume that the oil and gas industry would have to comply with existing State and Federal regulations. The primary surface impacts of oil and gas development typically include ground-disturbing impacts at each drill site totaling about two acres. There may also be access roads and utility lines of various lengths, and tanks and other site facilities to stockpile and house equipment and supplies. These facilities would convert existing land use and vegetation to industrial purposes. In addition, transportation system impacts would occur related to vehicles transporting water, salt water, and site personnel. Noise is expected to increase depending on the number of wells and types of motors powering the wells. The viewshed of the area would also change as the number of oil rigs and collection pipelines increases across the landscape.

The potential cumulative impacts of these past, present and reasonably foreseeable projects evaluated as part of this environmental assessment are addressed in Chapter 3.0 for each resource area.

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4.0 AGENCIES CONTACTED AND CONSULTED

Several Federal, State, and local agencies were contacted. Results of correspondence with agencies are provided in appendix A.

4.1 FEDERAL AGENCIES

U.S. Fish and Wildlife Service
U.S. Department of Agriculture, Natural Resources Conservation Service
U.S. Farm Service Agency
U.S. Army Corps of Engineers

4.2 STATE AND LOCAL AGENCIES

North Dakota Department Fish and Game Department
North Dakota Parks and Recreation Department
North State Historic Preservation Office
North Dakota Department of Agriculture
North Dakota State Water Commission
North Dakota Department of Health
North Dakota State Land Department
Dunn County

4.3 NATIVE AMERICAN TRIBES AND COMMUNITIES

Cheyenne River Sioux Tribe
Fort Peck Tribes
Standing Rock Sioux Tribe
Northern Cheyenne Tribe
Oglala Sioux Tribe
Crow Tribal Council
Rosebud Sioux Tribe
Three Affiliated Tribes

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APPENDIX A
AGENCY CORRESPONDENCE

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

May 7, 2008

Ms. Trisha Teunissen
Design Engineer
HDR Engineering
Plaza Center Office Building
1025 North 3rd Street
Bismarck, ND 58501-3555

NDSHPO REF. : 08-0761 McKenzie Electric Cooperative RUS/RDUP/BER Killdeer 115kV Transmission Line (13.25 mi)Class I CRI and Class III CRI Recommendations

Dear Ms. Teunissen:

We have reviewed project correspondence and the Class I CRI for: **08-0761** McKenzie Electric Cooperative RUS/RDUP/BER Killdeer 115kV Transmission Line (13.25 mi) and find it acceptable. There is potential for unrecorded and recorded properties in physiographic settings in the Killdeer study area. We recommend that the proposed APE be subjected to Class III CRI [pedestrian survey] as part of the environmental assessment. Finally, we look forward to reviewing the Class III Cultural Resource Inventory report covering the investigations.

Also, if there are federal/state permits involved we strongly encourage consultation with those agencies to get their recommendations on the project at the earliest opportunity.

Thank you for the opportunity to review the project. If you have questions please contact either Susan Quinnell at (701) 328-3576 or Paul Picha at (701) 328-3574. Please include the **NDSHPO REF. :08-0761** in correspondence regarding the project.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)
and
Director, State Historical Society of North Dakota
c: Susan E. Wefald, President/Commissioner, Public Service Commission

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

May 8, 2008

Ms. Trisha Teunissen, EIT
HDR Engineering, Inc.
Plaza Center Office Building
1025 North 3rd Street
Bismarck, ND 58501-3555

Re: McKenzie County Electric Cooperative, Inc.
Killdeer 115 kV Transmission Line
HDR Project No. MCK75721.017, Dunn County

Dear Ms. Teunissen:

This department has reviewed the information concerning the above-referenced project submitted under date of May 5, 2008, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.

2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.

3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department's website or by calling the Division of Water Quality (701-328-5210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

4. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
1513 SOUTH 12TH STREET
BISMARCK ND 58504-6640

REPLY TO
ATTENTION OF

May 19, 2008

North Dakota Regulatory Office

HDR
Plaza Center Office Building
1025 North 3rd Street
Bismarck, ND 58501-3555
Attn: Trisha Teunissen, EIT

Dear Ms. Teunissen:

The following is in response to your May 5 and 6, 2008 letters requesting U.S. Army Corps of Engineers (Corps) review and comments on HDR project numbers KEM75719.005 and KEM75721.017, 41.6 kV and 115 kV Transmission Lines located in McIntosh and Dunn Counties, North Dakota.

The Omaha District of the Corps has responsibility for the administration of the Corps permit program in North Dakota (ND). Pursuant to Section 10 of the Rivers and Harbors Act work in navigable waters is regulated; navigable waters in ND are the Bois de Sioux River, Red River of the North, James River, Upper Des Lacs Lake, Missouri River and Yellowstone River. Section 404 of the Clean Water Act regulates the discharge of dredge or fill material (temporarily or permanently) into waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands.

Project impacts can be minimized by either avoiding discharges of fill material into waters of the United States, e.g., aligning the transmission lines around or boring under regulated waters.

For further assistance regarding our program, please do not hesitate to contact me at the letterhead address, by telephone (701-255-0015), or by e-mail (Daniel.E.Cimarosti@usace.army.mil). Application materials and additional information regarding the Corps permit program is available via the Internet at http://www.usace.army.mil/cw/cecwo/reg/index.html.

Sincerely,

Daniel E. Cimarosti
Regulatory Program Manager
North Dakota

United States Department of the Interior

BUREAU OF RECLAMATION
Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502

TAKE PRIDE IN AMERICA

DK-600
ENV-6.00

MAY 22 2008

Ms. Trisha Teunissen, EIT
Design Engineer
HDR Engineering, Inc.
Plaza Center Office Building
1025 North 3rd Street
Bismarck, ND 58501-3555

Subject: McKenzie Electric Cooperative, Inc.
HDR Project No. MCK75721.017
Environmental Report for Killdeer 115kV Transmission Line
and
KEM Electric Cooperative, Inc.
HDR Project No. KEM75719.005
Environmental Report for 41.6 kV Transmission Line

Dear Ms. Teunissen:

This letter is written to inform you that the information and maps provided were received and have been reviewed by Bureau of Reclamation staff.

The project areas depicted on the maps do not affect any Reclamation facilities and we have no comments on the proposed projects.

Thank you for providing the information and opportunity to comment. If you have any further questions, please contact Ron Melhouse at 701-221-1288.

Sincerely,

Joseph Hall, Chief
Resource Management

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501

MAY 16 2008

Ms. Trisha Teunissen, Design Engineer
HDR Engineering, Inc.
Plaza Center Office Building
1025 North 3rd Street
Bismarck, North Dakota 58501-3555

Re: McKenzie Electric Cooperative, Inc.
HDR Project No. MCK75721.017
Environmental Report for Killdeer 115kV
Transmission Line

Dear Ms. Teunissen:

This letter is in response to your request dated May 5, 2008, for environmental comments regarding the proposed McKenzie Electric Cooperative, Inc. (MEC) transmission line project. MEC proposes to construct 13.25 miles of 115kV overhead transmission line to connect the existing Killdeer substation with a proposed Mountain Distribution substation to support an additional load from oil related growth in the area. We offer the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d, 54 Stat. 250), the Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.), the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57), and the National Environmental Policy Act (NEPA) (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended).

The U.S. Fish and Wildlife Service (Service) holds certain resources in trust and manages them for the benefit of the American people. These resources include migratory birds, inter-jurisdictional fish, federally-listed threatened and endangered species of plants and animals and their habitats, and units of the National Wildlife Refuge system. When planning an activity, project proponents should give careful consideration to potential impacts to these trust resources and compliance with the laws mentioned above. Additional information is provided below.

Companies and individuals must ensure that their activities do not result in "take" of any migratory bird. Parties that violate the MBTA by killing birds face fines of up to $15,000 and/or imprisonment for up to 6 months. Higher penalties can be involved if the birds killed are bald or golden eagles or a species protected under the ESA. Prosecutions by the Service's Office of Law

Enforcement (OLE) and the Department of Justice (DOJ) focus on companies that kill birds with disregard to their actions and the law, especially when conservation measures are available but have not been implemented. The OLE protects migratory birds not only through investigating violations of the MBTA, but also by fostering relationships with individuals, companies, and industries that seek to eliminate impacts on these species. The OLE recognizes that some birds may be killed even if all reasonable measures to prevent such deaths are taken; however, it is important that industries continue to work toward eliminating these losses of migratory birds. While it is not possible under the MBTA to absolve individuals, companies, or agencies from liability if they follow recommended conservation practices, the OLE and DOJ have used enforcement and prosecutorial discretion in the past toward those who have made good faith efforts to avoid the take of migratory birds. A violation of BGEPA, including disturbing bald eagles, can result in a criminal fine of $200,000 for organizations, imprisonment for 1 year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of this Act is a felony. Violations of the ESA can result in a civil penalty of not more than $25,000 for each violation, and for criminal violations up to $50,000 or imprisonment for up to 1 year, or both. Thus, it is incumbent on any person to ensure that their proposed activities do not result in a violation, or if a violation occurs, that the activity has been fully coordinated with the Service in advance of construction and operation. The purpose of this letter is not to emphasize penalties, but to highlight the importance of ensuring compliance with these statutes by fully engaging with the Service early in the planning process to ensure that all relevant laws and regulations are complied with.

Migratory Birds

Adequate consideration for avian resources early in the project planning process can help to minimize impacts to migratory birds. To minimize the electrocution hazard to birds, the Service, with support from the Rural Utilities Service, recommends that new or updated overhead power lines be constructed in accordance with the current guidelines for preventing raptor electrocutions. The recommended guidelines can be found in "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996". To increase power line visibility and reduce bird fatalities resulting from collisions with power lines, the Service recommends new power lines that cross or run adjacent to rivers or large wetlands be modified according to "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994". Both publications can be obtained by writing or calling the Edison Electric Institute, P.O. Box 266, Waldorf Maryland 20604-0266, (1-800-334-5453) or visiting their website at www.eei.org.

Threatened and Endangered Species

A list of federally threatened and endangered species that may occur within the proposed project's area of influence is enclosed (enclosure 1).

The Aransas Wood Buffalo Population (AWBP) of whooping cranes is the only self-sustaining migratory population of whooping cranes remaining in the wild. These birds breed in the

wetlands of Wood Buffalo National Park in Alberta and the Northwest Territories of northern Canada, and overwinter on the Texas coast. Whooping cranes in the AWBP annually migrate through North Dakota during their spring and fall migrations.

Endangered whooping cranes have been documented using roosting/feeding habitat in the vicinity of the proposed transmission line route, which is located within a 120 mile-wide migration corridor that includes 85% of all confirmed whooping crane sightings in North Dakota (enclosure 2). The presence of suitable roosting and feeding habitat for whooping cranes along the proposed route, and confirmed whooping crane sightings, document the potential for whooping crane presence in the area. A new transmission line in this area has the potential to adversely affect whooping cranes during their annual spring and fall migration through North Dakota. Currently, collisions with power lines are the greatest known source of mortality for fledged whooping cranes, and have accounted for the death or serious injury of at least 46 whooping cranes since 1956.

Due to the transmission line route location within the whooping crane migration corridor, the Service recommends that conservation measures be included in the project, and that the project description be revised to include those measures. Conservation measures to avoid or reduce potential impacts to whooping cranes include, but are not limited to: burying all new electrical transmission lines; if new transmission lines cannot be buried, mark all new overhead transmission lines and an equal length of existing transmission/distribution lines with visual marking devices such as aviation marker balls, swinging plates, spiral vibration dampeners, or swan flight diverters to reduce the potential for whooping crane collision.

If you choose not to implement any of the recommended conservation measures, you must apply for, and receive a permit pursuant to Section 10(a)(1)(B) of the ESA prior to construction. Section 10(a)(1)(B) of the ESA allows non-Federal parties planning activities that have no Federal nexus, but which could result in the incidental taking of listed animals, to apply for an incidental take permit. (A Federal nexus exists whenever an activity is conducted, funded, or licensed or permitted by a Federal agency). The application must include a Habitat Conservation Plan (HCP) laying out the proposed actions, determining the effects of those actions on affected federally-listed fish and wildlife species and their habitats (often including proposed or candidate species), and defining measures to minimize and mitigate adverse effects. This process will need to be completed prior to project construction if the project is not modified to include conservation measures as specified above.

Fish and Wildlife Service Property Interests

The Service administers Waterfowl Production Areas owned in fee title as well as wetland and grassland easements throughout North Dakota. A review of Service realty records indicate no Service property interests are located in the planning area.

High Value Habitat Avoidance

The proposed project area is located near the Killdeer Mountain in the Missouri Slope Upland region of North Dakota and includes areas of native prairie and woody draws. Since the 1800s, North Dakota has lost approximately 75-90 percent of its native grasslands, primarily due to crop production. The Service recommends avoiding construction or disturbance on native prairie areas.

Our review of NWI maps indicate that stream channels and wetland areas are located within the project area. NWI data can be accessed directly by visiting their website at (wetlands.fws.gov). Section 404 of the Clean Water Act regulates placement of fill materials in certain wetlands. A Corps of Engineers' 404 permit may be required if fill material will be placed in aquatic sites including wetlands. Contact Mr. Dan Cimarosti, Regulatory Office, Corps of Engineers, 1513 South 12th Street, Bismarck, North Dakota 58504 (701-255-0015), to determine their permit requirements. If a 404 permit is required, the Service will provide recommendations on this project to the Corps.

Other high value wildlife habitat types in North Dakota include wooded draws and riparian forests. We recommend that you avoid construction in the above habitat types whenever possible.

Construction activities should be conducted in a manner that will minimize impacts to the wildlife and the existing habitat in the project area. To help avoid impacts, we recommend that you:

- Schedule construction for late summer or fall/early winter so as not to disrupt waterfowl or other wildlife during the breeding season (February 1 to July 15). If work is proposed to take place during the breeding season or at any other time which may result in the take of migratory birds or active nests, the Service recommends that the project proponent arrange to have a qualified biologist conduct a field survey of the affected habitats to determine the absence or presence of nesting migratory birds. If nesting migratory birds are found, we request you contact this office, suspend construction, or take other measures, such as maintaining adequate buffers, to protect the birds until the young have fledged. The Service further recommends that field surveys for nesting birds, along with information regarding the qualification of the biologist(s) performing the surveys, and any avoidance measures implemented at the project site, be throughly documented and that such documentation be shared with the Service and maintained on file by the project proponent at least until such time as construction on the proposed project has been completed.
- Avoid construction in native prairie, if possible, and reseed disturbed native prairie with a comparable native grass/forb seed mixture. Obtain seed stock from nurseries within 250 miles of the project area to insure the particular cultivars are well adapted to the local climate.

- Locate poles and other construction to avoid placement of fill in wetlands along the route.
- Install and maintain appropriate erosion control measures to reduce sedimentation and water quality degradation of wetlands and streams near the project area.
- Replace unavoidable wetland losses with functionally equivalent wetlands and replace trees removed to facilitate construction at a 2:1 ratio.

Please provide a response to these comments, indicating how you intend to address the potential wildlife impacts outlined herein. Given the Service requirements and recommendations above, as well as possible unforeseen issues that may arise, we encourage you to build sufficient planning time for coordination with the Service into your project timeline. Thank you for the opportunity to comment. If you require further information as project planning proceeds, please contact Terry Ellsworth of my staff, or contact me directly, at (701) 250-4481, or at the letterhead address.

Sincerely,

Jeffrey K. Towner

Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

Enclosures (2)

cc: Regulatory Office, Army Corps of Engineers, Bismarck
(Attn: D. Cimarosti)
ND Public Service Commission, Bismarck
Director, ND Game & Fish Department, Bismarck
(Attn: M. McKenna)

FEDERAL THREATENED, ENDANGERED, AND CANDIDATE SPECIES
AND DESIGNATED CRITICAL HABITAT FOUND IN
MCKENZIE COUNTY, NORTH DAKOTA

ENDANGERED SPECIES

Birds

Interior least tern (Sterna antillarum): Nests along midstream sandbars of the Missouri and Yellowstone Rivers.

Whooping crane (Grus Americana): Migrates through west and central counties during spring and fall. Prefers to roost on wetlands and stockdams with good visibility. Young adult summered in North Dakota in 1989, 1990, and 1993. Total population 140-150 birds.

Fish

Pallid sturgeon (Scaphirhynchus albus): Known only from the Missouri and Yellowstone Rivers. No reproduction has been documented in 15 years.

Mammals

Black-footed ferret (Mustela nigripes): Exclusively associated with prairie dog towns. No records of occurrence in recent years, although there is potential for reintroduction in the future.

Gray wolf (Canis lupus): Occasional visitor in North Dakota. Most frequently observed in the Turtle Mountains area.

THREATENED SPECIES

Birds

Piping plover (Charadrius melodus): Nests on midstream sandbars of the Missouri and Yellowstone Rivers and along shorelines of saline wetlands. More nest in North Dakota than any other state.

CANDIDATE SPECIES

Invertebrates

Dakota skipper (Hesperia dacotae): Found in native prairie containing a high diversity of wildflowers and grasses. Habitat includes two prairie types: 1) low (wet) prairie dominated by bluestem grasses, wood lily, harebell, and smooth camas; 2) upland (dry) prairie on ridges and hillsides dominated by bluestem grasses, needlegrass, pale purple and upright coneflowers and blanketflower.

DESIGNATED CRITICAL HABITAT

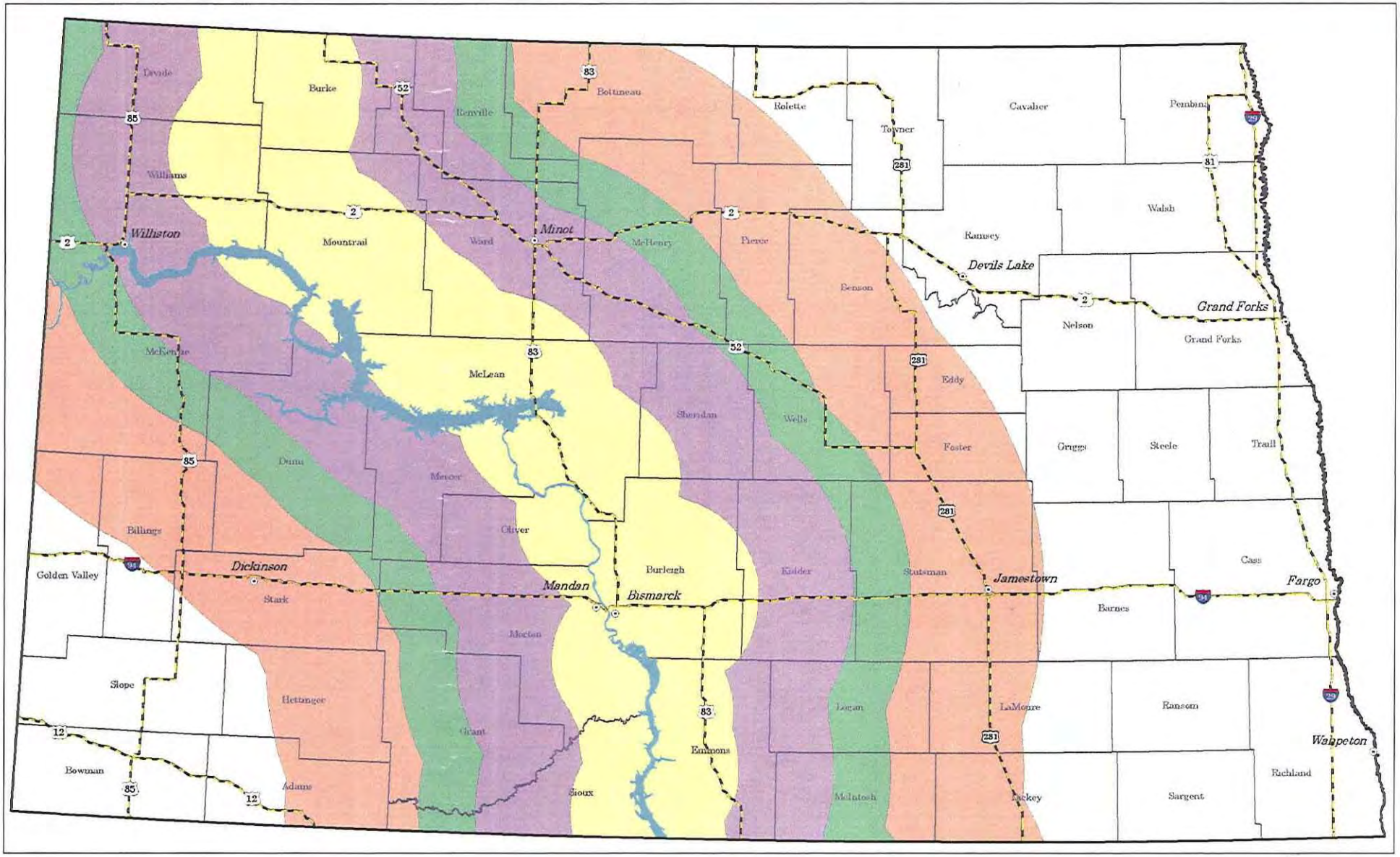
Birds

Piping Plover - Alkali Lakes and Wetlands - Critical habitat includes: (1) shallow, seasonally to permanently flooded, mixosaline to hypersaline wetlands with sandy to gravelly, sparsely vegetated beaches, salt-encrusted mud flats, and/or gravelly salt flats; (2) springs and fens along edges of alkali lakes and wetlands; and (3) adjacent uplands 200 feet (61 meters) above the high water mark of the alkali lake or wetland.

U.S. Fish & Wildlife Service

Selected Percentages Of Whooping Crane Sightings

North Dakota



PRODUCED BY ECOLOGICAL SERVICES
BISMARCK, NORTH DAKOTA
MAP DATE: 03/18/08
SIGHTINGS THROUGH SPRING 2007
FILE: TOWERS_NOLOCATIONS.MXD

0 12.5 25 50 Miles

0 12.5 25 50 Kilometers

Map Features

- Major Roads
- County Boundaries
- Missouri/Yellowstone River System

Percent Whooping Crane Sightings

- Approx. 50% (40 mile corridor)
- Approx. 75% (90 mile corridor)
- Approx. 85% (120 mile corridor)
- Approx. 95% (180 mile corridor)

N

NAD 83
UTM ZONE 14

"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

May 13, 2008

Trisha Teunissen, EIT
Design Engineer
HDR Engineering, Inc.
Plaza Center Office Building
1025 North 3rd Street
Bismarck, ND 58501-3555

Dear Ms. Teunissen:

RE: McKenzie Electric Cooperative, Inc. - Killdeer 115kV Transmission Line
HDR Project No. MCK75721.017

The North Dakota Game and Fish Department has reviewed this project for wildlife concerns. National Wetland Inventory maps indicate various wetlands within the proposed project corridor. We recommend that steps be taken to protect any wetlands that cannot be avoided, above-ground appurtenances not be placed in wetland areas, and existing drainage patterns be maintained. We also ask that every effort be made to avoid destruction of woody vegetation, and disturbed areas be seeded with suitable native grass and forb species where appropriate.

Sincerely,

Steve Dyke

(for) Michael G. McKenna
Chief
Conservation & Communication Division

js

North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: http://swc.nd.gov

June 4, 2008

Trisha Teunissen
HDR
1025 North 3rd Street
Bismarck, ND 58501-3555

Dear Ms. Teuissen:

This is in response to your request for review of environmental impacts associated with the McKenzie Electric Cooperative Inc. (MCK75721.017).

The proposed project have been reviewed by State Water Commission staff and the following comments are provided:

- The property is not located in an identified floodplain and it is believed the project will not affect an identified floodplain.

- All waste material associated with the project must be disposed of properly and not placed in identified floodway areas.

- No sole-source aquifers have been designated in ND.

There are no other concerns associated with this project that affect State Water Commission or State Engineer regulatory responsibilities.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 328-4969.

Sincerely,

Larry Knudtson
Research Analyst

LJK:ds/1570

John Hoeven, Governor
Douglass A. Prchal, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

September 25, 2008

Laura Lutz-Zimmerman
HDR Engineering, Inc.
303 E. 17th Avenue, Suite 700
Denver, CO 80203

Re: McKenzie Electric Cooperative Killdeer to Mountain Transmission Line Project

Dear Ms. Lutz-Zimmerman:

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced project proposal to build a 13-mile-long 115kV transmission line and new substation located in Sections 6, 7, 8, 9, 16, 21, 22, 26, and 27, T145N, R95W; Section 1, T145N, R96W; Sections 12, 24, 25, and 36, T146N, R96W; and Section 7, T146N, R95W, Dunn County.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, several occurrences have been identified within or adjacent to the project area including: *Distichlis spicata – Hordeum jubatum/Puccinellia nuttalliana saline meadow* (saltgrass saline meadow), *Pascopyrum smithii – Bouteloua gracilis/Carex filifolia prairie* (Western wheatgrass prairie), *Quercus macrocarpa/ Corylus cornuta woodland* (bur oak-hazelnut woodland), and *Phyciodes batesii* (tawny crescent). Please see attached spreadsheet and map for more specific information on these species. We defer further comments regarding animal species to the North Dakota Game and Fish Department and the United States Fish and Wildlife Service.

Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

The Department recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

It is our policy to charge out-of-state requests for data services including data retrieval, data analysis, manual and computer searches, packaging and collection of data. An invoice for services provided has been enclosed.

Thank you for the opportunity to comment on this project. Please contact Kathy Duttenhefner (701-328-5370 or kgduttenhefner@nd.gov) of our staff if additional information is needed.

Sincerely,

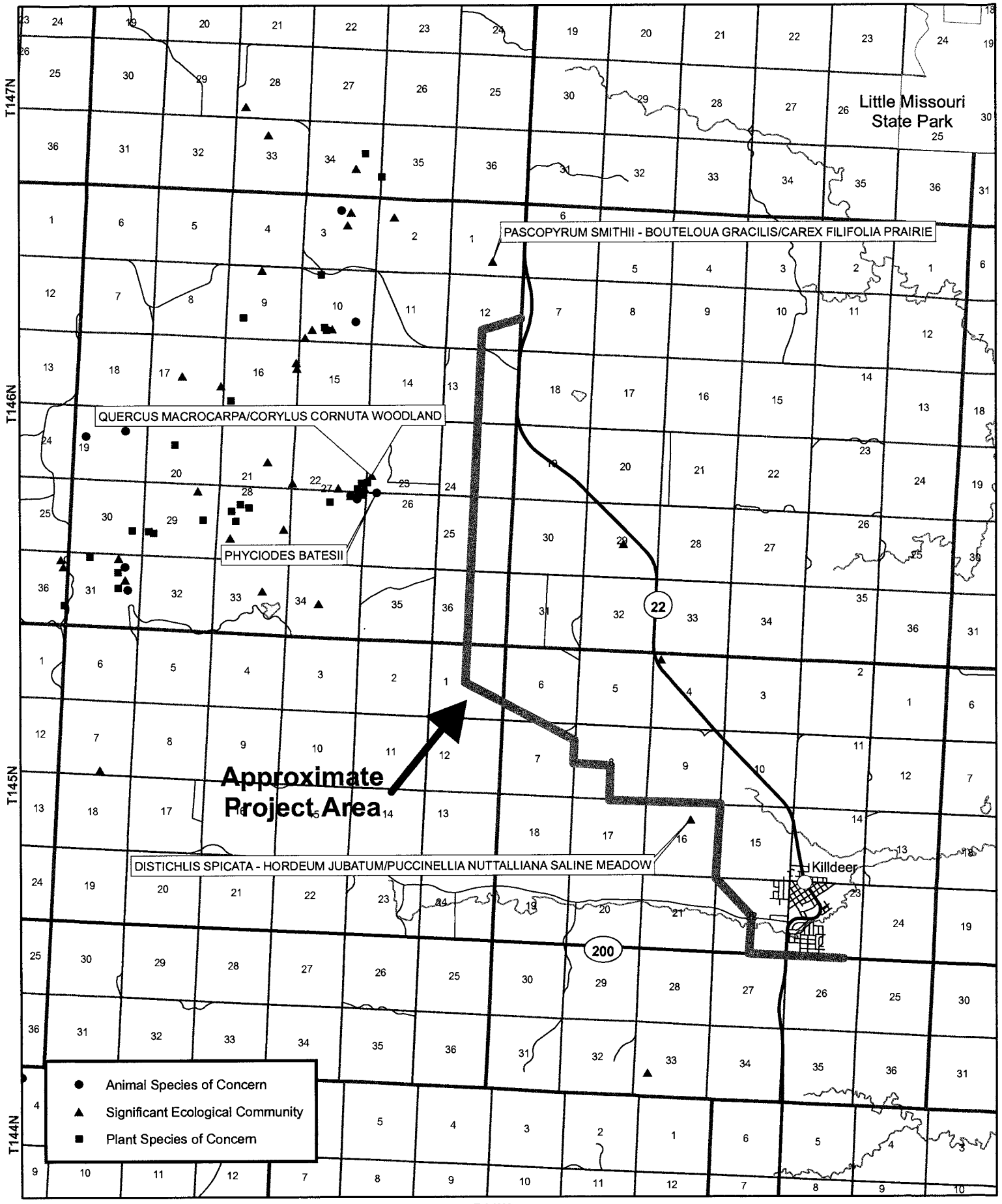
Jesse Hanson

Jesse Hanson, Coordinator
Planning and Natural Resources Division

R.USNDNHI*2057

Play in our backyard!

North Dakota Natural Heritage Inventory
Species of Concern and Significant Ecological Communities



North Dakota Parks & Recreation Department
North Dakota Natural Heritage Inventory
September 2008

North Dakota Natural Heritage Inventory
Species of Concern and Significant Ecological Communities

State Scientific Name	State Common Name	Township & Range	Section	TRS Notes	State Rank	Global Rank	Federal Status	Last Observation
DISTICHLIS SPICATA - HORDEUM JUBATUM/ PUCCINELLIA NUTTALLIANA SALINE MEADOW	SALTGRASS SALINE MEADOW	145N095W	9	NW4NE4	S2S3			1976
PASCOPYRUM SMITHII - BOUTELOUA GRACILIS/ CAREX FILIFOLIA PRAIRIE	WESTERN WHEATGRASS PRAIRIE	146N096W	1		S3S4			1935-08-07
PHYCIODES BATESII	TAWNY CRESCENT	146N096W	23	SW1/4	S3	G4		1990-06-19
QUERCUS MACROCARPA/CORYLUS CORNUTA WOODLAND	BUR OAK-HAZELNUT WOODLAND	146N096W	23		S2			1982-08-05

9/24/2008

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

September 26, 2008

Mr. Rod O'Sullivan
Western Area Power Administration
P.O. Box 35800
Billings, MT 59107-5800

Re: McKenzie Electric Cooperative's Proposed
New 115 kV Transmission Line, Dunn County

Dear Mr. O'Sullivan:

This department has reviewed the information concerning the above-referenced project with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.

2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.

3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department's website or by calling the Division of Water Quality (701-328-5210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

4. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
1513 SOUTH 12TH STREET
BISMARCK ND 58504-6640

REPLY TO
ATTENTION OF

September 25, 2008

North Dakota Regulatory Office

Western Area Power Administration
Attn: Mr. John Skurupey, MEC
PO Box 649
908 4th Ave NE
Watford City, North Dakota 58854

Dear Mr. Skurupey:

This is in response to your letter received **September 24, 2008**, requesting Department of the Army (DA), US Army Corps of Engineers (Corps) comments on a proposal to construct a new 115-kilovolt (kV) transmission line and a new substation in Dunn County, North Dakota.

Corps Regulatory Offices administer Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Section 10 of the Rivers and Harbors Act regulates work in or affecting navigable waters. This would include work over, through, or under a Section 10 water. Section 404 of the Clean Water Act regulates the discharge of dredge or fill material (temporarily or permanently) in waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands. Fill material include, but is not limited to, rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mines or other excavation activities and materials used to create any structure or infrastructure in the waters of the United States.

If this project would require a Section 10 and/or Section 404 permit, please complete and submit the enclosed Corps of Engineers permit application to the U S Army Corps of Engineers, North Dakota Regulatory Office, 1513 South 12th Street, Bismarck, North Dakota 58504. If you are unsure if a permit is required, you may submit an application, or, a letter requesting a jurisdictional determination. Include a project location map, description of work, and construction methodology when submitting either.

If we can be of further assistance or should you have any questions regarding our program, please do not hesitate to contact this office by letter or phone at (701) 255-0015.

Sincerely,

Daniel E. Cimarosti

Daniel E. Cimarosti
Regulatory Program Manager
North Dakota

Enclosure (Application)

Instructions for Preparing a
Department of the Army Permit Application

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name of the responsible party or parties. If the responsible party is an agency, company, corporation or other organization, indicate the responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked **Block 5.**

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he/she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project (i.e., Landmark Plaza, Burned Hills Subdivision or Edsall Commercial Center).

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter here.

Block 15. Location of Proposed Project. Enter the county and state where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Section, Township and Range of the site and/or the latitude and longitude. You may also provide description of the proposed project location, such as lot numbers, tract numbers or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile down from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site.

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wingwalls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles or float supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20. Reason(s) for Discharge. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Block 21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22. Surface Areas of Wetlands or Other Waters Filled. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked **Block 22.**

Block 23. Is Any Portion of the Work Already Complete? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square wet). if tile work was done under an existing Corps permit, identify the authorization if possible.

Block 24. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county of counties where the project is to be developed.

Block 25. Information about Approvals or Denials by Other Agencies. You may need the approval of other Federal, state or local agencies for your project. identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 26. Signature of Applicant or Agent. The application must be signed by the owner or other authorized party (agent) . This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a **Vicinity Map, a Plan View or a Typical Cross-Section Map**. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8 I/2x1 1 inch plain white paper (tracing paper or film may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view or cross-section). **While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate and contain all necessary information.**

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT (33 CFR 325)	OMB APPROVAL NO. 0710-0003 Expires December 31, 2004

The Public burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research and Sanctuaries Act, 33 USC 1413, Section 103. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE *(an agent is not required)*
6. APPLICANT'S ADDRESS	7. AGENT'S ADDRESS
7. APPLICANT'S PHONE NOS. W/AREA CODE	10. AGENT'S PHONE NOS. W/AREA CODE
a. Residence b. Business	a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

I hereby authorize _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____

APPLICANT'S SIGNATURE DATE

NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE *(see instructions)*

13. NAME OF WATERBODY, IF KNOWN *(if applicable)*	14. PROJECT STREET ADDRESS *(if applicable)*
15. LOCATION OF PROJECT _____ _____ COUNTY STATE	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

17. DIRECTIONS TO THE SITE

18. Nature of Activity *(Description of project, include all features)*

19. Project Purpose *(Describe the reason or purpose of the project, see instructions)*

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled *(see instructions)*

23. Is Any Portion of the Work Already Complete? Yes _____ No _____ IF YES, DESCRIBE THE COMPLETED WORK

24. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

25. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

*Would include but is not restricted to zoning, building and flood plain permits

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT _____ DATE _____ SIGNATURE OF AGENT _____ DATE _____

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

December 4, 2008

Mr. David W. Kluth
Regional Archaeologist
Department of Energy
Western Area Power Administration
Upper Great Plains Region
PO Box 35800
Billings MT 59107-5800

ND SHPO Ref.:08-0761 WAPA McKenzie Electric Cooperative Inc. Killdeer 115-kV Transmission Project, Dunn County, North Dakota

Dear Mr. Kluth,

We reviewed ND SHPO Ref.:08-0761 WAPA McKenzie Electric Cooperative Inc. Killdeer 115-kV Transmission Project, Dunn County, North Dakota and concur with a "No Historic Properties Affected determination, provided the project is of the nature specified and takes place in the mapped location provided. We further concur with your additional stipulations that Sites 32DU1386 and 32DU1389 are avoided during siting of the pole locations. And that the locations of sites 32DU1386 and 32DU1389 will be marked in the field with lath and flagging tape or temporary fencing prior to construction so as to be avoided by construction crews.

Thank you for the opportunity to review this project. Please include the ND SHPO reference number listed above in any further correspondence for this specific project. If you have any questions, please contact Susan Quinnell at 701-328-3576, or squinnell@nd.gov

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)

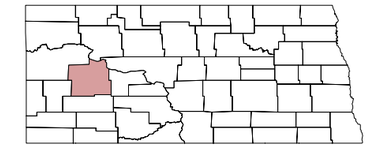
APPENDIX B
WATER RESOURCES FIGURES

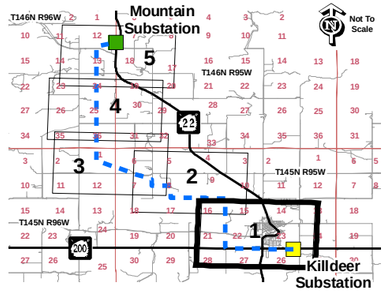
Killdeer to Mountain Transmission Line

Western Area Power Administration

Water Resources

North Dakota, Dunn County





Existing Substation
Proposed Substation
Proposed Access Roads
Proposed Line
Existing Transmission Line
City Boundary
Streams
Delineated Wetlands in ROW
Delineated Wetlands outside ROW

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 1

Wet 5
Wet 4
Wet 3
Wet 2B
Wet 2A
Wet 1
Killdeer
Killdeer Substation
Township 145-N
Range 95-W
Gumbo Creek
Spring Creek
Cemetery
105TH AVE SW
103RD AVE SW
3 1/2 ST SW
3RD ST SW
LINCOLN ST
FETTIG DR
DAKOTA ST
1ST AVE
2ND AVE
3RD AVE
4TH AVE
5TH AVE
1ST AVE E
2ND AVE E
3RD AVE E
4TH AVE E
3RD ST
2ND ST
1ST ST
1ST AVE W
2ND AVE W
3RD AVE W
4TH AVE W
MAIN ST
RAILROAD ST
RODEO DR
GUMBO LOOP CT
HAUGEN DR
TABOR DR
HILLTOP DR
BREW ST
13
14
15
16
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24
25
26
27
28
200
22

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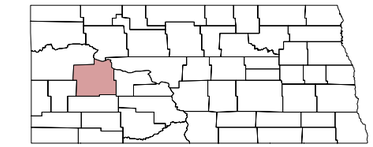
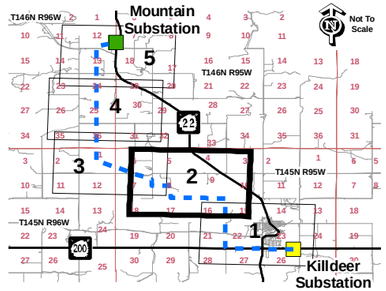
Killdeer to Mountain Transmission Line

Western Area Power Administration

Water Resources

North Dakota, Dunn County





Township 145-N
Range 95-W

CENTER ST
107TH AVE NW
107TH AVE SW
105TH AVE SW
1ST ST SW
22
200
Weydahl Field
Gumbo Creek

Wet 9
Wet 8
Wet 7
Wet 6
Wet 5

- Existing Substation
- Proposed Substation
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- Proposed Line
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- Delineated Wetlands outside ROW

0 0.25 0.5 Miles

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November 2008

Sheet 2

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Killdeer to Mountain Transmission Line

Western Area Power Administration

Water Resources

Township 146-N
Range 96-W

Township 146-N
Range 95-W

Township 145-N
Range 95-W

Township 145-N
Range 96-W

CENTER ST

1ST ST SW

109TH AVE NW

108TH AVE NW

107TH AVE NW

109TH AVE SW

108TH AVE SW

107TH AVE SW

Gumbo Creek

Wet 14

Wet 13

Wet 12

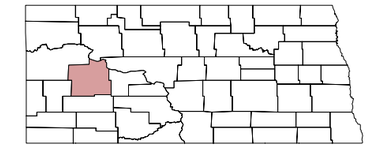
Wet 11

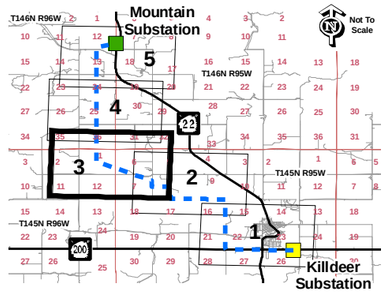
Wet 10

Wet 9

35 36 31 32 1 6 5 2 11 12 7 8

North Dakota, Dunn County





- Existing Substation
- Proposed Substation
- Proposed Access Roads
- Proposed Line
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- Delineated Wetlands outside ROW

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November 2008

Sheet 3

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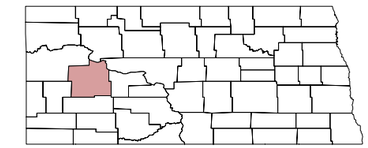
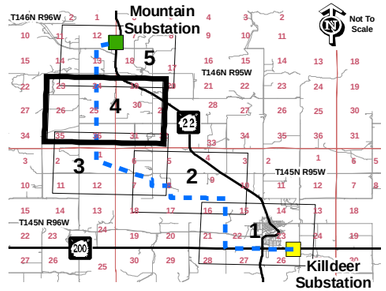
Killdeer to Mountain Transmission Line

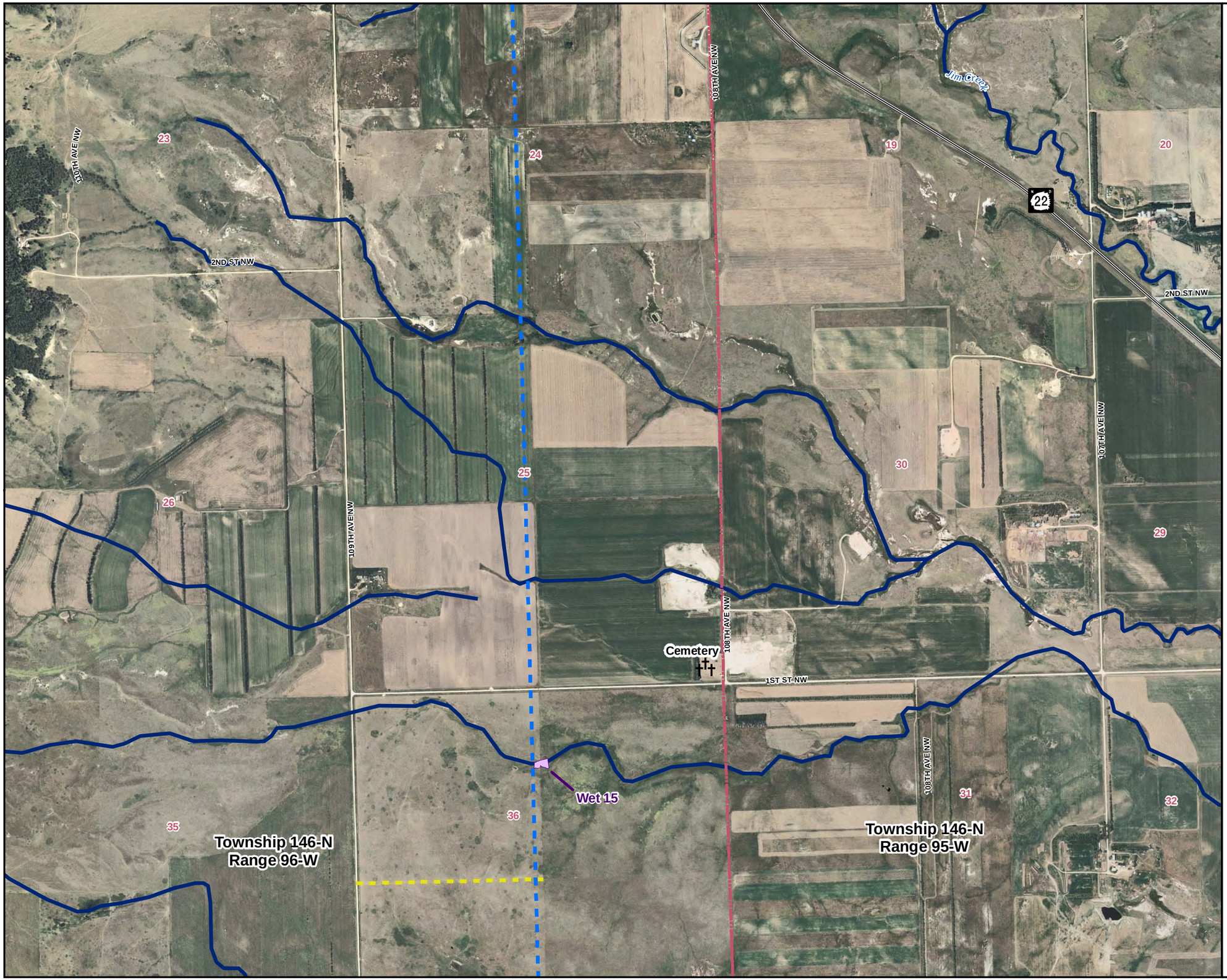
Western Area Power Administration

Water Resources

North Dakota, Dunn County







Existing Substation
Proposed Substation
Proposed Access Roads
Proposed Line
Existing Transmission Line
City Boundary
Streams
Delineated Wetlands in ROW
Delineated Wetlands outside ROW

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 4

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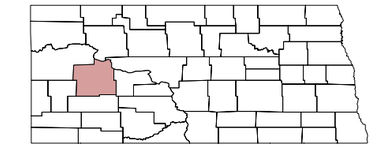
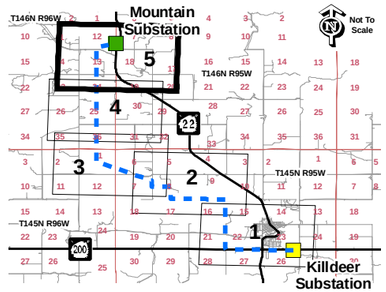
Killdeer to Mountain Transmission Line

Western Area Power Administration

Water Resources

North Dakota, Dunn County





Existing Substation
Proposed Substation
Proposed Access Roads
Proposed Line
Existing Transmission Line
City Boundary
Streams
Delineated Wetlands in ROW
Delineated Wetlands outside ROW

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 5

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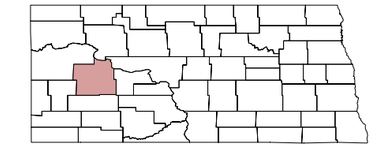
APPENDIX C
LAND AND LAND COVER FIGURES

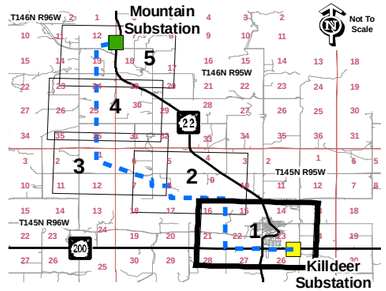
Killdeer to Mountain Transmission Line

Western Area Power Administration

Land And Land Cover

North Dakota, Dunn County





- Existing Substation
- Proposed Substation
- Proposed Access Roads
- Proposed Line
- Existing Transmission Line
- City Boundary
- Streams
- Delineated Wetlands
- Other Wetlands
- NWI Wetlands
- Wooded
- Grazed Pasture
- Hay Land
- Crop Land
- Elk Farm
- Farmstead
- Residential
- Commercial / Industrial
- Road / Grass ROW

Land use shown is 1/4 mile to each side of proposed transmission line.

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 1

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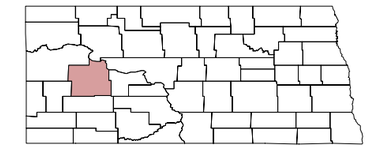
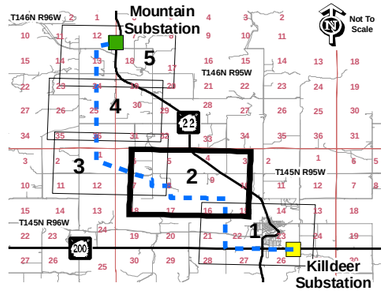
Killdeer to Mountain Transmission Line

Western Area Power Administration

Land And Land Cover

North Dakota, Dunn County





Existing Substation
Proposed Substation
Proposed Access Roads
Proposed Line
Existing Transmission Line
City Boundary
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Other Wetlands
NWI Wetlands
Wooded
Grazed Pasture
Hay Land
Crop Land
Elk Farm
Farmstead
Residential
Commercial / Industrial
Road / Grass ROW

Land use shown is 1/4 mile to each side of proposed transmission line.

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 2

Township 145-N
Range 95-W

CENTER ST
107TH AVE NW
107TH AVE SW
105TH AVE SW
1ST ST SW
Weydahl Field
Gumbo Creek

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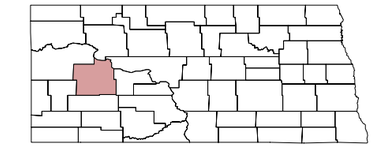
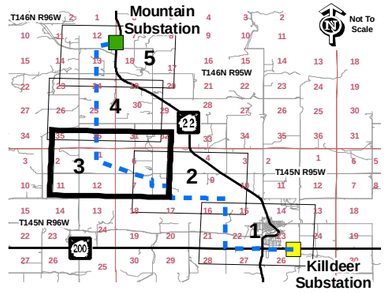
Killdeer to Mountain Transmission Line

Western Area Power Administration

Land And Land Cover

North Dakota, Dunn County





Township 146-N Range 96-W

Township 146-N Range 95-W

Township 145-N Range 95-W

Township 145-N Range 96-W

CENTER ST

1ST ST SW

109TH AVE NW

108TH AVE NW

107TH AVE NW

109TH AVE SW

108TH AVE SW

107TH AVE SW

Gumbo Creek

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- Road / Grass ROW

Land use shown is 1/4 mile to each side of proposed transmission line.

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 3

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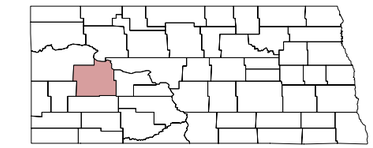
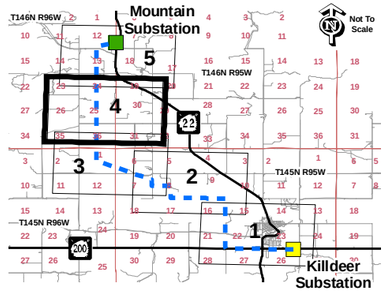
Killdeer to Mountain Transmission Line

Western Area Power Administration

Land And Land Cover

North Dakota, Dunn County





- Existing Substation
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Land use shown is 1/4 mile to each side of proposed transmission line.

0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 4

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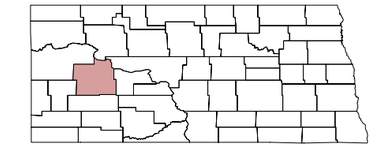
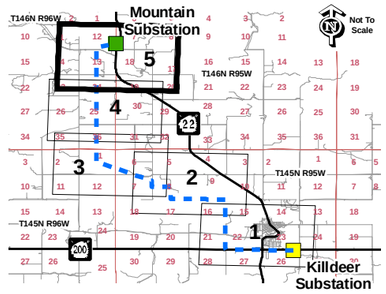
Killdeer to Mountain Transmission Line

Western Area Power Administration

Land And Land Cover

North Dakota, Dunn County





- Existing Substation
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0 0.25 0.5 Miles

1 inch equals 0.25 miles

November 2008

Sheet 5

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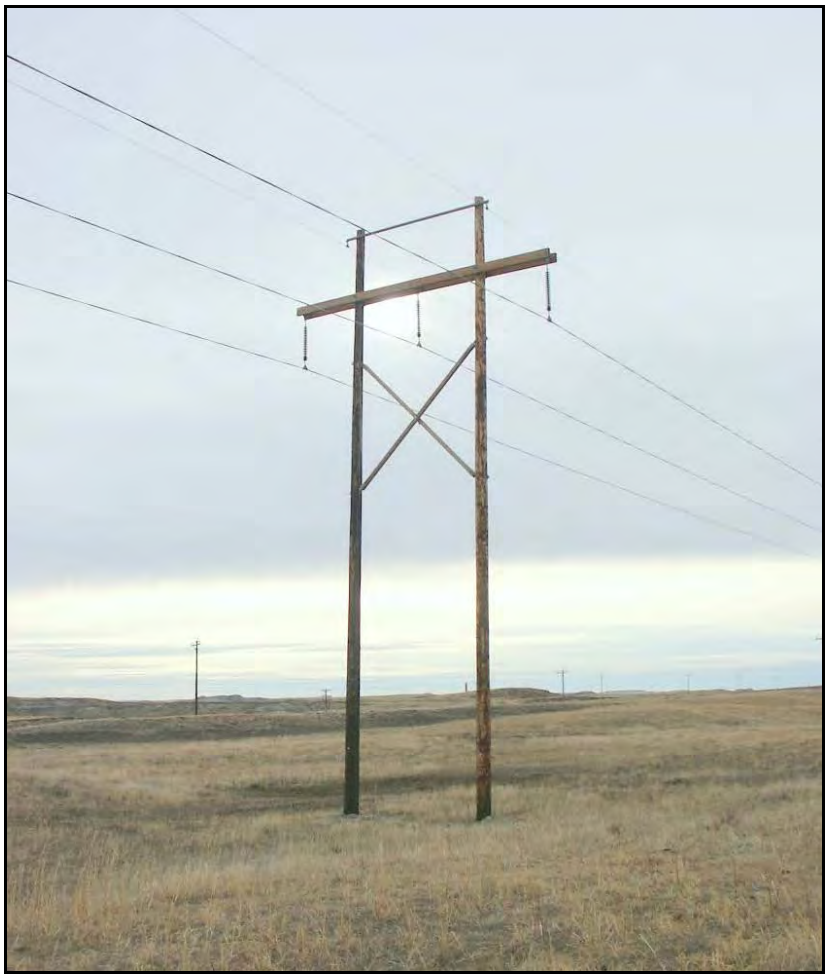
APPENDIX D
AVIAN PROTECTION PLAN

McKenzie Electric Cooperative
Killdeer to Mountain Transmission Line Project
Avian Protection Plan
April 2009



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1.2.1 Federal Bird Protection Laws 1
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Appendix B: Bird Diverter Locations
Appendix C: Avian Reporting Form

1.0 Introduction

McKenzie Electric Cooperative (MEC) is proposing to construct, own, and operate a new 115-kilovolt (kV) transmission line in Dunn County, North Dakota. The new transmission line is approximately 13 miles long and would connect Western Area Power Administration's (Western) existing Killdeer Substation, near the south side of the city of Killdeer, to a new MEC Mountain Substation to the northwest. An overview map of the project is provided in Appendix A. This Avian Protection Plan was prepared to be project specific; however, the concepts herein may be adapted to other MEC power lines as needed.

1.1 *Scope*

An Avian Protection Plan (APP) is a program designed to protect and conserve migratory birds by reducing the risks that result from avian contact with utility facilities. MEC is implementing this APP for the proposed new Killdeer to Mountain 115-kV transmission line project. This APP is intended to:

- Reduce avian mortality or injuries associated with the new facilities
- Improve electrical reliability to customer-owners
- Provide a level of compliance with applicable laws, regulations, and permits in regard to avian species.

1.2 *Background*

Two types of interactions with power lines, electrocutions and collisions, are of particular threat to avian species. Birds with large wingspans and/or heavy bodies (e.g. waterfowl, eagles, hawks, and owls) are particularly susceptible to collisions and electrocution. In addition to the possibility of avian injury or death, these avian interactions with power lines may cause power outages, which represent added cost and inconvenience for MEC and its customers.

Three Federal laws in the United States provide legal protection for almost all native avian species. These laws include the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and the Endangered Species Act.

A brief discussion of the applicable laws and affects on electrical reliability are included in the sections below. Avian power line use, electrocutions, collisions are discussed in section 1.3.

1.2.1 Federal Bird Protection Laws

Most birds killed by contacting power lines are protected by the Migratory Bird Treaty Act (MBTA). There are only a few species of birds that are NOT protected by law. These include the house sparrow, European starling, and rock dove (common pigeon), non-migratory upland game birds, and introduced/exotic species. A full list of federally-protected migratory birds is available in 50 CFR Part 10.13. The U.S. Fish and Wildlife Service (USFWS) enforce this Federal law. "Taking" a species that is protected by this law is considered a criminal offense and violations may be enforced according to "strict liability," (i.e. proof of intent is not required). The MBTA considers "strict liability" offenses to be misdemeanors and "knowingly" offenses to be felonies. Violations of this

law, including the results of "accidents," can and have resulted in fines or prison sentences.

Additionally, the Bald and Golden Eagle Protection Act (BGEPA) prohibits the “taking” or “disturbing” bald eagles and golden eagles, and the Endangered Species Act (ESA) makes it unlawful for any person to “take,” “harass,” or “harm” species that are protected under the ESA (*e.g.,* whooping cranes) without a permit. Similar to the MBTA, “strict liability” and “knowingly” violations of the BGEPA and ESA are also enforced by the USFWS. Those culpable under the BGEPA and/or ESA may be prosecuted according to civil or criminal penalties, depending on the severity of the violation.

1.2.2 Outage Reduction

The preventative actions that MEC takes to reduce the number of bird-caused power outages will directly address the success for customer service. Goals of customer service include the reduction of the frequency and duration of power outages.

1.2.3 Public Relations

Power outages are unpopular with customers, but they can be especially so if the public discovers that the outages are caused by birds mortality. Recurring avian deaths from power lines can negatively impact MEC’s public relations.

1.2.4 Reduce Risks

Avian-caused power outages may result in fires that can destroy habitat and equipment. This APP will reduce the risk of avian-caused outages (and associated fires) and demonstrate that MEC is actively addressing this problem by implementing a plan.

1.2.5 Reduce Delivery Cost

Strategic planning by MEC to reduce bird-caused power outages will also reduce distribution retail delivery costs. Costs associated with emergency work orders will be reduced with a reduction in avian-caused power outages.

1.3 *Risks to Avian Species*

1.3.1 Use of Power Lines by Raptor Species

Avian species may use power poles for a number of purposes, such as nest sites, high points from which to defend territories, and perches from which to hunt. “Still hunting” from a perch is energy efficient for a bird, provided that good prey habitat is within view of the perch. Some structures are preferred by birds because they provide considerable elevation above the surrounding terrain, thereby offering a wide field of view. The tops of transformers may provide feeding platforms after raptors have captured prey. Identification and modification of these “preferred” structures may greatly reduce or minimize the electrocution risk on an entire line. However, in areas where lines run through homogeneous terrain, there is no apparent advantage of some poles over others. Favored perches can be identified by examining cross-arms and the ground beneath them for whitewash (feces accumulations), pellets, or prey remains. Since birds such as hawks and owls cannot digest the fur, feathers, and bones of their prey, they regurgitate these parts in the form of a “pellet” or “casting.” Remains of dead raptors may also identify power poles used by raptors for perching.

1.3.2 Power Line Electrocutions

According to the Avian Power Line Interaction Committee (APLIC), "avian electrocutions typically occur on power lines with voltages less than 60 kV (APLIC, 2006).

Birds are electrocuted by power lines because of two seemingly unrelated, yet interactive factors:

- Environmental factors such as topography, vegetation, available prey and other, behavioral or biological factors influence birds to utilize power poles.
- Inadequate clearance between energized components and grounded hardware, thereby providing two points of contact.

Electrocution can occur when a bird completes an electric circuit by simultaneously touching two energized parts or an energized part and a grounded part of the electrical equipment. Most electrocutions occur on distribution lines where the spacing between conductors may be small enough to be bridged by birds. Electrocutions can also occur on substation equipment. Because dry feathers act as insulation, contact must be made between fleshy parts, such as the wrists, feet, or other skin (unless feathers are wet or dirty), for electrocution to occur under most circumstances. In spite of the best efforts to minimize avian electrocutions, some degree of mortality may occur due to influences such as weather that cannot be controlled.

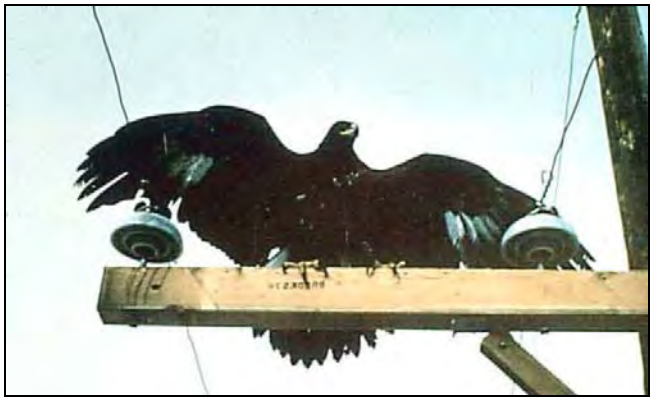


Figure 1: Wires spaced too closely have the potential to electrocute birds
(Source: APLIC, 2005)

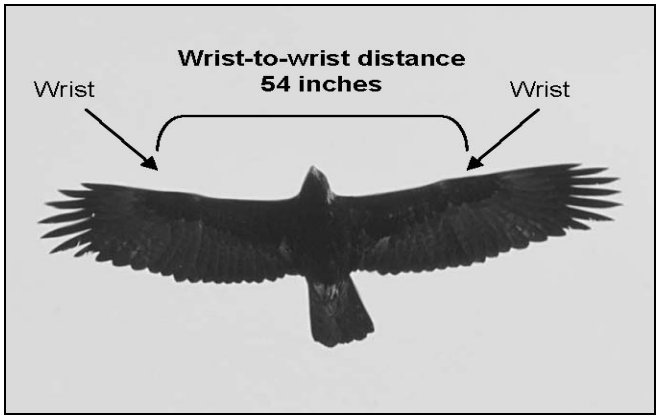


Figure 2: Raptor wingspan measurement
(Source: APLIC, 2005)

1.3.3 Collisions

Factors that influence collision risk can be divided into three categories: those related to avian species, those related to the environment, and those related to the configuration and location of lines. Species-related factors include habitat use, body size, flight behavior, age, sex, and flocking behavior. Heavy-bodied, less agile birds or birds within large flocks may lack the ability to quickly negotiate obstacles, making them more likely to collide with overhead lines. Likewise, inexperienced birds as well as those distracted by territorial, hunting, or courtship activities may collide with lines. Environmental factors influencing collision risk include the effects of weather and time of day on line visibility, surrounding land use practices that may attract birds, and human activities that may flush birds into lines. Line-related factors influencing collision risk include the configuration and location of the line and line placement with respect to other structures or topographic features. Collisions are more likely to occur with the overhead static wire, which may be less visible than the other wires due to its smaller diameter.

The proximity of a line to high bird-use areas, vegetation that may attract the birds and topographical features that affect local and migratory movements should be considered when determining the extent of necessary remedial action or when siting a new line. Avoiding construction of new lines in areas of high bird use may be the best way to prevent or minimize collision issues. Marker balls, swinging markers, spiral vibration dampers, bird flight diverters, or other similar devices are commercially available products to increase the visibility of overhead wires to birds.

2.0 Principles of This Avian Protection Plan

2.1 *Policy*

MEC is committed to balancing its goal of providing reliable electrical service in a cost-effective manner with protecting avian species. As part of this commitment, MEC will adopt, train personnel, and implement the avian protection measures described in this section of the document. The intended result is to minimize the potential for avian mortality and injury, comply with regulations to protect avian resources, and improve electrical reliability by reducing the frequency and duration of outages. This is a living document and may be periodically revised to reflect advances in avian protection.

2.2 *Training*

All appropriate MEC personnel (e.g., inspection/maintenance crews, supervisors) should be properly trained in avian protection issues. This training will include review of this plan and the methods for reporting avian mortality.

External organizations like the Avian Power Line Interaction Committee (APLIC) can serve as an additional resource to MEC personnel, if needed, in that they can provide additional guidance, workshops, materials, and contacts. An understanding of raptor and other bird behavior can influence how and when avian protection should be utilized, and an APP that connects avian experts with utility decision makers may reduce the risk of avian incidents and improve system reliability.

2.3 *Construction Design Standards*

Avian interactions with facilities should be considered in the design and installation of the proposed project as well as the operation and maintenance of the new facilities. MEC will rely upon the Rural Utility Service (RUS) and the APLIC design standards for construction design of the project. The RUS and APLIC have developed guidelines with the intent of minimizing avian incidents with power lines. This includes installing line markers on the shield wire in selected locations, monitoring for nests, and providing adequate spacing for perching protection, as described below.

2.3.1 Line Marking/Bird Flight Diverters

During construction of the proposed new transmission line, MEC will install line markers at selected waterway crossings that may be used as flyways by local bird species. The locations of and installation instructions for these line markers are included in appendix B. MEC is planning to use "FireFly-style" markers similar to the one identified in figure 3.

Figure 3: Example of "FireFly-style" line markers
Source: http://www.pr-tech.com/products/birds/firefly.htm

2.3.2 Nest Protection

In the absence of other suitable nest sites, and sometimes even when suitable nest sites are available, raptors and other birds may use transmission line structures, poles and substation equipment for nesting. State and Federal laws and regulations protect these nests from removal at certain times of the year without a permit from the USFWS. It is unlawful to destroy nests when eggs or young birds are in them. While some nests are benign and need no management, others may need to be managed to reduce the risk of delivery failure and bird electrocution.

Figure 4: Nest on Power Pole

2.3.3 Perching Protection

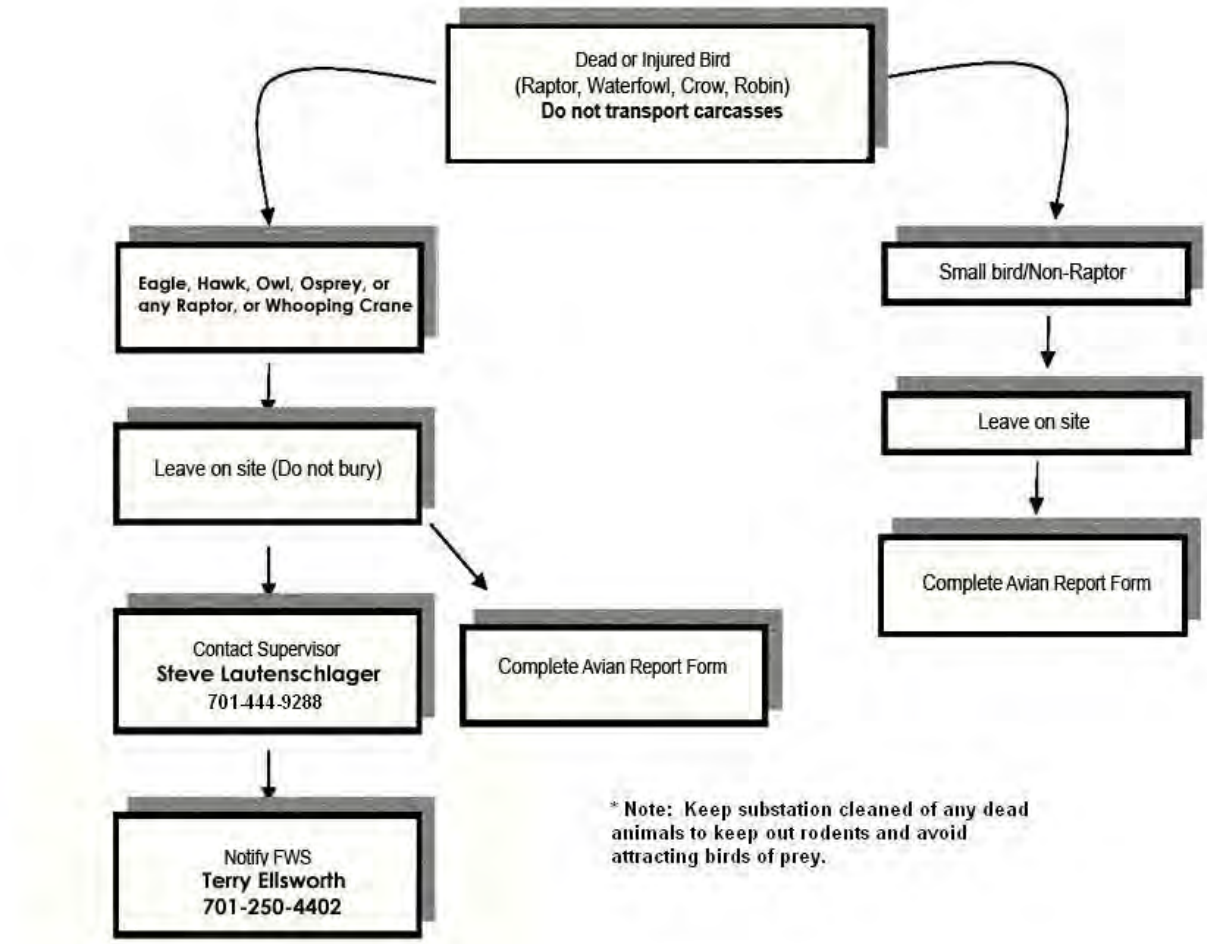
Avian-safe structures are those that provide adequate clearances to accommodate a large bird between energized and/or grounded parts. Consequently, at least 60 inches, and ideally 80 inches of horizontal separation, would be used as the standard for raptor protection to accommodate the wrist-to-wrist distance of an eagle (which is approximately 54 inches). Likewise, vertical separation of at least 48 inches will be used to accommodate the height of an eagle from its feet to the top of its head (which is approximately 36 inches.)

2.4 *Avian Reporting*

An avian report form will be used to track avian injuries and mortality including the locations, the probable cause of death or injury, and the avian type involved in the incident (appendix C). The reports will be evaluated after one year of operation and outages will be recorded and investigated. MEC may use the information obtained from tracking these reports to identify problem areas along the proposed project alignment, and would implement the measures outlined in this APP to address the problem.

For discovery of a bird fatality or injury involving a raptor or a whooping crane, MEC staff will immediately report the incident to **Steve Lautenschlager, MEC Operations Supervisor, at 701-444-9288** who will contact **Terry Ellsworth of the FWS** (or another appropriate FWS staff person) **at 701-250-4402** as indicated below.

Upon initial discovery of a dead or injured bird, the following process will be initiated.



3.0 Conclusion

MEC's implementation of this APP is expected to help protect and conserve avian species and comply with applicable State and Federal law. In turn, successful implementation of this plan will improve the reliability of the proposed new transmission line, will reduce the cost of transmitting electricity, and will build positive public relationships with MEC's customers. This plan is a living document and may be revised as more information is obtained about measures to minimize avian impacts.

4.0 References

Avian Power Line Interaction Committee (APLIC). 1994. *Mitigating Bird Collisions With Power Lines: The State of the Art in 1994*. Edison Electric Institute. Washington, D.C. Avian Protection Guidelines.

Avian Power Line Interaction Committee (APLIC). 2005. *Avian Protection Guidelines*. A joint document prepared by Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and U.S. Fish and wildlife Service (USFWS).

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C and Sacramento, CA.

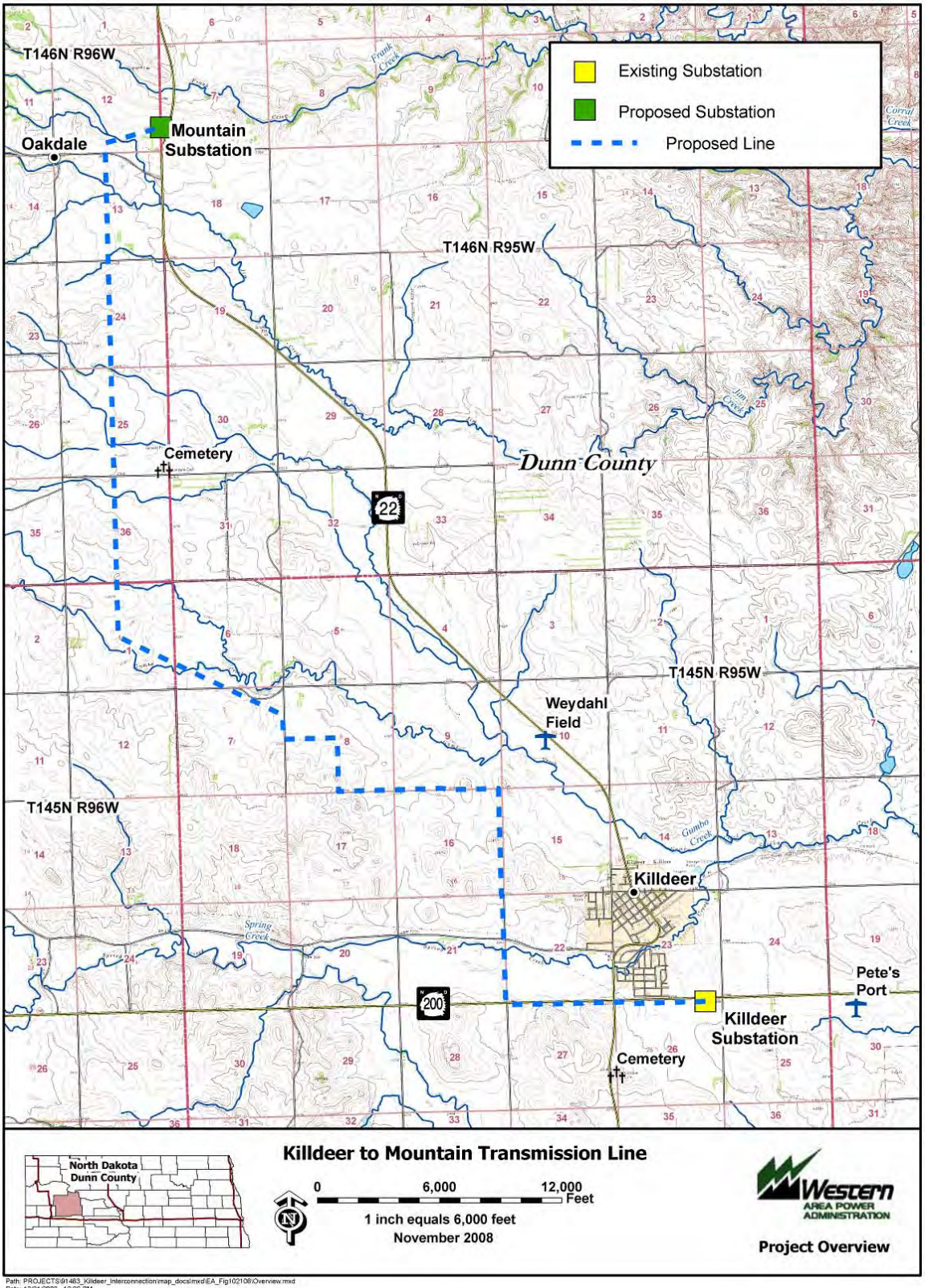
USDA, RUS. 2005. RUS Bulletin 1724E-200 Design Manual for High Voltage Transmission Line. Electric Staff Division, RUS, USDA.

USDA, RUS. 1998. RUS Bulletin 1728E-811. Electric Transmission Specifications and Drawings, 115 kV through 230 kV. Electric Staff Division, RUS, USDA.

National Electrical Safety Code. 1993. C2-1993. Published by the Institute of Electrical And Electronics Engineers, Inc. and the American National Standards Institute. New York, N.Y. 257

Appendix A

Project Overview Map


Existing Substation
Proposed Substation
Proposed Line
T146N R96W
Mountain Substation
Oakdale
T146N R95W
Cemetery
Dunn County
22
T145N R95W
Weydahl Field
T145N R96W
Killdeer
200
Pete's Port
Killdeer Substation
Cemetery
Killdeer to Mountain Transmission Line
North Dakota
Dunn County
0
6,000
12,000
Feet
1 inch equals 6,000 feet
November 2008
Western Area Power Administration
Project Overview
Path: PROJECTS\91483_Killdeer_Interconnection\map_docs\mxd\EA_Fig102106\Overview.mxd
Date: 10/21/2008 - 12:26 PM

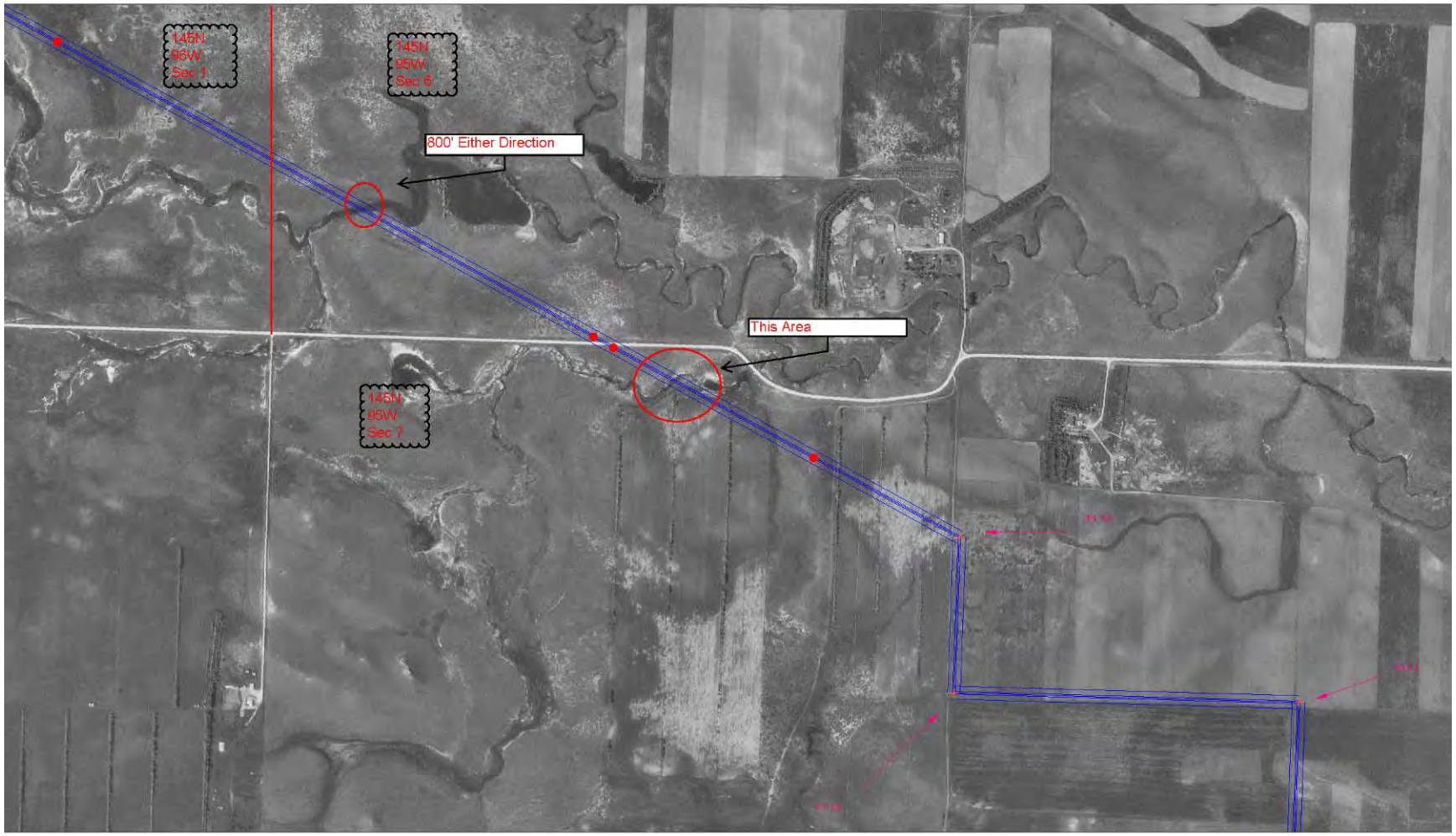
Appendix B

Bird Diverter Locations

HDR Engineers, Project: "ea_route.xyz"
PLS-CADD Version 9.21, 10:57:48 AM Friday, July 25, 2008

HDR Engineers, Project: "mountain_klj_survey.xyz"
PLS-CADD Version 9.23, 2:30:24 PM Thursday, November 06, 2008

HDR Engineers, Project: "ea_route.xyz"
PLS-CADD Version 9.21, 10:50:15 AM Friday, July 25, 2008



Line marking device specification

LINE MARKING DEVICE

The line marking devices should use a "SnapFast" plastic clamp or similar device, black in color, with a spring tension system and rubber inlays for gripping the wires. The clamp must be rated for lines 10mm through 70mm. (In very high winds some slipping may occur.)

The flapper device attached to the clamp should be approximately 3.5" (9 cm) x 6.0" (15.25cm) x 0 .118" (0.3cm) rectangular shaped with routed and bull-nosed edges and corners and made of acrylic plastic with UV stabilizers.

The flapper device will be mounted directly to the clamp with 2 stainless steel bolts with nylock nuts and washers. The flapper will have reflective quality stickers mounted on the upper part of the flapper with florescent orange on one side and florescent yellow on the other.

A "glow-in-the-dark" sticker will be mounted on the bottom of the flapper on both sides.

The device should be dipped in a Clear Solutions® coating to protect the device from pollution build up and minimize ice and snow build up.

INSTALLATION

If there are two overhead ground wires, on a lattice steel structure the device should be attached to both overhead ground wires, starting approximately 100 feet (30m) from the structure on one wire and spacing the devices approximately 50 feet (15m) apart staggered on each wire, ending approximately 100 feet (30m) from the next structure.

On an H-frame structure, with two overhead ground wires the device should be attached approximately 50 feet (15m) from the structure and spaced every 50 feet (15m) staggered on each wire. (This will give the appearance of a device every 25 feet (8 meters) on a horizontal view.

On a single pole line, with one overhead ground wire the device should be attached approximately 30 feet (10m) from the structure and spaced 30 feet (10m) down the wire.

The devices should be equal to the FireFly fixed position model distributed by P&R Industries, P.O. Box 554, Portland, OR. 97207.

Appendix C

Avian Reporting Form

McKenzie Electric
COOPERATIVE

Avian Report Form

		Date of Discovery:
1. Condition of bird:	Injured	Dead
2. Location of Discovery:	County	¼ Section
Range	Township	Substation Name or Pole Number (if available)
Intersection or Other Location Description (if possible attach a map and photograph or diagram of the pole location or substation).		
3. Was the Federal, State, Local Agency contacted?	If Yes, Agency	
Name of agency contact	Agency Recommendations	
4. Name, Address, Phone Number, Employer of Person Making Discovery:		
5. Was Photo Taken?	If Yes, Taken By	
6. Probable Cause of Death/Injury (i.e. electrocution, collision, gunshot, poison, roadkill, unknown, other)		
7. Did an Outage Occur As a Result of Death/Injury?		If Yes, Length of Outage

Please complete the following if known

8 . Type of Bird	Adult	Juvenile
9. Carcass Condition		
10. Description of Band, Marker, or Neck Collar (if applicable)		
11. Additional Information/Diagrams		