



# Amendment to the Application to the North Dakota Public Service Commission

## Consolidated Certificate of Corridor Compatibility and Route Permit

Volume I

Case No: PU-14-813



**Basin Electric Power Cooperative**

**North Killdeer Loop Phase I  
345-kV Transmission Project**

July 2015

# **Amendment to the Application to the North Dakota Public Service Commission:**

**Consolidated Certificate of Corridor Compatibility &  
Route Permit**

**Case No: PU-14-813**

**for the**

**North Killdeer Loop Phase 1  
345-kV Transmission Project**

**Basin Electric Power Cooperative**

**July 2015**

**prepared by**

**Burns & McDonnell Engineering Company, Inc.  
Kansas City, Missouri**

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Detailed Project Route Maps: Selection Criteria	Volume II

## LIST OF ABBREVIATIONS

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
Act	North Dakota Energy Conversion and Transmission Facility Siting Act
AES	Alternatives Evaluation Study
APE	Area of potential effect
AVS	Antelope Valley Station
BA	Biological Assessment
BART	Best Available Retrofit Technology
Basin Electric	Basin Electric Power Cooperative
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
BNSF	BNSF Railway
CAA	Clean Air Act
CH <sub>4</sub>	methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
Commission	North Dakota Public Service Commission
CUP	Conditional Use Permit
CRP	Conservation Reserve Program
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
DEIS	Draft Environmental Impact Statement

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<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
EIA	Energy Information Administration
EIS	Environmental Impact Study
EMF	Electric and Magnetic Field
EO	Executive Order
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ERO	Electric Reliability Organization
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
HUD	Department of Housing and Urban Development
Hz	Hertz
IAP	Instrument Approach Procedures
IPCC	Intergovernmental Panel on Climate Change
IS	Integrated System
kV	kilovolt
kV/m	kilovolts per meter
LCS	Lonesome Creek Station
LMNG	Little Missouri National Grassland
L <sub>x</sub>	exceedance sound level
MAC	Metcalf Archaeological Consultants, Inc.

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<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
MBTA	Migratory Bird Treaty Act
MCS	Macro-Corridor Study
mG	milligauss
MIS	Management Indicator Species
MRO	Midwest Reliability Organization
MVMT	Million Vehicle Miles Traveled
MW	megawatts
MWEC	Mountrail-Williams Electric Cooperative
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDCRS	North Dakota Cultural Resource Survey
NDDOH	North Dakota Department of Health
NDDOT	North Dakota Department of Transportation
NDPA	North Dakota Pipeline Authority
NDSWC	North Dakota State Water Commission
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHI	Natural Heritage Inventory

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NKL	North Killdeer Loop
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
O <sub>3</sub>	ozone
OAQPS	Office of Air Quality Planning and Standards
OHGW	Overhead Groundwire
OPGW	Optical Groundwire
Pb	lead
PGS	Pioneer Generating Station
PLOTS	Private Land Open to Sportsmen
PM	particulate matter
PM <sub>10</sub>	particulate matter with aerodynamic diameter less than or equal to 10 microns
PM <sub>2.5</sub>	particulate matter with aerodynamic diameter less than or equal to 2.5 microns

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
PSD	Prevention of Significant Deterioration
PUD	Planned Unit Development
RC	Reliability Coordinators
ROW	right-of-way
ROD	Record of Decision
RSF	Resource Selection Function
RUS	Rural Utilities Service
SHPO	State Historic Preservation Officer
SHSND	State Historical Society of North Dakota
SIL	Scenic Integrity Level
SIO	Scenic Integrity Objective
SO <sub>2</sub>	sulfur dioxide
SUP	Special Use Permit
SWG	State Wildlife Grants
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TRNP	Theodore Roosevelt National Park
TVI	Television Interference
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish & Wildlife Service

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
VMT	Vehicle Miles Traveled
Western	Western Area Power Administration
WMA	Wildlife Management Area
WRP	Wetlands Reserve Program
WTP	Water Treatment Plant

## 1.0 INTRODUCTION

On April 29, 2015, the North Dakota Public Service Commission (Commission) adopted the Findings of Fact, Conclusions of Law and Order (Order) granting a waiver of procedures and time schedules and issuing Corridor Certificate No. 167 and Route Permit No. 179 to Basin Electric Power Cooperative (Basin Electric). This Corridor Certificate and Route Permit authorize the construction of approximately 28 miles of 345-kilovolt (kV) electric transmission line and associated facilities (Project) by Basin Electric. The Project extends from the Patent Gate Substation northeast of Alexander, North Dakota, to the Kummer Ridge Substation east of Watford City, North Dakota. Since the April 29, 2015, Order, changes have been proposed to the Corridor/Route. This amendment identifies these changes, which are the result of landowner requests and attempts to minimize natural resources impacts.

If approved by the Commission, the total length of the revised Corridor/Route would be 28.7 miles. The Corridor/Route revisions do not significantly alter the information presented in the original application submitted in November 2014. The Corridor/Route revisions are minor and typical of the progression of a linear project of this size. Only siting criteria information that has changed because of the Corridor/Route revisions is presented in this amendment. All other sections of the original application remain in effect. The general location and reasons for the Corridor/Route changes are summarized in the following table, and the changes are illustrated on the Corridor/Route change maps below.

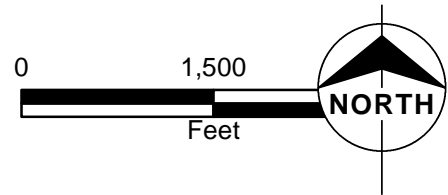
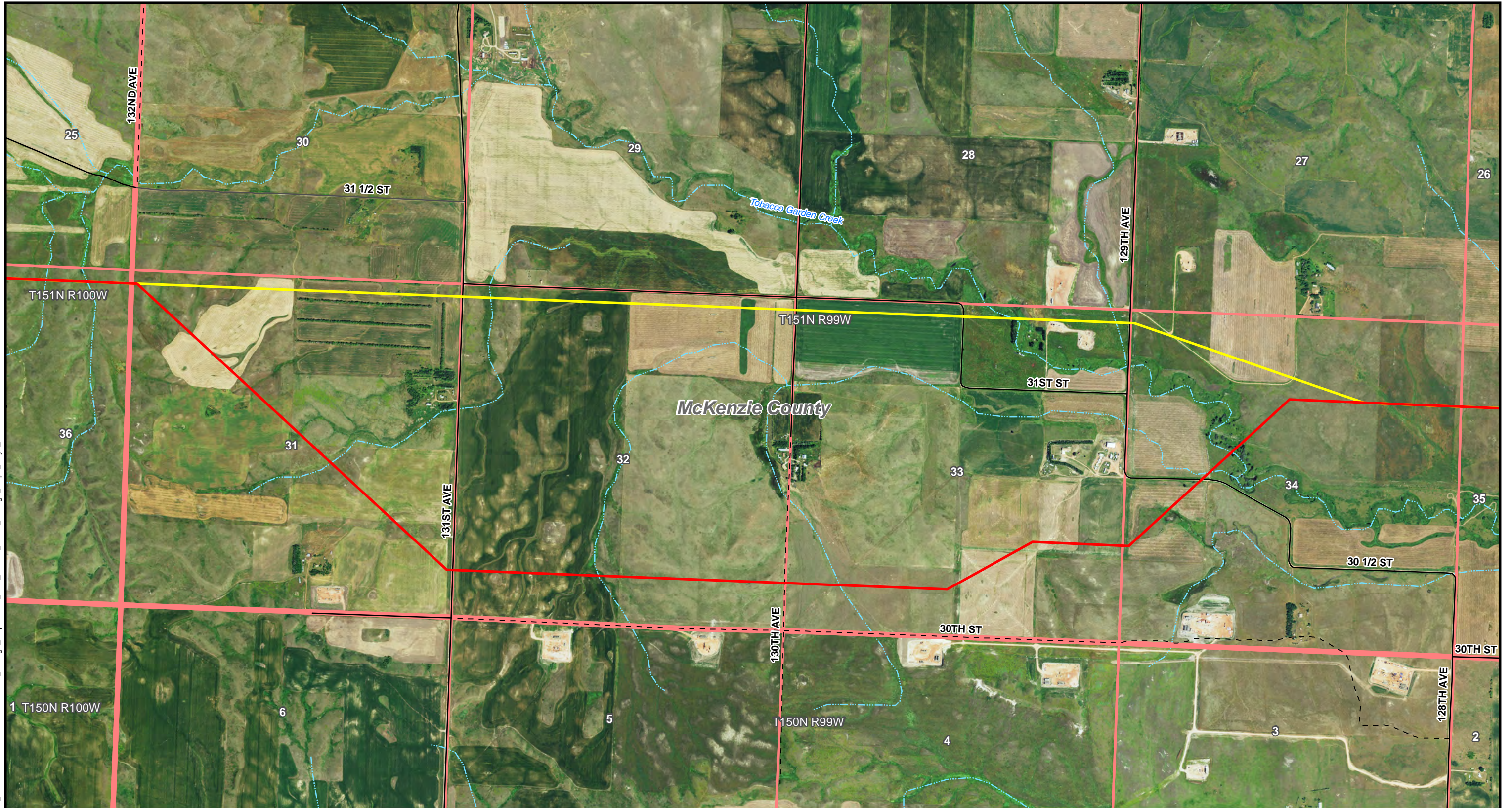
**Table 1.0-1: Summary of Corridor/Route Changes**

<b>Township</b>	<b>Range</b>	<b>Sections</b>	<b>Reason</b>	<b>Route Change Map Sheet #</b>
151N	99W	31, 32, 33, and 34	Line adjustment to accommodate landowner requests.	Sheet 1
151N	98W	29, 30, 31	Line adjustment to minimize natural resources impacts.	Sheet 2

Unless otherwise stated in this amendment, all other text sections and Project descriptions in the original application remain unchanged. The general structure of this amendment remains the same, with similar chapters and sections.

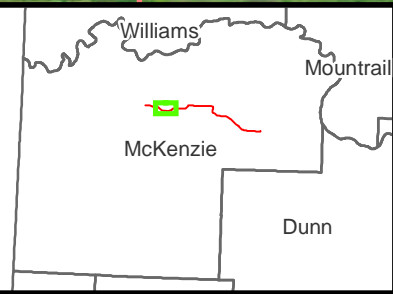
The map sheets included with this amendment in Volume II have been updated to indicate the above changes. Only the sheets on which changes occurred are included. The updated sheets replace the same numbered sheets in the original, November 2014 application. Updated Structure Location Maps are also provided in this submission (Appendix E).

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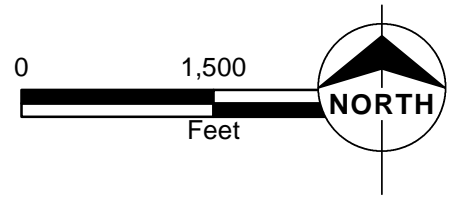
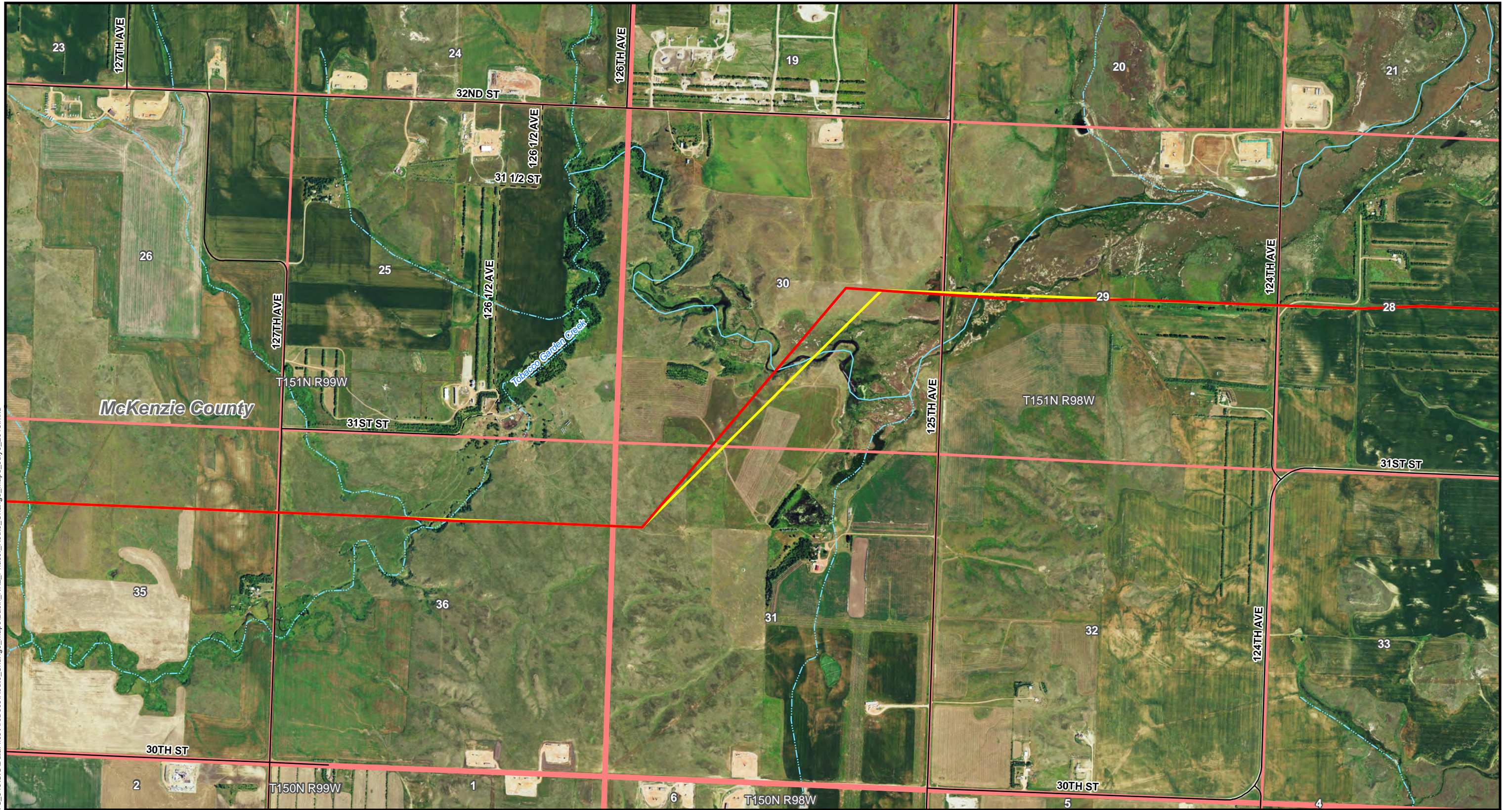
**LEGEND**

- Revised Route - July 2015
- Application Alignment - November 2014
- County Boundary
- Public Land Survey System Sections
- Public Land Survey System Townships



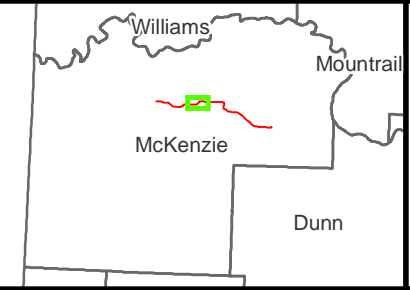
Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 NW North Dakota 345-kV  
 Route Change Map  
 Sheet 1 of 2

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**LEGEND**

- Revised Route - July 2015
- Application Alignment - November 2014
- County Boundary
- Public Land Survey System Sections
- Public Land Survey System Townships



Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 NW North Dakota 345-kV  
 Route Change Map  
 Sheet 2 of 2

## 1.1 Compliance with the Energy Conversion and Transmission Facility Siting Act

No changes from Corridor/Route revisions.

### 1.1.1 Rural Utilities Service and Western Area Power Administration and U.S. Forest Service Planning Documents

No changes from Corridor/Route revisions.

### 1.1.2 Certificate of Corridor Compatibility

No changes from Corridor/Route revisions. Table 1.1-1 is included for convenience.

**Table 1.1-1: Certificate of Corridor Compatibility Completion Checklist**

State Authority	Description From the Guidelines	Application Section
Chapter 49-22	Commission Guidelines: Energy Conversion and Transmission Facility Siting	1.1
Section A	Description	1.2, 4.2
1.	Type: Describe the type of transmission facility addressed in this application. The description shall include the purpose of the facility and the technology to be employed.	1.0, 1.2, 2.1, 4.2.1
2.	Product: Describe the type, source, and final destination of the product to be transmitted by the proposed facility.	1.2.2
3.	Size and Design:	4.0
3.a.	Provide a description of the size and design of the <u>Electrical</u> facility including, but not limited to, the following:	4.2.1, 4.2.2, 4.2.3
3.a.1.	Width of ROW;	4.2.1
3.a.2.	Estimated span lengths;	4.2.1
3.a.3.	Anticipated type of structure;	4.2.1
3.a.4.	Approximate length of facility	1.0, 1.2, 4.1
3.a.5.	Voltage; and	4.2.1
3.a.6.	The requirement for a general location of any new associated facilities.	4.2.2
3.b.	Provide a description of the size and design of the pipeline facility including, but not limited to, the following:	N/A
4.	Time Schedule: Provide the anticipated time schedule for the accomplishment of the following events:	1.3
4.a.	Certificate of Corridor Compatibility;	1.3
4.b.	Route Application;	1.3

<b>State Authority</b>	<b>Description From the Guidelines</b>	<b>Application Section</b>
4.c.	Route Permit;	1.3
4.d.	Construction start date;	1.3
4.e.	Construction complete; and	1.3
4.f.	In-service date.	1.3
Section B	Studies	Appendices
--	Provide a copy of any evaluative studies or assessments of the environmental impact of the proposed facility submitted to any federal, regional, state or local agency.	Appendices
Section C	Need for Facility	2.0
1.	An analysis of the need for the proposed facility based on present and projected demand for the product to be transmitted by the facility, including the most recent system studies supporting the analysis of the need.	2.1
2.	A description of any feasible alternative methods of serving the need.	2.2
3.	A statement justifying any deviations from the most recent Ten-Year Plan which the proposed facility may present.	2.3
Section D	Location	Figures, 4.1
1.	Select a study area, which includes the proposed corridor, of sufficient width to enable the Commission to evaluate the factors addressed in Section 49-22-09, NDCC	1.2.1
2.	Identify and map the criteria that led to the proposed corridor location within the study area.	Figures, 1.2.1, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 Volume II
3.	Discuss the relative value of each criteria and how the proposed corridor location was selected giving consideration to all criteria.	1.2.1, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
4.	The criteria to be evaluated shall include at a minimum all of the following which are within the study area:	3.0
4.a.	Exclusion areas;	3.1
4.b.	Avoidance areas;	3.2
4.c.	Selection criteria;	3.3
4.d.	Policy criteria;	3.4
4.e.	Design and construction limitations; and	3.5
4.f.	Economic considerations.	3.6
5.	Discuss the general mitigative measures that would be taken to minimize adverse impacts which result from a route location in the proposed corridor.	5.1.3, 5.2.3, 5.3.3, 5.4.3, 5.5.3, 5.6.3, 5.7.3, 5.8.3, 5.9.3, 5.10.3, 5.11.3, 5.12.3, 5.13.3

<b>State Authority</b>	<b>Description From the Guidelines</b>	<b>Application Section</b>
6.	List the qualifications of the people in the various disciplines that contributed to the corridor location study	9.0
7.	Maps	Figures and Volume II
7.a.	Map the criteria within the study area showing the proposed corridor. Several different criteria may be shown on each map, depending on the map scale and the density and nature of the criteria. Minimum map scale shall be ½ inch = 1 mile. All maps shall be at the same scale unless otherwise specified.	Volume II
7.b.	Furnish one set of Mylar maps, separate from the application, of the same scale as the criteria maps and showing the same basic features as the criteria maps, including the study area, but not the proposed facility location.	Figures. GIS-based maps are included with this Application in lieu of Mylar maps.
Chapter 49-22-09	Factors to be considered in evaluating applications and designation of sites, corridors, and routes.	8.0
1.	Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment.	8.1
2.	The effects of new energy conversion and transmission technologies and systems designated to minimize adverse environmental effects.	8.2
3.	The potential for beneficial uses of waste energy from a proposed energy conversion facility.	8.3
4.	Adverse direct and indirect environmental effects which cannot be avoided should the proposed site or route be designated.	8.4
5.	Alternatives to the proposed site, corridor, or route which are developed during the hearing process and which minimize adverse effects.	8.5
6.	Irreversible and irretrievable commitments of natural resources should the proposed site, corridor, or route be designated.	8.6
7.	The direct and indirect economic impacts of the proposed facility.	8.7
8.	Existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route.	8.8
9.	The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites.	8.9
10.	The effect of the proposed site or route on areas which are unique because of biological wealth or because they are habitats for rare and endangered species.	8.10

<b>State Authority</b>	<b>Description From the Guidelines</b>	<b>Application Section</b>
11.	Problems raised by federal agencies, other state agencies, and local entities.	8.11

### 1.1.3 Route Permit

No changes from Corridor/Route revisions. Table 1.1-2 is included for convenience.

**Table 1.1-2: Route Permit Completion Checklist**

<b>State Authority</b>	<b>Description From the Guidelines</b>	<b>Application Section</b>
Chapter 49-22	Commission Guidelines: Energy Conversion and Transmission Facility Siting	1.1
Section A	Description	1.2, 4.2
1.	Type: Describe the type of transmission facility proposed.	1.0, 1.2, 4.2
2.	Product: Describe the product or products to be transmitted.	1.2.2
3.	Size and Design: Provide a general description of the proposed size and design, and any alternate size or design, which was considered. Provide one (1) copy of the design data report, separate from the application, for the proposed facility and any associated facilities.	4.0, Appendix C
4.	Time Schedule: Provide the anticipated time schedule for the accomplishment of major events including, at a minimum, the following:	1.3
4.a.	Route Permit;	1.3
4.b.	ROW acquisition complete;	1.3
4.c.	Construction start date;	1.3
4.d.	Construction complete;	1.3
4.e.	Test operations; and	1.3
4.f.	In-service date.	1.3
Section B	Location	Figures, 4.0
1.	Discuss the utility's policies and commitments to limit the environmental impacts of its facilities, including copies of board resolutions and management directives.	3.4
2.	Discuss the factors listed in Section 49-22-09, NDCC to aid the Commission's evaluation of the proposed route.	8.0
2.a.	Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment.	8.1
2.b.	The effects of new energy conversion and transmission technologies and systems designated to minimize adverse environmental effects.	8.2

<b>State Authority</b>	<b>Description From the Guidelines</b>	<b>Application Section</b>
2.c.	The potential for beneficial uses of waste energy from a proposed energy conversion facility.	8.3
2.d.	Adverse direct and indirect environmental effects which cannot be avoided should the proposed site or route be designated.	8.4
2.e.	Alternatives to the proposed site, corridor, or route which are developed during the hearing process and which minimize adverse effects.	8.5
2.f.	Irreversible and irretreivable commitments of natural resources should the proposed site, corridor, or route be designated.	8.6
2.g.	The direct and indirect economic impacts of the proposed facility.	8.7
2.h.	Existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route.	8.8
2.i.	The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites.	8.9
2.j.	The effect of the proposed site or route on areas which are unique because of biological wealth or because they are habitats for rare and endangered species.	8.10
2.k.	Problems raised by federal agencies, other state agencies, and local entities.	8.11
3.	Identify and map the criteria that led to the proposed route location within the designated corridor.	Figures, 1.2.1, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, Volume II
4.	Discuss in detail the relative value of each criteria and how the location, construction, and operation of the facility would affect each criteria.	1.2.1, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6
5.	The criteria to be evaluated shall include at a minimum all of the following which are within the designated corridor:	3.0
5.a.	Exclusion areas;	3.1
5.b.	Avoidance areas;	3.2
5.c.	Selection criteria;	3.3
5.d.	Policy criteria;	3.4
5.e.	Design and construction limitations; and	3.5
5.f.	Economic considerations.	3.6
6.	Discuss the mitigative measures that would be taken to minimize adverse impacts which result from the location, construction, and operation of the facility.	5.1.3, 5.2.3, 5.3.3, 5.4.3, 5.5.3, 5.6.3, 5.7.3, 5.8.3, 5.9.3, 5.10.3, 5.11.3, 5.12.3, 5.13.3
7.	List the qualifications of the people in the various disciplines that	9.0

State Authority	Description From the Guidelines	Application Section
	contributed to the facility route location study	
8.	Maps	Figures
8.a.	Map the criteria within the designated corridor showing the proposed route and location of any new associated facilities. Several different criteria may be shown on each map, depending on the map scale and the density and nature of the criteria. Minimum map scale shall be ½ inch = 1 mile. All maps shall be at the same scale unless otherwise specified.	Volume II
8.b.	Furnish one (1) set of Mylar maps, separate from the application, of the same scale as the criteria maps and showing the same basic features as the criteria maps, including the designated corridor, but not the proposed route or location of any new associated facilities.	Figures. GIS-based maps are included with this Application in lieu of Mylar maps
8.c.	Furnish one (1) set of uncontrolled 9x9 inch stereo-pair aerial photographs, separate from the application, with acceptable resolution showing the designated corridor, proposed route and location of any new associated facilities, and Section, Township and Range numbers, at a scale of 1 inch = 2,000 feet, together with a flight map at a scale of ½ inch = 1 mile showing each flight line and the beginning and ending photo number of each flight line. Photo mosaic strip maps would also be acceptable. If the applicant can demonstrate that because of the limited size and scope of the Project, aerial photographs would not be practical, this requirement may be waived.	Figures. GIS-based maps are included with this Application

## 1.2 Project Summary

The Corridor/Route revisions contributed to an overall increase in Project length of 0.6 mile. The alignment revisions are described below, presented in Table 1.0-1, and shown on the Route Change Maps following Table 1.0-1.

The first Corridor/Route revision is located in McKenzie County east of the Patent Gate Substation. It includes approximately four miles where the proposed Corridor/Route alignment was adjusted south to accommodate landowner requests. The second Corridor/Route revision is located approximately nine miles east of the Patent Gate Substation and consists of approximately one mile where the proposed Corridor/Route alignment was adjusted slightly west to minimize natural resources impacts by avoiding a wetland area. These adjustments are a result of the normal negotiations between Basin Electric and landowners for voluntary easements for line location and Basin Electric’s intention to minimize unnecessary Project-related impacts to natural resources. Basin Electric has reached an agreement with the landowners to obtain necessary easements for the realignments. No opposition to these revisions are expected.

No additional changes to this section other than the proposed Corridor/Route revisions, discussed above.

### 1.2.1 Study Area, Project Corridor, and Route Development Summary

No changes from Corridor/Route revisions. Figure 1.2-1 and Figure 1.2-2 have been updated to include the revised Corridor/Route.

### 1.2.2 Product

No changes from Corridor/Route revisions.

### 1.3 Project Schedule

No changes from Corridor/Route revisions. An updated schedule is provided in Table 1.3-1 for convenience.

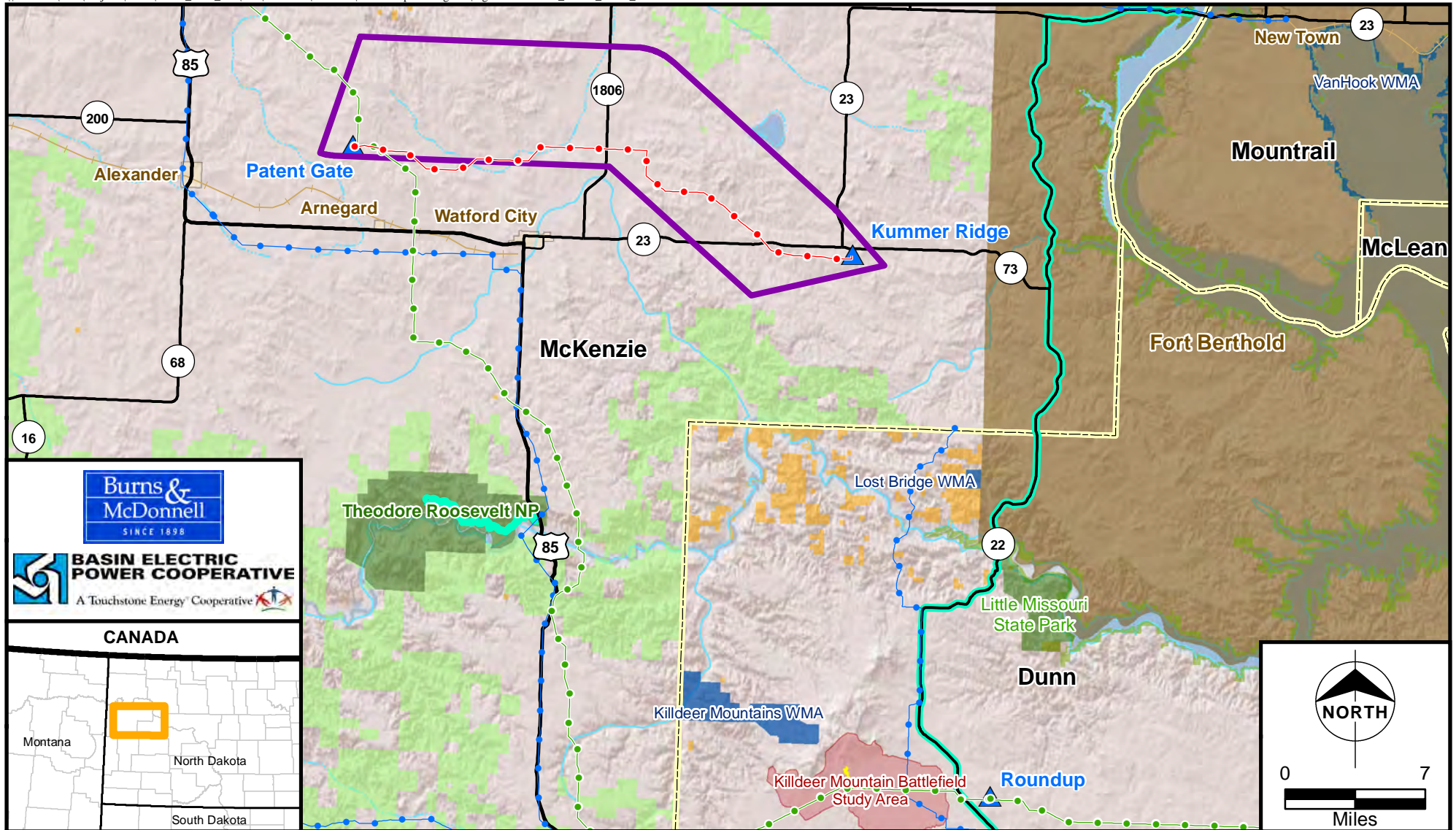
The Project is expected to start construction in August 2015. An 18-month construction phase is anticipated with in-service expected in late 2016. An overview of the Project schedule is provided in Table 1.3-1.

**Table 1.3-1: Project Schedule**

<b>Activity</b>	<b>Timeframe</b>
Corridor Certificate/Route Permit	April 2015
Corridor Certificate/Route Permit Amendment Application	July 2015
Corridor Certificate/Route Permit Amendment Approved	Anticipated September 2015
Right-of-way acquisition complete	August 2015
Construction start date	August 2015
Construction complete	October 2016
Test operations	November 2016
In-service date	December 2016

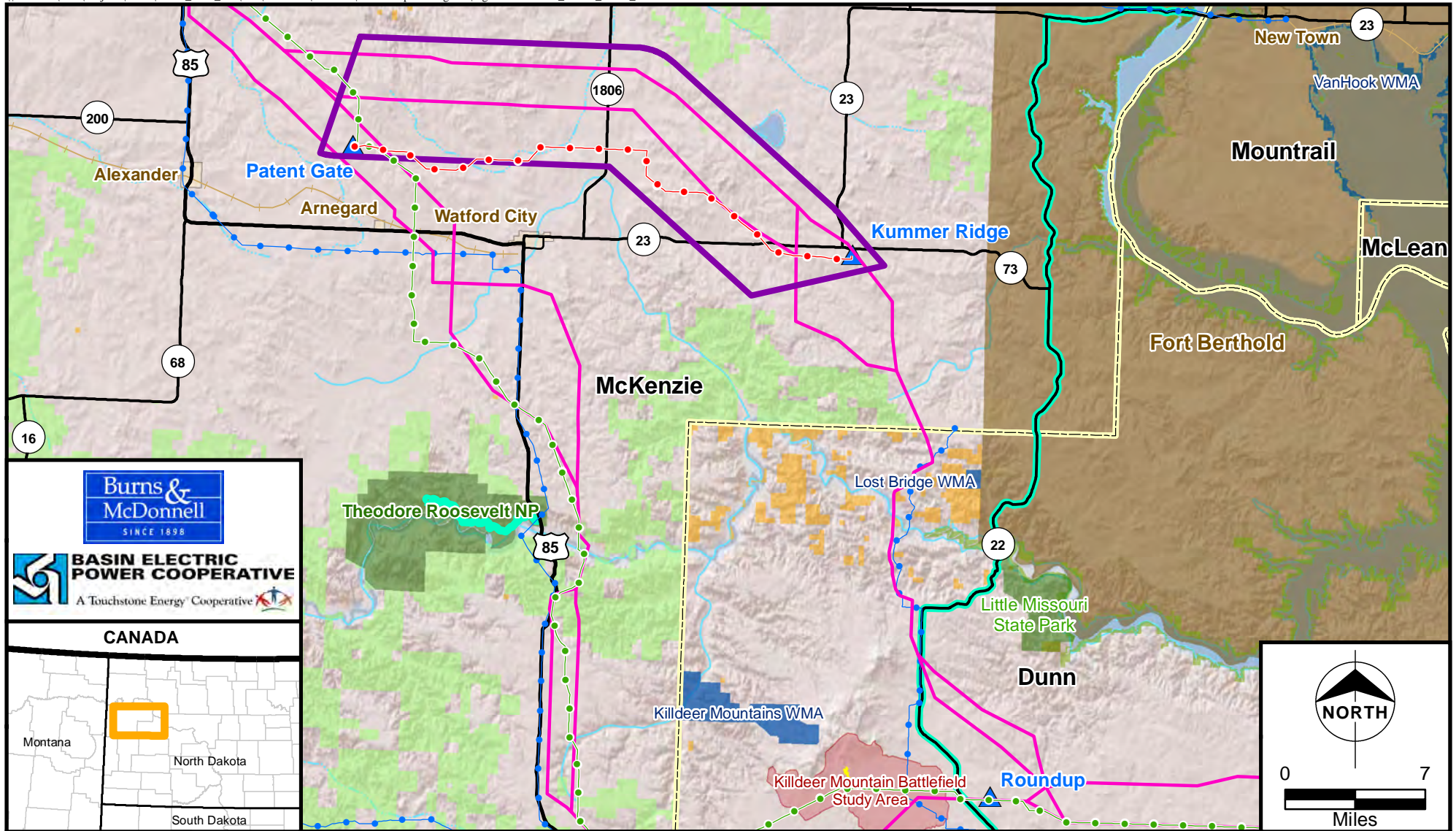
### 1.4 Future Associated Facilities

No changes from Corridor/Route revisions.



- |                           |   |                         |
|---------------------------|---|-------------------------|
| Study Corridor            | National Grassland                                | Army Corps of Engineers |
| Project Corridor/Route    | Tribal Lands                                      | County Boundary         |
| AVS to Naset Route        | BLM Lands   | Municipal Areas         |
| Existing 230-kV and Below | Wildlife Management Areas                         | Railroad                |
| Proposed Substation       | Killdeer Mountain Battlefield State Historic Site | Scenic Byway            |
| National or State Park    | Killdeer Mountain Battlefield Study Area          |                         |

Figure 1.2-1  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Overall Proposed Study Corridor  
 and Proposed Corridor/Route



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**BASIN ELECTRIC POWER COOPERATIVE**  
A Touchstone Energy Cooperative

**CANADA**

Montana, North Dakota, South Dakota

- Study Corridor
- - - Project Corridor/Route
- - - AVS to Neseet Route
- - - Route Corridor Segment Network
- - - Existing 230-kV and Below
- ▲ Proposed Substation
- National Grassland
- Tribal Lands
- BLM Lands
- Wildlife Management Areas
- Killdeer Mountain Battlefield State Historic Site
- Killdeer Mountain Battlefield Study Area
- National or State Park
- Army Corps of Engineers
- County Boundary
- Municipal Areas
- - - Railroad
- - - Scenic Byway

Figure 1.2-2  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Route Corridor Segment Network

## **2.0 NEED FOR FACILITY**

### **2.1 Needs Analysis**

No changes from Corridor/Route revisions.

### **2.2 Alternatives**

The route adjustments have been developed as discussed in Table 1.0-1. These adjustments are a result of the normal negotiations between Basin Electric and landowners for voluntary easements for line location and Basin Electric's intention to minimize unnecessary impacts to natural resources. The Corridor/Route adjustments are minor and do not provide opportunities for consideration of additional alternative alignments. The previous alternative corridors remain unchanged.

#### **2.2.1 System Upgrades**

No changes from Corridor/Route revisions.

#### **2.2.2 Additional 115-kV Lines**

No changes from Corridor/Route revisions.

#### **2.2.3 Additional 345-kV Lines**

No changes from Corridor/Route revisions.

#### **2.2.4 No Action Alternative**

No changes from Corridor/Route revisions.

#### **2.2.5 Recommended System Alternatives**

No changes from Corridor/Route revisions.

### **2.3 New Generation**

No changes from Corridor/Route revisions.

### **2.4 Ten-Year Plan**

No changes from Corridor/Route revisions.

### 3.0 TRANSMISSION FACILITY CORRIDOR AND ROUTE CRITERIA

No changes from Corridor/Route revisions.

#### 3.1 Exclusion Areas

Per Section 69-06-08-02(1), the geographical areas listed in Table 3.1-1 shall be excluded in the consideration of a corridor or route for a transmission facility, and the corridor or route shall include a buffer zone of reasonable width to protect the integrity of the area. Maps of exclusion areas for the Project Corridor/Route and revisions are in Volume II of the original application and this amendment.

**Table 3.1-1: Exclusion Areas**

<b>Geographic Area</b>	<b>Present within Revised Corridor/Route</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas	Not present within the revised Corridor/Route	No changes from Corridor/Route revisions.	5.2, 5.8, 5.9
Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves	Not present within the revised Corridor/Route	No changes from Corridor/Route revisions.	5.2, 5.8, 5.9
County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions	Not present within the revised Corridor/Route	No changes from Corridor/Route revisions.	5.2, 5.9
Areas critical to the life stages of threatened or endangered animal or plant species	Not present within the revised Corridor/Route	No changes from Corridor/Route revisions.	5.13
Areas where animal or plant species that are unique or rare to this state will be irreversibly damaged	Not present within the revised Corridor/Route	No changes from Corridor/Route revisions.	5.13

### 3.2 Avoidance Areas

Per Section 69-06-08-02(2), the geographical areas listed in Table 3.2-1 shall not be considered in the routing of a transmission facility unless the applicant shows that, under the circumstances, there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility, the Commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative routes. Maps of the avoidance areas for the Project Corridor/Route and revisions are in Volume II of the original application and in this amendment. Table 3.2-1 presents the changes to avoidance areas resulting from the Corridor/Route revisions.

**Table 3.2-1: Avoidance Areas**

<b>Avoidance Area</b>	<b>Present within Project Corridor/Route</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Designated or registered national: historic districts; wildlife areas; wild, scenic or recreational rivers; wildlife refuges; and grasslands	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.2, 5.8, 5.9
Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.2, 5.9
Historical resources which are not specifically designated as exclusion or avoidance areas	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.8
Areas which are geologically unstable	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.11
Within 500 feet of a residence, school, or place of business	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.1
Reservoirs and municipal water supplies	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.12
Water sources for organized rural water districts	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.12
Irrigated land	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.2, 5.10

<b>Avoidance Area</b>	<b>Present within Project Corridor/Route</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Areas of recreational significance which are not designated as exclusion areas	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.2, 5.7, 5.9

### 3.3 Selection Criteria

Per Section 69-06-08-02(3), a corridor or route shall be designated only when it is demonstrated to the Commission by the applicant that any significant adverse effects resulting from the location, construction, and maintenance of the facility, as they relate to the following, will be at an acceptable minimum, or that those effects will be managed and maintained at an acceptable minimum (Table 3.3-1). Maps of the selection criteria for the Project Corridor/Route and revisions are in Volume II of the original application and this amendment. Table 3.3-1 presents changes to the selection criteria resulting from the Corridor/Route revisions.

**Table 3.3-1: Selection Criteria**

<b>Selection Criteria</b>	<b>Potential Adverse Effects</b>	<b>Change due to Corridor/Route Revisions</b>	<b>Section Addressed</b>
Agricultural production	155.3 acres of cultivated cropland and 2.1 acres of pasture/hay land within the Corridor/Route. An additional 309.0 acres of grassland potentially available for grazing or hay production also occurs within the Corridor/Route. Current agricultural production would be maintained for most of the Corridor/Route. The only land unavailable for agriculture would be the area occupied by structures for a total of 0.1 acre (38.5 square feet per structure). There would be approximately 168 structures for the Corridor/Route.	5.3 additional acres of cultivated cropland; 4.1 fewer acres of pasture/hay land; 25.7 additional acres of grassland  115.5 additional square feet of land permanently unavailable for agriculture; it will be occupied by structures  3 additional structures	5.2, 5.10
Family farms and ranches	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.2, 5.10

<b>Selection Criteria</b>	<b>Potential Adverse Effects</b>	<b>Change due to Corridor/Route Revisions</b>	<b>Section Addressed</b>
Land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.2, 5.10
Surface drainage patterns and groundwater flow patterns	No changes from Corridor/Route revision.	No change from Corridor/Route revision.	5.12
Noise-sensitive land uses	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.6
The visual effect on the adjacent area	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.7
Extractive and storage resources	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.11
Wetlands, woodlands, and wooded areas	All 6.6 acres of wetlands within the Corridor/Route would be spanned. Approximately 3.4 acres of woodland would be removed within the Corridor/Route.	1.5 fewer acres of wetlands within the Corridor/Route 2.8 fewer acres of woodland would be removed within the Corridor/Route	5.13
Radio and television reception, and other communication or electronic control facilities	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.3, 5.4
Human health and safety	No changes from Corridor/Route revision.	No changes from Corridor/Route revision.	5.4

Selection Criteria	Potential Adverse Effects	Change due to Corridor/Route Revisions	Section Addressed
Plant life	Approximately 3.4 acres of woodland would be removed within the Corridor/Route. A total of approximately 0.1 acre of vegetation permanently removed within Corridor/Route at structure locations. Potential introduction of noxious weeds within Corridor/Route would be avoided by weed mitigation measures.	2.8 fewer acres of woodland would be removed with the Corridor/Route  115.5 additional square feet of land permanently removed at structure locations.	5.13

### 3.4 Policy Criteria

No changes from Corridor/Route revisions.

### 3.5 Design and Construction Limitations

No changes from Corridor/Route revisions.

### 3.6 Economic Considerations

No changes from Corridor/Route revisions.

## **4.0 ENGINEERING AND OPERATIONAL DESIGN**

Engineering design data is presented in Appendix C, and plan and profiles are provided in Appendix E. A legal description for the Project Corridor/Route is provided in Appendix F.

### **4.1 General Corridor/Route Description**

The general Corridor/Route description remains essentially the same as presented in the original application. The only changes includes the Corridor/Route revisions addressed in this amendment as described below. A figure of these Route Change areas follows Table 1.0-1.

The Corridor/Route revision #1 is located in McKenzie County, approximately 3 miles east of the Patent Gate Substation. The realignment occurs in Township 151N, Range 99W, Sections 31, 32, 33, and 34. This revision was developed to shift approximately 4 miles of the Corridor/Route approximately 0.8 mile south to accommodate landowner requests.

The Corridor/Route revision #2 is located in McKenzie County, approximately 9 miles east of the Patent Gate Substation. The realignment occurs in Township 151N, Range 98W, Sections 29, 30, and 31. This revision was developed to shift approximately 1 mile of the Corridor/Route approximately 0.1 mile west to minimize natural resources impacts by avoiding wetland and woodland areas along Tobacco Garden Creek.

#### **4.1.1 Transmission Line Characteristics**

No changes from Corridor/Route revisions.

#### **4.1.2 Associated Facilities and Project Components**

No changes from Corridor/Route revisions.

#### **4.1.3 Construction Techniques**

No changes from Corridor/Route revisions.

##### **4.1.3.1 Pre-Construction Activities**

No changes from Corridor/Route revisions. Figure 4.1-4 has been updated to include the revised Corridor/Route.

##### **4.1.3.2 Transmission Structure Site Preparation**

No changes from Corridor/Route revisions.

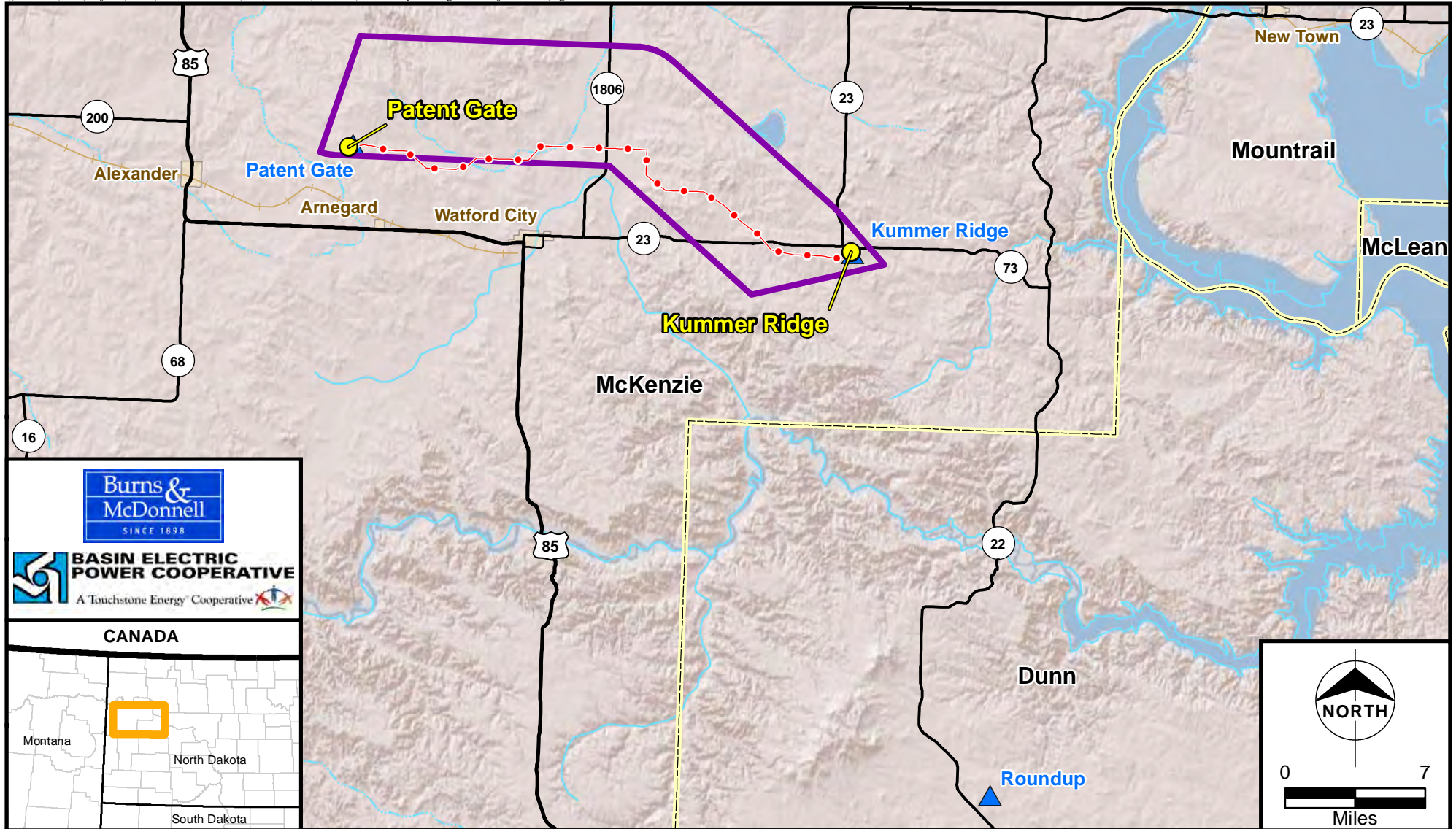


Figure 4.1-4  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Temporary Construction Material  
 and Equipment Laydown Areas

#### **4.1.3.3 Structure Assembly and Erection**

No changes from Corridor/Route revisions.

#### **4.1.3.4 Stringing and Tensioning of Conductors**

No changes from Corridor/Route revisions.

#### **4.1.3.5 Structure Site Access and Traffic**

No changes from Corridor/Route revisions.

#### **4.1.3.6 Substation Construction Procedures**

No changes from Corridor/Route revisions.

#### **4.1.3.7 Transmission Line Maintenance and Operation**

No changes from Corridor/Route revisions.

#### **4.1.3.8 Substation Maintenance**

No changes from Corridor/Route revisions.

#### **4.1.3.9 Construction Schedule and Projected Workforce**

No changes from Corridor/Route revisions.

#### **4.1.3.10 Procedures for Minimizing Environmental Impact during Construction**

No changes from Corridor/Route revisions.

#### **4.1.3.11 ROW and Property Issues**

No changes from Corridor/Route revisions.

## 5.0 ENVIRONMENTAL ANALYSIS

This amendment addresses two areas where changes have been made to the Corridor/Route. As previously discussed, these changes are minor. As a result, the type of resources affected and the amount of each resource affected are similar to those presented in the original application submitted in November 2014. This section presents information on only those resources for which a material change in the type or quantity of an affected resource occurred as a result of the Corridor/Route revisions. For each of these resources, a general description is provided, followed by a discussion of potential impacts and potential mitigation measures. However, sections have only been updated if there would be a material change resulting from the Corridor/Route revisions. The description of resources subsections discuss the resources and environmental settings found in the vicinity of the Project. The overall Corridor/Route extends for approximately 28.7 miles through McKenzie County in North Dakota. However, the Corridor/Route revisions are confined to small areas within McKenzie County.

North Dakota Century Code (NDCC) 49-22-09 lists factors to be considered in evaluating the application and designation of sites, corridors, and routes. The Commission shall be guided by, but is not limited to, the following considerations, where applicable, to aid in the evaluation and designation of sites, corridors and routes:

1. Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment;
2. The effects of new energy conversion and transmission technologies and systems designed to minimize adverse environmental effects;
3. The potential for beneficial uses of waste energy from a proposed energy conversion facility;
4. Adverse direct and indirect environmental effects which cannot be avoided should the proposed site or route be designated;
5. Alternatives to the proposed site, corridor, or route which are developed during the hearing process and which minimize adverse effects;
6. Irreversible and irretrievable commitments of natural resources should the proposed site, corridor, or route be designated;
7. The direct and indirect economic impacts of the proposed facility;

8. Existing plans of the State, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route;
9. The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites;
10. The effect of the proposed site or route on areas which are unique because of biological wealth or because they are habitats for rare and endangered species;
11. Problems raised by Federal agencies, other state agencies, and local entities.

The impact discussion subsections describe the potential effects of the Project on each resource. Based on the Corridor/Route alignment, a 150-foot-wide ROW was established to quantify the nature and extent of the impacts. For many of the resources discussed, such as vegetation and soils, impacts would be limited to this 150-foot-wide ROW. For other resources such as wildlife, recreation, and visibility, impacts may extend outside the ROW.

In addition to impacts associated with construction and operation of the proposed Project within a 150-foot-wide ROW, other potential impacts would result from construction-related facilities and activities. These would occur during the establishment of laydown and staging yards and during the development of access roads to structure locations. Impacts from these activities are discussed in general terms, as some of these details would not be known until later in the process when field survey and final design are completed and as coordination with landowners progresses.

The mitigation discussion subsections provide potential measures to reduce or eliminate anticipated adverse impacts identified. Standard mitigation measures have been incorporated into the development and construction of the proposed Project. These mitigation measures are designed to reduce or eliminate anticipated impacts resulting from the construction and/or operation of the proposed Project. They include Best Management Practices (BMP)s such as spanning wetlands, using silt fencing and applying other erosion-control measures, as well as using existing corridors where feasible for locating and constructing the transmission line. These standard mitigation measures are included in Appendix G, Standard Mitigation Measures.

## **5.1 Demographics**

### **5.1.1 Description of Resources**

No changes from Corridor/Route revisions.

## 5.1.2 Impacts

No changes from Corridor/Route revisions.

### 5.1.2.1 Regional Economy

No changes from Corridor/Route revisions.

### 5.1.2.2 Population

No changes from Corridor/Route revisions.

### 5.1.2.3 Housing

No changes from Corridor/Route revisions.

### 5.1.2.4 Employment and Income

No changes from Corridor/Route revisions.

### 5.1.2.5 Property Values

No changes from Corridor/Route revisions.

### 5.1.2.6 Property Taxes

Table 5.1-10 summarizes the tax receipts to McKenzie County associated with the 58.7 miles of transmission line. This table reflects the additional property tax revenue estimated to be generated by the Corridor/Route revisions in this amendment due to the additional 0.6 mile of 345-kV transmission line.

**Table 5.1-10: Property Tax Revenue Changes to McKenzie County  
 Associated with the Corridor/Route Revisions**

	Corridor/Route (miles)	Year 2	Year 3	Year 4	Years 5-45
McKenzie County	28.7	\$2,153	\$4,305	\$6,458	\$8,610
Change due to Corridor/Route revision	0.6	\$45	\$90	\$135	\$180

Source: Staff calculations based on North Dakota Title 57, Taxation, n.d.

### 5.1.2.7 Impacts to Residences

No changes from Corridor/Route revisions.

## 5.1.3 Mitigation

No changes from Corridor/Route revisions.

## **5.2 Land Use**

### **5.2.1 Description of Resources**

#### **5.2.1.1 Regional Setting**

No changes from Corridor/Route revisions.

#### **5.2.1.2 Existing Land Use**

No changes from Corridor/Route revisions.

#### **5.2.1.3 Zoning**

No changes from Corridor/Route revisions.

#### **5.2.1.4 Comprehensive Plans**

No changes from Corridor/Route revisions.

#### **5.2.1.5 State and Federal Properties**

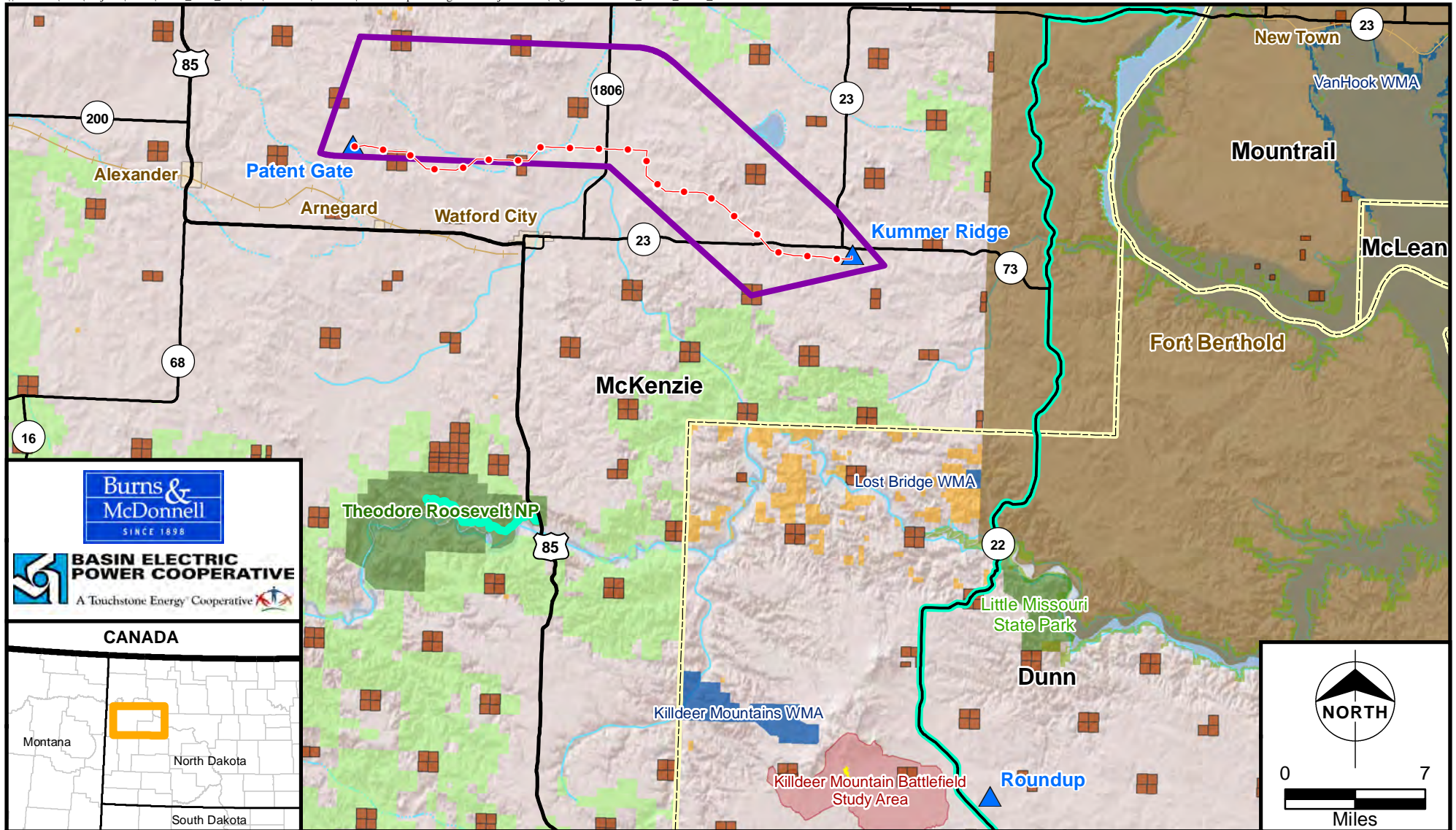
No changes from Corridor/Route revisions. Figure 5.2-1 has been updated to include the revised Corridor/Route.

### **5.2.2 Impacts**

No changes from Corridor/Route revisions.

#### **5.2.2.1 Agricultural Land Use Impacts**

The Project would require approximately 9.9 additional acres of ROW due to the Corridor/Route revision, for a total of about 521.9 acres of ROW. Current agricultural practices could be maintained within the ROW. Areas of cropland within the ROW could continue to be farmed. The only land that would be unavailable for agriculture would be the area occupied by structures on tillable land. Only three additional structures would be necessary for the Corridor/Route revisions, although changes in the placement of other structures may be necessary as part of the Corridor/Route revisions. This land would be removed from production, and structures would present obstacles that would need to be avoided.



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**BASIN ELECTRIC POWER COOPERATIVE**  
A Touchstone Energy Cooperative

**CANADA**

Montana North Dakota South Dakota

- |                          |   |                 |
|--------------------------|---|-----------------|
| Study Corridor           | Tribal Lands                                      | County Boundary |
| Project Corridor/Route   | BLM Lands   | Municipal Areas |
| Proposed Substation      | Wildlife Management Areas                         | Railroad        |
| National or State Park   | Killdeer Mountain Battlefield State Historic Site | Scenic Byway    |
| National Grassland       | Killdeer Mountain Battlefield Study Area          |                 |
| State School Trust Lands | Army Corps of Engineers                           |                 |

Figure 5.2-1  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Federal and State-Owned Lands

Table 5.2-1 shows the acreages of each land use type within the revised Corridor/Route.

**Table 5.2-1: Acres of Land Affected within Revised Corridor/Route**

<b>Land Use<sup>a</sup></b>	<b>Revised Project Corridor/Route (acres)</b>	<b>Change due to Corridor/Route Revisions (acres)</b>
Grassland	309.0	+25.7
Cultivated cropland	155.3	+5.3
Pasture/hay	2.1	-4.1
Developed lands	10.0	-10.1
Barren lands	2.5	0.0
Emergent wetland <sup>b</sup>	0.5	-0.1
Shrub/scrub	39.2	-3.8
Woodland	3.4	-2.8
<b>Total</b>	<b>521.9</b>	<b>+9.9</b>

(a) Source: National Land Cover Dataset

(b) Wetland acreage in this table is based on National Land Cover Dataset data and not National Wetland Inventory (NWI) data

### 5.2.2.2 Zoning and Land Use Plans

No changes from Corridor/Route revisions.

### 5.2.2.3 State and Federal Properties

No changes from Corridor/Route revisions.

### 5.2.3 Mitigation

No changes from Corridor/Route revisions.

## 5.3 Infrastructure/Transportation

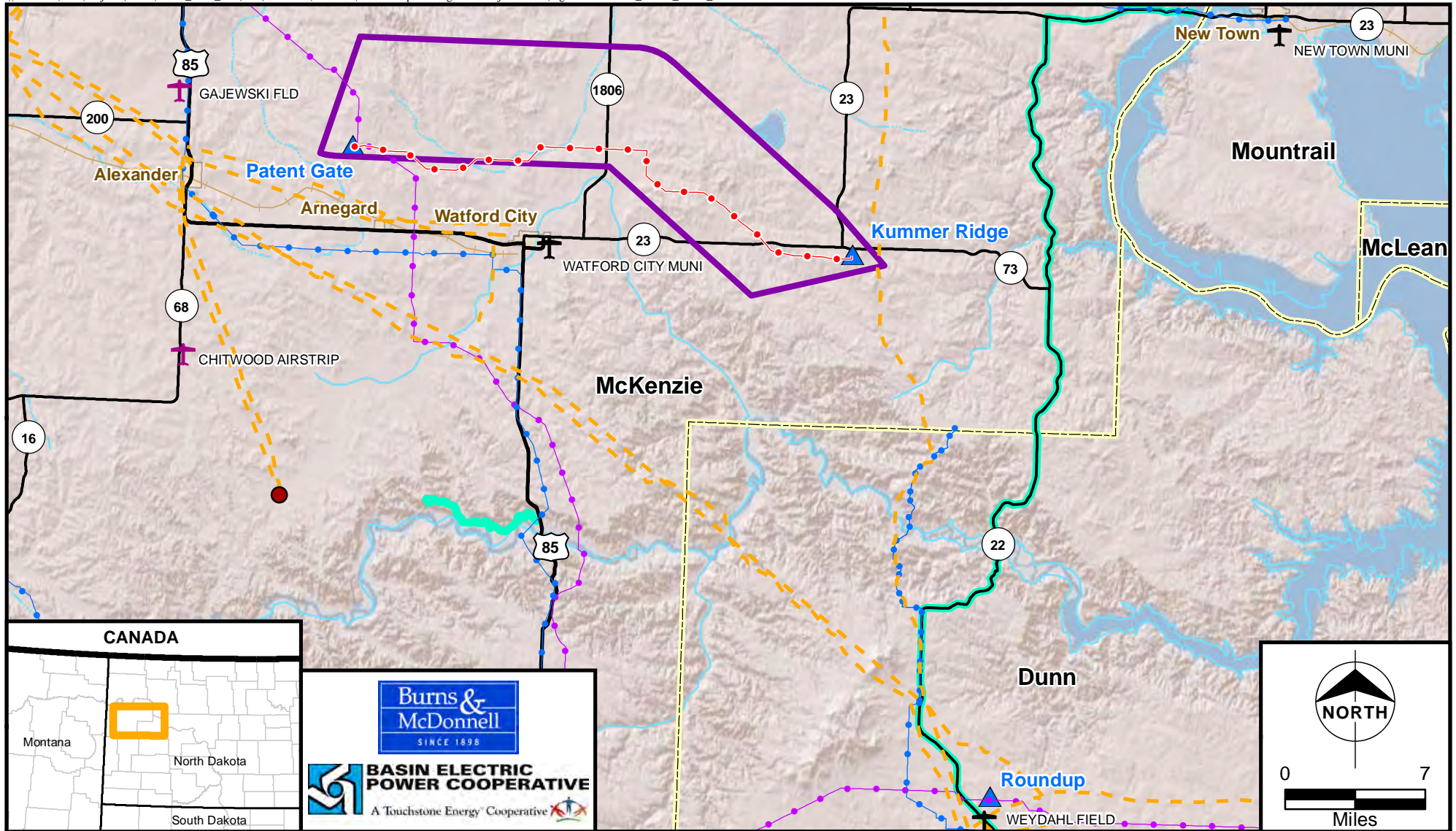
### 5.3.1 Description of Resources

#### 5.3.1.1 Regional Setting

No changes from Corridor/Route revisions. Figure 5.3-1 has been updated to include the revised Corridor/Route.

#### 5.3.1.2 Utility Infrastructure

No changes from Corridor/Route revisions.



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**BASIN ELECTRIC POWER COOPERATIVE**  
A Touchstone Energy Cooperative

- |                        |                 |               |                                    |
|------------------------|-----------------|---------------|------------------------------------|
| Study Corridor         | Public Airport  | U.S. Highway  | <b>Existing Transmission Lines</b> |
| Project Corridor/Route | Private Airport | State Highway | 345-kV                             |
| Proposed Substation    | Gas Plants      | Scenic Byway  | 230-kV and Below                   |
| County Boundary        | Pipeline        |               |                                    |
| Municipal Areas        | Railroad        |               |                                    |

Figure 5.3-1  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Transportation and Utilities

### **5.3.1.3 Transportation Infrastructure**

No changes from Corridor/Route revisions.

## **5.3.2 Impacts**

No changes from Corridor/Route revisions.

### **5.3.2.1 Utility Infrastructure**

No changes from Corridor/Route revisions.

### **5.3.2.2 Transportation Infrastructure**

The revised Corridor/Route has 2 fewer road crossings, for a total of 21 crossings. Construction at road crossings may result in occasional short-term traffic delays during the stringing of conductors across the roadway. Traffic would likely be detoured or temporarily halted as conductors are pulled across the road.

Following completion of construction, impacts to transportation and infrastructure would largely cease. Infrequent and short-term congestion and road closures may be necessary for maintenance and repair activities. Road crossing permits would be acquired from the affected counties as part of the requirements for construction of the Project.

### **5.3.2.3 Railroads**

No changes from Corridor/Route revisions.

### **5.3.2.4 Airports and Airstrips**

No changes from Corridor/Route revisions.

### **5.3.2.5 Substation Impacts**

No changes from Corridor/Route revisions.

## **5.3.3 Mitigation**

No changes from Corridor/Route revisions.

## **5.4 Public Health and Safety**

No changes from Corridor/Route revisions.

## **5.5 Air Quality**

No changes from Corridor/Route revisions.

## **5.6 Noise**

No changes from Corridor/Route revisions.

## **5.7 Visual Impacts**

No changes from Corridor/Route revisions.

## **5.8 Cultural Resources**

A Class III cultural resource survey was performed on the two Corridor/Route revisions. No impacts to cultural resources were identified.

## **5.9 Recreational Resources**

No changes from Corridor/Route revisions.

### **5.9.1 Description of Resources**

No changes from Corridor/Route revisions.

#### **5.9.1.1 Regional Setting**

No changes from Corridor/Route revisions.

#### **5.9.1.2 Facilities**

No changes from Corridor/Route revisions. Figure 5.9-1 has been updated to include the revised Corridor/Route.

#### **5.9.1.3 Hunting and Fishing**

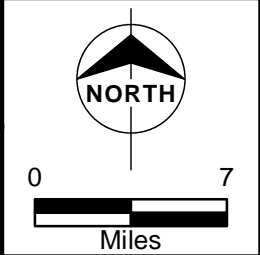
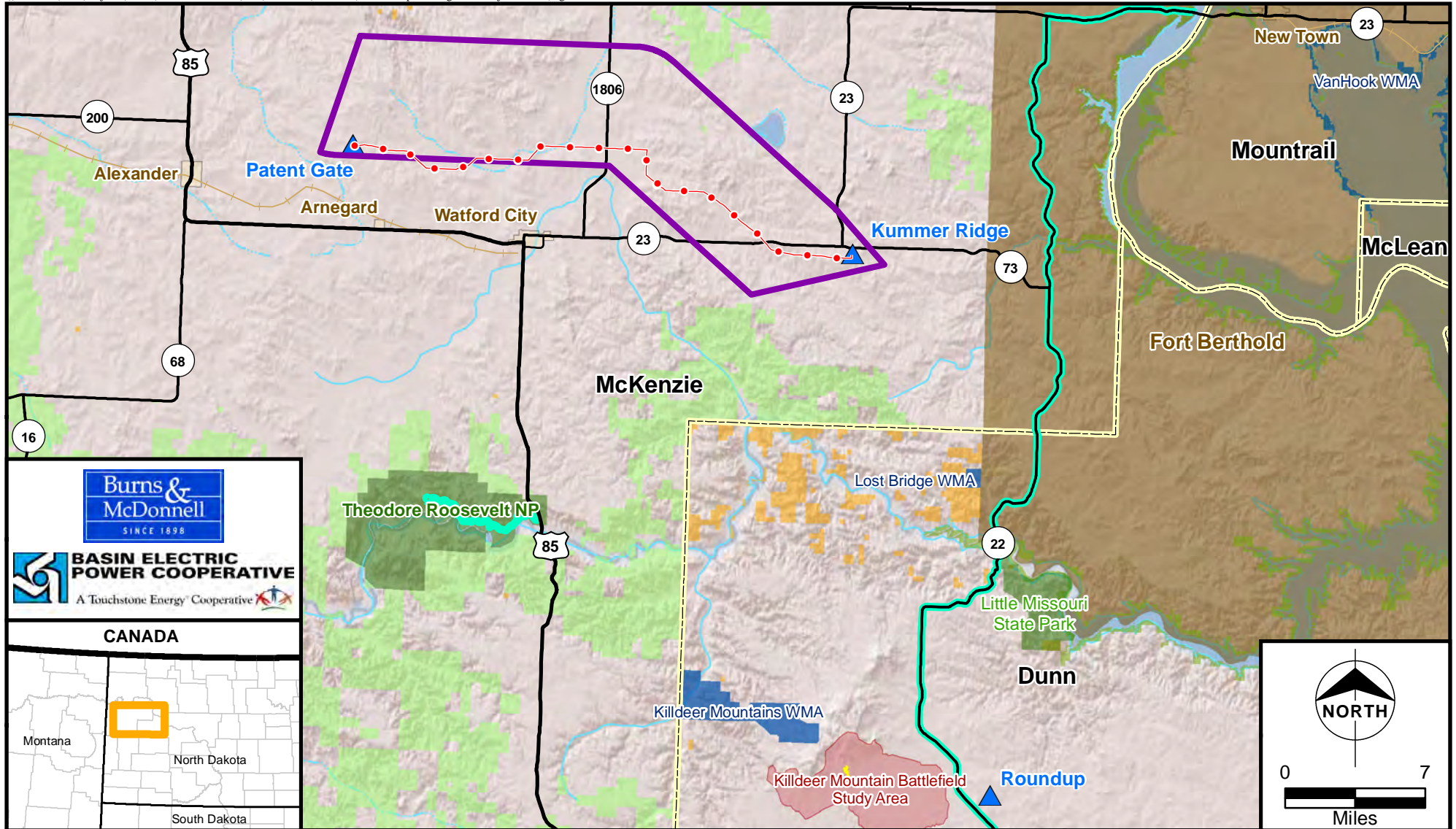
No changes from Corridor/Route revisions.

### **5.9.2 Impacts**

No changes from Corridor/Route revisions.

### **5.9.3 Mitigation**

No changes from Corridor/Route revisions.



- |                         |   |                 |
|-------------------------|---|-----------------|
| Study Corridor          | Tribal Lands                                      | County Boundary |
| Project Corridor/Route  | BLM Lands   | Municipal Areas |
| Proposed Substation     | Wildlife Management Areas                         | Railroad        |
| National or State Park  | Killdeer Mountain Battlefield State Historic Site |                 |
| Army Corps of Engineers | Killdeer Mountain Battlefield Study Area          |                 |
| National Grassland      | Scenic Byway                                      |                 |

Figure 5.9-1  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Recreation Areas

## **5.10 Soils and Farmlands**

### **5.10.1 Description of Resources**

#### **5.10.1.1 Soils**

No changes from Corridor/Route revisions.

#### **5.10.1.2 Farmland**

No changes from Corridor/Route revisions.

#### **5.10.1.3 Prime Farmland**

No changes from Corridor/Route revisions. Figure 5.10-1 has been updated to include the revised Corridor/Route.

### **5.10.2 Impacts**

No changes from Corridor/Route revisions.

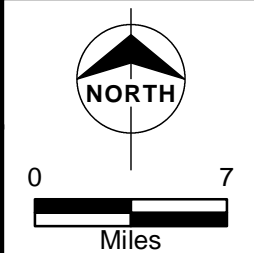
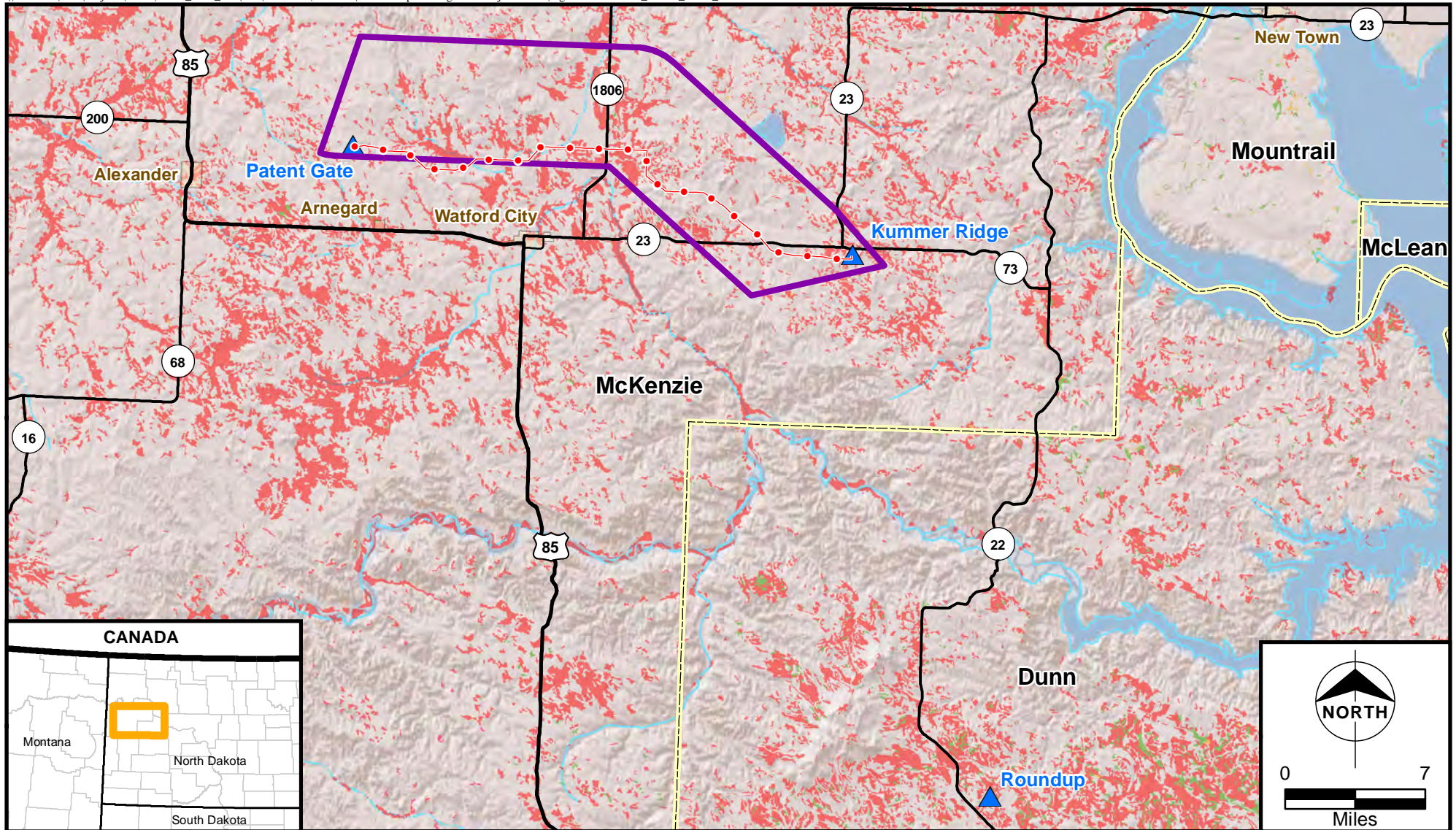
#### **5.10.2.1 Soils**

Approximately 9.9 additional acres of surface soil would be incorporated into the Corridor/Route ROW for a total of 521.9 acres, although the acreage that would actually be disturbed would be far less.

Permanent impacts to soils would include the disturbance of an additional 115.5 square feet (0.1 acre total) of soil where transmission structures (168 total) would be placed. No other changes to this section were identified.

#### **5.10.2.2 Farmland**

Approximately 5.3 additional acres of cultivated cropland would be incorporated into the Corridor/Route ROW by the proposed revision, for a total of 155.3 acres for the Project. It is likely that impacts would not occur across the entire 155.3 acres, because most impacts would be temporary and occur during construction. Permanent impacts requiring the removal of cropland from production would occur only at the structure locations. The remaining acreage within the ROW would be allowed to return to cropland following completion of construction. Approximately 21.6 additional combined acres of grassland, pasture, or hay land would occur within the Corridor/Route, for a total of 311.1 acres. No other changes to this section were identified.



- Study Corridor
- Project Corridor/Route
- ▲ Proposed Substation
- County Boundary
- Municipal Areas
- Prime Farmland
- Farmland of Statewide Importance
- Prime Farmland if Drained



Figure 5.10-1  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Prime and Important Farmland

### 5.10.2.3 Prime Farmland

The Corridor/Route revisions would result in 21.2 fewer acres of farmland of statewide importance within the ROW, for a Project total of approximately 92.6 acres. Table 5.10-4 identifies the farmland soils within the ROW. No other changes to this section were identified.

**Table 5.10-4: Acres of Prime Farmland within Revised Corridor/Route**

<b>Farmland Classification</b>	<b>Acres in Revised Corridor/Route</b>	<b>Change due to Corridor/Route Revisions</b>
Not prime farmland	429.3	+31.0
All areas are prime farmland	0.0	0.0
Farmland of statewide importance	92.6	-21.2
Prime farmland if drained	0.0	0.0
Prime farmland if irrigated	0.0	0.0
<b>Total</b>	<b>521.9</b>	<b>+9.9</b>

Source: USDA SSURGO Data, 2011

### 5.10.3 Mitigation

No changes from Corridor/Route revisions.

## 5.11 Geology and Landforms

### 5.11.1 Description of Resources

#### 5.11.1.1 Regional Setting

No changes from Corridor/Route revisions.

#### 5.11.1.2 Terrain

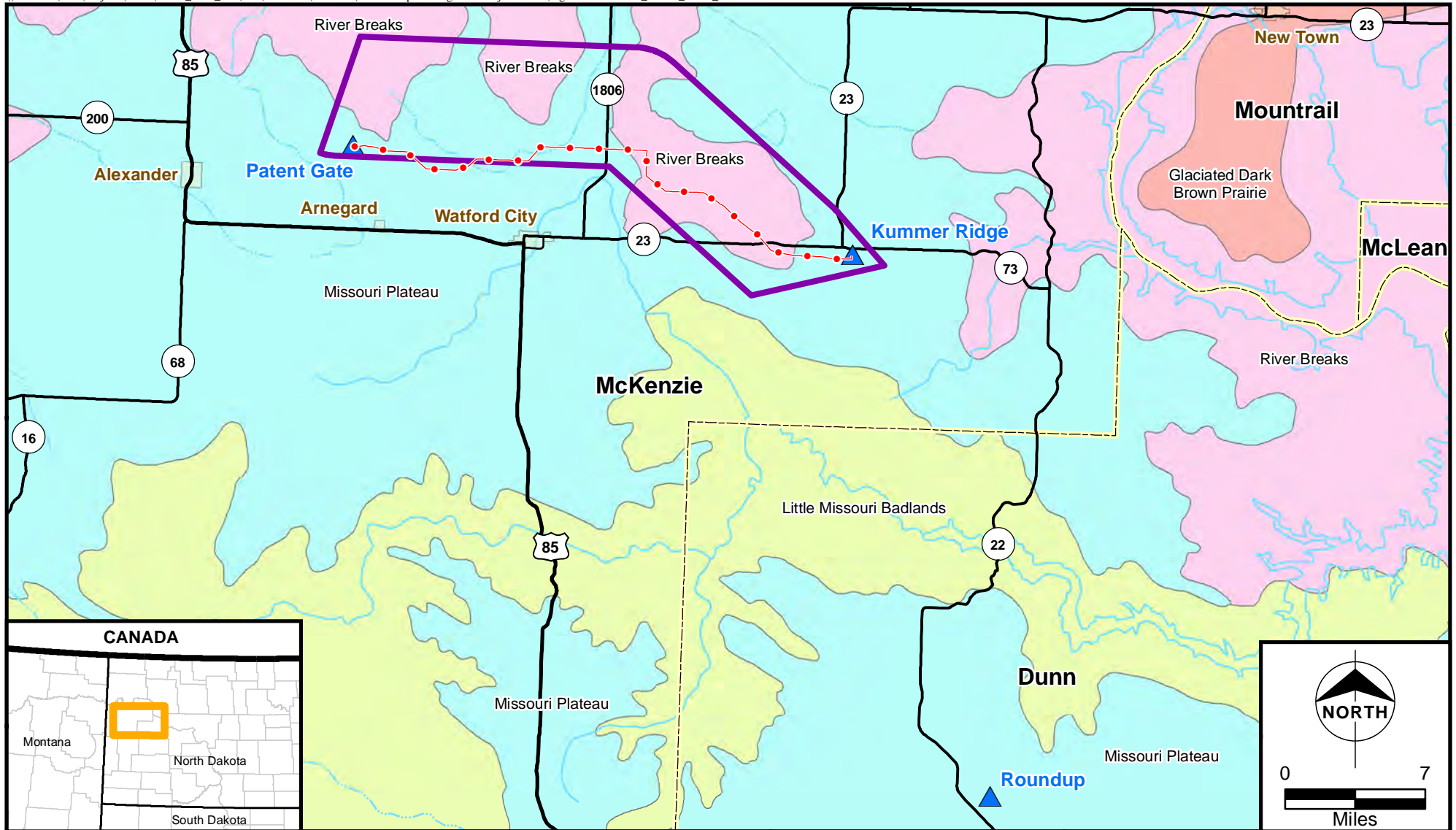
No changes from Corridor/Route revisions.

#### 5.11.1.3 General Geology

No changes from Corridor/Route revisions. Figure 5.11-1 has been updated to include the revised Corridor/Route.

#### 5.11.1.4 Oil Shale

No changes from Corridor/Route revisions. Figure 5.11-2 and Figure 5.11-3 have been updated to include the revised Corridor/Route.



Study Corridor

Project Corridor/Route

Proposed Substation

County Boundary

Municipal Areas

**Ecoregions**

River Breaks

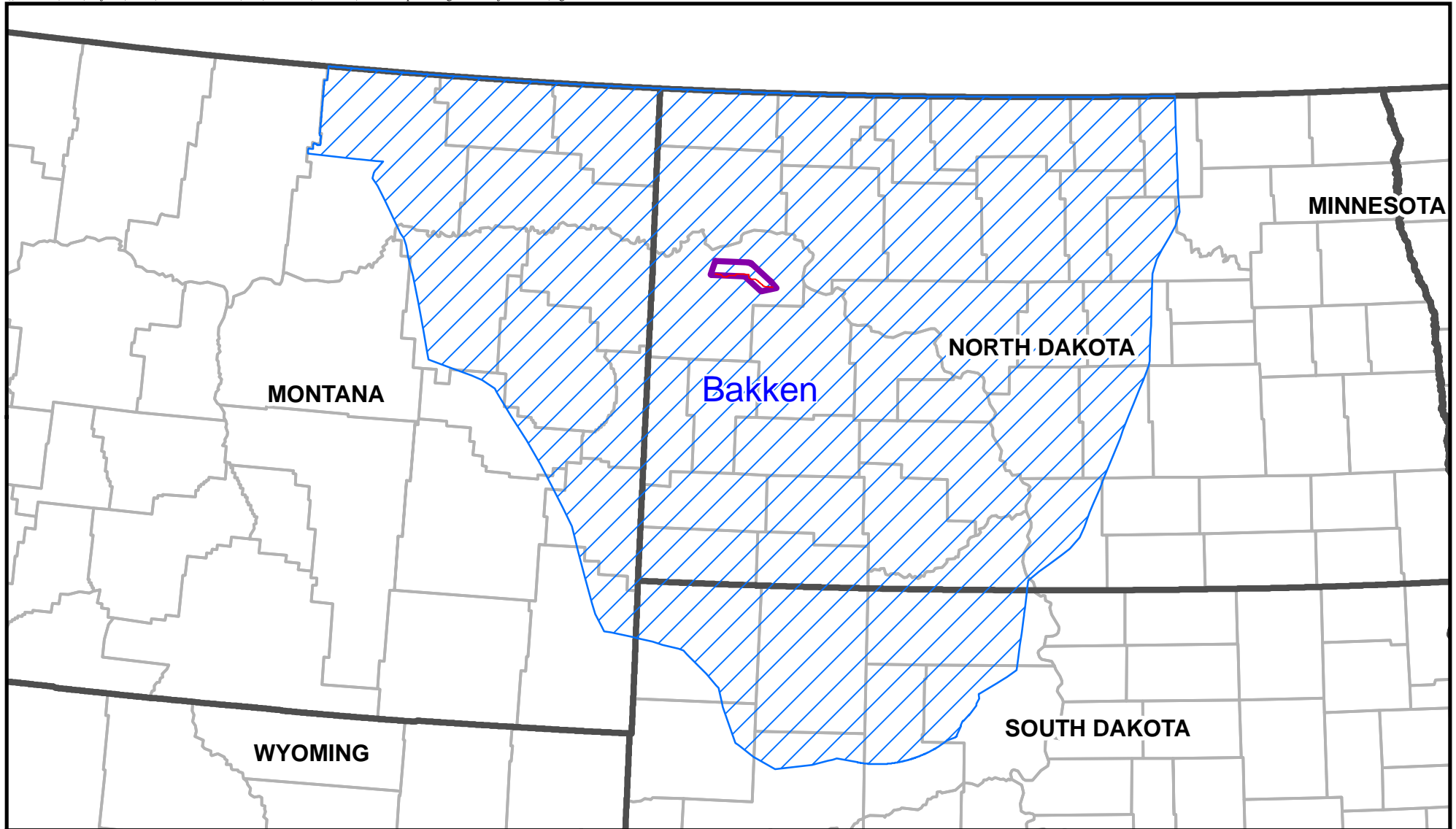
Little Missouri Badlands






Missouri Plateau

Glaciated Dark Brown Prairie



Figure 5.11-1  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Ecoregions within the Study Corridor



-  Study Corridor
-  Project Corridor/Route
-  Bakken Shale Formation
-  State Boundary
-  County Boundary

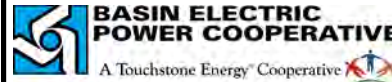
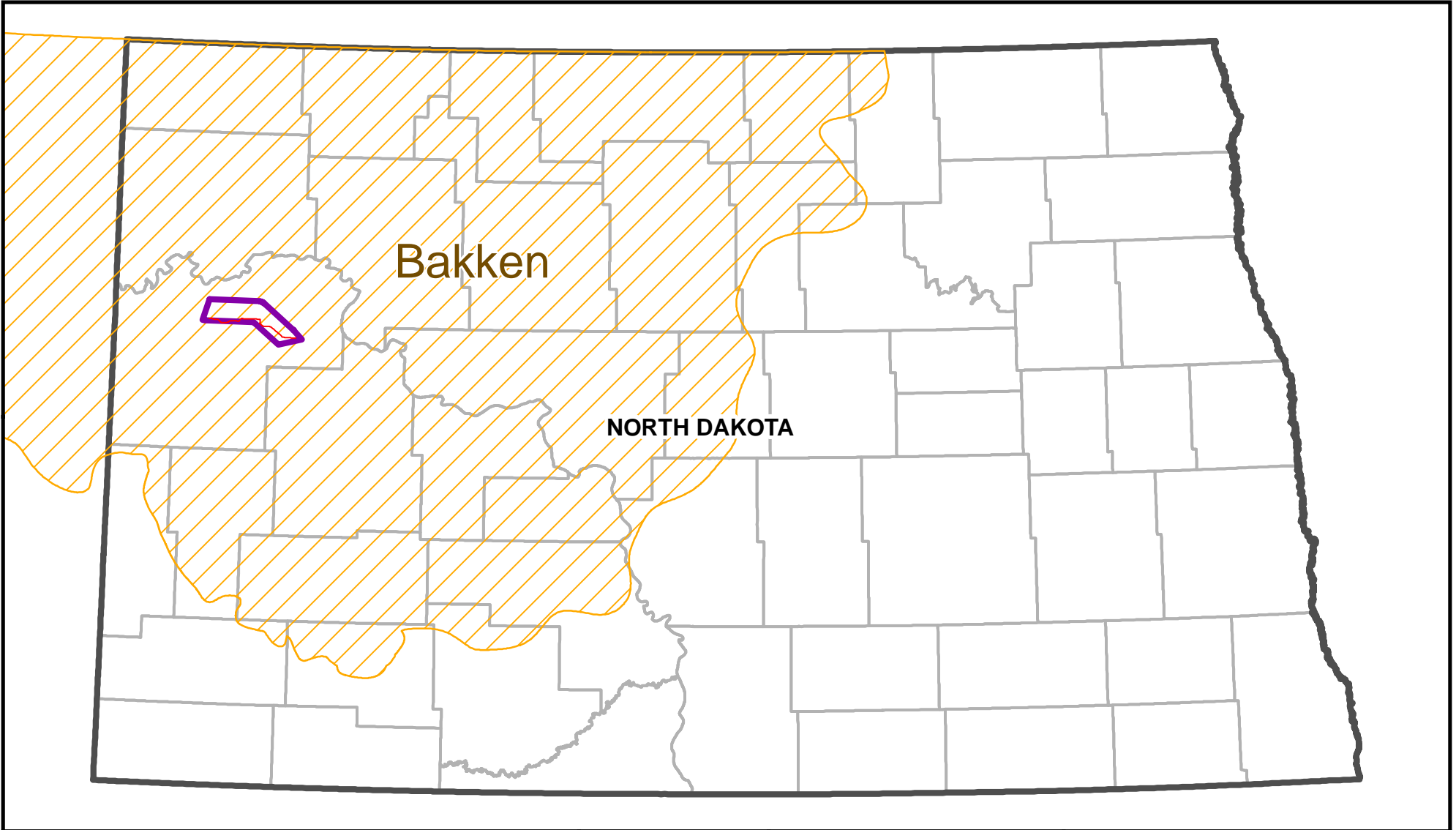


Figure 5.11-2  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Bakken Shale Formation  
in the U.S.








-  Study Corridor
-  Project Corridor/Route
-  State Boundary
-  County Boundary
-  Bakken Formation



Figure 5.11-3  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Bakken Formation

### **5.11.1.5 Mineral Resources**

No changes from Corridor/Route revisions.

### **5.11.2 Impacts**

No changes from Corridor/Route revisions. Figure 5.11-4 has been updated to include the revised Corridor/Route.

#### **5.11.2.1 Landslides**

Approximately 4,500 additional cubic feet (252,000 cubic feet total) of displaced soil and/or rock would be anticipated for the 3 additional structures (168 structures total) that would be necessary for the Corridor/Route revision. This displaced soil and rock would be used for backfilling around structure foundations, and excess material would be removed from the site to locations directed by the landowner or disposed of at another location. No other changes to this section were identified. Figure 5.11-5 has been updated to include the revised Corridor/Route.

### **5.11.3 Mitigation**

No changes from Corridor/Route revisions.

## **5.12 Water Resources**

### **5.12.1 Description of Resources**

#### **5.12.1.1 Regional Setting**

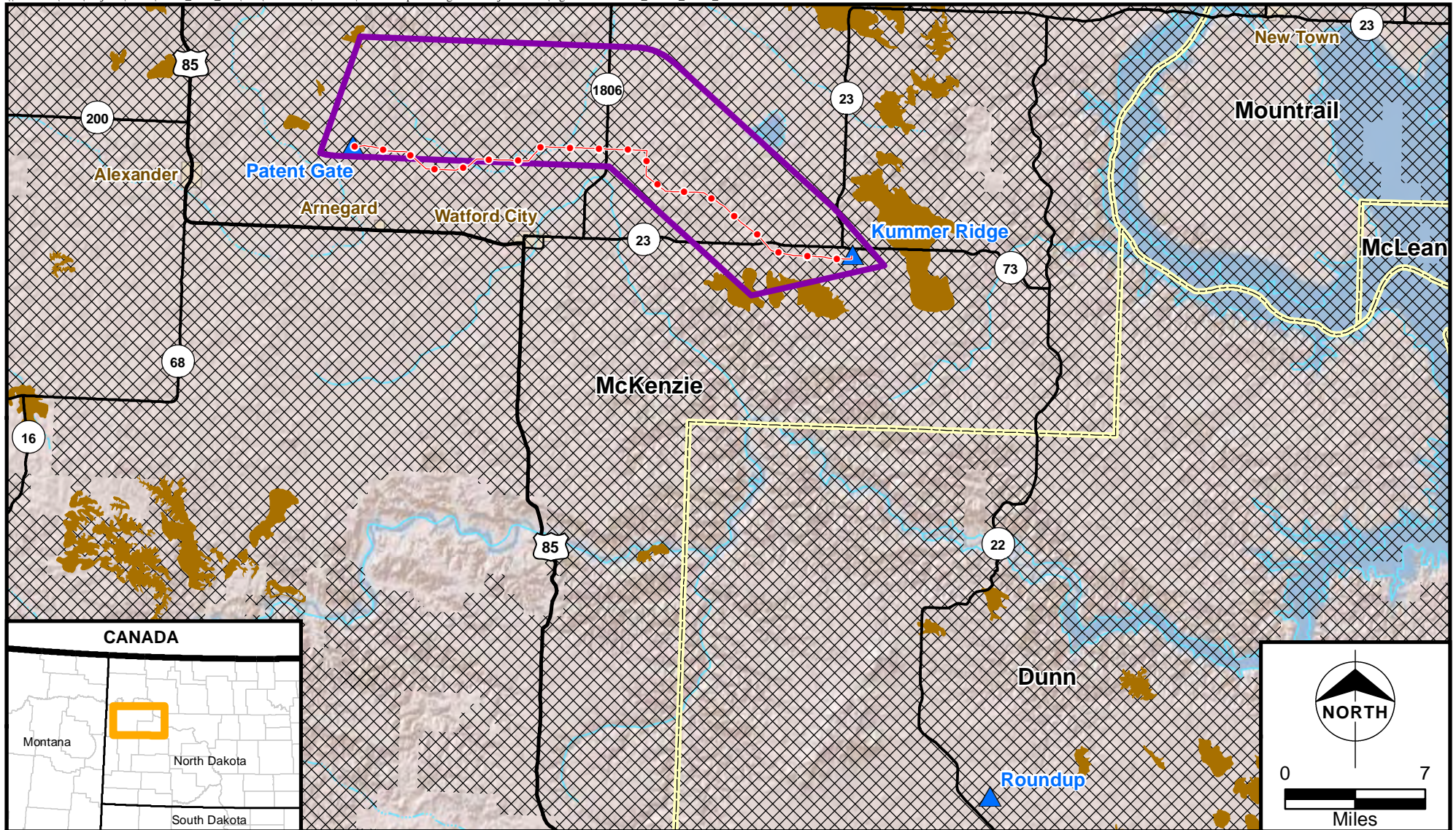
No changes from Corridor/Route revisions.

#### **5.12.1.2 Surface Water**

No changes from Corridor/Route revisions. Figure 5.12-1 has been updated to include the revised Corridor/Route.

#### **5.12.1.3 Floodplains**

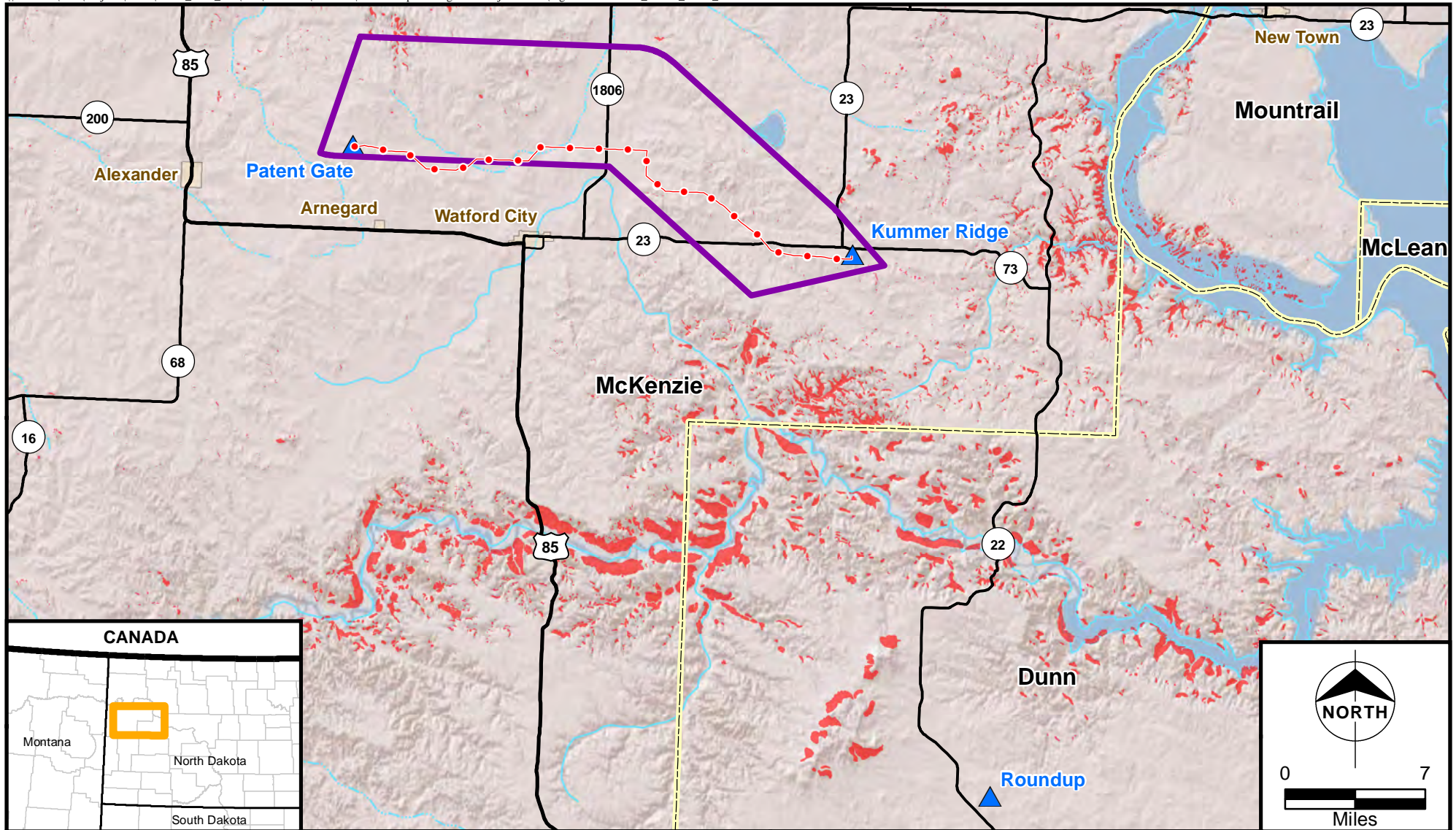
No changes from Corridor/Route revisions.



- Study Corridor
- Project Corridor/Route
- Proposed Substation
- County Boundary
- Municipal Areas
- Coal Fields
- Oil Fields



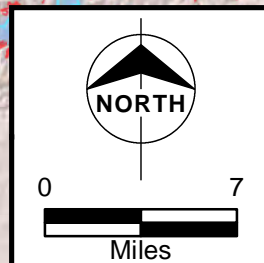
Figure 5.11-4  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Oilfields and Coal Deposits

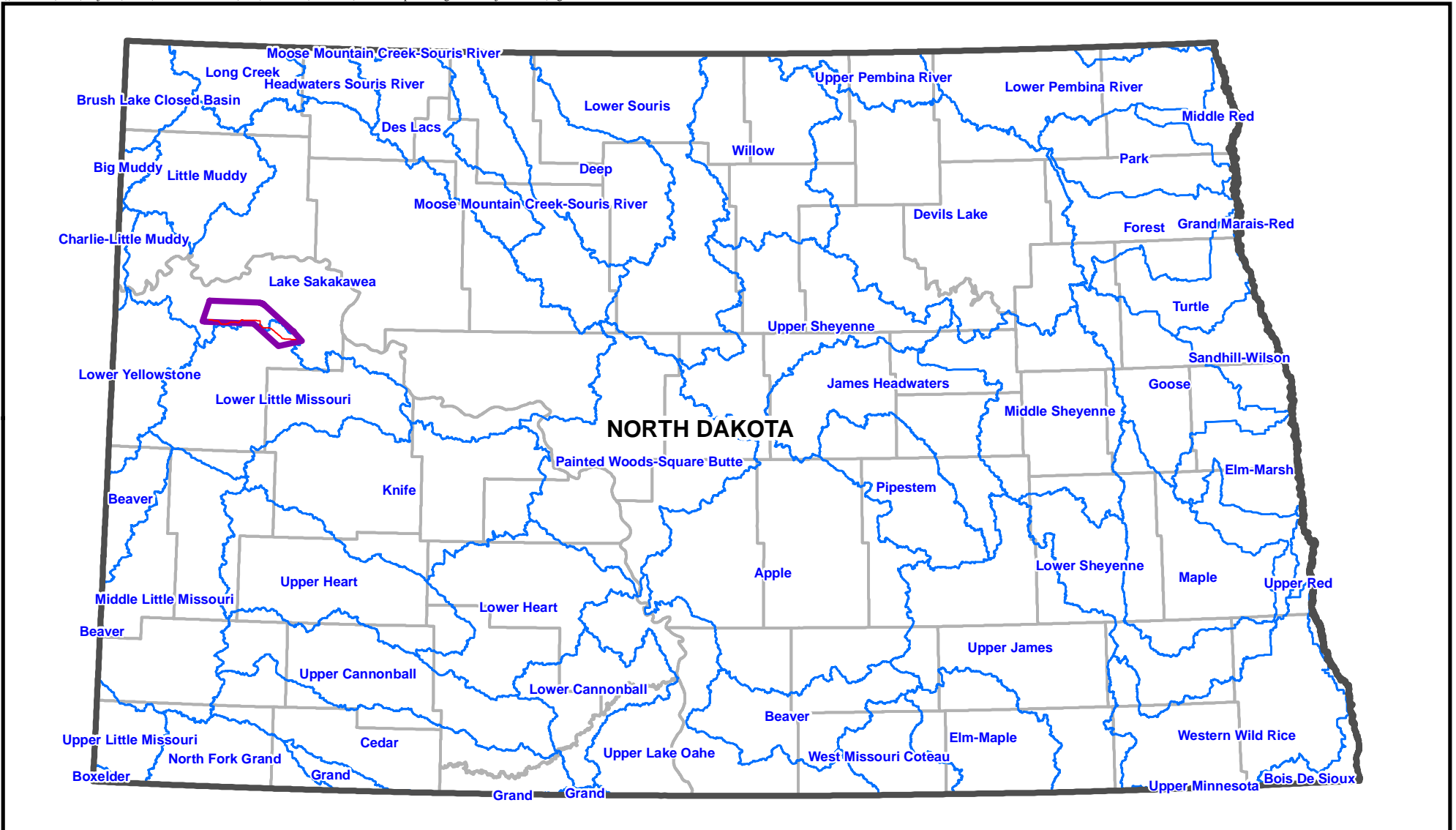


- Study Corridor
- Project Corridor/Route
- Proposed Substation
- County Boundary
- Municipal Areas
- Landslide Deposits








Figure 5.11-5  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Landslide Areas





**NORTH DAKOTA**

-  Study Corridor
-  Project Corridor/Route
-  State Boundary
-  County Boundary
-  Major Drainage Sub-Basins

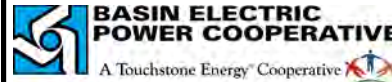


Figure 5.12-1  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Major Drainage Sub-Basins

#### **5.12.1.4 Groundwater**

No changes from Corridor/Route revisions. Figure 5.12-2 has been updated to include the revised Corridor/Route.

#### **5.12.1.5 Hydrogeology Formations**

No changes from Corridor/Route revisions. Figure 5.12-2 has been updated to include the revised Corridor/Route.

#### **5.12.1.6 Missouri River Basin Water Supply and Water Use Information**

No changes from Corridor/Route revisions.

##### **5.12.1.6.1 Water Use**

No changes from Corridor/Route revisions.

##### **5.12.1.6.2 Water Supply Development Initiatives within the Project Area**

No changes from Corridor/Route revisions. Figure 5.12-3 has been updated to include the revised Corridor/Route.

#### **5.12.2 Impacts**

No changes from Corridor/Route revisions.

#### **5.12.3 Mitigation**

No changes from Corridor/Route revisions.

### **5.13 Biological Resources**

#### **5.13.1 Description of Resources**

##### **5.13.1.1 Regional Setting**

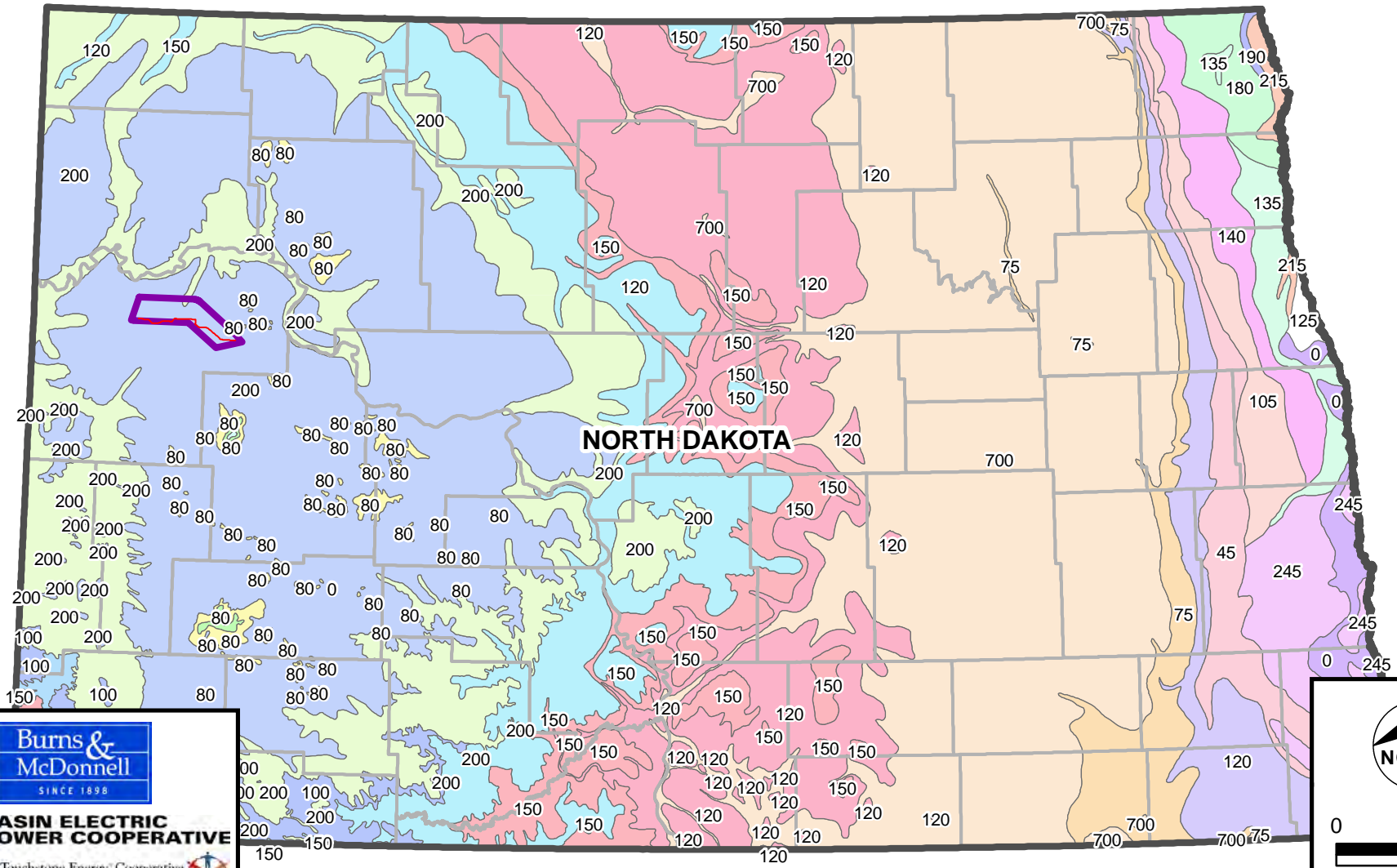
No changes from Corridor/Route revisions.

##### **5.13.1.2 Vegetation**

No changes from Corridor/Route revisions.

##### **5.13.1.3 Wildlife**

No changes from Corridor/Route revisions.

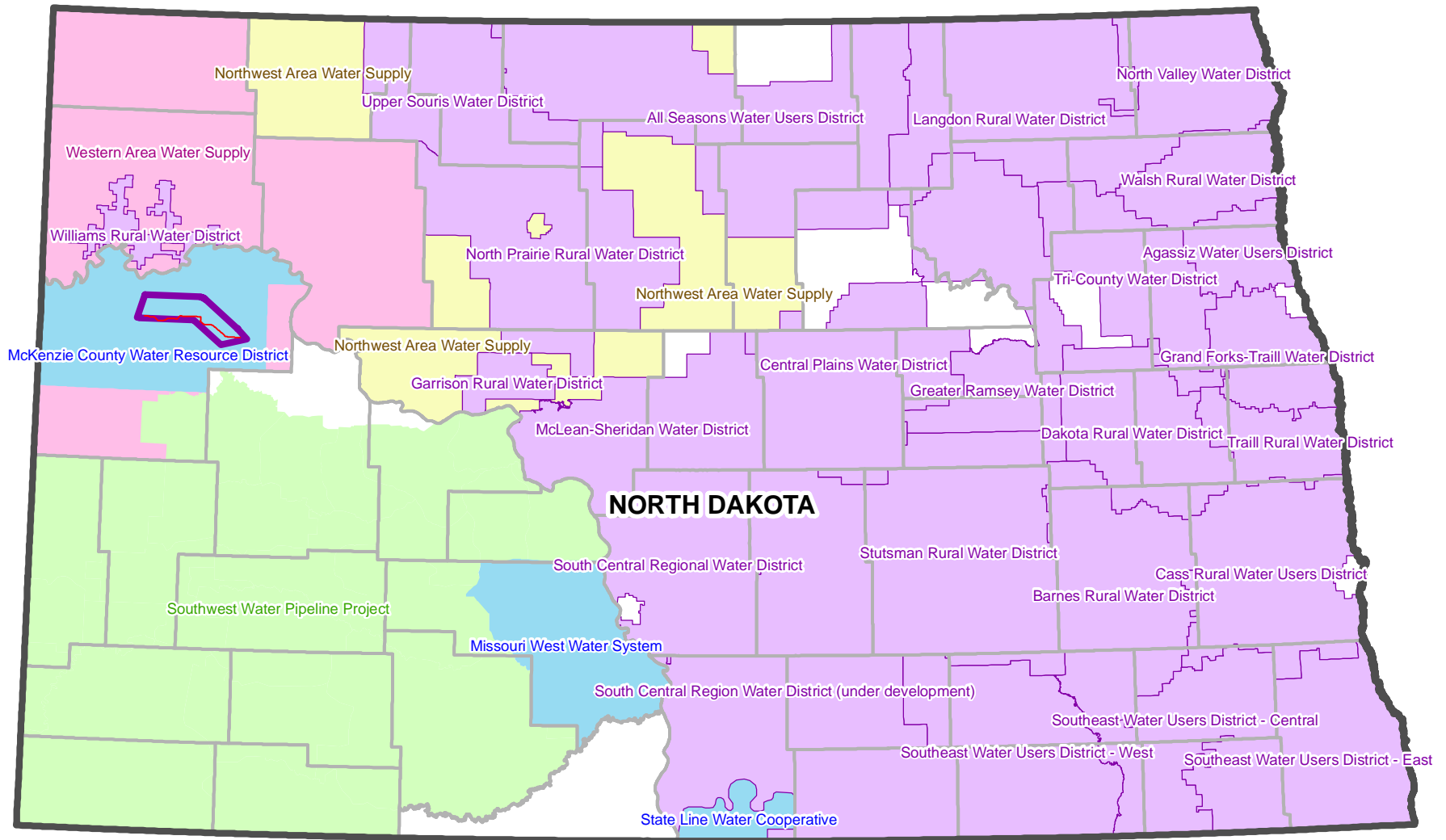











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**BASIN ELECTRIC POWER COOPERATIVE**  
A Touchstone Energy Cooperative

- |  |                                   |                                     |
|--|-----------------------------------|-------------------------------------|
| Study Corridor                               | Carlile Formation                 | Pierre Formation                    |
| Project Corridor/Route                       | Fox Hills Formation               | Piper Fm. Equivalent                |
| State Boundary                               | Golden Valley Formation           | Red River Formation                 |
| County Boundary                              | Greenhorn Formation               | Sentinel Butte Formation            |
| Belle Fourche                                | Hell Creek Formation              | Slope Formation                     |
| Belle Fourche, Mowry, Newcastle, Skull Creek | Inyan Kara                        | Tertiary, Undivided                 |
| Brule and Chadron Formations                 | Ludlow Formation                  | Undifferentiated Jurassic sediments |
| Bullion Creek Formation                      | Mowry, Newcastle, and Skull Creek | Unnamed                             |
| Cannonball Formation                         | Niobrara Formation                |                                     |

Figure 5.12-2  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Bedrock Formations



-  Study Corridor
-  Project Corridor/Route
-  State Boundary
-  County Boundary
-  Rural Water Districts
-  Rural Water Associations
-  Northwest Area Water Supply
-  Southwest Water Pipeline Project
-  Western Area Water Supply

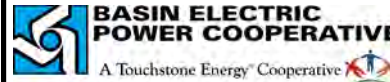


Figure 5.12-3  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 Regional Water Systems

### 5.13.1.4 Wetlands

No changes from Corridor/Route revisions. Figure 5.13-5 has been updated to include the revised Corridor/Route.

### 5.13.1.5 Special Status Species

#### 5.13.1.5.1 Endangered Species Act Species and Critical Habitat

No changes from Corridor/Route revisions. Figure 5.13-6 has been updated to include the revised Corridor/Route.

#### 5.13.1.5.2 USFS Sensitive and Management Indicator Species

No changes from Corridor/Route revisions.

#### 5.13.1.5.3 North Dakota Species of Conservation Priority

No changes from Corridor/Route revisions.

### 5.13.2 Impacts

No changes from Corridor/Route revisions.

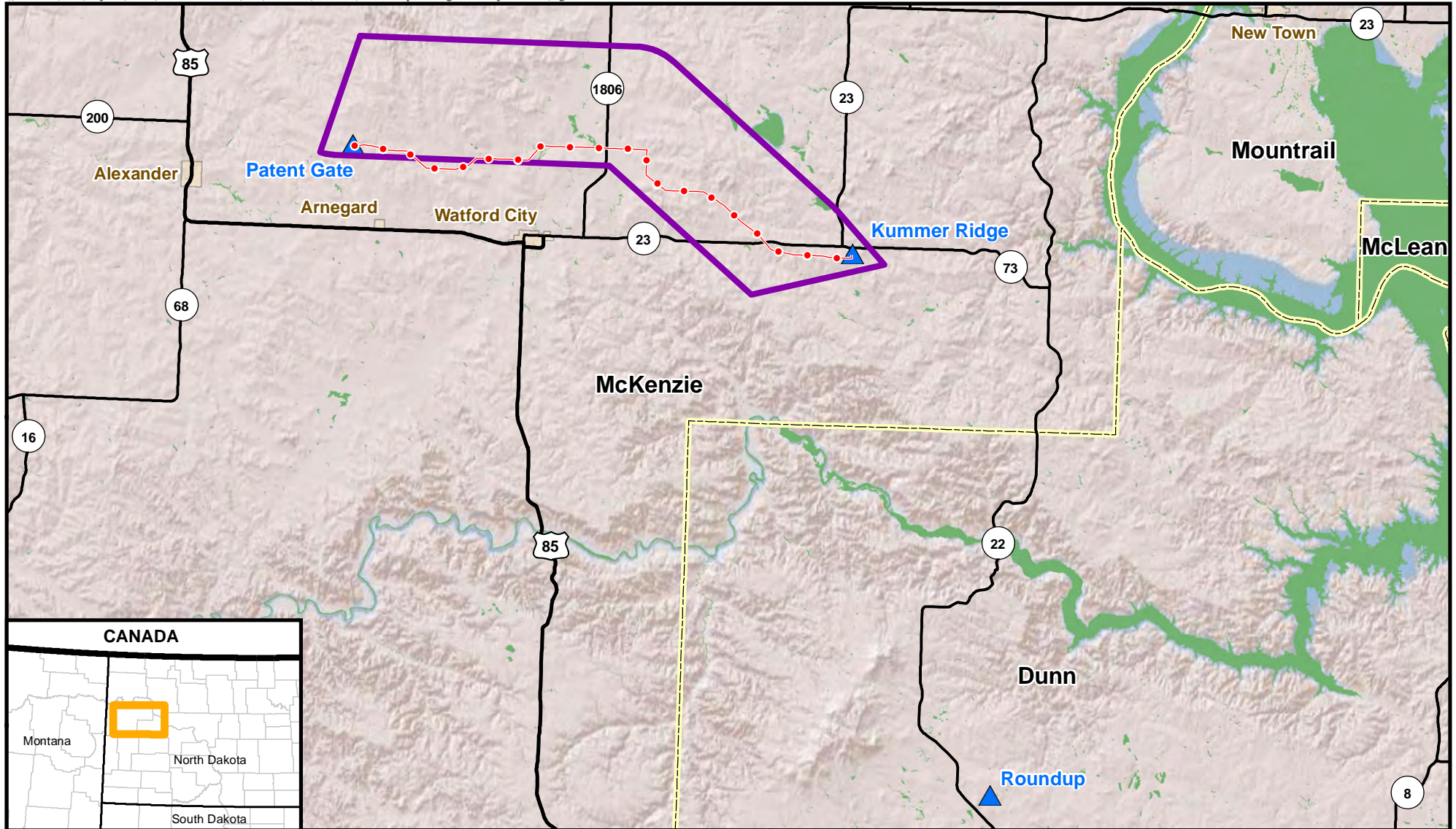
#### 5.13.2.1 Vegetation







Table 5.13-4 presents the potential number of acres impacted within the Project Corridor/Route for each vegetation type.

**Table 5.13-4: Vegetation Types within Corridor/Route**

<b>Vegetation Type</b>	<b>Revised Corridor/Route (acres)</b>	<b>Change due to Corridor/Route Revisions</b>
Woodland	3.4	-2.8
Grassland	309.0	+25.7
Pasture/hay land	2.1	-4.1
Cultivated cropland	155.3	+5.3

Source: National Land Cover Dataset



-  Study Corridor
-  Project Corridor/Route
-  Proposed Substation
-  County Boundary
-  Municipal Areas
-  NWI Wetlands

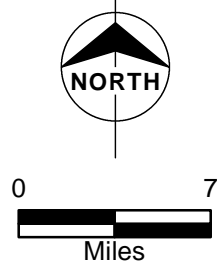
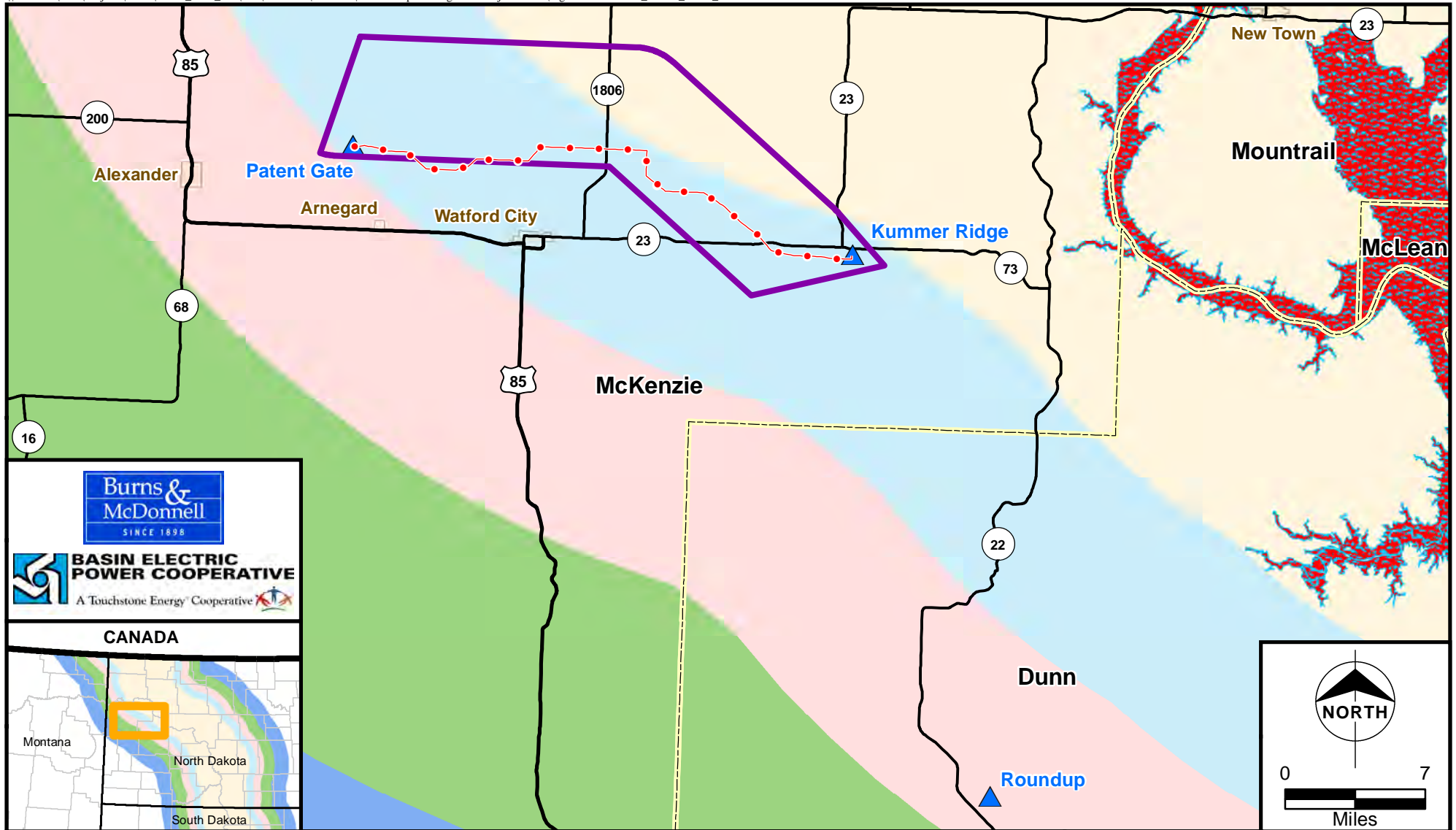


Figure 5.13-5  
 Basin Electric Power Cooperative  
 North Killdeer Loop  
 345-kV Transmission Project  
 NWI Wetlands



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**BASIN ELECTRIC POWER COOPERATIVE**  
A Touchstone Energy Cooperative

**CANADA**

Montana  
North Dakota  
South Dakota

- |                        |                                      |                                |
|------------------------|--------------------------------------|--------------------------------|
| Study Corridor         | 75% (60 mi Whooping Crane Corridor)  | Piping Plover Critical Habitat |
| Project Corridor/Route | 80% (80 mi Whooping Crane Corridor)  | Interior Least Tern Habitat    |
| Proposed Substation    | 85% (100 mi Whooping Crane Corridor) |                                |
| County Boundary        | 90% (130 mi Whooping Crane Corridor) |                                |
| Municipal Areas        | 95% (170 mi Whooping Crane Corridor) |                                |

Figure 5.13-6  
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Important Threatened and Endangered  
Species Habitat

### 5.13.2.1.1 Corridor/Route Temporary Impacts to Vegetation

No changes from Corridor/Route revisions.

### 5.13.2.1.2 Corridor/Route Permanent Impacts to Vegetation

Permanent vegetative impacts associated with the revised Project would include the removal of vegetation at each structure foundation location, resulting in an additional permanent loss of vegetation of approximately 115.5 square feet (0.1 acre total) over the length of the Corridor/Route. No other changes to this section were identified.

### 5.13.2.1.3 Substation Impacts to Vegetation

No changes from Corridor/Route revisions.

### 5.13.2.1.4 Noxious Weeds

No changes from Corridor/Route revisions.

### 5.13.2.2 Wetlands

Table 5.13-5 displays the changes in potential wetland types and acreages resulting from the Corridor/Route revisions.

**Table 5.13-5: NWI Wetland Acres within Corridor/Route**

Wetland Type	Wetland Acres in Corridor/Route	Change due to Corridor/Route Revisions
PEM	6.3	-1.2
PSS	0.3	0.0
Lake	0.0	0.0
Pond	0.0	-0.3
Riverine	0.0	0.0
PUS	0.0	0.0
<b>Total</b>	<b>6.6</b>	<b>-1.5</b>

PEM = palustrine emergent, PSS = palustrine scrub/shrub  
 PUS = palustrine unconsolidated shore  
 Source: NWI Geographic Information System (GIS) data layer

No other changes to this section were identified.

### 5.13.2.3 Wildlife

No changes from Corridor/Route revisions.

#### **5.13.2.3.1 Big Game**

No changes from Corridor/Route revisions.

#### **5.13.2.3.2 Nongame Species**

No changes from Corridor/Route revisions.

#### **5.13.2.3.3 Birds**

Approximately 2.8 fewer acres of woodland would be cleared within the revised Corridor/Route ROW. Species dependent on woodland habitat would experience an overall minor loss of habitat within the ROW, lessened slightly by the Corridor/Route revision. Any loss would be minimal compared to the areas of adjacent habitat, and the minimal amount of clearing (approximately 3.4 acres of woodland over 28.7 miles) that would be required. No other changes to this section were identified.

#### **5.13.2.3.4 Aquatic Species**

No changes from Corridor/Route revisions.

#### **5.13.2.3.5 Substation Impacts to Wildlife**

No changes from Corridor/Route revisions.

#### **5.13.2.4 Special Status Species**

Table 5.13-6 presents the Project considerations for federally listed special status species. Project-specific mitigation measures were developed as part of detailed species-specific evaluation in the Biological Assessment (BA) for the Project (Appendix O), in consultation with U.S. Fish and Wildlife Service (USFWS).

**Table 5.13-6: Potential Project Considerations for Federally Listed Special Status Species**

<b>Species</b>	<b>Potential Habitat in Revised Corridor/Route</b>	<b>Change due to Corridor/Route Revisions</b>	<b>Comment</b>
<b>Endangered</b>			
Whooping crane	Approximately 28.7 miles (entire length of Corridor/Route) of new line within migration corridor (Table 5.13-7)	0.6 additional mile of new line within migration corridor	Collisions with transmission lines pose highest potential risk, especially where line is located between wetland roosting areas and agricultural areas used for foraging. Habitat locations would be identified in the Project areas as a result of surveys to be completed for suitable habitat locations. Project-specific mitigation measures developed as part of detailed species-specific evaluation in the BA, in consultation with USFWS.
Interior least tern	None	No changes from Corridor/Route revisions.	Suitable habitat not crossed by Project.
Pallid sturgeon	None	No changes from Corridor/Route revisions.	Suitable habitat not crossed by Project.
Black-footed ferret	None	No changes from Corridor/Route revisions.	No populations known to exist in counties crossed by the project (USFWS, 2011a, K. Shelley, USFWS, pers. comm.); surveys for prairie dog towns would be conducted prior to construction to identify potential habitat for black-footed ferret.
Gray wolf	None	No changes from Corridor/Route revisions.	No populations known to exist within the Project area
<b>Threatened</b>			
Piping plover	None	No changes from Corridor/Route revisions.	Suitable habitat not crossed by Project. No populations known to exist within the Project area
<b>Candidate and Proposed</b>			
Sprague's pipit <sup>a</sup>	Approximately 309.0 acres of potential grassland habitat within Corridor/Route	25.7 additional acres of potential grassland habitat within Corridor/Route	Potential temporary disturbance to grassland habitat within ROW; grassland habitat re-established upon completion of construction. Project-specific mitigation measures developed as part of detailed species-specific evaluation in the BA, in consultation with USFWS.

Species	Potential Habitat in Revised Corridor/Route	Change due to Corridor/Route Revisions	Comment
Dakota skipper <sup>a</sup>	Approximately 309.0 acres of potential grassland habitat within Corridor/Route	25.7 additional acres of potential grassland habitat within Corridor/Route	Potential temporary disturbance to native grassland habitat within ROW; grassland habitat to be re-established upon completion of construction. Project-specific mitigation measures developed as part of detailed species-specific evaluation in the BA, in consultation with USFWS.
Northern long-eared bat	None	No changes from Corridor/Route revisions.	Potential collisions with overhead lines, permanent loss of habitat through clearing of woodland. Project-specific mitigation measure developed as part of detail species-specific evaluation in the BA, in consultation with USFWS.
Rufa red knot	None	No changes from Corridor/Route revisions.	Potential collisions with overhead lines. Project-specific mitigation measure developed as part of detail species-specific evaluation in the BA, in consultation with USFWS.

(a) Also a U.S. Forest Services sensitive species

### 5.13.2.4.1 Whooping Crane Migration Analysis

Table 5.13-7 displays the change in length due to the Corridor/Route revisions and the total length that the Corridor/Route would occur within each whooping crane percent occurrence migration corridor.

**Table 5.13-7: Whooping Crane Percent Migration Corridor**

	Length Through Whooping Crane Percent Migration Corridors (miles)					
	75%	80%	85%	90%	95%	Total
Revised Corridor/Route	0.0	28.7	0.0	0.0	0.0	<b>28.7</b>
Change due to Corridor/Route revision	0.0	+0.6	0.0	0.0	0.0	<b>+0.6</b>

Source: USFWS Whooping Crane Percent Migration Corridor, as depicted in Figure 5.13-6

No other changes to this section were identified.

### 5.13.2.4.2 Surveys for Species under USFWS Jurisdiction

No changes from Corridor/Route revisions.

#### **5.13.2.4.3 U.S. Forest Service Sensitive and Management Indicator Species Surveys**

No changes from Corridor/Route revisions.

#### **5.13.2.4.4 Proposed Substations**

No changes from Corridor/Route revisions.

### **5.13.3 Mitigation**

No changes from Corridor/Route revisions.

## **5.14 Summary of Corridor/Route Impacts**

The construction and operation of Basin Electric's proposed Project could have a potential impact on environmental and human resources located in northwestern North Dakota. A summary of changes resulting from the Corridor/Route revisions is provided in Table 5.14-1.

**Table 5.14-1: Summary of Project Impacts and Mitigation**

Resource	Corridor/Route		Substations		Mitigation
	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts	
Socioeconomics	An additional \$180 in annual property tax revenues (years 5-45) for a total of \$8,610 annually to McKenzie County. No other changes.	No change.	No change.	No change.	No change.
Land Use	An additional 9.9 acres of ROW (total of 521.9 acres) will be required and would be restricted from some types of future development. 115.5 additional square feet of soil (0.1 acre total [38.5 square feet per structure]) would be permanently removed. No other changes.	No change.	No change.	No change.	No change.
Infrastructure-Transportation	Revised Corridor/Route has 2 fewer road crossing (21 total). No other changes.	No change.	No change.	No change.	No change.
Public Health and Safety	No change.	No change.	No change.	No change.	No change.
Air Quality	No change.	No change.	No change.	No change.	No change.
Noise	No change.	No change.	No change..	No change.	No change.
Visual	No change.	No change.	No change.	No change.	No change.
Cultural	No change.	No change.	No change.	No change.	No change.
Recreation	No change.	No change.	No change.	No change.	No change.

Resource	Corridor/Route		Substations		Mitigation
	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts	
Soils and Farmland	115.5 additional square feet of soil (0.1 acre total [38.5 square feet per structure]) would be permanently removed. No other changes.	0.87 additional acre (48.72 acres total [0.29 acre per structure]) of temporary soil disturbance during construction within Corridor/Route.	No change.	No change.	No change.
Geology and Landforms	4,500 additional cubic feet of soil and rock (252,000 cubic feet total) displaced during structure foundation borings and construction. No other changes.	No change.	No change.	No change.	No change.
Water	No change.	No change.	No change.	No change.	No change.
Biological Resources	Vegetation: 2.8 fewer acres of woodland removed within Corridor/Route; 115.5 additional square feet of vegetation permanently removed within Corridor/Route at structure locations (0.1 acre total). No other changes. Wildlife: Loss of 2.8 fewer acres of woodland/potential forested habitat (3.4 acres total) within Corridor/Route. No other changes. Aquatic Resources: No change. Special Status Species: No change. Wetlands: 1.5 fewer acres within Corridor/Route.	No change.	No change.	No change.	No change.

## **6.0**

## **PUBLIC AND AGENCY COORDINATION**

No changes from Corridor/Route revisions.

## **7.0 IDENTIFICATION OF REQUIRED PERMITS/APPROVALS**

### **7.1 Permits/Approvals**

No changes from Corridor/Route revisions.

## **8.0 FACTORS CONSIDERED**

NDCC Section 49-22-09 of the North Dakota Energy Conversion and Transmission Facility Siting Act lists 11 factors to guide the Commission in evaluation of sites, corridors, and routes. The following sections address these factors where applicable to the Project Corridor/Route revisions.

### **8.1 Available Research and Investigations Relating to the Effects of the Location, Construction, and Operation of the Proposed Facility on Public Health and Welfare, Natural Resources, and the Environment**

No changes from Corridor/Route revisions.

### **8.2 The Effects of New Energy Conversion and Transmission Technologies and Systems Designed to Minimize Adverse Environmental Effects**

No changes from Corridor/Route revisions.

### **8.3 The Potential for Beneficial Uses of Waste Energy from a Proposed Energy Conversion Facility**

No changes from Corridor/Route revisions.

### **8.4 Adverse Direct and Indirect Environmental Effects Which Cannot be Avoided Should the Proposed Site or Route be Designated**

Unavoidable impacts are those that would occur after implementation of mitigation measures. In summary, construction and operation of the proposed Project would convert an additional 115.5 square feet of land from agricultural uses to utility uses (0.1 acre total at structure locations). No other changes to this section were identified.

### **8.5 Alternatives to the Proposed Site, Corridor, or Route Which are Developed During the Hearing Process and which Minimize Adverse Effects**

No changes from Corridor/Route revisions.

### **8.6 Irreversible and Irretrievable Commitments of Natural Resources Should the Proposed Site, Corridor, or Route be Designated**

No changes from Corridor/Route revision.

### **8.7 The Direct and Indirect Economic Impacts of the Proposed Facility**

No changes from Corridor/Route revisions.

### **8.8 Existing Plans of the State, Local Government, and Private Entities for Other Developments at or in the Vicinity of the Proposed Site, Corridor, or Route**

No changes from Corridor/Route revisions.

### **8.9 The Effect of the Proposed Site or Route on Existing Scenic Areas, Historic Sites and Structures, and Paleontological or Archaeological Sites**

No changes from Corridor/Route revisions.

### **8.10 The Effect of the Proposed Site or Route on Areas Which are Unique Because of Biological Wealth or Because They are Habitats for Rare and Endangered Species**

Section 5.13.2 discusses the effects of the Project on biological resources, including wetlands, vegetation, wildlife, and special status species. Approximately 2.8 fewer acres of woodland (3.4 acres total) would potentially be removed within the Corridor/Route, resulting in a loss of forested habitat for some wildlife. An additional approximately 115.5 square feet of vegetation (0.1 acre total) would be permanently removed as a result of structure placement with the Corridor/Route. No other changes identified to this section.

### **8.11 Problems Raised by Federal Agencies, Other State Agencies, and Local Entities**

No changes from Corridor/Route revisions.

## **9.0 QUALIFICATIONS OF CONTRIBUTORS**

No changes from Corridor/Route revisions.

## **10.0 REFERENCES**

No changes from Corridor/Route revisions.

## 11.0 LAND ACQUISITION STATUS

Basin Electric is progressing with its land acquisition efforts and has successfully obtained the necessary easements or purchased land from 95 percent of the landowners for a total of 95 percent of the Corridor/Route miles as of July 2015. See Table 11.0-1 below.

**Table 11.0-1: Land Acquisition Status by County**

Landowners to Acquire	Landowners Acquired	Left to Acquire	Percentage Acquired
44	42	2	95%
Miles to Acquire	Miles Acquired	Left to Acquire	Percentage Acquired
28.7	27.3	1.4	95%



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Application to the North Dakota  
Public Service Commission

**Consolidated Certificate of Corridor Compatibility &  
Route Permit**

Volume II

**Case No: PU-14-813**

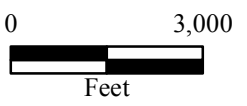


**Basin Electric Power Cooperative**

**North Killdeer Loop Phase I  
345-kV Transmission Line Project**

July 2015

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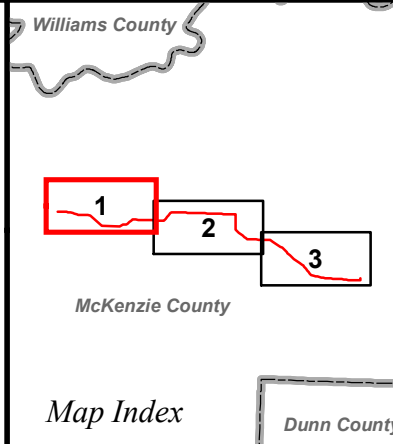
- Corridor/Route 150'
- Proposed Substation
- Man Camp
- Residence
- County Boundary
- Civil Townships
- Public Land Survey Sections

**Exclusion Areas**

No Exclusion Areas

**Avoidance Areas**

- Center Pivot Irrigation
- Landslide Deposit
- Waterbody
- State-Owned School Lands
- Slope Greater than 10%**
- 10% - 20 %

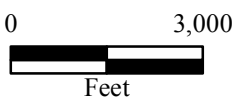
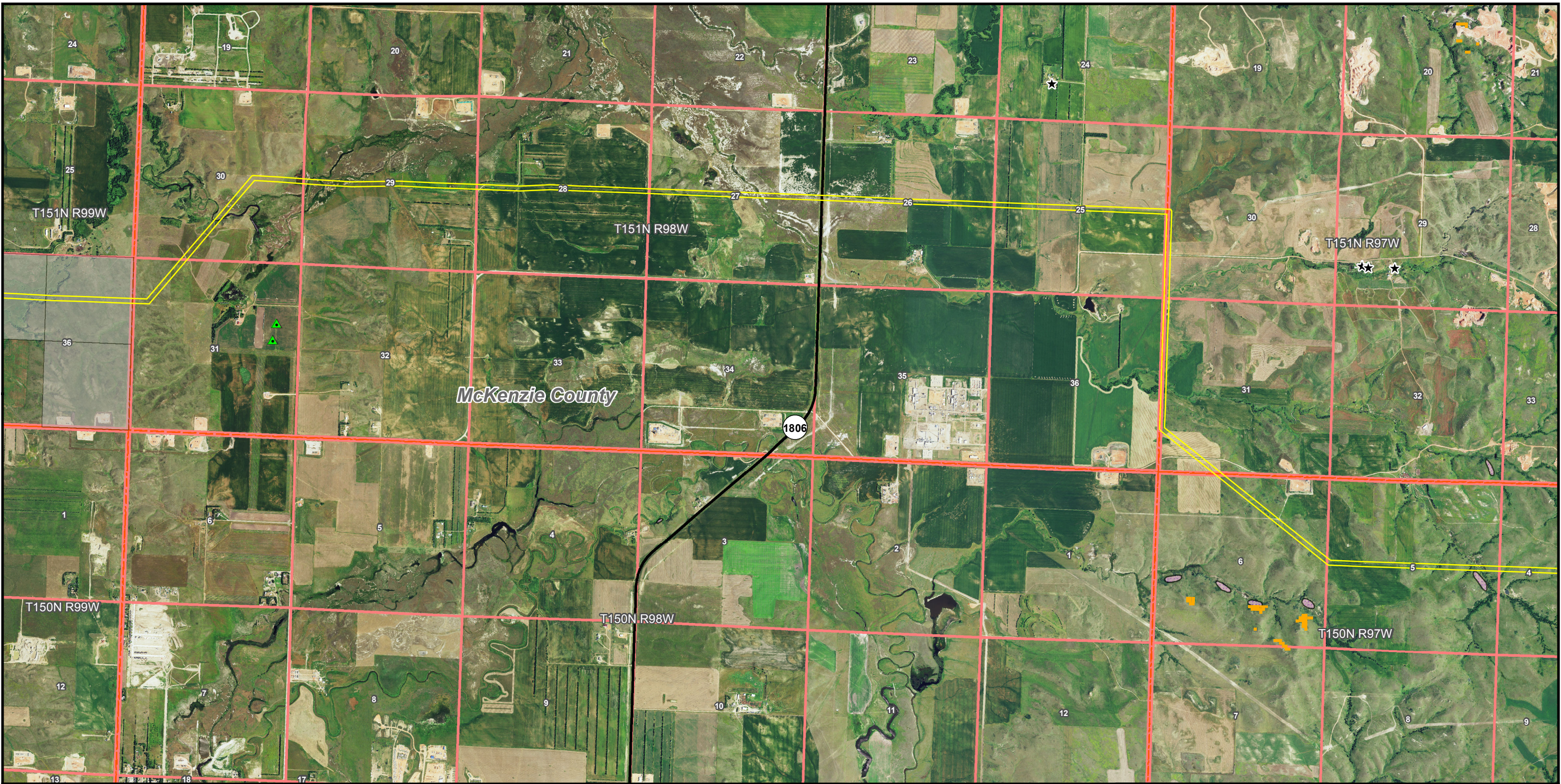


**Exclusion and Avoidance Criteria**

Updated from Original Application -  
Sheet 1 from November 2014

Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Detailed Project Route Maps  
Sheet 1 of 3

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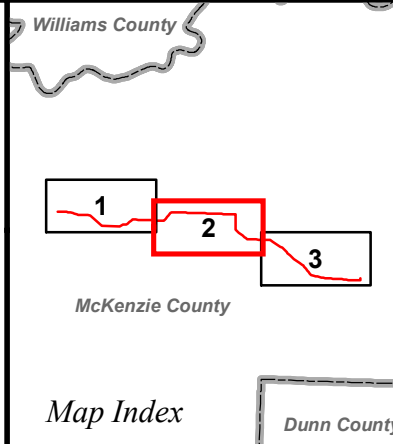
- Corridor/Route 150'
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**Exclusion Areas**

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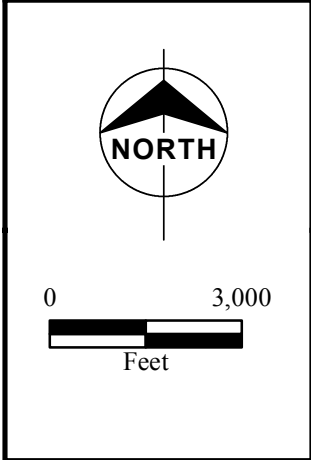
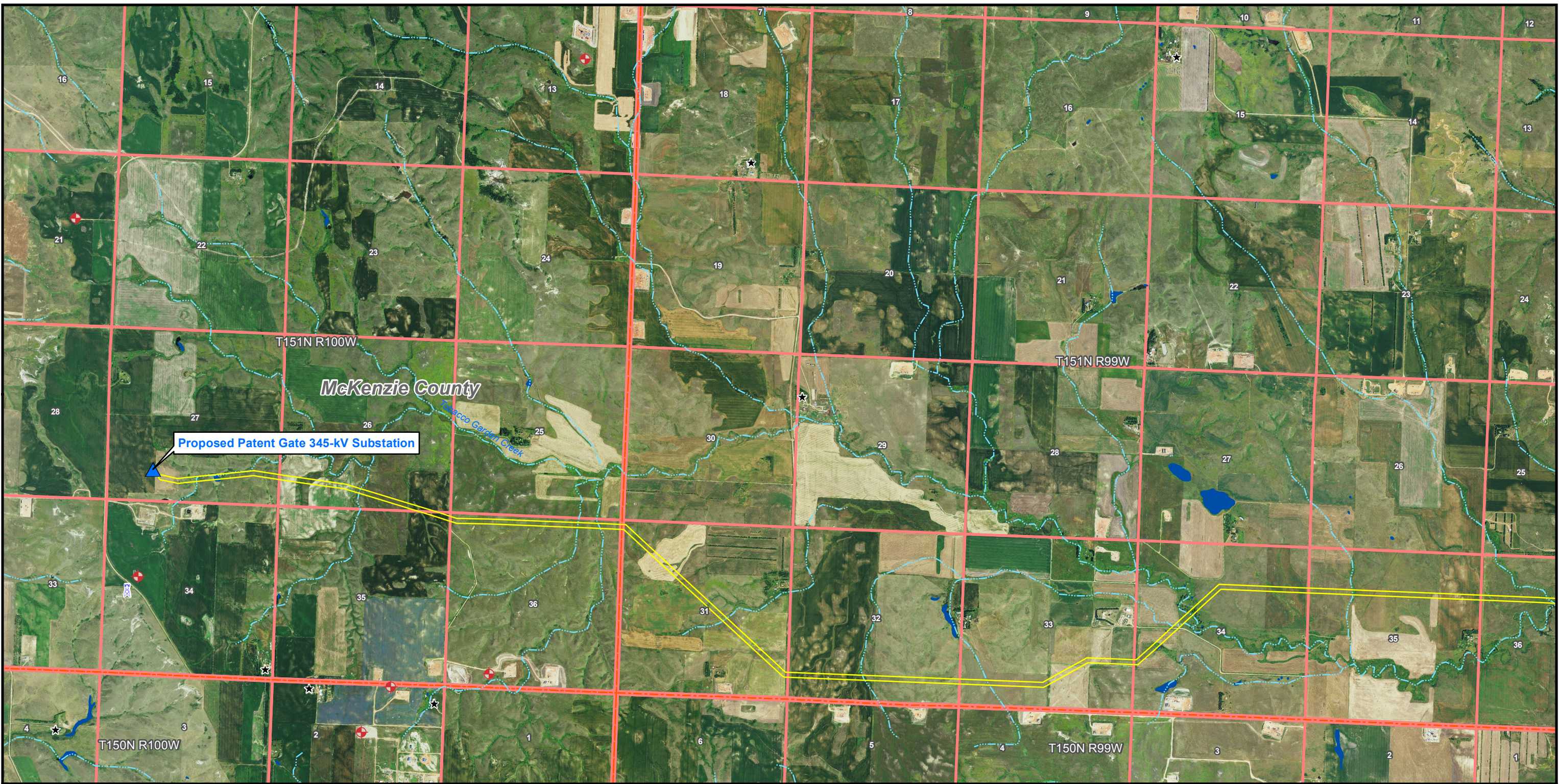


**Exclusion and Avoidance Criteria**

Updated from Original Application -  
Sheet 2 from November 2014

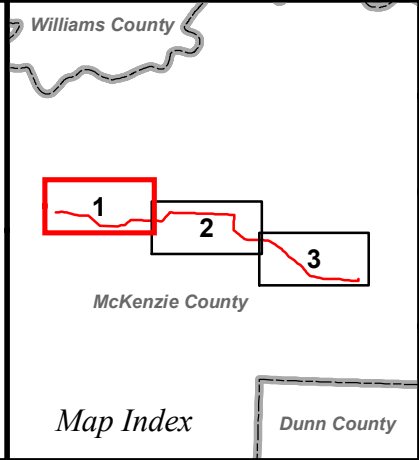
Basin Electric Power Cooperative  
North Killdeer Loop  
345-kV Transmission Project  
Detailed Project Route Maps  
Sheet 2 of 3

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- Corridor/Route 150'
- Proposed Substation
- County Boundary
- Public Land Survey Sections
- Civil Townships

- Selection Criteria**
- Man Camp
  - Residence
  - Oil Well
  - Telecommunication Tower
  - Perennial Stream
  - Intermittent Stream
  - NWI Wetlands

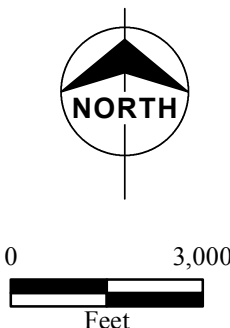
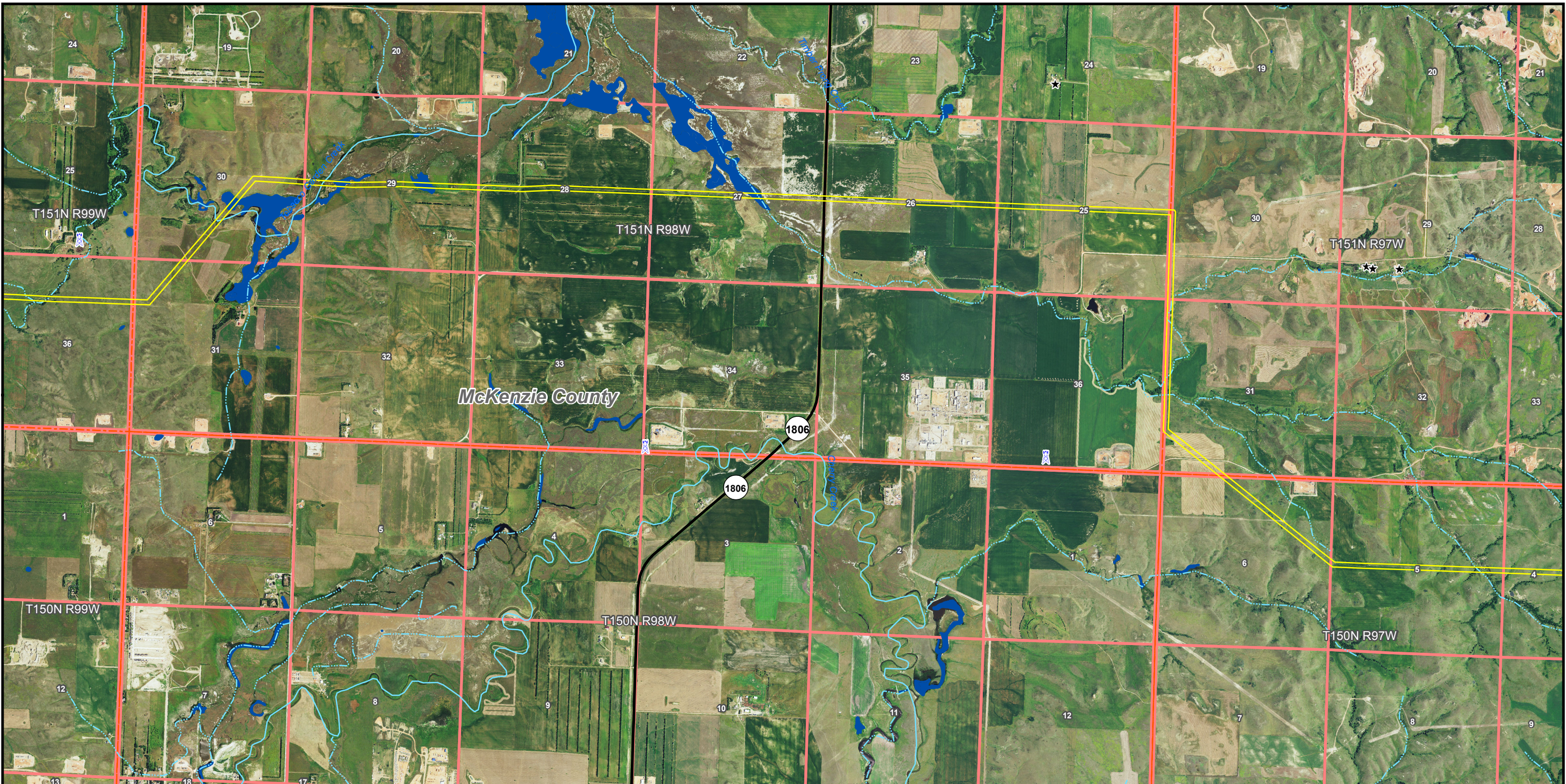


Selection Criteria

Updated from Original Application -  
Sheet 1 from November 2014

Basin Electric Power Cooperative  
Antelope Valley Station to Naset  
345-kV Transmission Project  
Detailed Project Route Maps  
Sheet 1 of 3

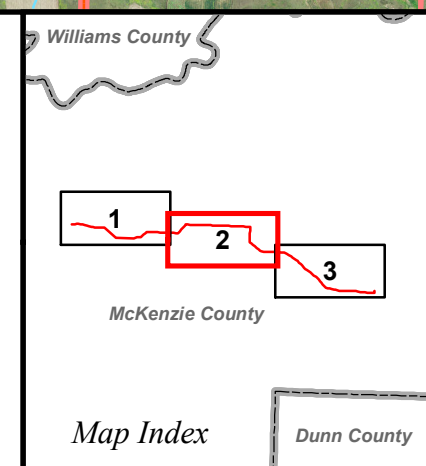
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- Corridor/Route 150'
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**Selection Criteria**

- Man Camp
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Selection Criteria

Updated from Original Application -  
Sheet 2 from November 2014

Basin Electric Power Cooperative  
Antelope Valley Station to Naset  
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Consolidated Certificate of Corridor Compatibility  
and Route Permit**

Volume III

**Case No: PU-14-813**



**Basin Electric Power Cooperative**

**North Killdeer Loop Phase I  
345-kV Transmission Project**

July 2015

**APPENDICES A Through D**

(No change to these appendices)

## **APPENDIX E - PLAN AND PROFILE**



Basis of Bearing is NAD83 ND State Plane North Zone - International Feet. All distances are Ground Distance. Combined scale factor = 0.99985172

SEC. 32, 33, 34 & 35 - T151N-R99W  
MCKENZIE COUNTY, NORTH DAKOTA

NOTE:  
STRUCTURE PLACEMENT AS OF 7-14-2015

PSC SUBMITTAL FOR LINE 368  
CASE #PU-14-813  
345kV TRANSMISSION LINE





Basis of Bearing is NAD83 ND State Plane North Zone - International Feet. All distances are Ground Distance. Combined scale factor = 0.99985172

SEC. 35 & 36 - T151N-R99W  
 SEC. 29, 30 & 31 - T151N-R98W  
 MCKENZIE COUNTY, NORTH DAKOTA

NOTE:  
 STRUCTURE PLACEMENT AS OF 7-14-2015

PSC SUBMITTAL FOR LINE 368  
 CASE #PU-14-813  
 345KV TRANSMISSION LINE  
**BASIN ELECTRIC  
 POWER COOPERATIVE**  
 A Touchstone Energy Cooperative



**LEGEND:**  
 ● STRUCTURE (ORIGINAL SUBMISSION)  
 ● STRUCTURE  
 - - - 150' WIDE EASEMENT  
 - - - EASEMENT CENTERLINE

Basis of Bearing is NAD83 ND State Plane North Zone - International Feet. All distances are Ground Distance. Combined scale factor = 0.99985172

SEC. 26, 27, 28 & 29 - T151N-R98W  
 MCKENZIE COUNTY, NORTH DAKOTA

**NOTE:**  
 STRUCTURE PLACEMENT AS OF 7-14-2015

PSC SUBMITTAL FOR LINE 368  
 CASE #PU-14-813  
 345KV TRANSMISSION LINE  
**BASIN ELECTRIC  
 POWER COOPERATIVE**  
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**APPENDICES F Through U**

(No change to these appendices)



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