

Amendment to the Application to the
North Dakota Public Service Commission
for
Consolidated Certificate of Corridor
Compatibility and Route Permit

Volume I

Case No: PU-11-696

for the

**AVS-Neset 345-kV
Transmission Project**



January 2016

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345-kV Transmission Project
Basin Electric Power Cooperative**

January 2016

prepared by

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

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1.0 INTRODUCTION

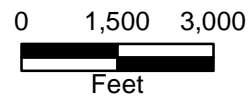
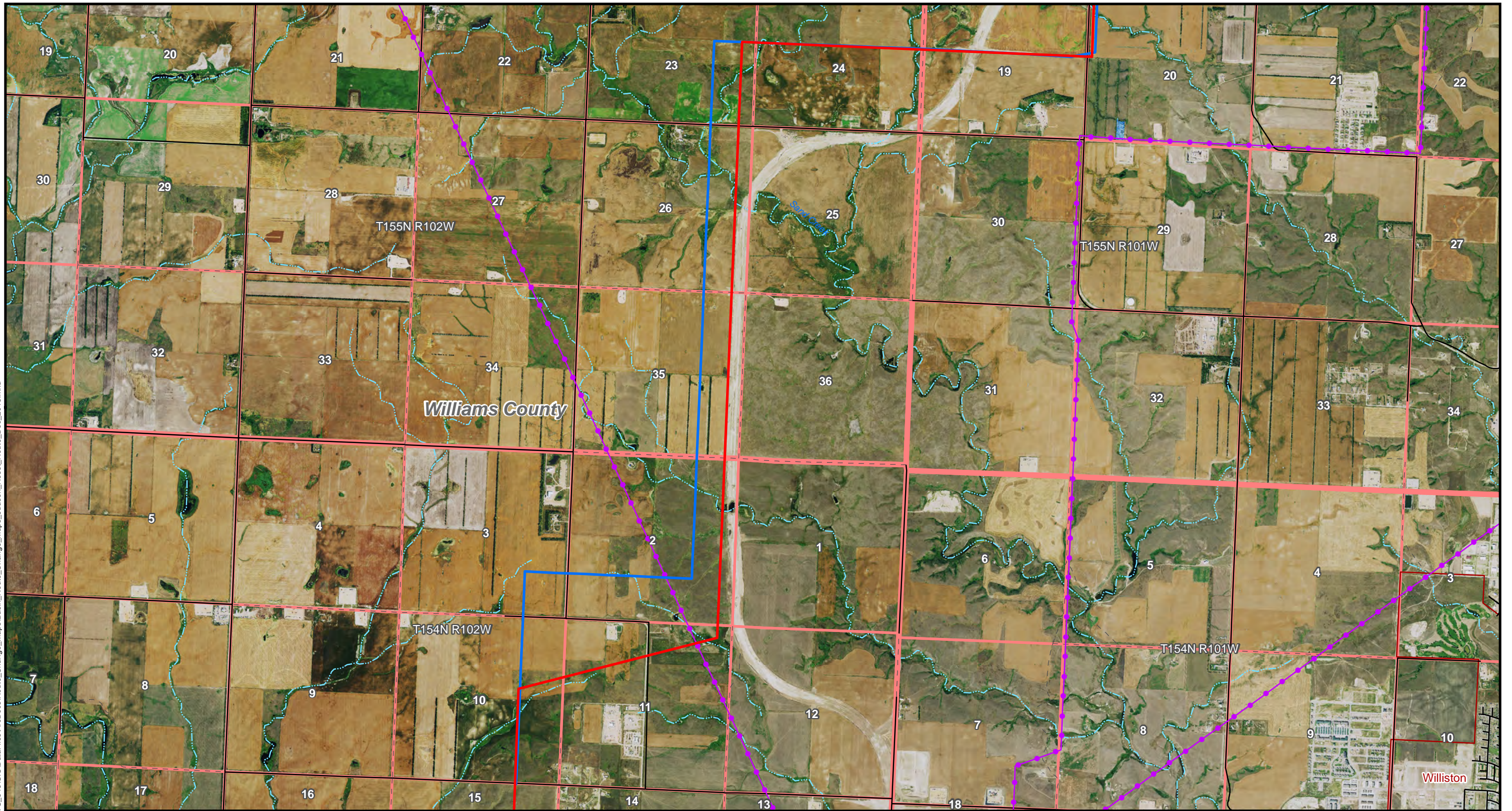
On April 23, 2014, the North Dakota Public Service Commission (Commission) issued Corridor Certificate No. 152 and Route Permit No. 164 to Basin Electric Power Cooperative (Basin Electric) authorizing construction of approximately 197 miles of 345-kilovolt (kV) and 230-kV electric transmission line extending from the Antelope Valley Station (AVS) near Beulah to the Neset Substation near Tioga (PU-11-696). The Commission also authorized construction of the Judson Substation near Williston and the Tande Substation near Tioga, and upgrades at the AVS and Charlie Creek Substations. Subsequent amendments to Corridor Certificate No. 152 and Route Permit No. 164 authorizing various route and corridor modifications and the addition of the Roundup Substation near Killdeer were issued on September 17, 2014; March 11, 2015; and September 2, 2015. Since the September 2, 2015, amendment was approved, additional changes have been made to the Corridor/Route. This amendment identifies these changes, which are the results of landowner requests and preferences for the Project alignment on specific properties.

If approved by the Commission, the total length of 345-kV and 230-kV line combined would be 200.4 miles (Corridor/Route). The Corridor/Route revisions do not significantly alter the information presented in the original application. 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 and subsequent amendments 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 following Table 1.0-1.











Table 1.0-1: Summary of Corridor/Route Changes

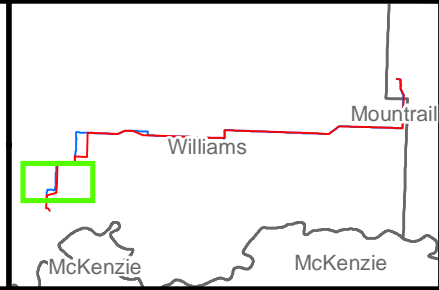
Township	Range	Sections	Reason	Route Change Map Sheet #
154N 155N	102W 102W	2, 3, and 10 23, 26, and 35	Line adjustments for the Judson to Neset line section to address landowner concerns.	Sheet 1
155N 156N	101W 101W	5, 8, 17, and 20 32 and 33	Line adjustments for the Judson to Neset line section to address landowner concerns.	Sheet 2
156N	100W	33 and 34	Line adjustments for the Judson to Neset line section to address landowner concerns.	Sheet 3

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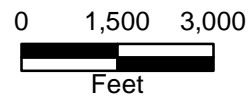
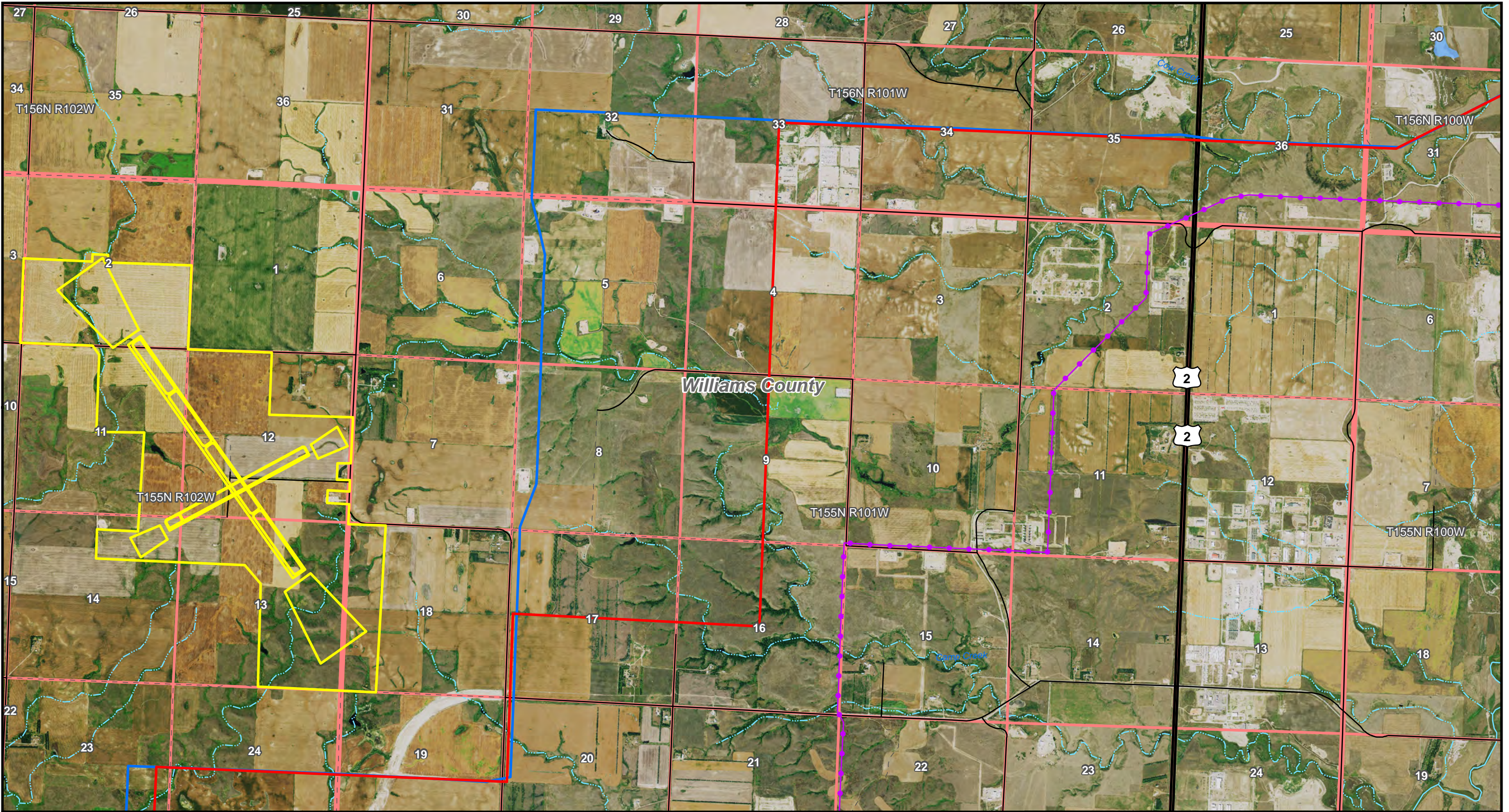
LEGEND

-  Existing Substation
-  Proposed Substation
-  Original Submitted Route
-  Revised Route - December 2015
-  Existing Transmission Line
-  County Boundary
-  Public Land Survey System Sections
-  Substation Outline
-  Laydown Yard
-  Proposed Williston Airport











Basin Electric Power Cooperative
Judson to Neset
345-kV Transmission Project
Route Change Maps
Sheet 1 of 3



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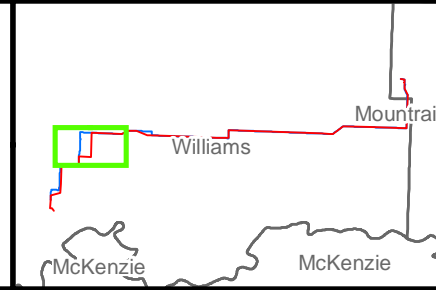


LEGEND

-  Existing Substation
-  Proposed Substation
-  Original Submitted Route
-  Revised Route - December 2015

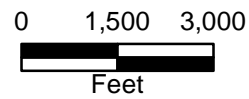
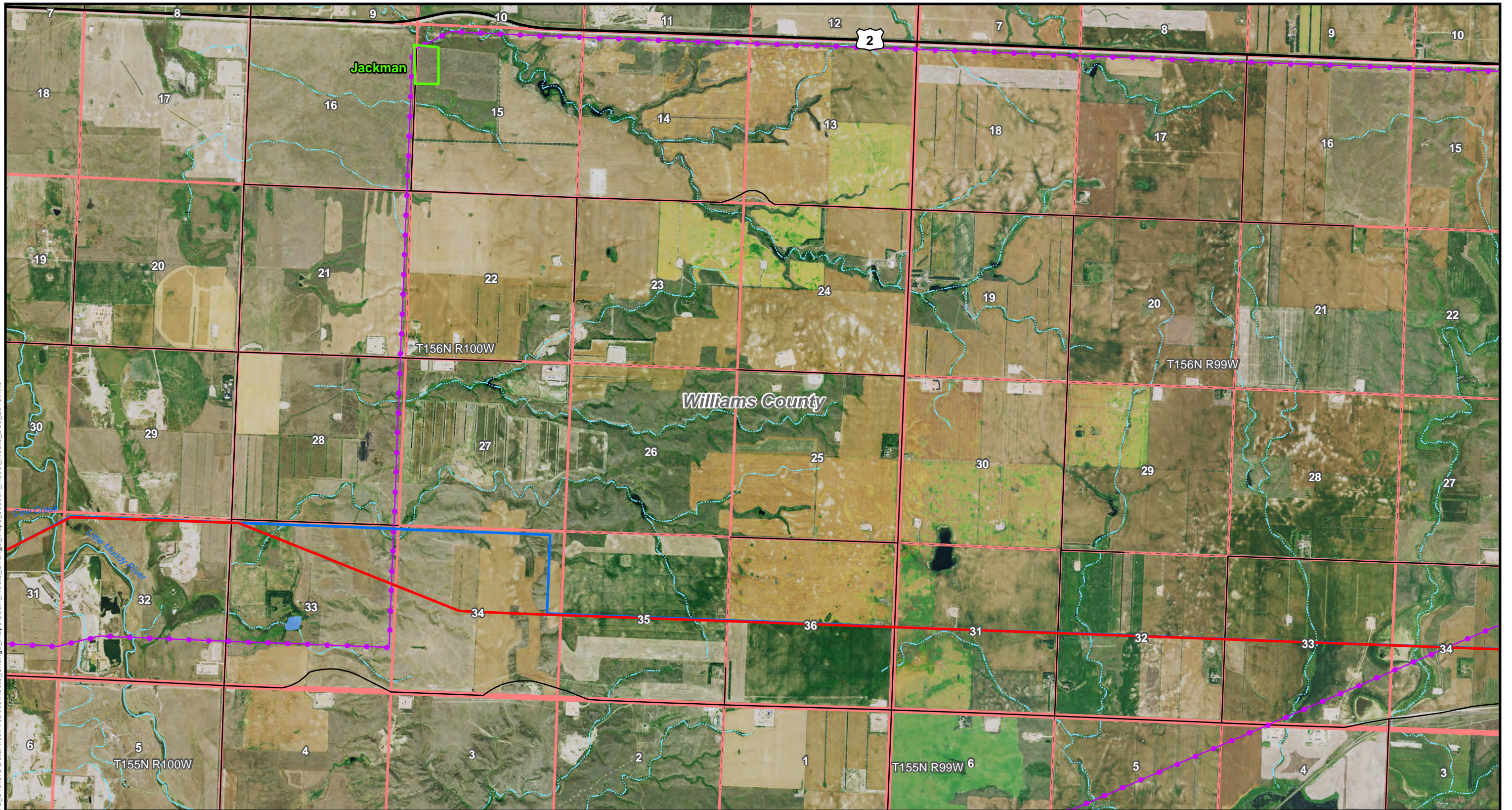
-  Existing Transmission Line
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-  Substation Outline

-  Laydown Yard
-  Proposed Williston Airport













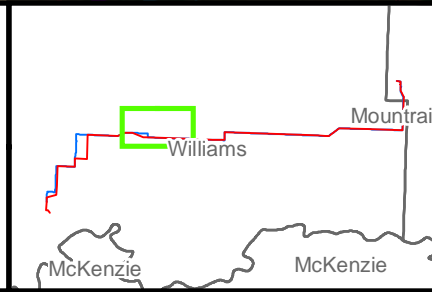
Basin Electric Power Cooperative
Judson to Neset
345-kV Transmission Project
Route Change Maps
Sheet 2 of 3

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LEGEND

-  Existing Substation
-  Proposed Substation
-  Original Submitted Route
-  Revised Route - December 2015
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-  Substation Outline
-  Laydown Yard
-  Proposed Williston Airport



Basin Electric Power Cooperative
Judson to Neset
345-kV Transmission Project
Route Change Maps
Sheet 3 of 3

Unless otherwise 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. Section 1.4 was added in the July 2014 amendment to address additional future associated facilities related to the AVS to Neset 345-kV Transmission Project.

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 application and subsequently approved amendments.

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 Letter of Intent

No changes from Corridor/Route revisions.

1.1.3 Certificate of Corridor Compatibility

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

Table 1.1-1: Certificate of Corridor Compatibility Completion Checklist

State Authority	Description	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

State Authority	Description	Section
3.a.1.	Width of right of way;	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
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	
	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 of original application
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

State Authority	Description	Section
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 of original application
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 will 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
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 of original application
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 of original application
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 amendment 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

State Authority	Description	Section
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
11.	Problems raised by Federal agencies, other state agencies, and local entities.	8.11

1.1.4 Route Permit

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

Table 1.1-2: Route Permit Completion Checklist

State Authority	Description	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 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 E of original application
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.	Right-of-way 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
2.c.	The potential for beneficial uses of waste energy from a proposed energy conversion facility.	8.3

State Authority	Description	Section
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 irretrievable 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 of original application
4.	Discuss in detail the relative value of each criteria and how the location, construction, and operation of the facility will 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

State Authority	Description	Section
6.	Discuss the mitigation measures that will 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 contributed to the facility route location study.	9.0
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 of original application
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 amendment 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 = 2000 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 will also be acceptable. If the applicant can demonstrate that because of the limited size and scope of the Project, aerial photographs will not be practical, this requirement may be waived.	Figures. GIS-based maps are included with this amendment.

1.2 Project Summary

The Corridor/Route revisions contributed to an overall increase in Project length of 0.5 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 Williams County, approximately 5 miles west-northwest of Williston. It includes approximately 5 miles where the proposed Corridor/Route alignment was adjusted

west to enable Basin Electric to accommodate landowner requests, minimize environmental impacts, and obtain voluntary easements. These adjustments are a result of the normal negotiations between Basin Electric and landowners for voluntary easements for line location. The second Corridor/Route revision is located approximately 6 miles north-northwest of Williston and consists of approximately 4.5 miles where the proposed Corridor/Route alignment was adjusted west to better accommodate landowner requests, minimize environmental impacts, and obtain voluntary easements. The third Corridor/Route revision is located approximately 8.5 miles north northeast of Williston and consists of approximately 2 miles where the proposed Corridor/Route alignment was adjusted north to avoid diagonal crossing of parcels. These adjustments are a result of the normal negotiations between Basin Electric and landowners for voluntary easements for line location. Basin Electric has obtained the necessary easements for the realignments with the affected landowners. 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 has 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 for this segment of the overall Project is provided in Table 1.3-1 for convenience.

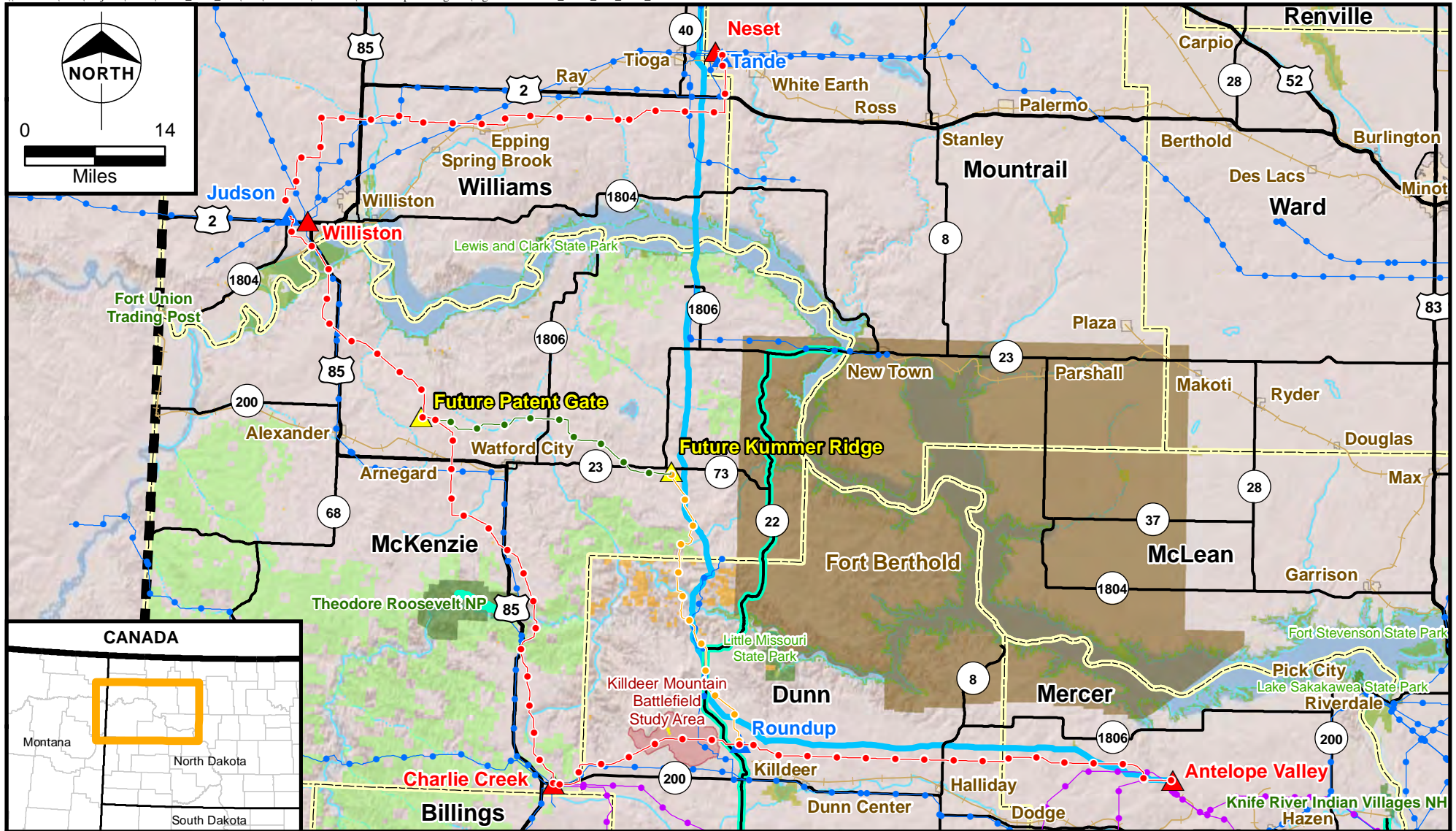
The Project began construction in September 2014. A 17-month construction phase is anticipated with in-service expected in 2017. An overview of the Project schedule is provided in Table 1.3-1.

Table 1.3-1: Project Schedule

Corridor Certificate/Route Permit and Previous Amendments	April 2014; September 2014; March 2015; September 2015
Corridor Certificate/Route Permit Amendment Application	December 2015
Corridor Certificate/Route Permit Amendment Approved	Anticipated March 2016
Right-of-Way acquisition complete	May 2016
Construction start date	May 2016
Construction complete	August 2017
Test operations	September 2017
In-service date	October 2017

1.4 Future Associated Facilities

No changes from Corridor/Route revisions. The future facilities identified in the July 2014 Amendment, including the North Killdeer Loop 345-kV transmission line (Phase I) and Patent Gate and Kummer Ridge 345/115-kV substations are addressed in a separate Application, Docket # PU-14-831. Figure 1.4-1 has been updated to include the revised Corridor/Route. A consolidated Certificate of Corridor Compatibility and Route Permit for the NKL Phase II segment is anticipated to be submitted to the Commission in the second quarter of 2016, with an in-service date of October 2017.



LEGEND

- Project Route
- NKL Phase I Route
- NKL Phase II Route
- ▲ Proposed Substation
- ▲ Existing Substation
- ▲ Future Substation
- Army Corps of Engineers
- National Wildlife Refuge
- National or State Park
- National Grassland
- Tribal Lands
- BLM Lands
- State Boundary
- County Boundary
- Municipal Areas
- Railroad
- DGC Pipeline
- Scenic Byway
- Killdeer Mountain Battlefield State Historic Site
- Killdeer Mountain Battlefield Study Area
- Existing Transmission Lines**
- 345-kV
- 230-kV and Below



Figure 1.4-1
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Future Associated Facilities

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 responding to landowner preferences for route alignments. 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 are provided for the Project Corridor/Route and revisions in Volume II of the original application, subsequently approved amendments, and this amendment.

Table 3.1-1: Exclusion Areas

Geographic Area	Present within Corridor/Route Revisions	Proposed Buffer	Section Addressed
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, subsequently approved amendments, and this amendment. Table 3.2-1 presents the changes to avoidance areas resulting from the three Corridor/Route revisions.

Table 3.2-1: Avoidance Areas

Avoidance Area	Present within Project Corridor/Route	Change due to Corridor/Route Revisions	Proposed Buffer	Section Addressed
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.	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.	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.	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.	No changes from Corridor/Route revisions.	5.11

Avoidance Area	Present within Project Corridor/Route	Change due to Corridor/Route Revisions	Proposed Buffer	Section Addressed
Within 500 feet of a residence, school, or place of business	No changes from Corridor/Route revisions.	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.	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.	No changes from Corridor/Route revisions.	5.12
Irrigated land	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.2, 5.10
Areas of recreational significance which are not designated as exclusion areas	Corridor/Route crosses approximately 19 North Dakota School Trust Land parcels, for a total of approximately 117.1 acres within the Corridor/Route	One fewer North Dakota School Trust parcel would be crossed, for 7.3 fewer acres within the Corridor/Route	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, subsequently approved amendments, and this amendment. Table 3.3-1 presents changes to the selection criteria resulting from the three Corridor/Route revisions.

Table 3.3-1: Selection Criteria

Selection Criteria	Potential Adverse Effects	Change due to Corridor/Route Revisions	Section Addressed
Agricultural production	1,398.1 acres of cultivated cropland and 158.3 acres of pasture/hay land within the Corridor/Route. An additional 1,674.3 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 1.0 acre (38.5 square feet per structure). There would be approximately 1,172 structures for the Corridor/Route.	7.1 additional acres of cultivated cropland; no additional acres of pasture/hay land; 0.5 fewer acres of grassland 38.5 square feet of land occupied by structures and permanently unavailable for agriculture No change in the total number of structures	5.2, 5.10
Family farms and ranches	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.2, 5.10
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 revisions.	No changes from Corridor/Route revisions.	5.2, 5.10
Surface drainage patterns and ground water flow patterns	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.12
Noise-sensitive land uses	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.6

Selection Criteria	Potential Adverse Effects	Change due to Corridor/Route Revisions	Section Addressed
The visual effect on the adjacent area	Change in the visual characteristics and viewshed for eight residences located within 500 feet).	No changes from Corridor/Route revisions.	5.7
Extractive and storage resources	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.11
Wetlands, woodlands, and wooded areas	Approximately 26.9 acres of wetlands within the Corridor/Route. Wetlands would be spanned and no structures would be placed in wetlands, where practicable. No additional changes. Approximately 115.1 acres of woodland potentially removed within the Corridor/Route, depending on slope.	0.8 fewer acres of wetlands within right-of-way. 1.3 fewer acres of woodland	5.13
Radio and television reception, and other communication or electronic control facilities	No change as a result of Corridor/Route revisions.	No change.	5.4 and 5.3
Human health and safety	No changes from Corridor/Route revisions.	No changes from Corridor/Route revisions.	5.4
Plant life	Approximately 115.1 acres of woodland potentially removed within the Corridor/Route, depending on slope. A total of approximately 1.0 acre of vegetation permanently removed within Corridor/Route at structure locations. No additional changes.	1.3 fewer acres of woodland would potentially be removed within the Corridor/Route No change in 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 E, and the plan and profiles are provided in Appendix G. A legal description for the Project Corridor/Route is provided in Appendix H.

4.1 General Corridor/Route Description

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

The Corridor/Route revision #1 of this Amendment is located in Williams County, approximately 5 miles west-northwest of Williston. The realignment occurs in Sections 2, 3, and 10 of Township 154N, Range 102W and Sections 23, 26, and 35 of Townships 155N, Range 102W. This revision was developed to shift approximately 5 miles of the Corridor/Route approximately 0.5 mile north and 0.2 mile west to accommodate landowner preferences for the alignment location and enable Basin Electric to obtain voluntary easements while minimizing environmental impacts.

The Corridor/Route revision #2 of this Amendment is located in Williams County, approximately 6 miles north-northwest of Williston. The realignment occurs in Sections 5, 8, 17, and 20 of Township 155N, Range 101W and Sections 32 and 33 in Township 156N, Range 101W. This revision was developed to shift approximately 4.5 miles of the Corridor/Route approximately 1.5 miles west to accommodate landowner preferences for the alignment location and enable Basin Electric to obtain voluntary easements while minimizing environmental impacts.

The Corridor/Route revision #3 of this Amendment is located in Williams County, approximately 8.5 miles north-northeast of Williston, approximately 8 miles west of Epping. The realignment occurs in Sections 33 and 34 of Township 156N, Range 100W. This revision was developed to shift approximately 2 miles of the Corridor/Route up to 0.5 miles north to accommodate landowner preferences for the alignment location and enable Basin Electric to obtain voluntary easements while minimizing environmental impacts.

4.2 Description of Proposed Facilities

No changes from Corridor/Route revisions.

4.2.1 Transmission Line Characteristics

No changes to structure types would result from the Corridor/Route revisions.

4.2.2 Associated Facilities and Project Components

No changes from Corridor/Route revisions.

4.2.3 Construction Techniques

No changes from Corridor/Route revisions.

4.2.3.1 Pre-Construction Activities

No changes from Corridor/Route revisions. Figure 4.2-5 has been updated to include the revised Corridor/Route.

4.2.3.2 Transmission Structure Site Preparation

No changes from Corridor/Route revisions.

4.2.3.3 Structure Assembly and Erection

No changes from Corridor/Route revisions.

4.2.3.4 Stringing and Tensioning of Conductors

No changes from Corridor/Route revisions.

4.2.3.5 Structure Site Access and Traffic

No changes from Corridor/Route revisions.

4.2.3.6 Substation Construction Procedures

No changes from Corridor/Route revisions.

4.2.3.7 Transmission Line Maintenance and Operation

No changes from Corridor/Route revisions.

4.2.3.8 Substation Maintenance

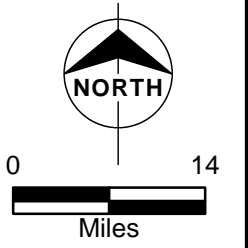
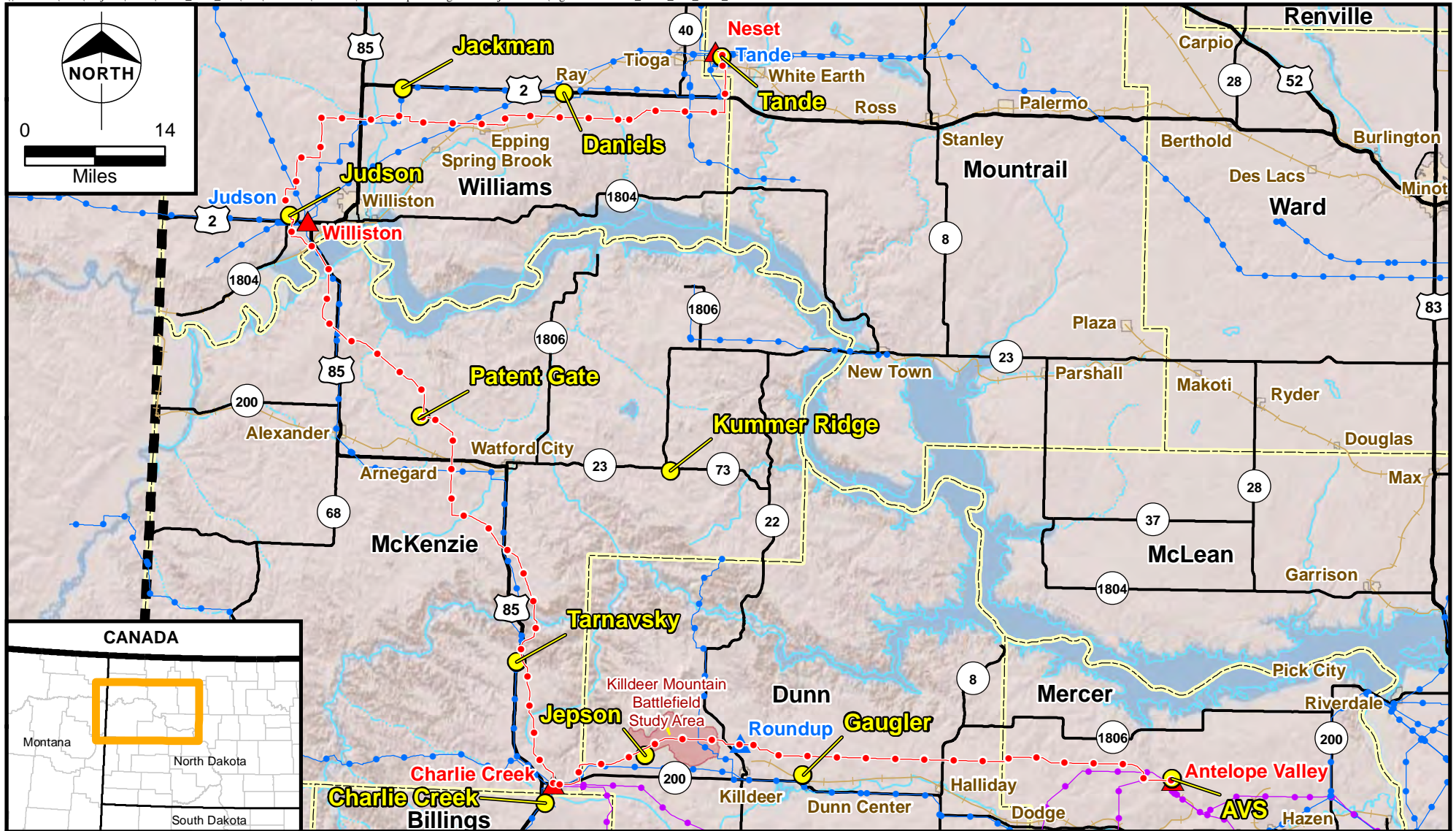
No changes from Corridor/Route revisions.

4.2.3.9 Construction Schedule and Projected Workforce

No changes from Corridor/Route revisions.

4.2.3.10 Procedures for Minimizing Environmental Impact during Construction

No changes from Corridor/Route revisions.



LEGEND

- Project Route
- ▲ Proposed Substation
- ▲ Existing Substation
- Material Laydown Yard (Approximately 5 acres)
- State Boundary
- County Boundary
- Municipal Areas
- Railroad
- Killdeer Mountain Battlefield State Historic Site
- Killdeer Mountain Battlefield Study Area
- Existing Transmission Lines**
- 345-kV
- 230-kV and Below

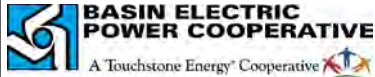


Figure 4.2-5
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Temporary Construction Material
and Equipment Laydown Areas

4.2.3.11 ROW and Property Issues

No changes from Corridor/Route revisions.

5.0 ENVIRONMENTAL ANALYSIS

This amendment addresses three 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 and subsequently approved amendments. This section presents information on only those resources for which a material change resulted in the type or quantity of an affected resource 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 through Mercer, Dunn, McKenzie, Williams, and Mountrail Counties in North Dakota. However, Corridor/Route revisions are confined to small areas within Williams 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 right-of-way (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 from 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 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 or operation of the proposed Project. They include Best Management Practices (BMPs) 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 I, 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 Williams County associated with the 62.5 miles of transmission line through the county. This table reflects the additional property tax revenue estimated to be generated by the Corridor/Route revisions in this amendment due to the 0.7 mile of additional 345-kV transmission line.

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

	Corridor/Route (miles)	Year 2	Year 3	Year 4	Years 5-45
Williams County	62.2	\$4,665	\$9,330	\$13,995	\$18,660
Change due to Corridor/Route revision	0.7	\$52	\$105	\$157	\$210

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 due to Corridor/Route revisions.

5.2.1.3 Zoning

No changes due to Corridor/Route revisions.

5.2.1.4 Comprehensive Plans

No changes from Corridor/Route revisions.

5.2.1.5 State and Federal Properties

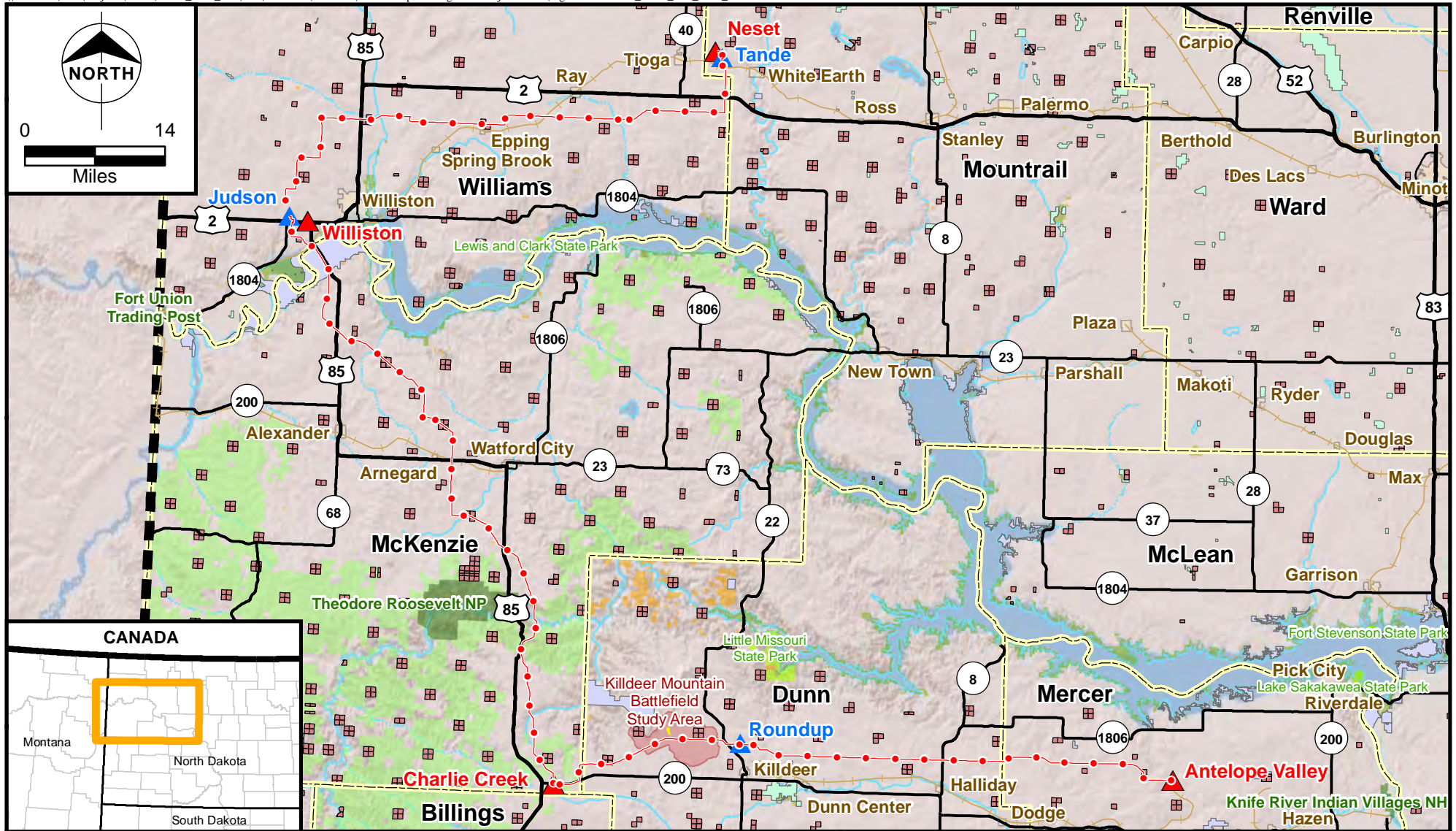
No changes from Corridor/Route revisions. Figure 5.2-1 has been updated to include the revised Corridor/Route.

5.2.2 Impacts

No changes from Corridor/Route revisions.

5.2.2.1 Agricultural Land Use Impacts

The Project would require approximately 11.1 additional acres of ROW due to the Corridor/Route revision, for a total of about 3,640.2 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 one additional structure would be necessary for the Corridor/Route revisions, although changes in the placement of other structures would 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. Table 5.2-1 shows the acreages of each land use type within the revised Corridor/Route.



LEGEND

Project Route	National Grassland	Killdeer Mountain Battlefield State Historic Site
Proposed Substation	BLM Lands	Killdeer Mountain Battlefield Study Area
Existing Substation	State School Trust Lands	State Boundary
Army Corps of Engineers	Wildlife Management Areas	County Boundary
National Park	Waterfowl Production Area	Municipal Areas
National Wildlife Refuge	State Park	Railroad



BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy Cooperative

Figure 5.2-1
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Federal and State-Owned Lands

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

Land Use	Project Corridor/Route	Change due to Corridor/Route Revisions
Grassland (acres)	1,674.3	-0.5
Cultivated cropland (acres)	1,398.1	+7.1
Pasture/hay (acres)	158.3	0
Developed lands (acres)	113.2	+9.1
Other lands(acres)*	296.3	-4.6
Total (acres)	3,640.2	+8.3

*Includes woodland, shrub/scrub, wetlands, barren lands, open water
 Acres were calculated using available National Land Cover Dataset (NLCD) information

5.2.2.2 Zoning and Land Use Plans

Basin Electric was previously pursuing a Conditional Use Permit from Williams County. However, recent changes in the provisions of the Williams County Zoning Ordinances designed to reduce duplicate county review of projects subject to state or Federal oversight and approval have exempted this project from the conditional use permitting (Correspondence provided in Appendix Y). This project, as discussed in the Section 1.1 of the original Application, is subject to the review and approval of the Commission under Chapter 49-22 of the North Dakota Century Code, a Conditional Use Permit from Williams County is not required. .

5.2.2.3 State and Federal Properties

The Corridor/Route would cross one fewer North Dakota School Trust Land parcel, for a total of approximately 117.1 acres within the ROW, a reduction of 7.3 acres. Of the 117.1 ROW acres, 99.3 acres are grassland, 8.9 acres are cultivated crops, 3.9 acres are wetlands, 2.3 acres are woodland, 1.0 acre is shrub/scrub, 1.2 acres are developed, and 0.4 acre is barren land. Woodland would be permanently converted to cleared ROW suitable for agricultural activities. No permanent changes in land use, inconsistent with the current school land requirements within these parcels are anticipated as a result of the proposed Project. Temporary impacts would be expected during construction, with permanent impacts to grasslands and cultivated cropland occurring only at structure locations. No other changes to this section were identified.

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.

5.3.1.3 Transportation Infrastructure

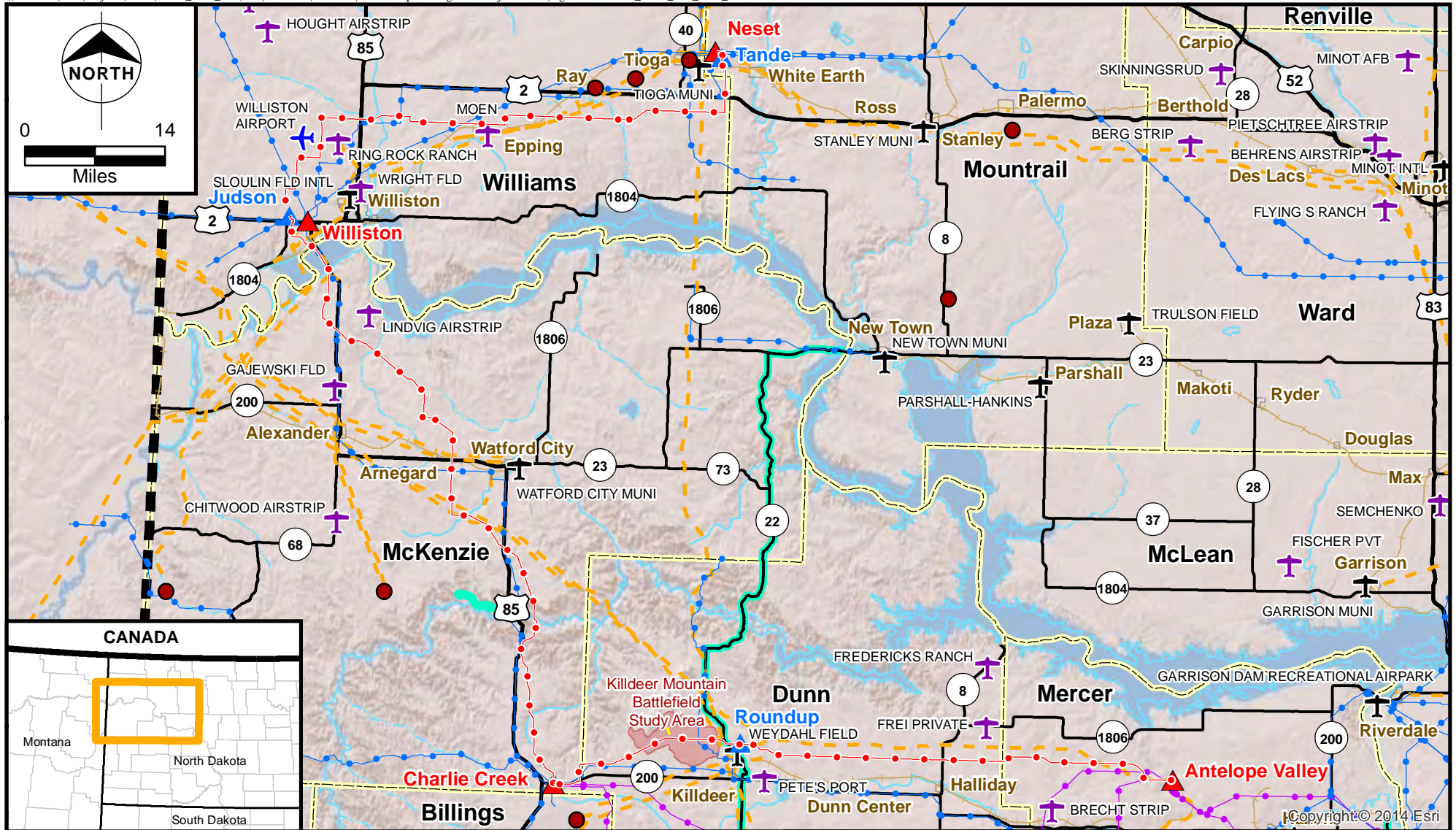
No changes from Corridor/Route revisions.

5.3.2 Impacts

The revised Corridor/Route has one less pipeline (oil, natural gas, CO₂) crossing, for a total of 20 crossings. Impacts to pipelines are not anticipated, as they will be identified during route survey activities, located on design and construction drawings and all transmission structures will be placed outside of pipeline ROWs. Appropriate measures will be taken to protect them should equipment be required to use or cross pipeline ROWs.

The revised Corridor/Route has two additional road crossings, for a total of 106 crossings. Construction at road crossings may result in occasional short-term traffic delays during the stringing of conductors across the roadway. Traffic may need to 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.



LEGEND

- Project Route
- ▲ Proposed Substation
- ▲ Existing Substation
- State Boundary
- County Boundary
- Municipal Areas
- Railroad
- Public Airport
- Private Airport
- Proposed Williston Airport
- Gas Plants
- U.S. Highway
- State Highway
- Pipeline
- Scenic Byway
- Existing Transmission Lines**
- 345-kV
- 230-kV and Below
- Killdeer Mountain Battlefield State Historic Site
- Killdeer Mountain Battlefield Study Area



Figure 5.3-1
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Transportation and Utilities

There is one less airport within 5 miles of the revised Corridor/Route. Public airports and private airstrips within 5 miles of the overall Corridor/Route include:

- Weydahl Field in Dunn County (City of Killdeer)
- Two private airstrips in Dunn County
- One private airstrip in McKenzie County
- Tioga Municipal Airport in Williams County (City of Tioga)
- Two private airstrips in Williams County
- One private airstrip in Mercer County
- Proposed relocated Williston Airport

Basin Electric is coordinating with the FAA to determine if the proposed Project would have any impact to aircraft facilities. FAA obstruction screening analysis was performed on the Judson to Neset segment. This screening process resulted in FAA issuing a Determination of No Hazard to Air Navigation for the Corridor/Route for several structures for which Basin was required to file structures for evaluation. Basin Electric is awaiting concurrence from the City of Williston on FAA's determination (anticipated mid-February 2016).

No other changes to this section were identified.

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.

5.5.1 Description of Resources

No changes from Corridor/Route revisions.

5.5.2 Impacts

The Project would remove approximately 0.3 fewer forested acres due to the Corridor/Route revision, for a total of about 115.1 forested acres. Assuming each affected acre contains the average carbon content for the North Central Region (160,000 pounds per carbon acres [USFS, 1992]), the net carbon footprint

associated with the removal of forested area will be an estimated 8,353 metric tons of CO₂e, or 95 metric tons less due to the Corridor/Route revisions. Given this estimate, the impact of vegetation removal on GHG emissions will be low.

No other changes to this section were identified.

5.5.3 Mitigation

No changes from Corridor/Route revisions.

5.6 Noise

No changes from Corridor/Route revisions.

5.7 Visual Impacts

5.7.1 Description of Resources

No changes from Corridor/Route revisions.

5.7.2 Impacts

The revised Corridor/Route has two additional road crossings, for a total of 106 crossings. Many, if not most, of these roads are county section-line gravel roads that receive only very light local traffic. However, the Project would introduce a new visual element to the surrounding area for motorists at each road crossing. This addition would likely be more pronounced at road crossings of larger, well-traveled roads or at crossings where there is no existing transmission or distribution lines within view of the road.

No other changes to this section were identified.

5.7.3 Mitigation

No changes from Corridor/Route revisions.

5.8 Cultural Resources

A Class III cultural resource survey was performed on the three Corridor/Route revisions. No impacts to cultural resources were identified. On the land parcels for which Basin Electric has recently acquired easements, the Class III cultural surveys will be performed in the spring of 2016.

5.9 Recreational Resources

No changes from Corridor/Route revisions.

5.9.1 Description of Resources

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.

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

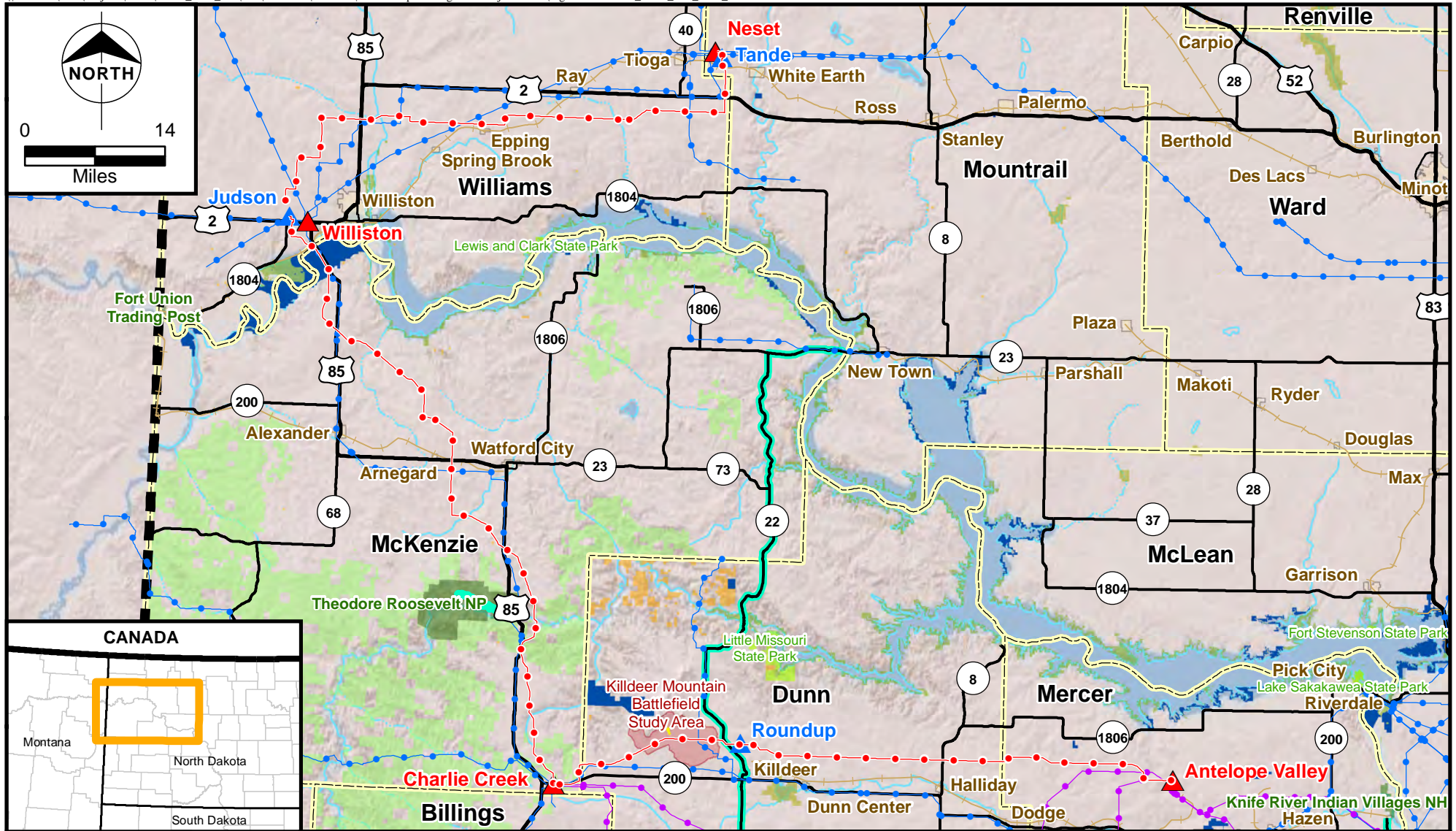
No changes from Corridor/Route revisions.

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.



LEGEND

- Project Route
- ▲ Proposed Substation
- ▲ Existing Substation
- Army Corps of Engineers
- National Park
- National Wildlife Refuge
- National Grassland
- BLM Lands
- State Park
- State Boundary
- County Boundary
- Municipal Areas
- Railroad
- Scenic Byway
- Killdeer Mountain Battlefield State Historic Site
- Killdeer Mountain Battlefield Study Area
- Wildlife Management Areas

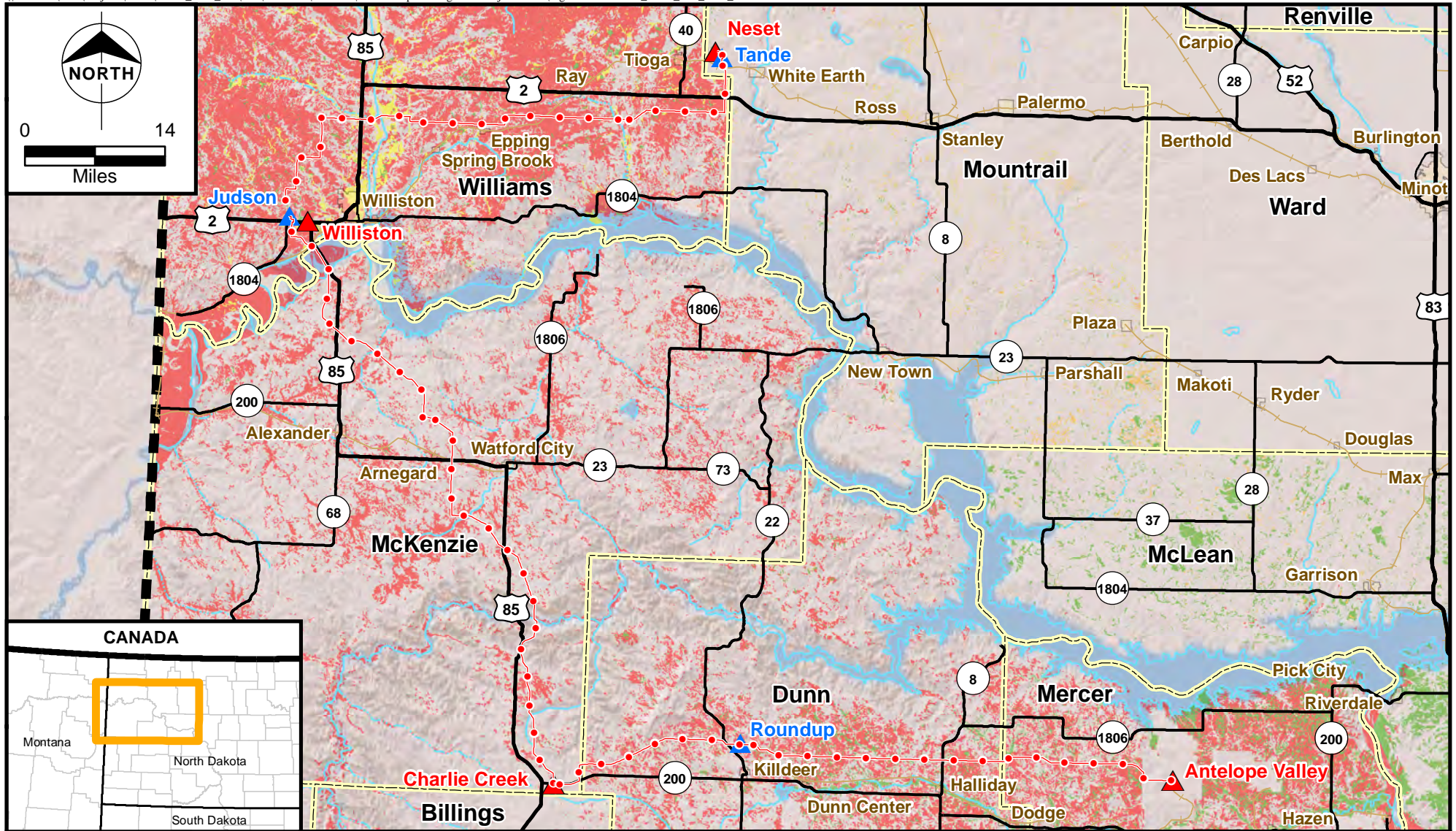
Existing Transmission Lines

- 345-kV
- 230-kV and Below

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Figure 5.9-1
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Recreation Areas



LEGEND

Project Route	Railroad
Proposed Substation	Prime Farmland
Existing Substation	Farmland of Statewide Importance
State Boundary	Prime Farmland if Drained
County Boundary	Prime Farmland if Irrigated
Municipal Areas	



BASIN ELECTRIC POWER COOPERATIVE
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Figure 5.10-1
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Prime and Important Farmland

5.10.2.1 Soils

Approximately 3.1 more acres of surface soil would be incorporated into the Corridor/Route ROW, for a total of 3,640.2 acres, although the acreage that would actually be disturbed would be far less. Permanent impacts to soils would include the disturbance of 38.5 square feet (1.0 acre, approximately 43,560 square feet total) of soil where transmission structures (1,173 total) would be placed.

5.10.2.2 Farmland

Approximately 7.1 additional acres of cultivated cropland would be incorporated into the Corridor/Route ROW by the proposed revision, for a total of 1,398.1 acres for the Project. It is likely that impacts would not occur across the entire 1,398.1 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 0.5 fewer combined acres of grassland, pasture, or hay land would occur within the Corridor/Route, for a total of 1,832.6 acres. No other changes to this section were identified.

5.10.2.3 Prime Farmland

The Corridor/Route revisions would result in 12.1 fewer acres of prime farmland; 15.2 additional acres of farmland of statewide importance; 1.6 fewer acres of prime farmland if drained; and 6.5 additional acres of prime farmland if irrigated within the ROW. 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

Farmland Classification	Corridor/Route	Change due to Corridor/Route Revisions
Not prime farmland (acres)	2,125.4	-24.4
All areas are prime farmland (acres)	81.9	-2.6
Farmland of statewide importance (acres)	1,368.8	+14.2
Prime farmland if drained (acres)	4.2	-1.6
Prime farmland if irrigated (acres)	59.9	+6.5
Total (acres)	3,640.2	-7.9

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.

5.11.1.5 Mineral Resources

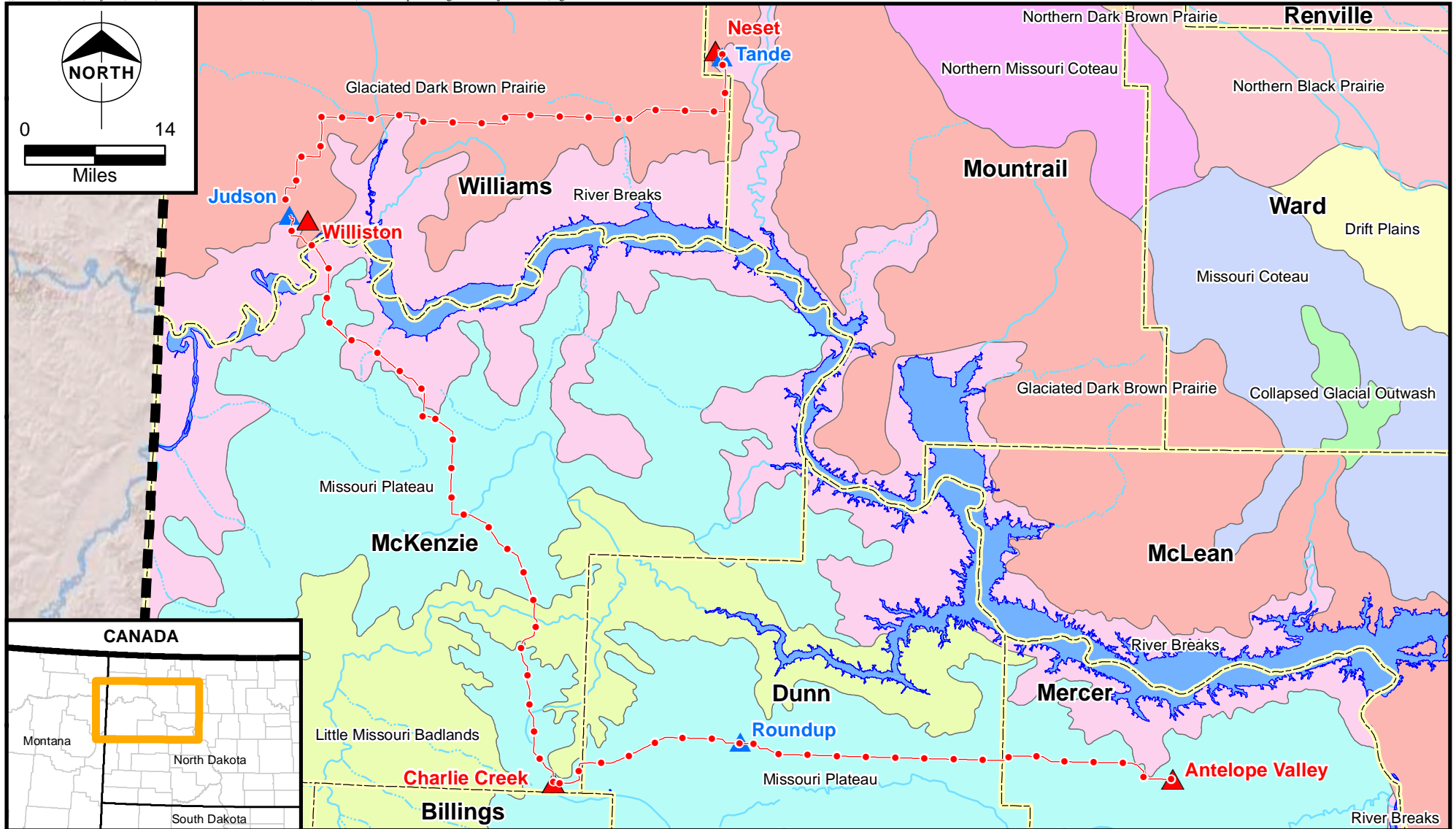
No changes from Corridor/Route revisions. Figure 5.11-4 has been updated to include the revised Corridor/Route.

5.11.1.6 Landslides

No changes from Corridor/Route revisions. Figure 5.11-5 has been updated to include the revised Corridor/Route.

5.11.2 Impacts

No additional structures are anticipated as part of Corridor/Route revisions. Locations of individual structures may shift within the right-of-way. Approximately 1,500 cubic feet (1,759,500 cubic feet total) of displaced soil and/or rock would be anticipated from each structure (1,173 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.

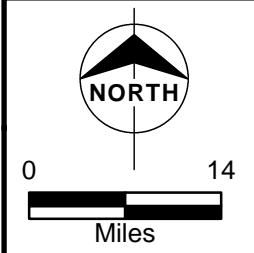
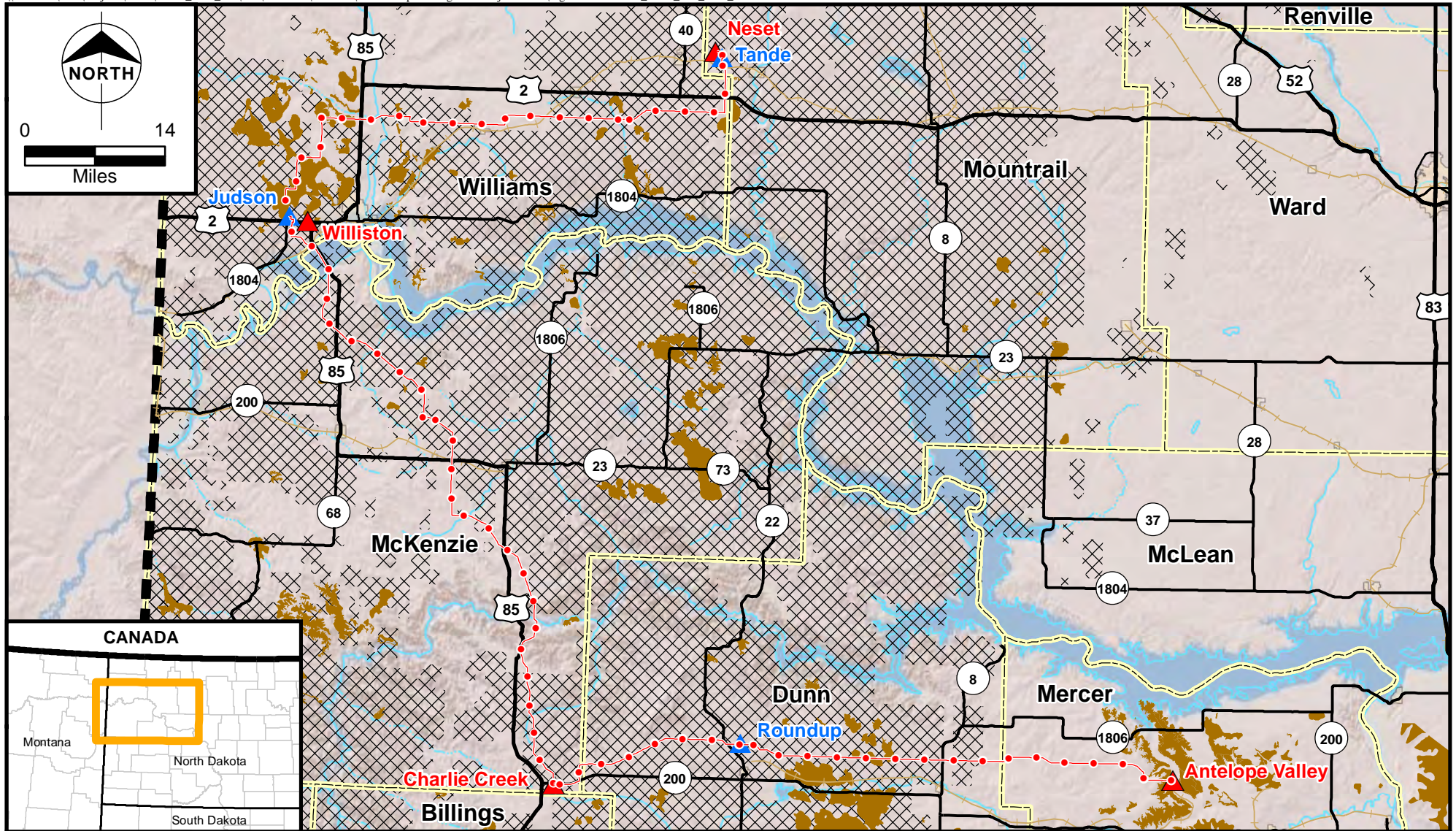


LEGEND

- Project Route
 - ▲ Proposed Substation
 - ▲ Existing Substation
 - State Boundary
 - - - County Boundary
 - Missouri River/Lake Sakakawea
- Ecoregions**
- Missouri Coteau
 - Collapsed Glacial Outwash
 - Northern Missouri Coteau
 - Northern Black Prairie
 - Glaciated Dark Brown Prairie
 - Missouri Plateau
 - Little Missouri Badlands
 - River Breaks
 - Northern Dark Brown Prairie
 - Drift Plains



Figure 5.11-1
 Basin Electric Power Cooperative
 Antelope Valley Station to Neset
 345-kV Transmission Project
 Ecoregions within the Study Area



- LEGEND**
- Project Route
 - ▲ Proposed Substation
 - ▲ Existing Substation
 - State Boundary
 - County Boundary
 - Municipal Areas
 - Coal Fields
 - Oil Fields
 - Railroad

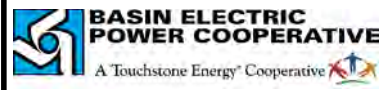
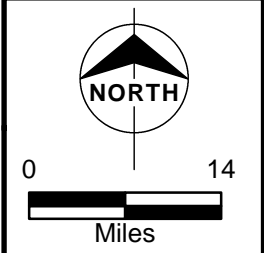
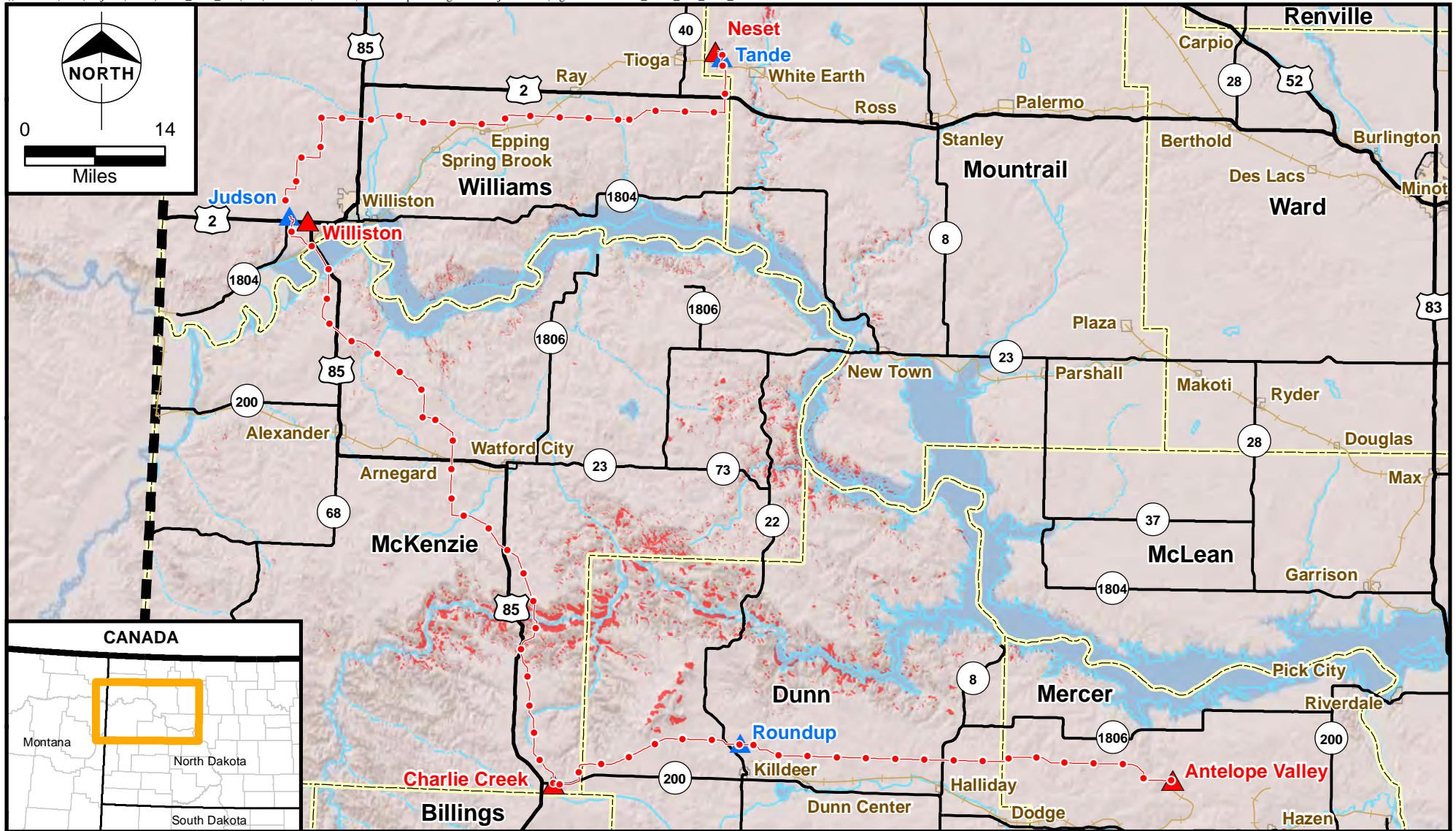


Figure 5.11-4
 Basin Electric Power Cooperative
 Antelope Valley Station to Neset
 345-kV Transmission Project
 Oilfields and Coal Deposits



- LEGEND**
- Project Route
 - ▲ Proposed Substation
 - ▲ Existing Substation
 - State Boundary
 - County Boundary
 - Municipal Areas
 - Railroad
 - Landslide Deposits

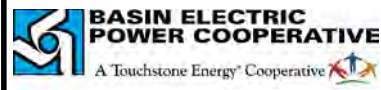


Figure 5.11-5
 Basin Electric Power Cooperative
 Antelope Valley Station to Neset
 345-kV Transmission Project
 Landslide Areas

5.11.3 Mitigation

No changes from Corridor/Route revisions.

5.12 Water Resources

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.

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

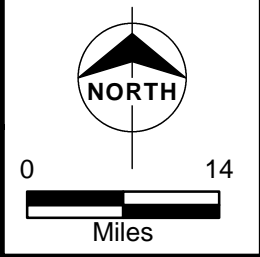
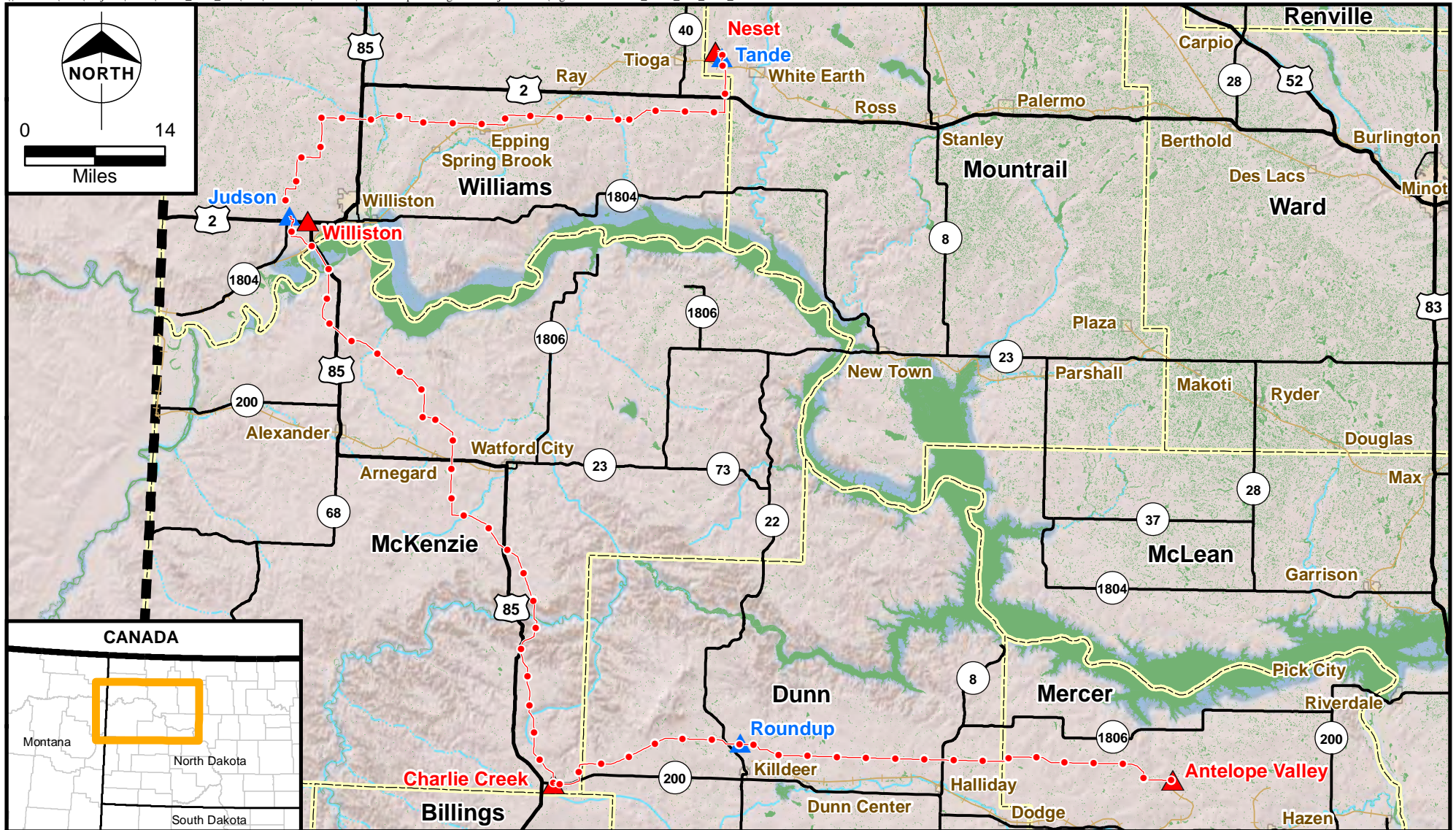
No changes from Corridor/Route revisions.

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.



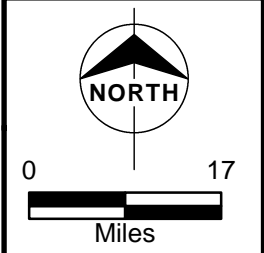
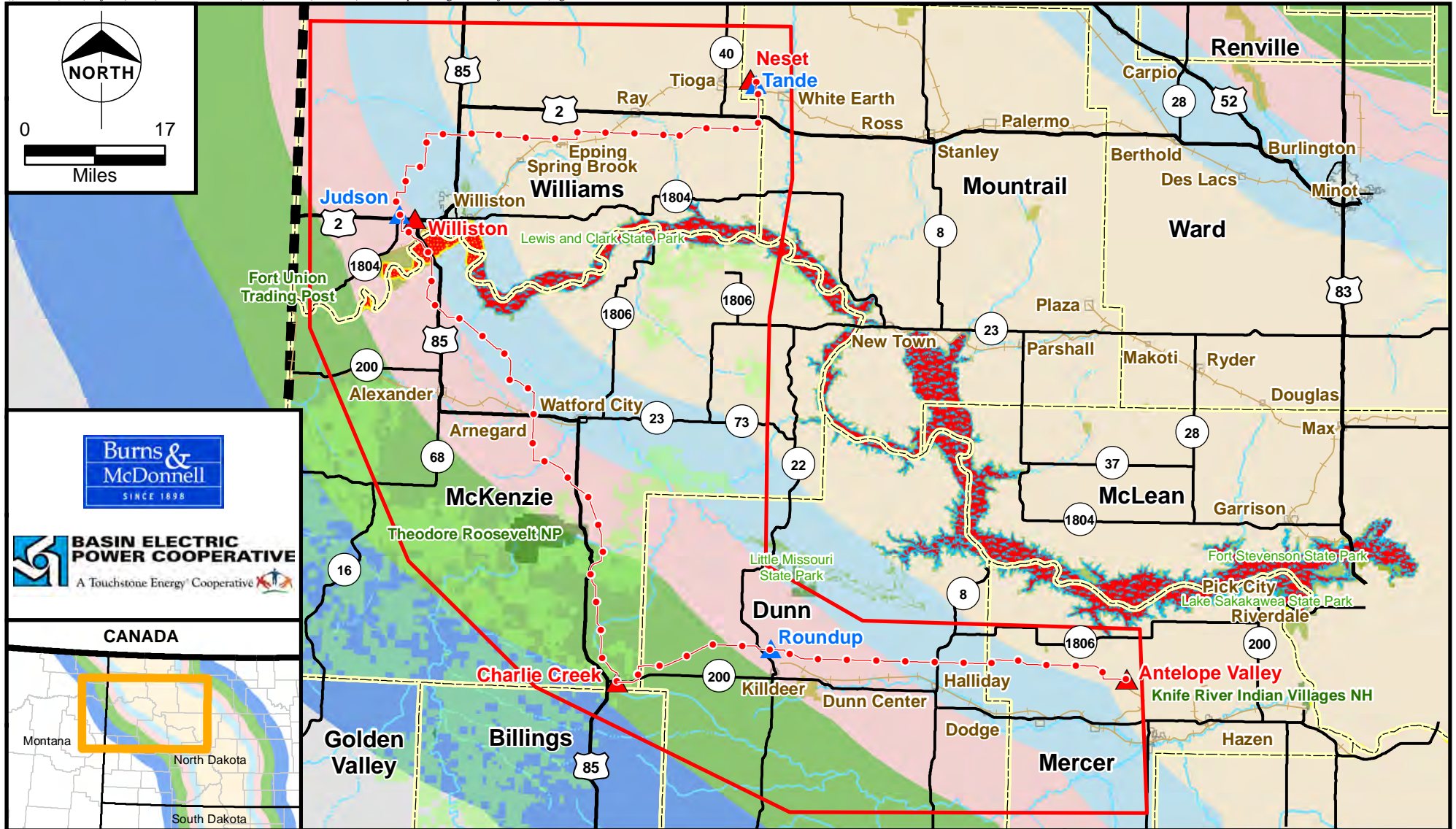
LEGEND

- Project Route
- ▲ Proposed Substation
- ▲ Existing Substation
- State Boundary
- County Boundary
- Municipal Areas
- Railroad
- NWI Wetlands



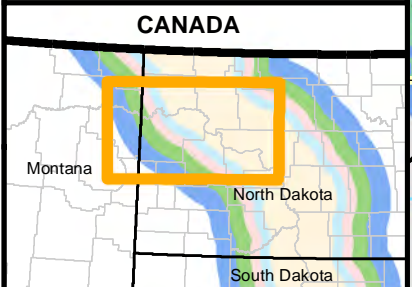

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Figure 5.13-5
 Basin Electric Power Cooperative
 Antelope Valley Station to Neset
 345-kV Transmission Project
 NWI Wetlands



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LEGEND

- Project Route
- ▲ Proposed Substation
- ▲ Existing Substation
- Study Area
- Army Corps of Engineers
- National or State Park
- National Wildlife Refuge
- National Grassland
- State Boundary
- County Boundary
- Municipal Areas
- Railroad
- Interior Least Tern Habitat
- Pallid Sturgeon Habitat
- 75% (60 mi Whooping Crane Corridor)
- 80% (80 mi Whooping Crane Corridor)
- 85% (100 mi Whooping Crane Corridor)
- 90% (130 mi Whooping Crane Corridor)
- 95% (170 mi Whooping Crane Corridor)
- Piping Plover Critical Habitat

Figure 5.13-6
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Important Threatened and Endangered
Species Habitat

5.13.2.1 Vegetation

Table 5.13-3 presents the potential number of acres impacted within the Project Corridor/Route for each vegetation type.

Table 5.13-3: Vegetation Types within Revised Corridor/Route

Vegetation Type	Revised Corridor/Route (acres)	Change due to Corridor/Route Revisions (acres)
Woodland	115.1	-0.3
Grassland	1,674.3	-0.5
Pasture/Hay Land	158.3	0
Cultivated Cropland	1,398.1	7.1

Source: National Land Cover Dataset

Permanent vegetative impacts associated with the revised Project would include the removal of vegetation at each structure foundation location, resulting in permanent loss of vegetation of approximately 38.5 square feet (1.0 acre total) over the length of the Corridor/Route. No other changes to this section were identified.

5.13.2.2 Wetlands

Table 5.13-4 displays the changes in potential wetland types and acreages resulting from the Corridor/Route revisions.

Table 5.13-4: NWI Wetland Acres within Revised Corridor/Route¹

Wetland Type	Wetland Acres in Revised Corridor/Route	Change due to Corridor/Route Revisions
PEM	12.8	-0.3
PSS	0.4	0
Lake	11.2	0
Pond	0.8	-0.4
Riverine	2.5	0
Total	26.9	-0.7

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

¹ Data presented in this table are reflective of National Wetland Inventory data and are presented here for data consistency with the previous application and amendments. Actual field surveys identified 23.38 acres of wetlands in the route corridor.

No other changes to this section were identified.

5.13.2.3 Wildlife

No changes from Corridor/Route revisions.

5.13.2.4 Special Status Species

Table 5.13-5 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 5.13-5: Whooping Crane Percent Migration Corridor

	Length Through Whooping Crane Percent Migration Corridors (miles)					
	75%	80%	85%	90%	95%	Total
Revised Corridor/Route	54.8	54.2	57.2	34.1	0.0	200.4
Change due to Corridor/Route revision	+0.2	0.0	+0.3	0.0	0.0	+0.5

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

The Corridor/Route will be located within 1 mile of 17.7 additional acres of NWI wetlands for the length of the Corridor/Route, for a total of 3,996.0 acres. Preparation of the BA and consultation with the USFWS determined the proposed Corridor/Route would not likely adversely impact whooping cranes.

Table 5.13-6 presented the Project considerations for all identified 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 S), in consultation with U.S. Fish and Wildlife Service (USFWS).

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

Species	Revised Corridor/Route	Change due to Corridor/Route Revisions	Comment
Endangered			
Whooping crane	Approximately 200.4 miles (entire length of Corridor/Route) of new line within migration corridor	0.5 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.	Interior least terns may utilize sandbars in the vicinity of the Missouri River crossing. Project-specific mitigation measures developed as part of detailed species-specific evaluation in the BA, in consultation with USFWS.
Pallid sturgeon	None	No changes from Corridor/Route revisions.	There will be no in-water work within the Missouri River and no work within its inundated floodplain; BMPs will be used to prevent impacts on water resources.
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 will 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

Species	Revised Corridor/Route	Change due to Corridor/Route Revisions	Comment
Threatened			
Piping plover	Approximately 64.6 acres of designated critical habitat within Corridor/Route, however structures will not be placed in the primary constituent elements of piping plover habitat.	No changes from Corridor/Route revisions.	Project-specific mitigation measures developed as part of detailed species-specific evaluation in the BA, in consultation with USFWS.
Candidate and Proposed			
Sprague's pipit ^a	Approximately 1,674.3 acres of potential grassland habitat within Corridor/Route ^b	0.5 fewer acres of potential grassland habitat within Corridor/Route	Potential temporary disturbance to Sprague's pipit habitat within ROW; 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.
Dakota skipper ^a	Approximately 1,674.3 acres of potential grassland habitat within Corridor/Route	0.5 fewer 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

(b) Grassland habitat based on National Land Cover Database GIS data presented here for consistency with original application. On the ground surveys have determined actual Sprague's pipit habitat to be 982.2 acres within the Corridor/Route.

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 \$210 in annual property tax revenues (years 5-45) for a total of \$18,750 annually to Williams County. No other changes.	No change.	No change.	No change.	No change.
Land Use	An additional 11.1 acres of ROW (total of 3,640.2 acres) will be required and would be restricted from some types of future development. 38.5 square feet of soil (1.0 acre total [38.5 square feet per structure]) would be permanently removed. One fewer North Dakota School Trust Land parcel crossed (reduction of 7.3 acres; 117.1 acres total). No other changes.	No change.	No change.	No change.	No change.
Infrastructure-Transportation	Revised Corridor/Route has 1 fewer pipeline crossing (20 total). Revised Corridor/Route has 2 additional road crossings (106 total). One less airport within 5 miles of the revised Corridor/Route (8 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.

Resource	Corridor/Route		Substations		Mitigation
	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts	
Air Quality	1.3 fewer forested acres (115.1 acres total) would be removed, resulting in a net carbon footprint of 95 fewer metric tons of CO ₂ e (total of 8,353 metric tons of CO ₂ e). No other changes.	No change.	No change.	No change.	No change.
Noise	No change.	No change.	No change.	No change.	No change.
Visual	Revised Corridor/Route has 2 additional road crossings (106 total). No other changes.	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	<p>An additional 11.1 acres would be incorporated into the Corridor/Route ROW (total of 3,640.2 acres).</p> <p>38.5 square feet of soil (1 acre total [38.5 square feet per structure]) would be permanently removed at each structure.</p> <p>An additional 7.1 acres of cultivated cropland (1,398.1 acres total) and 5.0 fewer combined acres of grassland, pasture, or hay (1,827.1 acres total) would be incorporated into the Corridor/Route ROW.</p> <p>2.6 fewer acres of prime farmland (81.9 acres total), 14.2 additional acres of farmland of statewide importance (1,368.8 acres total), 1.6 fewer acres of prime farmland if drained (4.2 acres total), and 6.5 additional acres of prime farmland if irrigated (59.9 acres total) within the ROW.</p> <p>No other changes.</p>	<p>0.29 additional acre (340.2 acres total [0.29 acre per structure]) of temporary soil disturbance during construction within Corridor/Route.</p>	No change.	No change.	No change.
Geology and Landforms	<p>1,500 cubic feet of soil and rock per structure (1,759,000 cubic feet total) displaced during structure foundation borings and construction.</p> <p>No other changes.</p>	No change.	No change.	No change.	No change.
Water	No change.	No change.	No change.	No change.	No change.

Resource	Corridor/Route		Substations		Mitigation
	Permanent Impacts	Temporary Impacts	Permanent Impacts	Temporary Impacts	
Biological Resources	<p>Vegetation: 0.3 acre less of woodland (115.1 acres total) removed within Corridor/Route, depending on slope. No other changes.</p> <p>Wildlife: Loss of 0.3 acre less of woodland/potential forested habitat (115.1 acres total) within Corridor/Route. No other changes.</p> <p>Aquatic Resources: No change.</p> <p>Special Status Species: No change.</p> <p>Wetlands: 0.7 acre less of wetlands (NWI) within Corridor/Route. No other changes.</p>	No change.	No change.	No change.	No change.

6.0 PUBLIC AND AGENCY COORDINATION

No changes from Corridor/Route revisions.

7.0 IDENTIFICATION OF ADDITIONAL REQUIRED PERMITS/APPROVALS

No changes from Corridor/Route revisions.

8.0 FACTORS CONSIDERED

North Dakota Century Code (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 38.5 square feet of land from agricultural uses to utility uses (1.0 acre total) at each structure location. 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 revisions.

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 0.3 acre less of woodland (115.1 acres total) would potentially be removed within the Corridor/Route, resulting in a loss of forested habitat for some wildlife. Approximately 0.7 acre less of wetlands (NWI) are within the Corridor/Route (26.9 acres total). Wetlands would be spanned and no structures would be placed in wetlands, where practicable. 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 has completed its land acquisition efforts and has successfully obtained the necessary easements from all of the required landowners. See Table 11.0-1 below.

Table 11.0-1: Land Acquisition Status

Landowners Properties to Acquire	Landowners Properties Acquired	Properties Left to Acquire	Percentage Acquired
176	176	0	100%
Miles to Acquire	Miles Acquired	Miles Left to Acquire	Percentage Acquired
200.4	200.4	0.0	100%



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Amendment to the Application to the
North Dakota Public Service Commission
for
Consolidated Certificate of Corridor Compatibility
and Route Permit

Volume II

Case No: PU-11-696

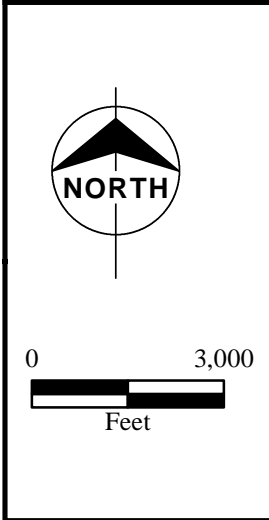
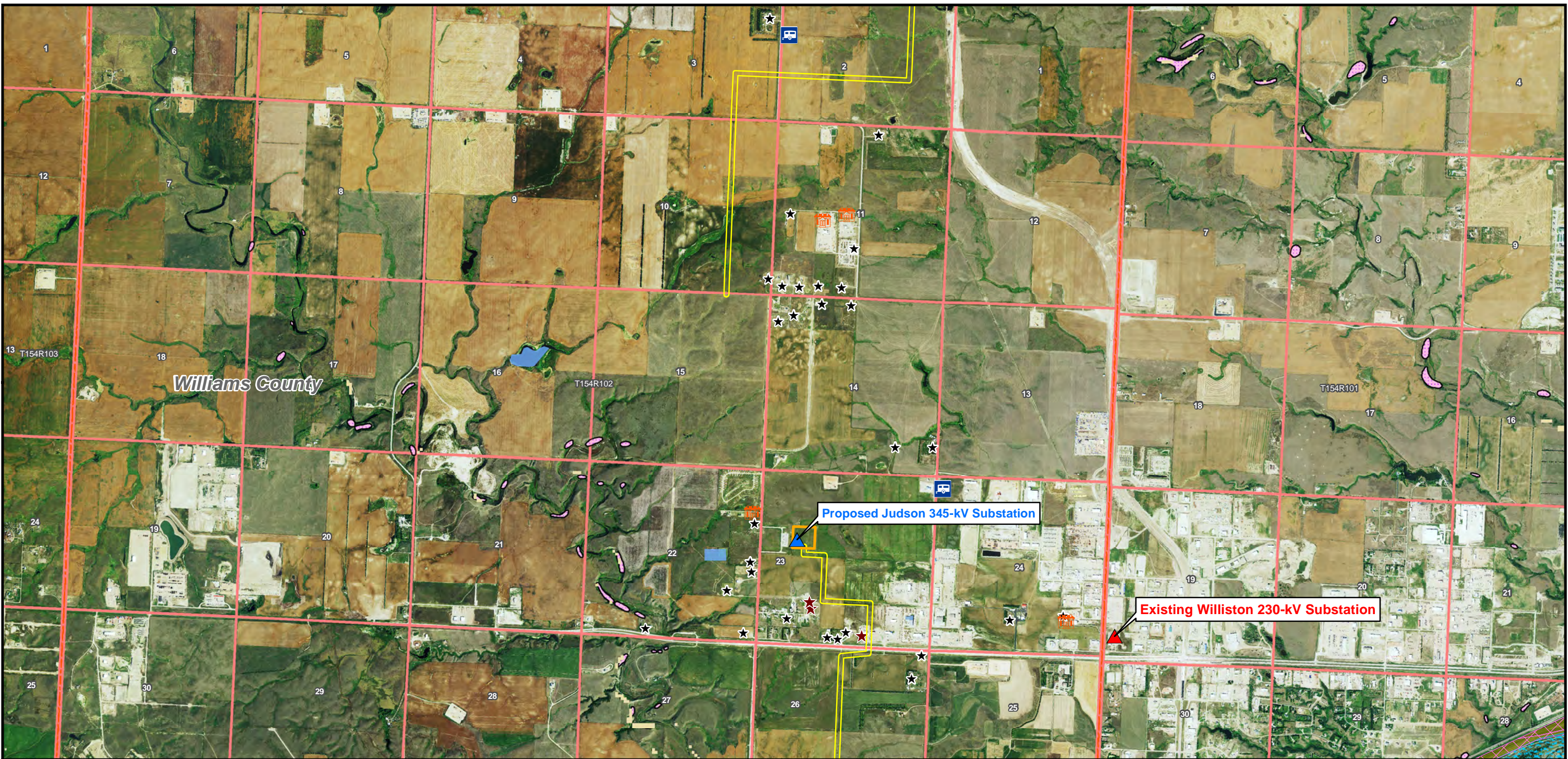
for the

**AVS-Neset 345-kV
Transmission Project**



January 2016

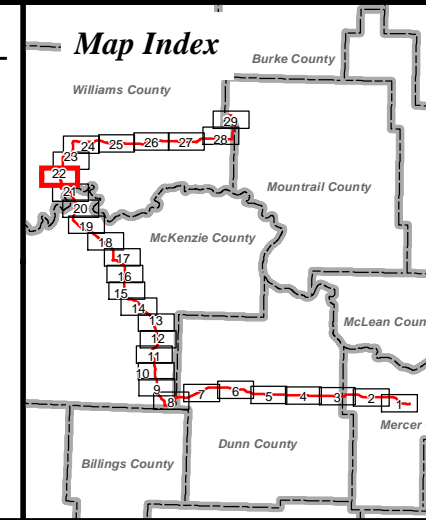
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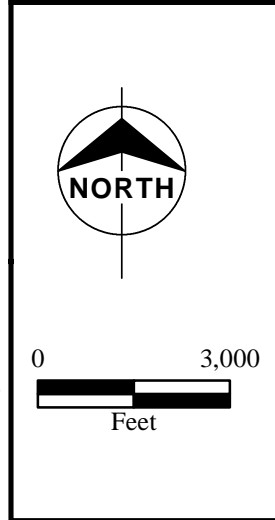
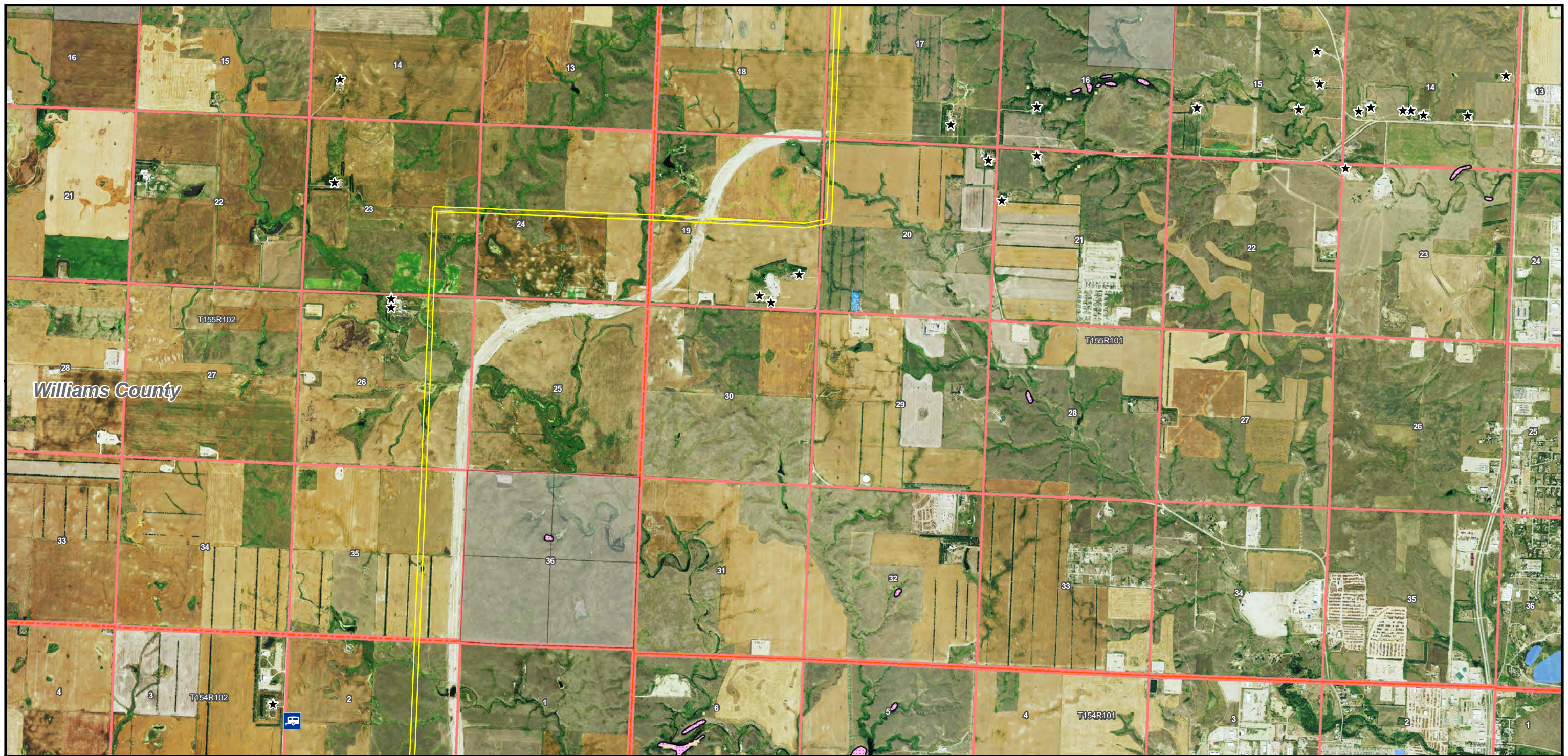
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 - Scenic River
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 - Waterbody
 - National Grassland
 - USACE Land
 - State-Owned School Lands
 - State Wildlife Management Area
 - National Wildlife Refuge
- Slope Greater than 10%**
- 10% - 20%
 - 20% - 30%
 - 30% - 44.5%



Exclusion and Avoidance Criteria

Updated for replacement mapbook sheet 22 from July 2014

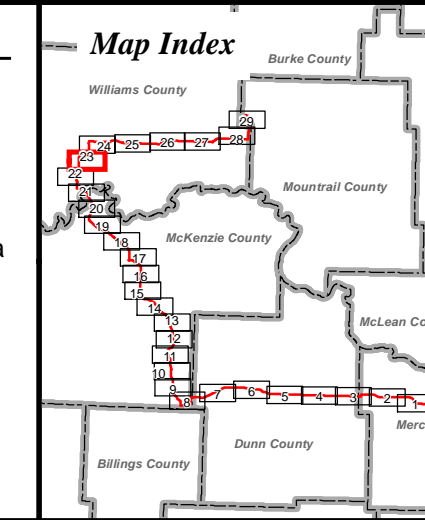
Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Detailed Project Route Maps
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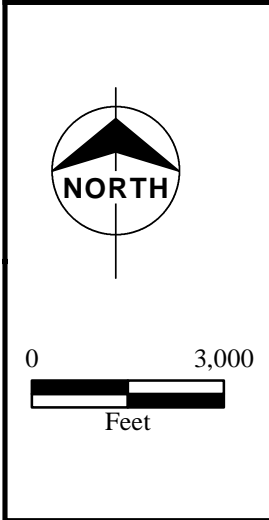
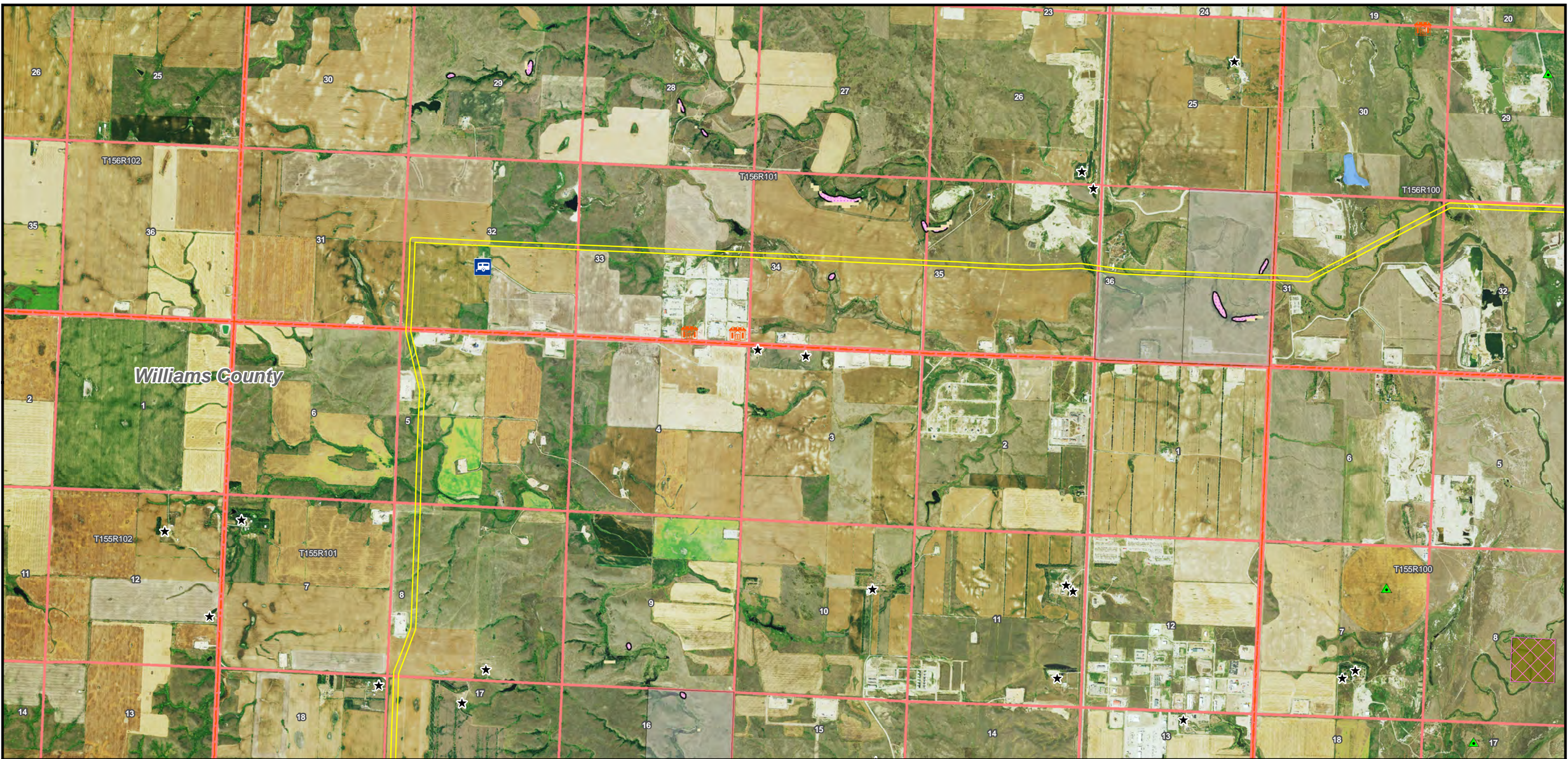
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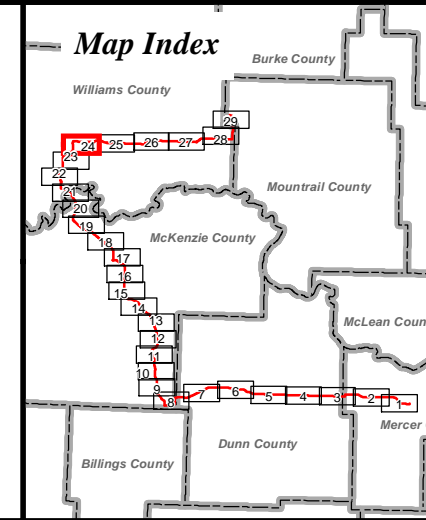
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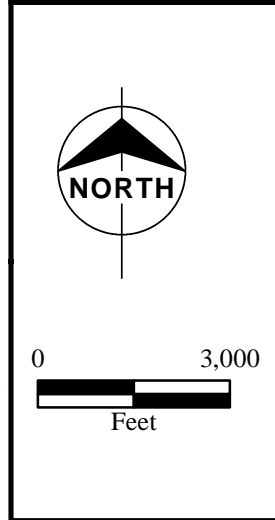
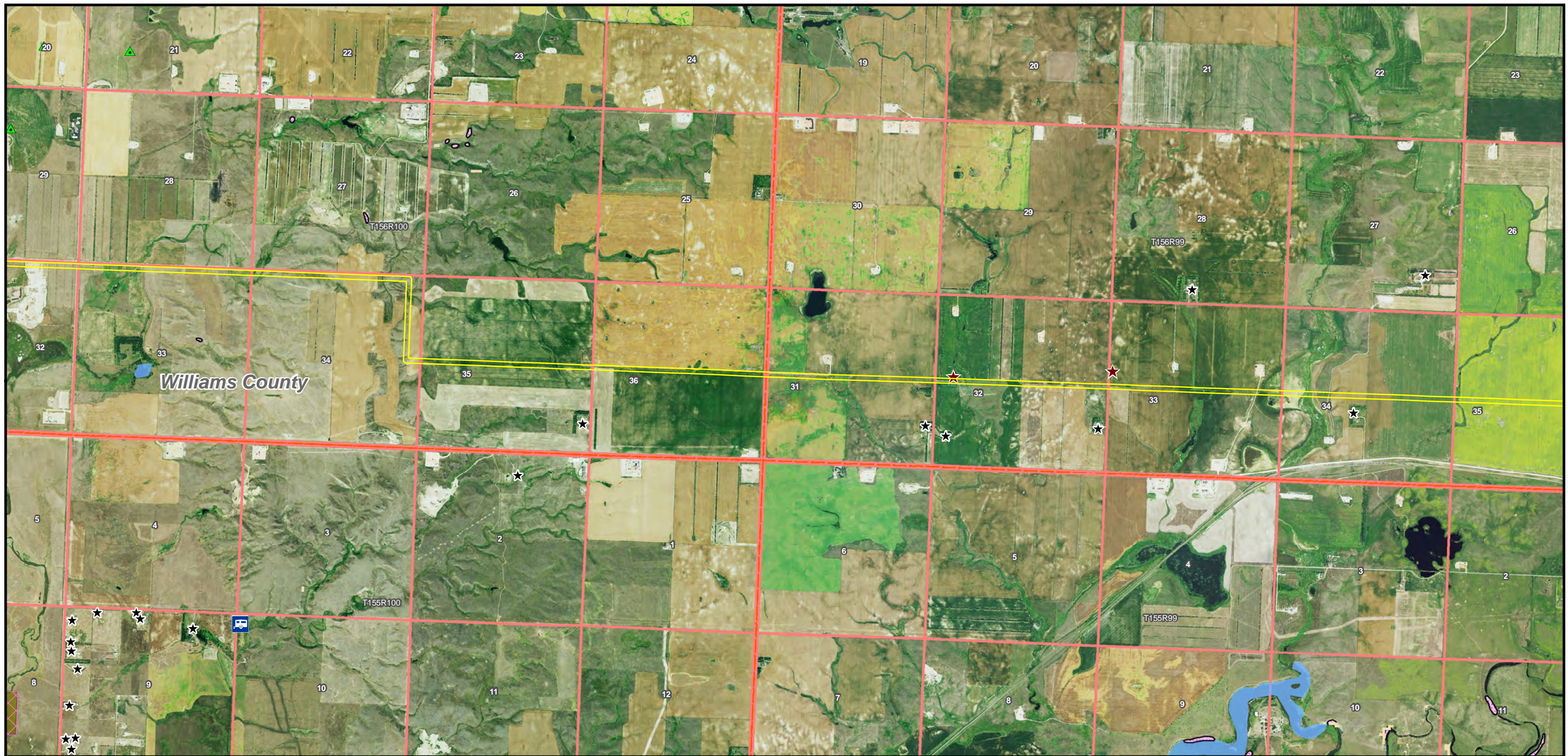
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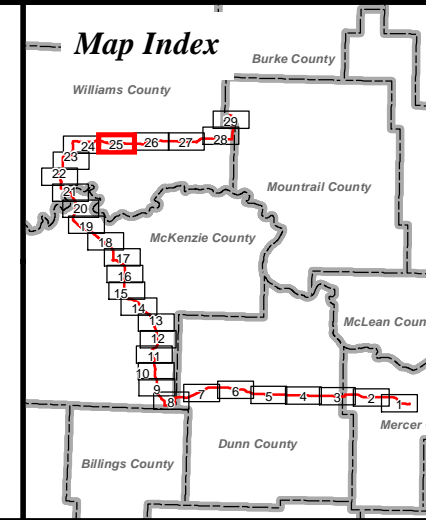
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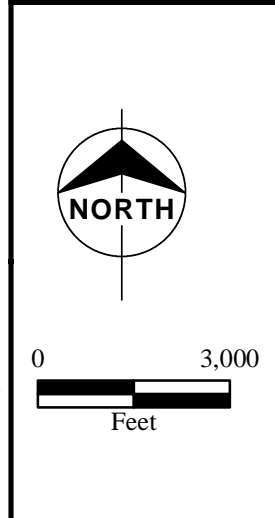
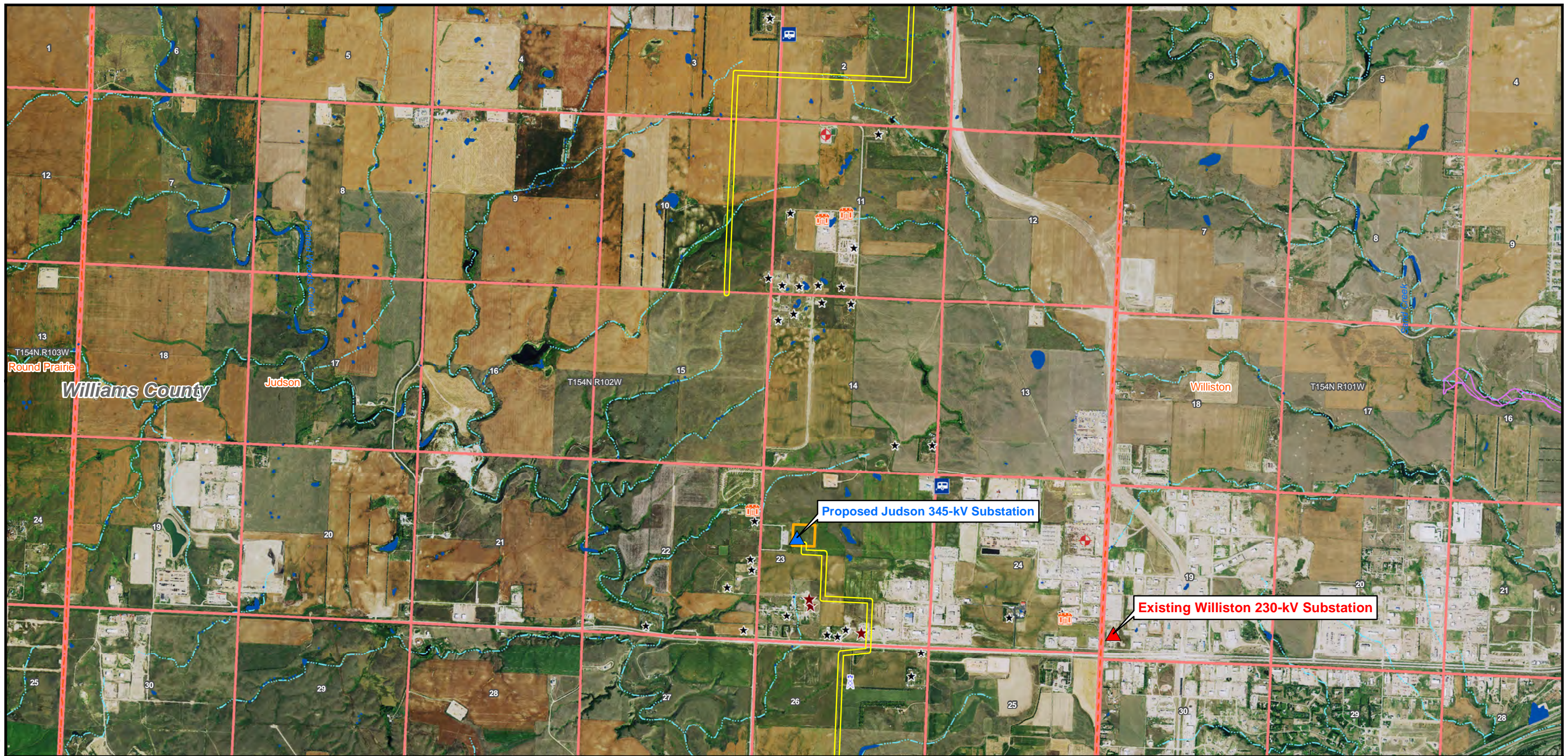


Exclusion and Avoidance Criteria

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Basin Electric Power Cooperative Antelope Valley Station to Neset 345-kV Transmission Project Detailed Project Route Maps Sheet 25 of 29

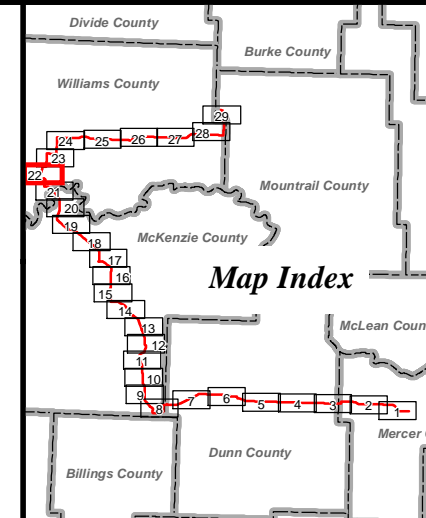
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 - ★ Residence
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 - 📡 AM/FM Radio Tower
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 - Perennial Stream
 - - - Intermittent Stream
 - National Grassland
 - National Park
 - NWI Wetlands
 - FEMA Floodplains

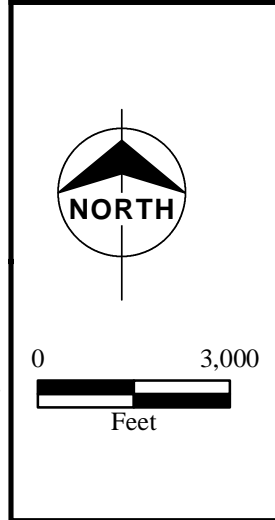
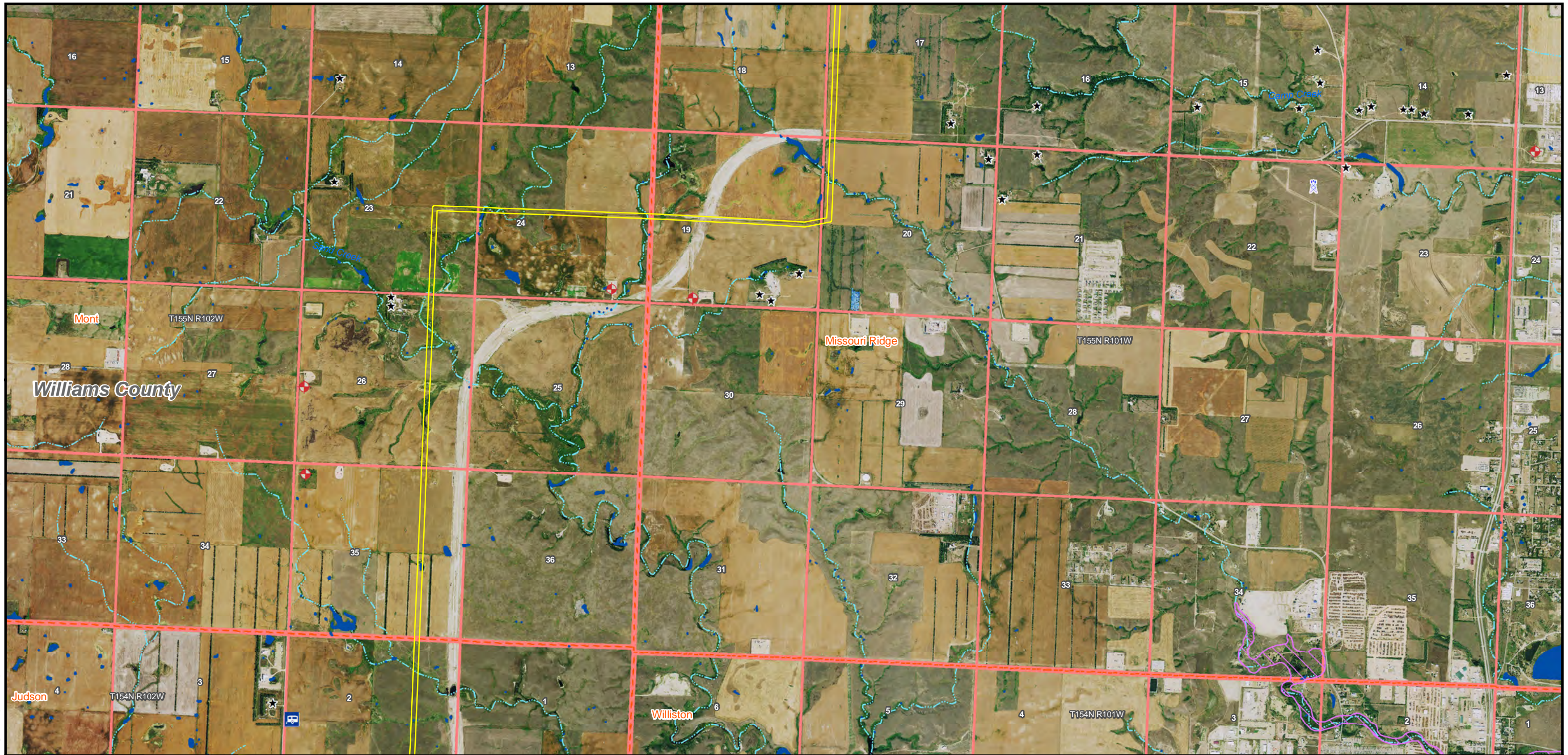


Selection Criteria

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Basin Electric Power Cooperative
Antelope Valley Station to Neset
345-kV Transmission Project
Detailed Project Route Maps
Sheet 22 of 29

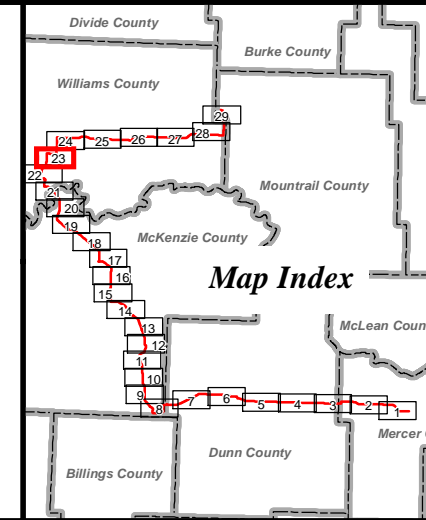
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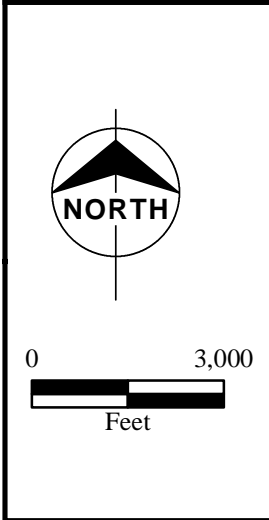
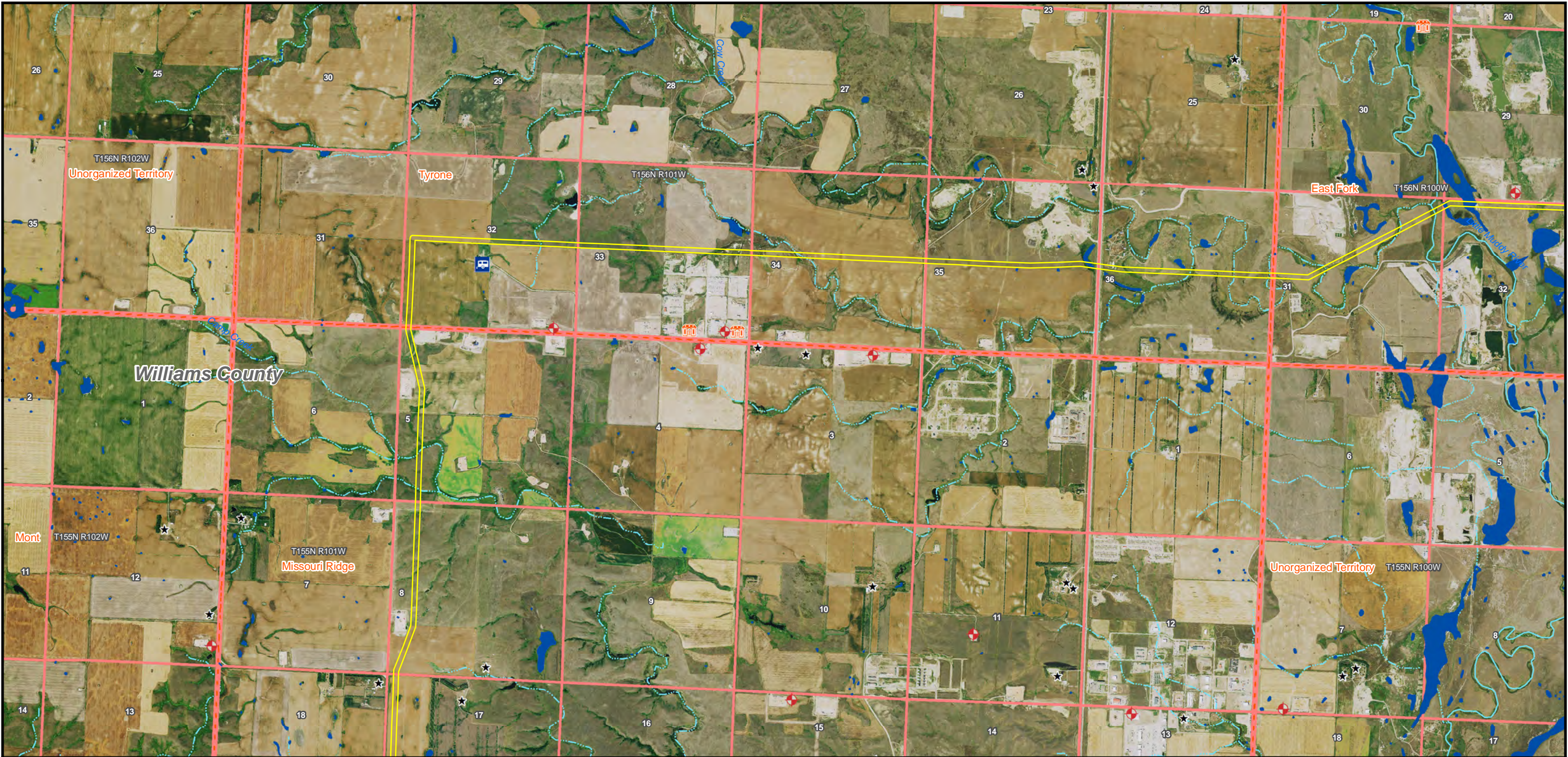


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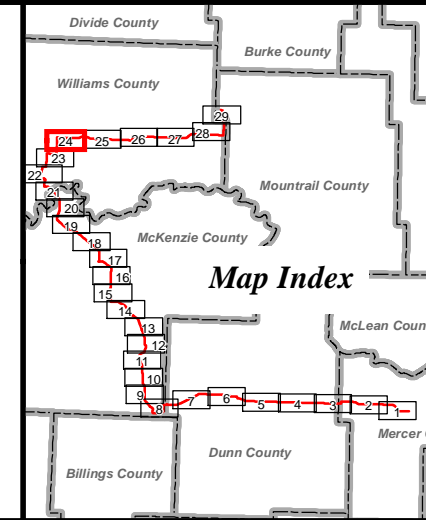
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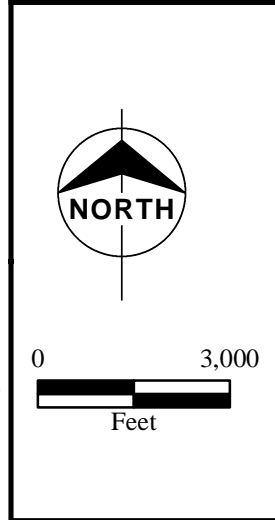
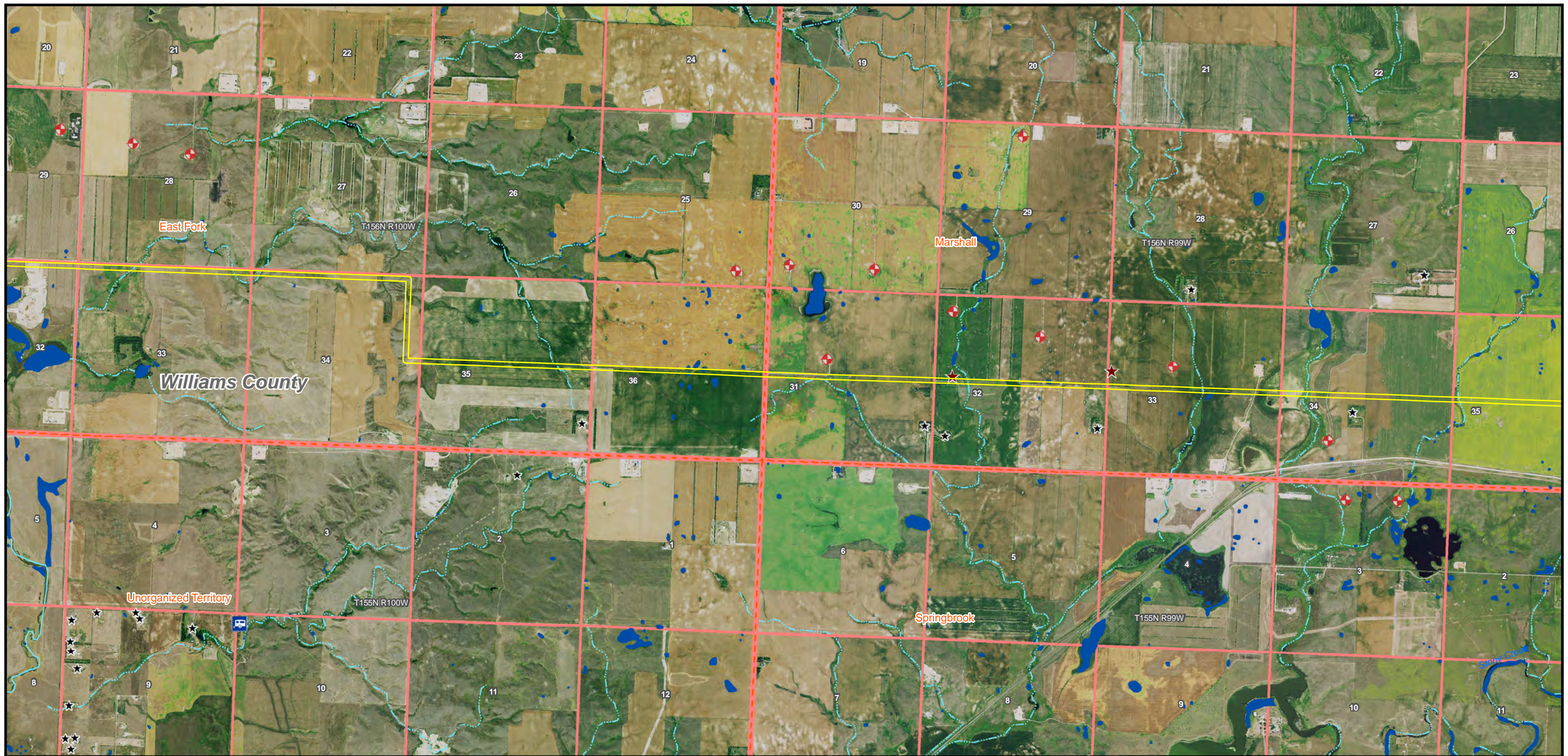
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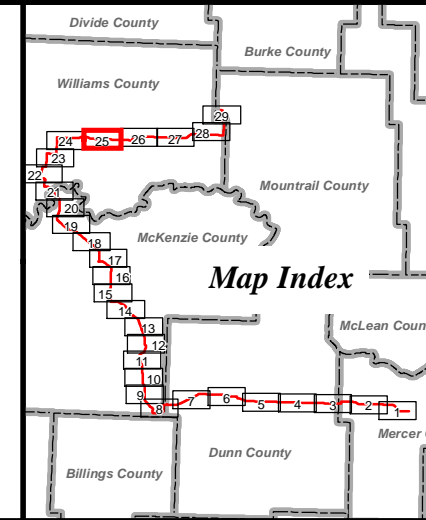
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Amendment to the Application to the
North Dakota Public Service Commission
for
Consolidated Certificate of Corridor
Compatibility and Route Permit

Volume III


Case No: PU-11-696

for the

**AVS-Neset 345-kV
Transmission Project**



**BASIN ELECTRIC
POWER COOPERATIVE**

A Touchstone Energy® Cooperative 

January 2016

APPENDIX A - MACRO-CORRIDOR AND ALTERNATIVES REPORT

(No change to appendix)

APPENDIX B - SCOPING REPORT AND SCOPING COMMENTS RECEIVED

(No change to appendix)

APPENDIX C – DRAFT ENVIRONMENTAL IMPACT STATEMENT

(No change to appendix)

APPENDIX D - COMMISSION CORRESPONDENCE

(No change to appendix)

APPENDIX E - DESIGN DATA REPORT

(To be filed to Docket separately)

**APPENDIX F - WORK PLAN FOR DISCOVERY OF UNANTICIPATED CULTURAL
RESOURCES ARTIFACTS**

(To be filed to Docket separately)

APPENDIX G - PLAN AND PROFILE

(To be filed to Docket separately)

APPENDIX H - LEGAL DESCRIPTION FOR THE PROJECT CORRIDOR/ROUTE

(To be filed to Docket separately)

APPENDIX I – STANDARD MITIGATION MEASURES
FINAL EIS

(No change to appendix)

APPENDIX J - NIEHS REPORT

(No change to appendix)

APPENDIX K - EMF ANALYSIS

(No change to appendix)

APPENDIX L - NOISE ANALYSIS

(No change to appendix)

APPENDIX M - VISUAL SIMULATIONS

(No change to appendix)

**APPENDIX N - CLASS I SURVEY RECORDED CULTURAL RESOURCES AND
INVENTORIES**

(To be filed to Docket separately)

**APPENDIX O - REPRESENTATIVE LIST OF WILDLIFE AND FISH SPECIES IN
PROJECT AREA**

(No change to appendix)

APPENDIX P - U.S. FOREST SERVICE SENSITIVE WILDLIFE SPECIES

(No change to appendix)

APPENDIX Q - SPECIAL STATUS VEGETATION AND SURVEY REQUIREMENTS

(No change to appendix)

**APPENDIX R - 100 SPECIES OF CONSERVATION PRIORITY FOR NORTH
DAKOTA**

(No change to appendix)

APPENDIX S - BIOLOGICAL ASSESSMENT

(To be filed to Docket separately)

APPENDIX T - BIOLOGICAL EVALUATION

(To be filed to Docket separately)

APPENDIX U - LOAD PROJECTIONS STUDY

(To be filed to Docket separately)

APPENDIX V - TREE AND SHRUB REPLACEMENT PLAN

(No change to appendix)

APPENDIX W – FINAL EIS

(To be filed to Docket separately)

APPENDIX X – BIOLOGICAL OPINION

(To be filed to Docket separately)

APPENDIX Y – PERMITS



January 8, 2016

Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, North Dakota
58503-0564

Re: Basin Electric Power Cooperative, Antelope Valley Station to Neseet 345-kv Transmission Project: Judson to Neseet Segment and associated facilities

Dear Applicant,

The subject project falls under the provision of Williams County Zoning Ordinances and Subdivision regulations, Chapter 2-2-14-4-b and is exempt from conditional use permit proceeding upon proof of federal or state government regulation and oversight.

- b. Any pipeline which is subject to State or Federal government regulation and oversight shall not require a Conditional Use Permit as provided in this section. Proof of such governmental regulation and oversight shall be provided by the pipeline proponent to the person designated by the Director of the Williams County Development Services and may be in the form of an affidavit, a State or Federal document disclosing such oversight, or such other form determined by the office of Development Services to provide satisfactory evidence of such governmental oversight of such pipeline. The purpose of such oversight is to eliminate duplicative local review of a pipeline subject to State or Federal Governmental oversight. Examples of such governmental oversight include North Dakota Public Service Commission regulation of transmission lines pursuant to 49-22, N.D.C.C. (Transmission line as defined in N.D.C.C. 49-22-03(12)(b)), and North Dakota Industrial Commission regulation of underground gathering pipelines pursuant to Chapter 38-08 N.D.C.C. (Underground gathering pipeline as defined in N.D.C.C. 38-08-02(18)). If the proof of such oversight is adequate the Williams County Planning and Zoning Division shall provide notice of the exemption to the pipeline proponent within a reasonable time not to exceed 30 days from submission of such proof of qualifying for such exemption. Should the designated official deem the proof provided to be inadequate the pipeline proponent may present such proof to the Planning and Zoning Commission for determination of the adequacy of such proof without first filing for a conditional use permit.

Please contact Planning and Zoning Division should you have any questions or concerns.

Thank you,


Mike Sizemore,
Development Services Director

APPENDIX Z – PROGRAMMATIC AGREEMENT FOR CULTURAL RESOURCES

(To be filed to Docket separately)



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