

# United States Department of the Interior Bureau of Land Management

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## Preliminary Environmental Assessment (DOI-BLM-MT-0010-2014-0025) August, 2015

### Columbus Rapelje-Chrome Junction 100 kV Transmission Line

*Location:* Stillwater County, Montana

*Applicant/Address:* NorthWestern Energy/40 East Broadway, Butte, Montana 59701

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# Columbus Rapelje-Chrome Junction 100 kV Transmission Line

## DOI-BLM-MT-0010-2014-0025

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# **Columbus Rapelje-Chrome Junction 100 kV Transmission Line**

## **DOI-BLM-MT-0010-2014-0025**

### **1.0 PURPOSE AND NEED**

#### **1.1 INTRODUCTION**

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of 0.88 mile of the Columbus Rapelje-Chrome Junction 100 kV Transmission Line Project (Project) as proposed by NorthWestern Energy (NWE). The EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to a proposed action. The EA assists the Bureau of Land Management (BLM) in ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by NEPA and is found in regulation 40 Code of Federal Regulations (CFR) Part 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI). If it is determined that this Project has “significant” impacts following the analysis in this EA, then an EIS would be prepared for the Project. If not, a Decision Record (DR) may be signed approving the selected alternative, whether the Proposed Action or another alternative. A DR, including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in the Billings Resource Management Plan (BLM 1984).

#### **1.2 BACKGROUND**

The applicant proposes to construct a new 100 kilovolt (kV) electric transmission line that would connect NWE’s existing Columbus Rapelje Substation located approximately 15 miles north of Columbus, Montana to a new substation that would be located approximately 10 miles southeast of Nye, Montana (see Figure 1-1). The transmission line would be approximately 53.1 miles in length with 45.35 miles located on private lands and 7.75 miles located on public lands. The subject of this EA is the 0.88-mile-long by 60-foot-wide (6.4 acres) segment of the proposed Project transmission line corridor (Project Area; see Figure 1-2). Other public lands along the transmission line corridor include Montana State Trust Lands (4.64 miles) managed by the Department of Natural Resources and Conservation (DNRC), Stillwater County (1.89 miles), Custer National Forest (0.5 mile), DNRC Yellowstone River crossing (0.78 mile), Montana Department of Transportation (MDT) (.076 mile), and Montana Fish, Wildlife and Parks (MFWP) Reed Point public access (0.14 mile).

#### **1.3 NEED FOR THE PROPOSED ACTION**

Transmission systems in the United States must be planned, operated, and maintained so that they meet the North American Electrical Reliability Corporation (NERC) reliability standards. Additionally, transmission systems in the western United States must also meet the reliability standards of the Western Electricity Coordinating Council (WECC). NWE constantly monitors and studies its existing electric transmission infrastructure based on the NERC and WECC standards. These studies indicate NWE's existing transmission system in the Columbus/Absarokee/Red Lodge area no longer meet NERC and WECC reliability standards due to load growth in the area. Therefore NWE must significantly upgrade its electric transmission infrastructure in Stillwater and Carbon counties over the next 10 years to improve system reliability and system capacity to remain in compliance with NERC and WECC standards. NWE

identified the Carbon-Stillwater Electric Transmission Infrastructure Project (CS-ETIP) to improve the reliability of electric service for NWE's customers in the Columbus/Absarokee/Red Lodge area (Figure 1-1) and comply with the NERC and WECC standards. The CS-ETIP would also address growing demand for electricity in the area due to current and future growth projections. The CS-ETIP would consist of three phases:

1. New 100 kV transmission line from Columbus Rapelje Substation to a new substation near Nye, Montana.
2. Upgrades to the existing 50 kV line from Reed Point to Columbus, Montana to 100 kV, including station upgrades.
3. Upgrades to the existing 50 kV line between Bridger Auto Substation to Red Lodge to Chrome Junction to 100 kV, including station upgrades.

The three phases of the CS-ETIP would be implemented over a 10 year period. The CS-ETIP would improve regional reliability and electrical growth demands which would satisfy NERC and WECC standards.

Specific to phase-one above, during normal and heavy energy use periods in the Columbus/Absarokee/Red Lodge area, an outage of an existing transmission line that serves the area can result in low voltage or thermal overloading of electrical equipment and under the most critical conditions, cause a wide-scale outage that can affect all customers in the area. As part of the CS-ETIP, the new 100 kV transmission line and associated substation modifications would ensure the area has the electric transmission infrastructure to accommodate future growth, improve reliability for existing customers and meet WECC, NERC and NWE planning criteria.



Existing Transmission System

- - - 500 kV Transmission Line
- - - 230 kV Transmission Line
- - - 161 kV Transmission Line
- - - 100 kV Transmission Line
- - - 50 kV Transmission Line

■ Carbon-Stillwater Electric Transmission Infrastructure Project Substation

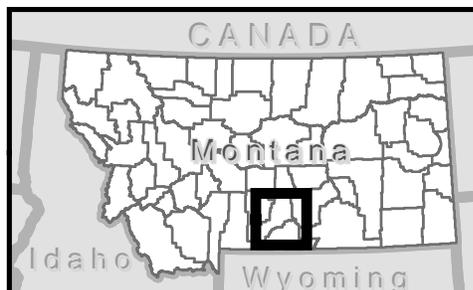
■ Other Substation

Transportation

- Interstate Highway
- US Highway
- State Highway

Land Jurisdiction

- US Bureau of Land Management
- US Forest Service
- State of Montana
- Montana Fish, Wildlife, and Parks
- County Boundary



Columbus-Rapelje to Chrome Junction  
100 kV Project

**FIGURE 1-1  
REGIONAL  
TRANSMISSION SYSTEM**

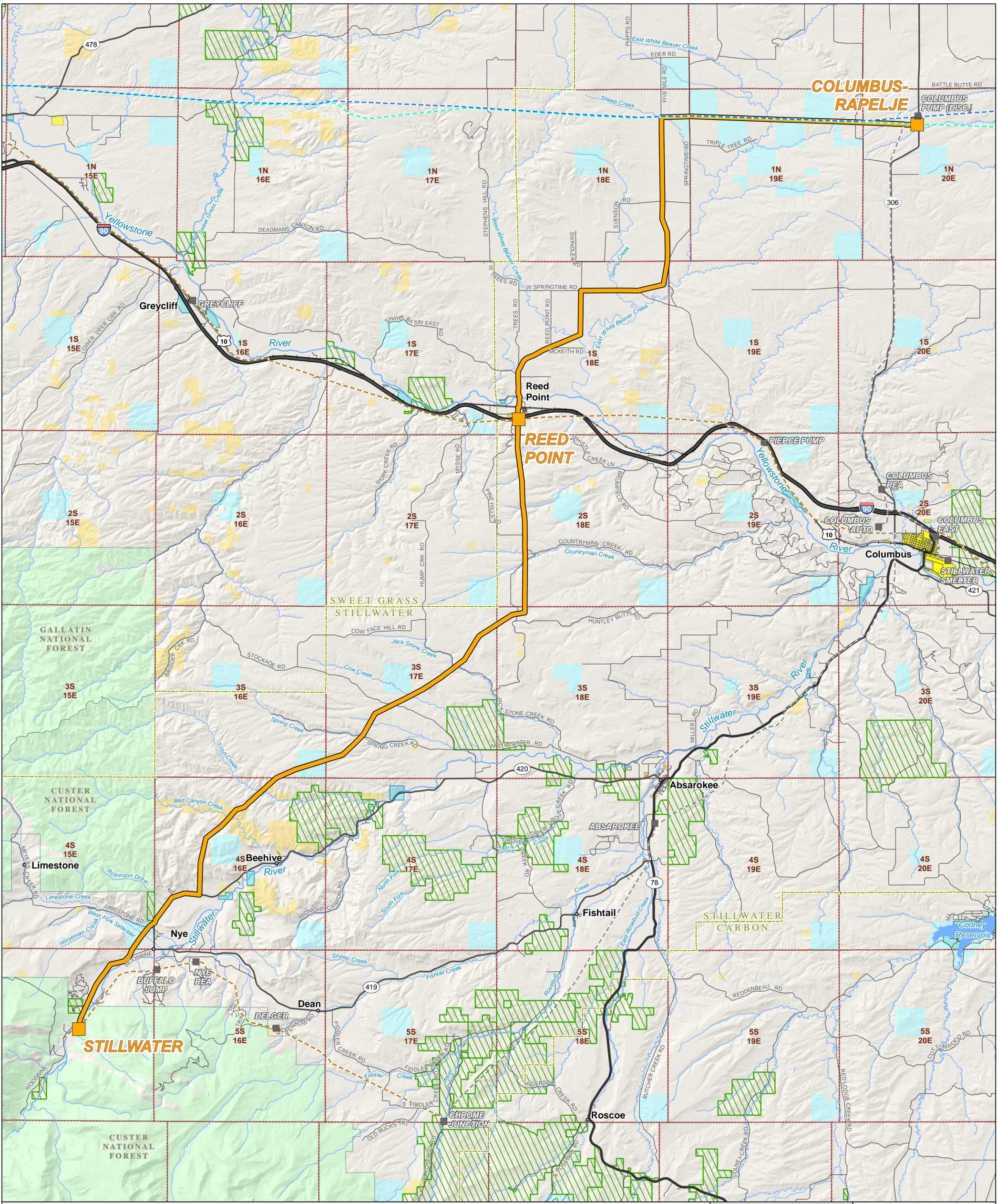


Through NWE's biennial Transmission Advisory Committee (TRANSAC) transmission planning study, NWE identified transmission deficiencies on the transmission system around the Columbus, Montana region and specifically the Chrome Junction area and loads served from the Chrome Junction area. The existing transmission system consists of mainly 100 kV and 50 kV transmission lines that are supplied by the 161 kV system located to the north of Columbus (near Rapelje, Montana). As the residential, industrial, and rural electric loads in the area continue to grow, the projected studies indicate that voltage becomes unacceptable during heavy load concentrations with all lines in service. This situation constitutes a violation of the NERC Transmission Planning Standards. A loss of any transmission segment in the Columbus/Absarokee area would result in severe voltage violations and loss of several electrical loads.

The transmission deficiency identified in the planning studies consists of voltage violations on the system with the loss of certain transmission line segments that serve the region. As a result of this type of electrical outage, voluntary and involuntary electrical load shedding is required to reduce electrical load in order to maintain voltage at an acceptable level on the remaining transmission system. Curtailment of electrical load due to the loss of a single transmission element is a violation of the NERC Transmission Planning Standard (TPL-002).

The primary voltage support for the Chrome Junction area is a single 100 kV transmission line at Chrome Junction fed by the 161 kV transmission system at the Columbus Rapelje Substation. In order to address the NERC issues, an additional voltage support system is needed to improve system reliability when an electrical outage occurs on the existing single 100 kV transmission line. This additional voltage support system solution is the proposed additional 100 kV transmission line.

NWE's proposed 100 kV transmission line from the existing Columbus Rapelje Substation to a new substation near Nye, Montana, with a connection to the existing 50 kV system provides the required transmission system reliability to meet NERC and WECC standards. The proposed 100 kV transmission line provides a second and redundant reliable source of power into the area and as a result, eliminates the reliability and voltage violations to NERC and WECC standards described above.



**Project Components**

- Proposed Route Centerline
- Existing Project Substation

**Existing Utilities**

- 230 kV
- 161 kV
- 100 kV
- 50 kV
- Substation

**Transportation**

- Interstate Highway
- State Highway
- Minor State Highway
- Local Road
- Railroad

**Land Jurisdiction**

- US Bureau of Land Management
- US Forest Service
- State of Montana
- Montana Fish, Wildlife, and Parks
- Conservation Easement

**County Boundary**

- Township Boundary
- Incorporated Area
- Town

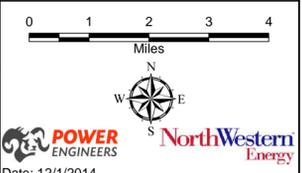
**Surface Waters**

- Major Stream or River
- Stream
- Lake

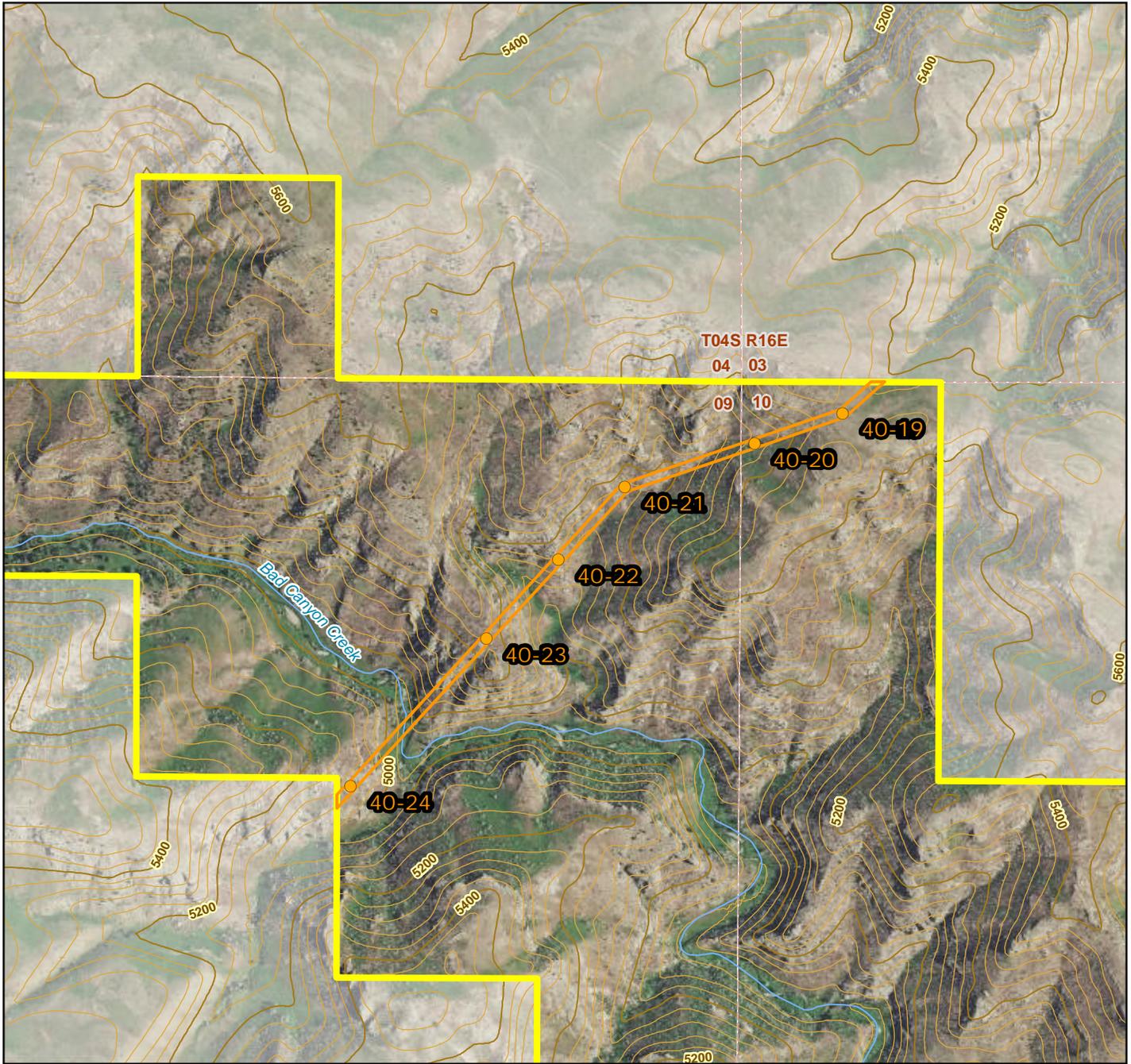


Columbus-Rapelje to Chrome Junction  
100 kV Project

Figure 1-2  
PROJECT OVERVIEW



Path: W:\133211\_Columbus\_Chrome\DD\GIS\Apps\EA\_BLM\Fig 1-2 Alternatives 18X24.mxd

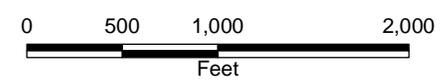


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- Proposed Structure Location
- Proposed Project Right of Way
- ⊕ US Bureau of Land Management Boundary
- PLSS Section Boundary
- ~ Stream
- ~ 200 ft Contour
- ~ 40 ft Contour

Columbus-Rapelje to  
Chrome Junction  
100 kV Project

**FIGURE 1-3  
BLM CROSSING**



Basemap: NAIP 2013

Date: 12/1/2014

#### 1.4 PURPOSE(S) OF THE PROPOSED ACTION

This EA addresses NWE's application for a ROW grant to construct a 100 kV transmission line across 0.88 mile of public land managed by the BLM. The BLM would consider granting NWE a ROW to construct, operate and maintain the transmission line under the Federal Land Management and Policy act of 1976 and more specifically, the Code of Federal Regulations at 43 CFR 2800.

#### 1.5 CONFORMANCE WITH BLM LAND USE PLAN(S)

The Proposed Action and alternatives addressed in this EA are in conformance with the Billings Resource Management Plan (RMP), approved in September 1984 (BLM 1984).

The Proposed Action is within the area analyzed by the RMP and EIS, September 1984. The RMP was amended June 1988 for Wilderness designation; amended November 1996 to include Montana/Dakotas Standards and Guidelines; amended August 1998 for Area of Critical Environmental Concern (ACEC) designation; amended January 2003 for Oil and Gas Leasing and Development; amended June 2003 for Off-Highway Vehicle use and area designations; amended December 2005 for Wind Energy Development; and amended November 2008 for Designation of Energy Corridors on Federal Land in the 11 Western States.

The BLM RMP (1984, as amended) has been reviewed to determine if the Proposed Action conforms to the land use plan terms and conditions as required by Title 43 CFR, Part 1610.5. The Proposed Action is in conformance with the 1984 Billings RMP. According to this RMP, the Proposed Action is not within an ROW Exclusion Area or an Avoidance Area. Land use authorizations (ROW, leases, permits, easements) are considered on a case-by-case basis and in accordance with recommendations in this RMP/Final EIS. There are no special designations within the area of the Proposed Action.

The Project proposal qualifies as a ROW and may be permitted under the authority of the Federal Land Policy and Management Act of 1976 (FLPMA), Section 501, as amended. Applicable regulations for the Proposed Action, under this authority, are contained within Title 43 CFR, Part 2800.

#### 1.6 RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

BLM's authorizing authority would be the FLPMA. This EA ensures NEPA compliance for the segment of line that crosses BLM managed public lands. NWE has acquired a Special Use Authorization dated December 11, 2014 for a segment of the transmission line that crosses national forest.

Montana law requires that transmission lines of this size and distance be certified under Major Facility Siting Act (MFSA), unless statutory exclusion is obtained acquiring easements or options for easements from 75 percent of the landowners who collectively own 75 percent of the ROW. NWE has met the MFSA exclusion criteria. Where the transmission line crosses State of Montana lands, NWE acquired the necessary land use licenses.

In addition to the above mentioned authorizations, NWE would work with the Stillwater Weed Control District (and BLM) to develop a Noxious Weed Management Program as required by the Montana County Noxious Weed Act.

## 1.7 IDENTIFICATION OF ISSUES

NWE completed an initial siting study in 2010 to determine reasonable and feasible route alternatives for the Project. NWE then began a stakeholder outreach process to gain input from key stakeholders and landowners regarding the Project. NWE updated its initial siting study in 2012 with additional and refined route alternatives based on the results of this outreach process. Primary landowner concerns identified during NWE's scoping included incompatible planned land uses and visual concerns. Local area support for the project has been significant and beneficial to further refining acceptable route alternatives. NWE continues to maintain an active stakeholder outreach process that includes area landowners, federal, state, local government officials, and non-governmental organizations (NGOs).

NWE provided public notice on January 31, 2013 and a second public notice on July 17, 2013 in local and regional newspapers (pursuant to Montana Code Annotated [MCA], MFSA requirements) that described the Proposed Action and announced NWE's intent to pursue the 75/75 exemption under MFSA. The notices also allowed the public and interested parties to send comments and concerns to NWE and MDEQ related to MFSA. No comments or concerns were submitted.

Identification of issues initially began during initial conversations between NWE and BLM staff in July, 2013 and has continued to present in several meetings between the BLM and NWE. The following issues were initially identified through this process to be addressed in the environmental analysis:

- Effects on lands with wilderness characteristics.
- Effects to visual resources.
- Effects to important fish and wildlife habitat.
- Effects to wild and scenic river classification.
- Effects to cultural resources.
- Effects to other uses including dispersed use and those authorized/permitted by BLM.
- Effects of the project regarding noxious weed establishment and expansion.

## 1.8 SUMMARY

This chapter has presented the purpose and need of the proposed transmission line project, and a summary of the process and results of the process that identified relevant issues associated with the proposed Project. In order to meet the purpose and need of the proposed Project in a way that resolves the issues, the BLM has analyzed the Proposed Action and no action alternatives and considered, but eliminated from detailed analysis, several other alternatives. These alternatives are presented in Chapter 2. The affected environment of the application area is described in Chapter 3 along with the potential environmental impacts or consequences resulting from implementation of the Proposed Action for each of the identified issues. Consultation and Coordination is included in Chapter 4. References and Acronyms are presented in Chapter 5.

## 2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

This EA focuses on the Proposed Action and No Action Alternatives. As no potential impacts have been identified there are no issues to resolve through other action alternatives. The No Action Alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

## 2.1 ALTERNATIVE A – NO ACTION

The No Action Alternative is required by the National Environmental Policy Act (NEPA) to provide a baseline for impact analysis. The No Action Alternative represents the status quo, the BLM would not grant NWE a ROW across 0.88 acres of BLM managed public lands in Stillwater County. If NWE chose to not pursue an alternate route, low voltage and voltage collapse issues would continue in the Columbus, Red Lodge, and Stillwater Mine areas of NWE's electric transmission system. Both of these voltage issues are violations of the NERC and WECC reliability standards under which NWE, as a regulated utility, is governed. These areas are served by 100 kV and 50 kV transmission lines, with the main electricity source coming from a tap in the 161 kV transmission system at the Columbus Rapelje Substation. The largest residential loads in the area are at Red Lodge and Columbus. In addition, there are several rural electric loads and a large industrial load at Columbus and at Stillwater Mine near Chrome Junction. During peak loads, the voltage on the system is near minimums with all lines in service. The loss of either a 161 kV or 100 kV line segment causes significant involuntary load shedding at Stillwater Mine and low voltage interruptions for all customers in the area which is a violation of NERC planning standards. If the Stillwater Mine load shedding did not occur, the transmission system in this area would experience severe voltage collapse, causing wide scale power outages.

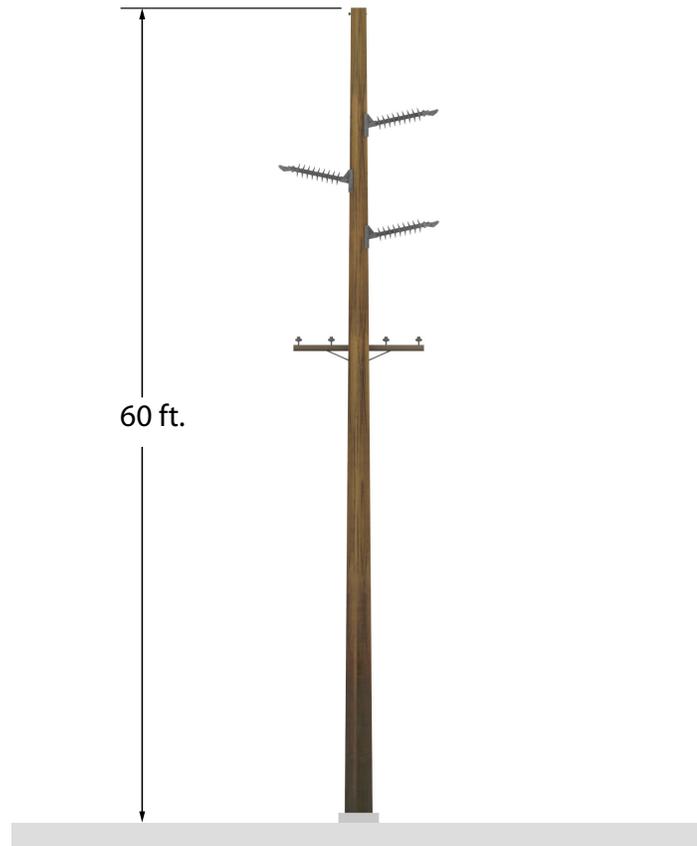
## 2.2 ALTERNATIVE B – PROPOSED ACTION

NWE is proposing to construct a new 100 kV electric transmission line that would connect NWE's existing Columbus Rapelje Substation located approximately 15 miles north of Columbus, Montana to a new substation that would be located near Nye, Montana (see Figure 1-1). The proposed Project crosses 0.88 mile of land administered by the BLM in Stillwater County, Montana (see Figures 1-2 and 1-3). Within land administered by the BLM, the ROW dimensions would be 0.88 mile in length and 60 feet in width, totaling approximately 6.4 acres.

The new transmission line would provide superior electrical and engineering solutions for the highest priority project in NWE's CS-ETIP. NWE worked with private landowners and identified: conservation easement restrictions; private land owner issues related to land use compatibility; and terrain constraints for ROW access and construction. These issues lead NWE to the conclusion that routing across federal lands at the Bad Canyon location was the preferred solution for the transmission line route. The Proposed Action is the preferred alternative for several reasons: 1) it solves the voltage problems in the area; 2) it supports anticipated growth in electric capacity demand; 3) it maximizes use of existing access roads; and 4) environmental effects are anticipated to be manageable.

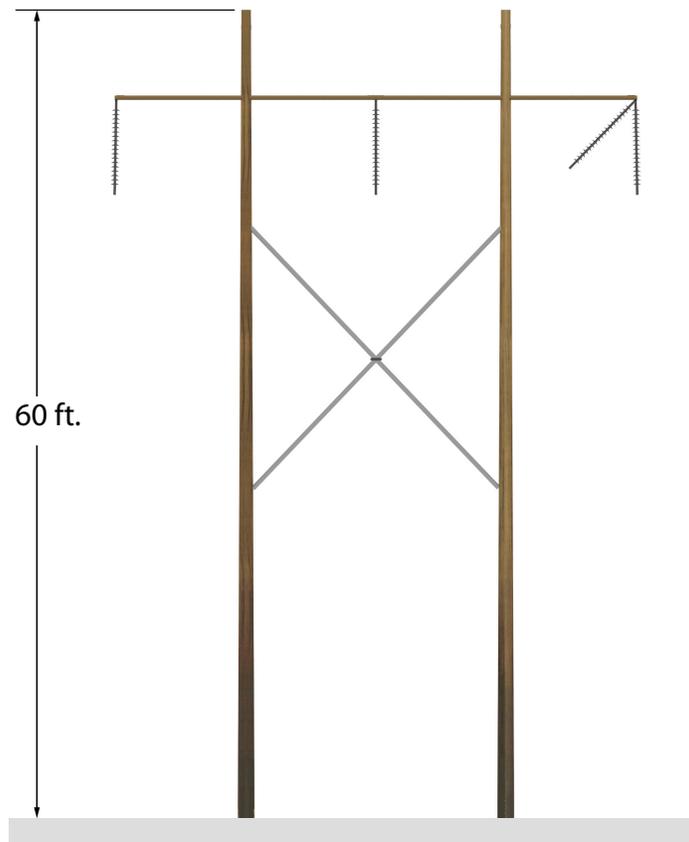
### **Structural Configuration**

Within the BLM Bad Canyon area, four of the six structures would be two-pole H-frame wooden structures and the remaining two structures would be three-pole wooden dead-end structures at heavy angles see Figures 2-1, 2-2, and 2-3). These structures would vary from 50 to 70 feet in height.



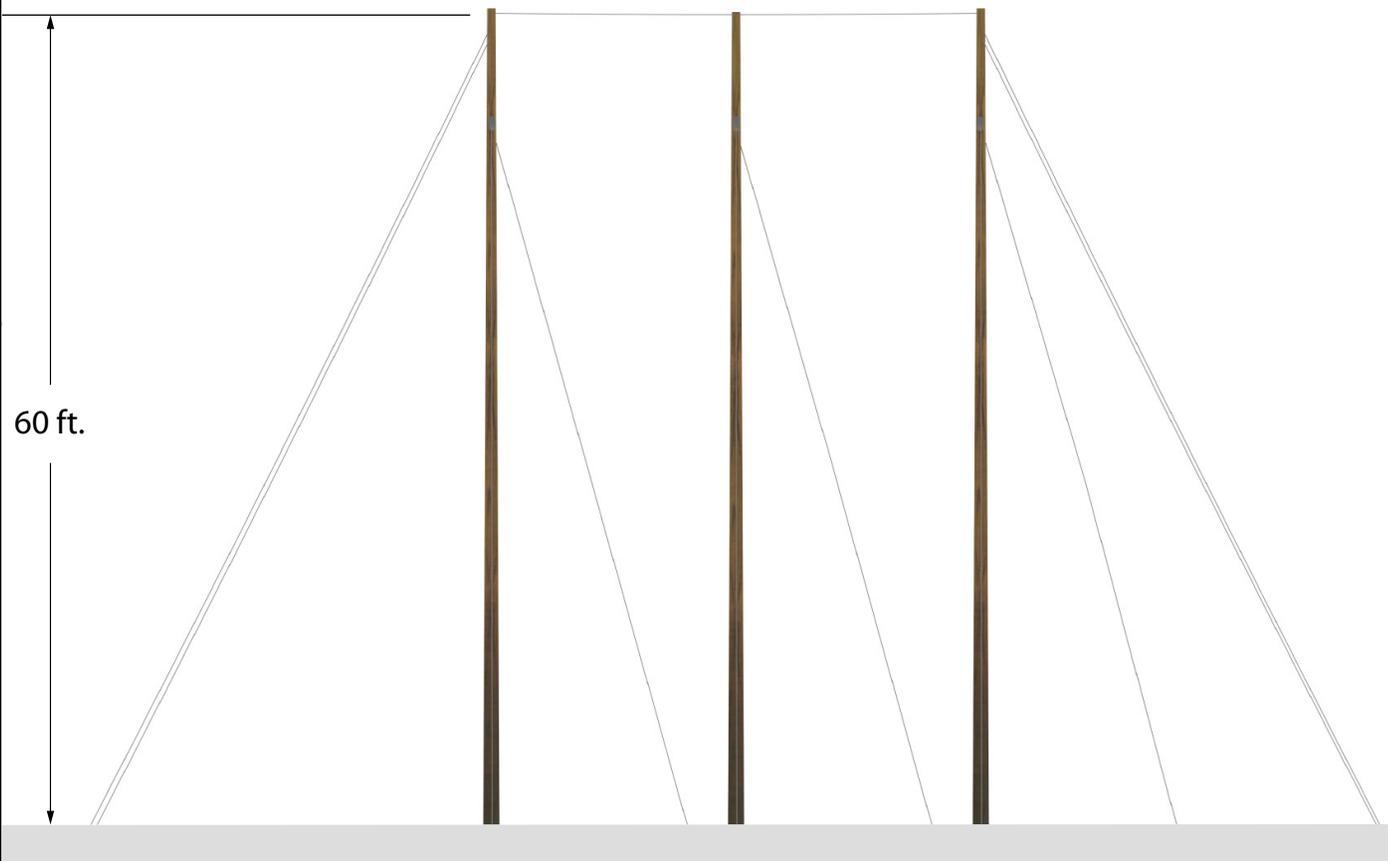
Columbus-Rapelje to Chrome Junction  
100 kV Project

**FIGURE 2-1 TYPICAL 100 kV SINGLE-POLE STRUCTURE**



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**FIGURE 2-2 TYPICAL 100 kV H - FRAME STRUCTURE**



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**FIGURE 2-3 TYPICAL 100 kV THREE-POLE ANGLE STRUCTURE**

### **Structural Materials**

Transmission pole structures would typically be round solid wood and as needed, guyed to provide additional structure support. The transmission structures would be direct embedded into the ground. Transmission structure diameter would be approximately 1.5 to three feet, but could be up to four feet in diameter depending on framing configuration and the angle to adjacent transmission structures. Fiber optic ground wire (OPGW) cable for substation-to-substation control would be installed on top of each transmission structure. The outer strands would consist of aluminum wire and the entire OPGW would be approximately 0.55 inch in diameter. The OPGW would be reserved for use by NWE only.

### **Clearance Requirements**

The 100 kV transmission line would consist of three phases with one wire or conductor per phase. Each conductor would consist of stranded aluminum with a high-strength steel reinforced core. Minimum conductor height above the ground for the 100 kV transmission line would be 24 feet, at 167 degrees Fahrenheit (°F), based on National Electric Safety Code (NESC) standards and NWE's standards. The distances between phases are eight to 15 feet, depending on the transmission structure type. The H-frame and three-pole angle structure designs would have greater conductor separation versus the single transmission structure design. The average ruling span length would be 300 to 500 feet. As previously stated, the structure height would be 50 to 70 feet.

### **Temporary Use Areas**

Temporary use areas associated with the Project include structure work areas, wire-pulling/tensioning sites, wire-splicing sites, staging areas, construction yards, guard structures, and any temporary access roads that need to be constructed. On lands administered by BLM, only work within the proposed 60-foot ROW would be required. No wire-pulling/tensioning sites, wire-splicing sites, staging areas, construction yards, guard structures, access roads would be required on lands administered by the BLM. Work areas would be required at each structure site to facilitate the safe operation of equipment. The permanent disturbance associated with each structure would be approximately four feet in diameter. Approximately 0.018 acre of land administered by the BLM would be permanently impacted to accommodate the installation of six structures and no work areas would be required that result in temporary ground disturbance on BLM managed public land. After line construction, all work areas within the ROW on BLM managed public land would be re-vegetated using a certified weed-free seed mix approved by the BLM. No work areas outside the ROW would be required on lands administered by the BLM.

### **Permanent and Temporary Access Roads**

To minimize new disturbance, the proposed Project would use existing roads and trails wherever feasible for access. The structures located on lands managed by the BLM would be accessed from private lands along the transmission line corridor. Rubber tire vehicles or helicopter would be used for construction access and the minimal amount of trips necessary would be used. No temporary or permanent access roads would be required. To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment cross-country routes would follow the landform contours where practical, providing that such alignment does not impact other resource values.

### **Equipment Storage Locations**

The proposed location of equipment storage areas has not yet been determined. However, storage areas would be located outside environmentally-sensitive areas. No equipment storage areas would be located on lands managed by the BLM.

### **Construction Sequence of Activities**

Construction of the Proposed Action on lands managed by the BLM would follow the sequence of: 1) centerline surveyed and staked; 2) materials distributed along centerline; 3) structure holes dug and poles framed and erected; 4) OPGW conductors installed; and 5) the site would be cleaned-up and reclaimed (if necessary). Various phases of construction could occur at different locations throughout the construction process. This could require several crews operating at the same time at different locations.

- Construction survey work for the Proposed Action consists of determining centerline location, specific pole locations, ROW boundaries, work area boundaries, and in some areas, access roads to work areas. The centerline and specific pole locations would be staked prior to the commencement of construction.
- On lands managed by the BLM, hand dug structure holes with pedestrian crews or overland travel (drive and crush) with rubber tire equipment (backhoe type excavators and trailer mount air compressors) would occur. Structure holes left temporarily open or unguarded during construction would be covered and/or fenced where practical to protect the public, livestock, and wildlife. Soil removed from foundation holes would be stockpiled on the work area and used to backfill holes. All remaining soil not needed for backfilling would be spread on the work area or removed from the site. Blasting on BLM managed public land is not anticipated.
- Wood pole sections and associated hardware would be shipped to each site by truck or helicopter. Wood poles would be assembled at the work area (off BLM managed public land) or on-site at structure hole locations. Areas need to be large enough to accommodate laying down the entire length of the poles while insulators are mounted to it. Approximately 0.018 acre of land administered by the BLM would be permanently impacted to accommodate structure installation and no work areas would be required that result in temporary ground disturbance on BLM managed public land. Temporary construction yards off BLM managed public land may be necessary and would be located on existing disturbed areas or other areas on private lands along the line route with negotiated access rights from private landowners. No construction yards or temporary work areas would be required on public land managed by the BLM and the pole sections and associated hardware would be moved to the structure locations by helicopter or overland travel. All structure framing and assembly on public land managed by the BLM would occur within the proposed ROW.
- Once structures were in place, a pilot line would be pulled (strung) from pole to pole and threaded through the stringing sheaves on each pole. A larger diameter, stronger line would then be attached to the pilot line and strung. This is called the pulling line. This process is repeated until the ground wire and conductor is pulled through all sheaves. Conductor would be strung on lands managed by the BLM using a helicopter or powered pulling equipment located off BLM managed public land.
- Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash would be removed from the sites and disposed in an approved manner. Oils and fuels would be hauled to an approved site for disposal. No open burning of construction trash would occur.
- Site reclamation on public land managed by the BLM would be limited to temporary work areas required to dig structure holes and erect structures. Temporary disturbance on lands managed by the BLM would be restored using excess materials, native vegetation and BLM approved seed mixes, and topsoil stockpiled for that purpose if natural restoration was unlikely.

## **Operation and Maintenance**

After the transmission line was energized, land uses compatible with safety regulations, operation and maintenance would be permitted in and adjacent to the ROW. Existing land uses on lands managed by the BLM such as recreation and grazing are generally permitted within the ROW. Incompatible land uses would include construction and maintenance of permanent dwellings and any use requiring changes in surface elevation that would affect NESC electrical clearances of existing or planned facilities. Safety is a primary concern in the design of the transmission line. An alternating (AC) transmission line would be protected with power circuit breakers and related line relay protection equipment. If conductor failure occurred, power would be automatically removed from the line. Lightning protection would be provided by overhead ground wires along the line.

Maintenance would be performed as needed. When access was required for non-emergency maintenance and repairs, NWE would adhere to the same precautions taken during the original construction. All maintenance activities on BLM managed public land would conform to the conditions of the ROW grant. Emergency maintenance would involve prompt movement of crews to repair or replace any damage. Crews would be instructed to protect plants, wildlife and other environmental resources. Restoration procedures following completion of repair work would be similar to those prescribed for normal construction. All emergency maintenance activities on lands managed by the BLM would conform to the conditions of the proposed ROW grant.

## **Resource Protection Framework Plans and Mitigation Measures**

Resource Protection Framework Plans (Plans) specific to lands managed by the BLM would be incorporated as best management practices (BMPs) as part of the Proposed Action. The objective of the plans would be to provide for Project-specific environmental protection that:

- Is as consistent as practical across jurisdictions.
- Complies with current BLM management guidance for federal lands.
- Balances cost and practicality with avoiding or minimizing environmental impacts.

In addition to the Plans specified below, mitigation measures to minimize impacts to land use within BLM managed public land are provided.

### ***Wildlife Protection Plan***

The following mitigation measures would be implemented by NWE to minimize and avoid impacts to wildlife species located within the Project ROW in the 0.88 mile section of BLM managed public land (Bad Canyon):

**WL-1** Avoid and minimize impacts to general wildlife species by minimizing ground disturbance to the greatest extent practicable. The Project would avoid/minimize damage to existing trees and minimize removal of existing trees within and adjacent to the Proposed Action ROW to maintain adequate desirable habitat for wildlife and particularly for avian species.

**WL-2** The Proposed Action would be designed to avoid impacts to existing raptor nests. Additionally, the Project would be developed consistent with the Avian Power Line Interaction Committee (APLIC) guidelines for avian safety to reduce risk of collision and electrocution. The Project would be operated under NWE's existing Corporate Avian Protection Plan which would further implement mitigation measures throughout the life of the Project. Seasonal timing restrictions during the nesting and breeding seasons for

construction activities would be implemented with species-specific nest buffer distances (0.5 mile) recommended by MFWP and BLM to ensure impacts to nesting raptors are minimized or avoided where nests are determined to be active.

**WL-3** Measures to reduce potential impacts to neotropical birds would include spanning the Bad Canyon Creek riparian area; and avoiding the removal of riparian vegetation. Line marking is available at the BLM's discretion.

**WL-4** If a peregrine falcon (*Falco peregrinus*) eyrie is identified prior to or during construction within Bad Canyon, construction activity would be avoided during the breeding season or suspended until after the breeding season.

#### ***Reclamation, Re-vegetation and Noxious Weed Protection Plan***

Measures for reclamation, re-vegetation, and prevention of the introduction and/or transport of noxious weeds along the ROW on lands managed by BLM during and after construction are listed below.

**RRW-1** A Noxious Weed Management Plan would be prepared in coordination with the Stillwater County Weed District and BLM to minimize the effects (spread and establishment) of noxious weeds due to Proposed Action activities.

**RRW-2** The Noxious Weed Management Plan would include documenting known occurrences of noxious and invasive weeds along the proposed ROW, current treatment of known noxious weed areas, if any, and measures to minimize the spread and establishment of noxious weeds and non-native invasive species.

**RRW-3** Pre-construction surveys and pre-construction weed control (e.g., spraying) would be conducted on the lands managed by the BLM to document and control the presence of noxious weed species as identified by the state of Montana and Stillwater County.

**RRW-4** Prior to the beginning of construction, maintenance activities, or exiting and entering the ROW on BLM managed public land, all contractor vehicles and equipment would be cleaned of soil and debris capable of transporting weed seeds.

**RRW-5** Minimal, if any, reseeded would be necessary on lands managed by the BLM as the only ground disturbance would include where the transmission structures would be located. If reseeded is determined to be necessary, it would be conducted at the first appropriate growing season after completion of construction. Seed mixes used for re-vegetation would be certified weed free and approved by BLM. Topsoil would be separated from the excavated material and re-applied on top of backfill in the disturbed area.

**RRW-6** Noxious weeds due to construction, operation, or maintenance activities would be controlled to preconstruction levels.

#### ***Storm Water Pollution Prevention Plan***

The following measures would be undertaken to prevent storm water pollution within the Project ROW on lands managed by the BLM. To comply with criteria in the United States Environmental Protection Agency's (USEPA's) Clean Water Act, all construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more, must obtain a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges (40 CFR Parts 122 and 123). NPDES permits (also called Construction General Permits) are issued by the USEPA or similar authorized state entity [Montana Department of Environmental Quality

(MDEQ)] following submittal of a Notice of Intent (NOI) for construction activities, and preparation of a Stormwater Pollution Prevention Plan (SWPPP) that describes how erosion and sediment transport would be minimized to adjacent water bodies. Although ground disturbance on BLM managed public land would be minimal (0.018 acre of permanent impact) and less than the one acre threshold necessitating a SWPPP/NOI, a SWPPP/NOI would be prepared for the entire transmission line and measures to minimize erosion and sedimentation would be implemented on lands managed by the BLM. Measures to assure that construction activities comply with state and EPA requirements for storm water management that would be incorporated into the SWPPP on lands managed by the BLM include:

**SW-1** The appropriate NPDES permit for construction activities that disturb one acre or more of land would be obtained from the MDEQ.

**SW-2** NPDES permit requirements would be met. This includes implementing and maintaining appropriate BMPs for minimizing impacts to surface water within Bad Canyon (Bad Canyon Creek).

**SW-3** One or more responsible persons (SWPPP Administrators) would be designated to manage storm water issues, conduct the required storm water inspections, and maintain the appropriate records to document compliance with the terms of the NPDES permit.

**SW-4** The SWPPP would be modified as necessary to account for changing construction conditions.

**SW-5** The SWPPP would identify areas with critical erosion conditions that may require special construction activities or additional BMPs to minimize soil erosion.

**SW-6** Migration of construction-related sediment to all adjacent surface water bodies (Bad Canyon Creek) would be prevented.

**SW-7** The construction schedule could be modified to minimize construction activities in rain-soaked or muddy conditions following storm events.

#### ***Land Use Mitigation Measures***

The following measures would be implemented to minimize impacts to land uses within BLM managed public land.

**LU-1** Helicopter construction would be implemented, as needed. This would eliminate the need for new access roads to structure locations and would therefore minimize land disturbance associated with crane pads, structure laydown areas, and the trucks and tractors used for delivery of structures to sites.

**LU-2** To minimize ground disturbance, operational conflicts and/or visual contrast, the structure design would be modified or an alternative structure type would be used.

**LU-3** To minimize sensitive feature disturbance and/or reduce visual contrast in designated areas, structures would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, water courses and cultural sites and/or to allow conductors to clearly span the features, within limits of standard structure design.

## 2.3 ALTERNATIVES CONSIDERED, BUT ELIMINATED FROM FURTHER ANALYSIS

### **Underground Construction**

Usually, underground construction is used for lower voltage distribution lines in urban areas. High-voltage (115 kV or above), short-distance, underground installations have been constructed where overhead lines were not feasible (e.g., in the vicinity of airports, urban centers).

High voltage underground transmission lines have markedly different technological requirements than lower voltage underground distribution lines. The majority of the cable would be installed using open-cut trenching techniques. The basic cost of undergrounding a high voltage transmission line can be up to ten to twenty times more expensive than the cost of overhead construction. The relatively high cost and installation requirements prohibit the application of underground transmission systems for long distance electric transmission.

While underground transmission lines are relatively immune to weather conditions, they are vulnerable to cable/splice failure, washouts, seismic events, and incidental excavation. Outages for underground lines generally last days or weeks while the problem is located, excavated, and repaired. Typically, failures in overhead lines can be located and repaired in a matter of hours. Long-term outages would be unacceptable, as they would potentially lead to blackouts to customers for long periods while the outage is repaired.

During construction, the environmental impacts of an underground transmission line would be similar to those for major pipeline construction. Greater adverse environmental impacts could be expected because the entire ROW would be disturbed. Particularly, underground construction crossing through wetland and riparian areas and crossing rivers would cause much more significant environmental impacts than an overhead line.

In undeveloped areas, the ROW would be cleared of all trees, brush, and ground cover in order to establish the alignment and to permit construction for an underground line. Overhead transmission line construction typically would result only in disturbances at individual structure sites.

Magnetic field strength from electric transmission lines is related to the distance from line. While an underground line may reduce the strength of the field at a more rapid rate than an overhead line with distance from the line, the field directly above the underground line can be very high due to its proximity to the ground level.

An underground transmission line would be technically feasible and have less visual contrast than above ground transmission lines. However, because of the technical complications, economic and environmental costs, accessibility, and compatibility with rugged terrain, an underground system was not considered a viable alternative and was eliminated from further consideration.

### **Transmission Alternatives**

Several transmission alternatives were identified as possible alternatives for addressing the transmission system deficiencies that were identified through NWE's biennial transmission planning study (August 2012) and the siting study NWE conducted in 2009 and updated in 2012. The siting and planning studies analyzed the following alternatives and the Proposed Action and compared the potential opportunities, constraints, and impacts of each alternative. The reasoning for eliminating alternatives, as described below, are directly derived from the planning and siting studies. The result of the planning and siting studies was the selection of the Proposed Action for building a new 100 kV transmission line from Columbus Rapelje Substation to a new substation near Nye, Montana which is discussed in detail below:

- **New 161 kV Transmission Line from Alkali Creek Substation to Columbus Rapelje Substation**

Building a new 161 kV Transmission line from Alkali Creek Substation to Columbus Rapelje Substation was considered and rejected. This alternative would address issues caused by electrical outages on the existing 161 kV transmission system, but it does not address the electrical outage of the 100 kV transmission line between Columbus and Chrome Junction. An electrical outage of the 100 kV transmission line between Columbus and Chrome Junction would still cause voltage violations (thus not being in compliance with NERC standards) on the 50 kV transmission system even with a new 161 kV transmission line from Alkali Creek Substation to Columbus Rapelje Substation. This Alternative would not satisfy the voltage collapse and N-1 outage requirements in the Chrome Junction area. Therefore this alternative was eliminated from detailed consideration.

- **Build a New 161 kV Transmission Line from Columbus Rapelje Substation to Chrome Junction Substation**

This alternative considered building a higher voltage (161 kV) transmission line as the Proposed Action (as opposed to the proposed 100 kV transmission line). No additional transmission system benefits or voltage support benefits were realized through study efforts to justify the much larger and higher cost 161 kV alternative over the proposed 100 kV alternative. Further studies of a new 100 kV transmission line identified adaptations for a new 100 kV transmission line making that a better transmission solution than a new larger 161 kV transmission line. Therefore the new 161 kV transmission line alternative was eliminated from detailed analysis.

- **Build an additional 50 kV Transmission Line Source to Stillwater Mine from the Big Timber Area**

NWE considered an additional 50 kV transmission line source to the Stillwater Mine from the Big Timber area as an alternative. The Big Timber area is electrically very similar to the Columbus Rapelje area thus creating a 50 kV 'loop' that electrically was very weak and did not provide adequate voltage support to remedy the low voltage violations in the Chrome Junction area. Even with the addition of a new 50 kV transmission line from the 230 kV system at Big Timber, 50 kV electrical outages from the Big Timber area still results in low voltage (< 85 percent) in the Columbus-Absarokee area during outage conditions.

Due to the low voltage and outage concerns still present with this alternative, NWE would not be in compliance with NERC criteria. Therefore, this alternative was eliminated from detailed analysis.

- **Build a New 50 kV Transmission Line from the East Boulder Mine to the Stillwater Mine or to Chrome Junction Substation**

NWE considered building a new 50 kV transmission line from the East Boulder Mine to the Stillwater Mine or the Chrome Junction Substation to create a 50 kV loop. Studies proved that this was not a viable electric alternative as the existing 50 kV transmission line to the East Boulder Mine has limited electrical capacity already and would not be able to serve the additional Stillwater Mine area and Chrome Junction area with adequate voltage or thermal capacity to meet NERC criteria. Therefore, this alternative was eliminated from detailed analysis.

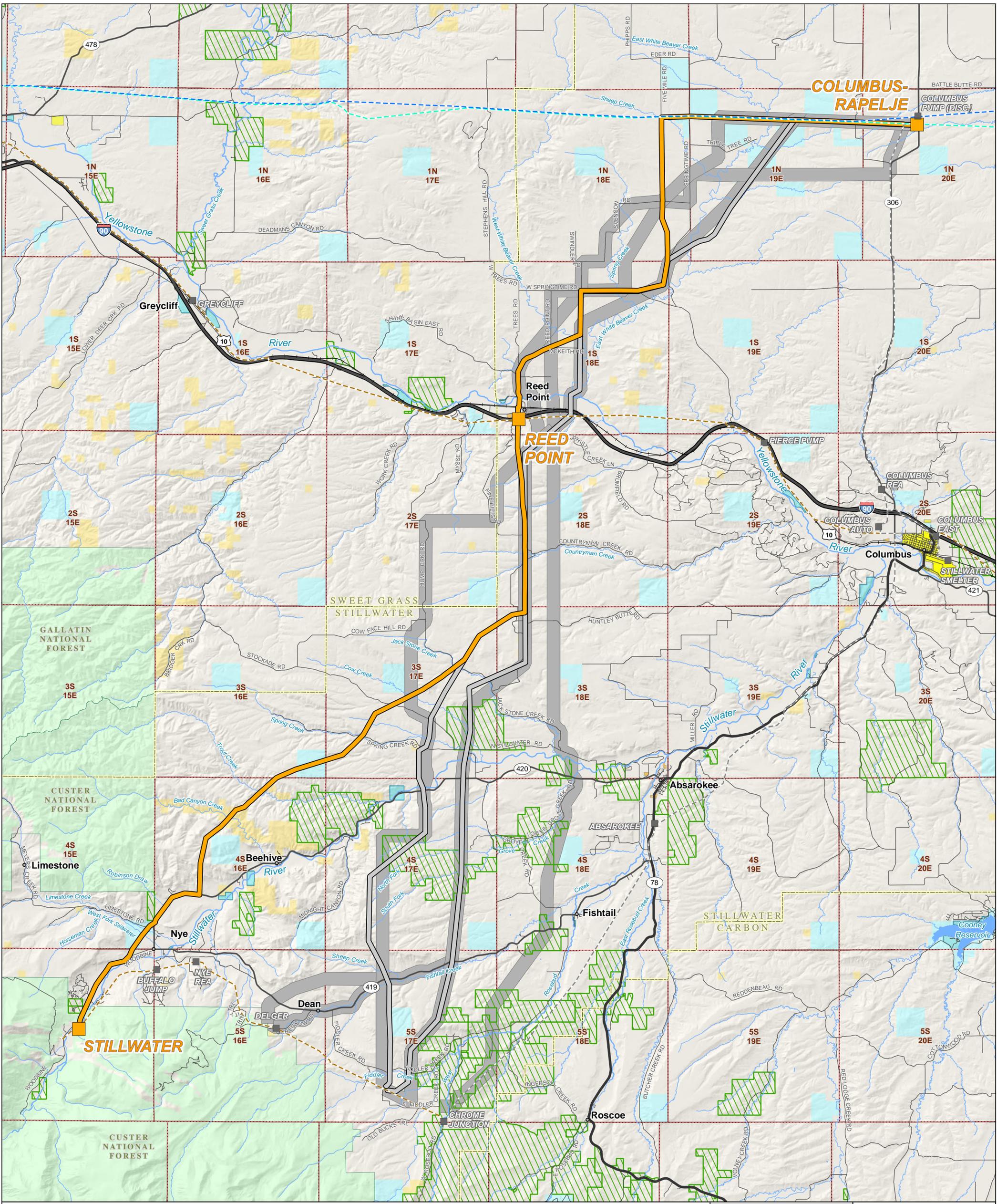
- **Upgrade the Existing 50 kV Transmission Line from Bridger to Red Lodge to Chrome Junction to 100 kV**

NWE considered upgrading the existing area 50 kV lines to 100 kV to eliminate the need for a new construction build option. Studies proved that upgrading the existing 50 kV lines to 100 kV lines alone did not provide adequate voltage support to the Chrome Junction area to meet NERC criteria. Planning studies indicated the new 100 kV line (the Proposed Action) was still needed to meet NERC criteria, and in fact, future growth projections indicate the need for the Proposed Action and this alternative to meet future load growth. Therefore, NWE has planned this alternative to occur as a necessary future upgrade beyond the Proposed Action alternative.

### **Alternative Routing Options**

Eight various new 100 kV transmission line route alternatives were considered in NWE's 2012 siting study. The alternatives ranged from 44.5 miles to 52.1 miles in length. All the alternatives in the siting study evaluated connecting the existing Columbus Rapelje Substation with the existing Chrome Junction Substation and alternative locations for the Chrome Junction Substation. As specific siting of the line across private lands continued to be studied by NWE it became apparent, partially because of the amount of private lands encumbered with conservation easements and other environmental resource constraints, that it was necessary to move the termination point farther west (closer to Nye). Further landowner discussions and additional electrical system study determined that a transmission line directly into Nye would create electric system advantages by establishing a 50 kV loop into the Chrome Junction to Stillwater Mine transmission line and thus create an electrically superior transmission solution to reliably serve customers in the Chrome Junction, Benbow, and Nye communities. A map that depicts the various alternatives that were considered and eliminated is provided as Figure 2-4.

The siting study alternative considered over 390 miles of alternative 100 kV transmission line routing paths to different substation locations at the southern terminus of the Project Area. The routing analysis details are included in NWE's 2012 Siting Study. However, several constraints associated with potential private landowner impacts, conversation easements, visual, cultural, site access, constructability concerns with terrain, and other environmental resources cause these options as end-to-end routes to be eliminated from detailed analysis. Many landowner concerns were identified through NWE's work with private landowners to identify a suitable siting location (MFSA requires that landowner concerns be identified during siting analysis). In particular, landowner impacts along some of the alternatives considered and eliminated were greater in: areas with conservation easements; areas with small land tracks; areas with more land development potential, and areas with land in agricultural production. Additionally, landowners identified areas with visual concerns as not being compatible with a transmission line. Below is a summary of the eight alternatives considered in the 2012 Siting Study and eliminated from detailed analysis in this EA.



Project Components	Existing Utilities	Land Jurisdiction	Other Features
<ul style="list-style-type: none"> <li>Proposed Route Centerline</li> <li>Existing Project Substation</li> <li>Considered and Eliminated Route Centerline</li> <li>Considered and Eliminated Route Corridor</li> </ul>	<ul style="list-style-type: none"> <li>Transmission Lines               <ul style="list-style-type: none"> <li>230 kV</li> <li>161 kV</li> <li>100 kV</li> <li>50 kV</li> </ul> </li> <li>Substation</li> </ul>	<ul style="list-style-type: none"> <li>US Bureau of Land Management</li> <li>US Forest Service</li> <li>State of Montana</li> <li>Montana Fish, Wildlife, and Parks</li> <li>Conservation Easement</li> </ul>	<ul style="list-style-type: none"> <li>County Boundary</li> <li>Township Boundary</li> <li>Incorporated Area</li> <li>Town</li> <li>Surface Waters               <ul style="list-style-type: none"> <li>Major Stream or River</li> <li>Stream</li> <li>Lake</li> </ul> </li> </ul>

**Project Components**

- Proposed Route Centerline
- Existing Project Substation
- Considered and Eliminated Route Centerline
- Considered and Eliminated Route Corridor

**Existing Utilities**

- Transmission Lines
  - 230 kV
  - 161 kV
  - 100 kV
  - 50 kV
- Substation

**Transportation**

- Interstate Highway
- State Highway
- Minor State Highway
- Local Road
- Railroad

**Land Jurisdiction**

- US Bureau of Land Management
- US Forest Service
- State of Montana
- Montana Fish, Wildlife, and Parks
- Conservation Easement

**Other Features**

- County Boundary
- Township Boundary
- Incorporated Area
- Town
- Surface Waters
  - Major Stream or River
  - Stream
  - Lake

Columbus-Rapelje to Chrome Junction  
100 kV Project  
Figure 2-4  
CONSIDERED AND ELIMINATED ROUTES

0 1 2 3 4  
Miles

Project Location

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Date: 12/11/2014

The following alternative routing options are displayed on Figure 1 in the 2012 NWE Siting Study which can be found in the Project record (HDR 2012).

- **Alternative Routes 1A and 1B**

Alternative Routes 1A and 1B are 44.5 and 45.1 miles in length, respectively. Route 1A connects to a proposed new substation location one-half mile north of the existing Chrome Junction along West Rosebud Road. Route 1B connects to a proposed new substation location one-half mile northwest of the existing substation at the end of Fiddler Creek Road. Both proposed new substation locations are adjacent to good road access, are covered by shrub and grass land, and adjacent to conservation easement properties.

Alternative Routes 1A and 1B are generally closer to developed areas, with homes adjacent to the ROW. These routes also cross conservation easements, use the least existing corridors, and are closest to known eagle nests. Route 1A and 1B have the least forested acres and cultivated land, and are the shortest and least costly of the three routes. Due to land owner, wildlife, cultural, engineering, and electrical system concerns Alternative Routes 1A and 1B were eliminated from detailed analysis.

- **Alternative Routes 2A and 3A**

Alternative Routes 2A and 3A are 47.9 and 51.1 miles in length, respectively. Alternative Route 2A and 3A would connect to a proposed new substation location two miles northwest of the existing Chrome Junction Substation, along the existing 69 kV transmission line from Chrome Junction to Stillwater mine. The proposed substation location is at the end of a field road and access may be difficult and costly.

Routes 2A and 3A have homes and conservation easement concerns. Additionally, these routes cross the Stillwater River, irrigated lands, rugged terrain and 3A is adjacent to a MFWP fishing site near Reed Point. Due to land owner, land use, visual, engineering, construction, and electrical system concerns Alternative Routes 2A and 3A were eliminated from detailed analysis.

- **Alternative Routes 2B, 2C, 3B, and 3C**

Alternative Routes 2B, 2C, 3B, and 3C are 49.0, 48.6, 52.1, and 51.8 miles in length, respectively. Alternative Routes 2B, 2C, 3B, and 3C would connect to a proposed new substation location 3.5 miles northwest of the existing Chrome Junction substation along the existing 69 kV transmission line from Chrome Junction to Stillwater mine just north of Benbow Road. The proposed substation location is adjacent to USFS land along Benbow Road. A small residential subdivision is directly southeast of the site along Benbow Road. These Routes have more homes adjacent to them, forested area, significantly less existing corridors, and several conservation easements. Routes 3B and 3C are also adjacent to an MFWP fishing site near Reed Point. Due to land owner, land use, visual, engineering, construction, and electrical system concerns Alternative Routes 2B, 2C, 3B, and 3C were eliminated from detailed analysis.

- **Dean Alternative**

In addition to the siting study alternatives, NWE evaluated an alternative which utilized the same alignment as the Proposed Action with the exception of a south-eastern departure just north of the Jack Stone Creek crossing. This route headed south toward the Stillwater River and crossed the River and State Highway (SH) 420. South of the SH 420 crossing, the route crossed a conservation easement (due to difficult terrain associated

with trying to route around the easement) and continued south toward SH 419. The route crossed SH 419 and continued to the southern terminus, a new substation location west of the existing Chrome Junction Substation. The Dean Alternative does not create electric system advantages by establishing a 50 kV loop into the Chrome Junction to Stillwater Mine transmission line and thus does not create an electrically superior transmission solution to reliably serve customers in the Chrome Junction, Benbow, and Nye communities. Additionally, constraints associated with private landowner impacts, compatibility with land use, conservation easements, visual, cultural, site access, constructability concerns with terrain, and other environmental resources caused this option to be eliminated from detailed analysis.

### **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS**

#### **3.1 INTRODUCTION**

This chapter provides a description of the environment potentially affected by the Proposed Action. The Affected Environment sections discuss the conditions in the natural, human, and cultural environments which could potentially be affected, beneficially or adversely, by the Project. Resources specifically affected by the Proposed Action (impacts) are also described in this section.

In addition to the general Project setting, this chapter summarizes the following resource inventories/data collection:

- Wildlife and Fish
- Vegetation
- Invasive and Non-native Species
- Wetland/Riparian and Water Resources
- Visual Resources
- Land Use
- Socioeconomics
- Cultural Resources
- Soils

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area as identified in Chapter 1 of this assessment.

#### **3.2 GENERAL SETTING**

The Project Area is defined as 6.4 acres of ROW (approximately 0.88 mile long by 60 feet wide) of BLM managed public lands within the Bad Canyon Complex located on the east side of the Beartooth Mountains in Stillwater County, approximately 34 miles northwest of Red Lodge, Montana. The area includes Bad Canyon Creek which originates in the Custer National Forest and flows easterly to its confluence with the Stillwater River. Most of the Project Area was affected by the 2006 Derby wildfire. This wildfire has significantly affected the vegetative communities with shrub, forested, and grassland communities being severely burned. Many of these areas have not regenerated tree and shrub vegetative communities.

### 3.2.1 Critical Elements of the Human Environment

Certain resources are protected by specific laws, regulations, or policies (e.g., Executive Orders). BLM refers to these resources as “Critical Elements of the Human Environment” and addresses them in all EAs. Those Critical Elements that are identified below as being present and potentially affected will be analyzed along with potentially affected non-critical elements further in this chapter.

**TABLE 3-1 CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT**

DETERMINATION*	RESOURCE	RATIONALE FOR DETERMINATION*
<b>CRITICAL ELEMENTS</b>		
NI	Air Quality	The Proposed Action would not impact air quality.
NP	Areas of Critical Environmental Concern	There are no areas of critical environmental concern in the Project Area.
PI	Cultural Resources	There are no known cultural resources within the Project Area .
NP	Environmental Justice	The Proposed Action would have no effect on minority or economically disadvantaged people or populations.
NP	Farmlands (Prime or Unique)	There are no prime or unique farmlands within the Project Area.
NP	Floodplains	There are no designated 100 year flood plains within the Project Area.
PI	Invasive, Non-native Species	The Proposed Action would create soil disturbance and involve mechanized equipment which could potentially introduce or spread noxious weed populations. Discussed further in this chapter.
PI	Native American Religious Concerns	Native American concerns will be determined during tribal consultation.
NP	Threatened, Endangered or Candidate Plant Species	There are no threatened, endangered or candidate plant species within the Project Area.
NI	Threatened, Endangered or Candidate Animal Species	The Project Area does not occur within a designated grizzly bear recovery zone and habitat is limited within the Project Area but incidental occurrence is possible. However they are not likely to utilize the Project Area other than as transient occurrences.
NP	Wastes (hazardous or solid)	There are no hazardous or solid wastes within the Project Area.
NI	Water Quality (drinking/ground)	The project would not affect ground or drinking water.
PI	Wetlands/Riparian Zones	The project would span Bad Canyon Creek and associated riparian area. Discussed further in this chapter.
PI	Wild and Scenic Rivers	Bad Canyon Creek has been determined to be eligible for inclusion in the National Wild and Scenic River system, however it has not been recommended as suitable. Discussed further in this chapter.
PI	Wilderness	The lands in the Bad Canyon parcel have been inventoried and found to have wilderness characteristics. Although not managed as a “wild Land” unit the specific resource values identified in the inventory have management direction and prescriptions in the RMP. Discussed further in this chapter.
*NP = not present in the area or impacted by the proposed or alternative actions; NI = present, but not affected to a degree that detailed analysis is required; PI = present with potential for impact.		

### 3.3 AFFECTED RESOURCES BROUGHT FORWARD FOR ANALYSIS

#### 3.3.1 *Wildlife and Fish*

This section addresses the environmental baseline conditions and impacts for general wildlife and fishery resources in addition to state-listed species of concern and species listed under the Endangered Species Act as threatened, endangered, proposed, or candidate species in the Bad Canyon area.

The data presented in this document were derived from a helicopter survey, the Montana Natural Heritage Program (MNHP), USFWS, BLM, Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS), MFWP, Montana Fisheries Information System (MFISH) database, and other available reports and publications. Special status species habitat and occurrence data were obtained from MNHP, USFWS, BLM, USFS, MFWP, and the Montana State Library Natural Resource Information System (NRIS). These resources were also utilized to identify potential impacts from the Proposed Action.

##### 3.3.1.1 Affected Environment

The Derby wildfire of 2006 burned approximately 223,570 acres of wildlife habitat extending south near Nye to near Reed Point, Montana (NIFC 2014). The fire significantly affected the vegetative communities and wildlife habitats throughout Bad Canyon with shrub, forested, and grassland communities being severely burned. Many of these areas have not regenerated tree and shrub vegetative communities and thus reduced and/or removed wildlife habitats in the Project Area. Therefore this wildfire has influenced the existing condition for wildlife within the Project Area as described below.

##### ***Big Game***

Elk, white-tailed deer, and mule deer are known to occupy habitats that correspond to Bad Canyon. Both general and winter habitats for these species were documented through geographic information system (GIS) data provided by the MFWP. No areas of crucial big game habitat or critical fawning or calving areas were in the Project Area. The entire Project Area (falls within general and winter habitat for elk and mule deer as identified by MFWP. Moose may also occur within Bad Canyon along in the riparian area associated with Bad Canyon Creek. Maps that identify the general and winter habitat associated with each species corresponding to Bad Canyon are provided on Figures 3-1, 3-2, and 3-3.

##### ***Raptors***

A variety of raptor species are known to occur in the general vicinity of Bad Canyon including but not limited to bald eagle, golden eagle, peregrine falcon, red-tailed hawk, and osprey. MNHP did not identify known raptor nest locations within the within the Bad Canyon parcel.

This information was supplemented by an aerial raptor stick nest survey of the project area conducted by NEW on March 14, 2014. No raptor nests were identified throughout the entirety of area surveyed.

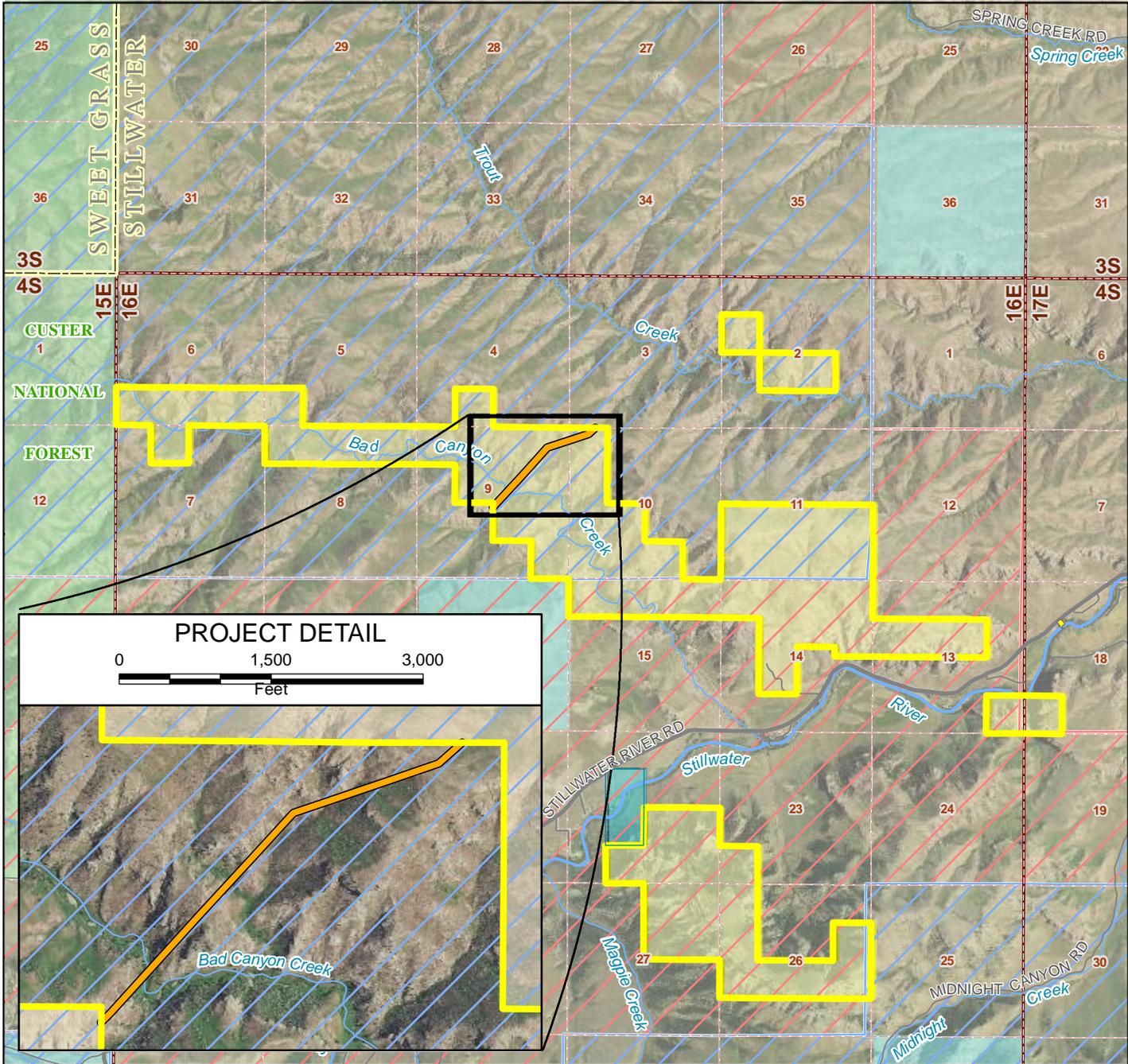
##### ***Neotropical Birds***

Neotropical birds are species that breed in North America and winter in Central or South America. Potential habitat for neotropical birds exists throughout Bad Canyon primarily in the riparian area

associated with Bad Canyon Creek and adjacent forested areas. Vegetation within the Bad Canyon Creek area was severely impacted by the Derby Fire in 2006 and therefore shrub/forested habitats are limited thus limiting habitat for many neotropical bird species.

### ***Fish***

According to MFWP MFISH data, the reach of Bad Canyon Creek that corresponds to the Project Area is located at approximately river mile 3.4. MFISH identifies brown trout and rainbow trout as occurring in this reach with Yellowstone cutthroat trout located upstream (MFWP 2014a). BLM has occasionally reinforced a natural barrier on Bad Canyon Creek to prevent brown and rainbow trout from moving upstream and hybridizing with Yellowstone cutthroat.



-  Project Centerline
-  Minor State Highway
-  Local Road
-  River
-  Stream
- Elk Distribution
  -  General
  -  General and Winter
-  US Bureau of Land Management
-  US Forest Service
-  Montana Fish, Wildlife, and Parks
-  Montana State Trust Lands
-  County Government
-  County Boundary
-  PLSS Township Boundary
-  PLSS Section Boundary

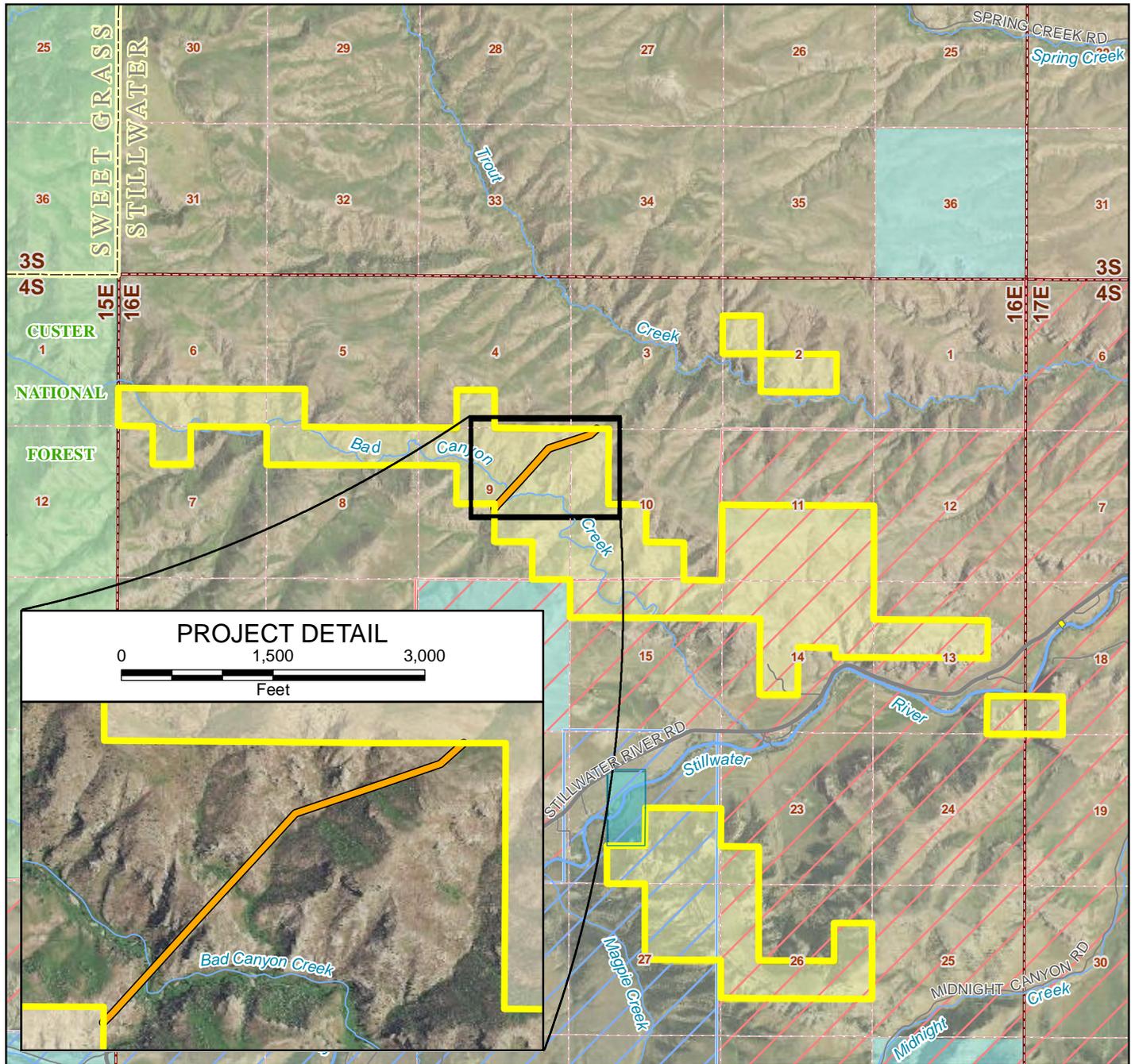
Columbus-Rapelje to  
Chrome Junction  
100 kV Project

**FIGURE 3-1  
ELK DISTRIBUTION**



  
Date: 12/24/2014





-  Project Centerline
-  Minor State Highway
-  Local Road
-  River
-  Stream
- Whitetail Deer Distribution
  -  General
  -  General and Winter
-  US Bureau of Land Management
-  US Forest Service
-  Montana Fish, Wildlife, and Parks
-  Montana State Trust Lands
-  County Government
-  County Boundary
-  PLSS Township Boundary
-  PLSS Section Boundary

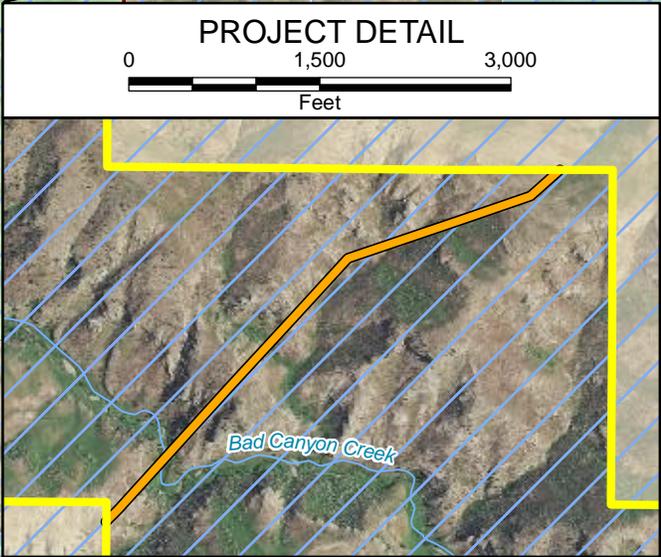
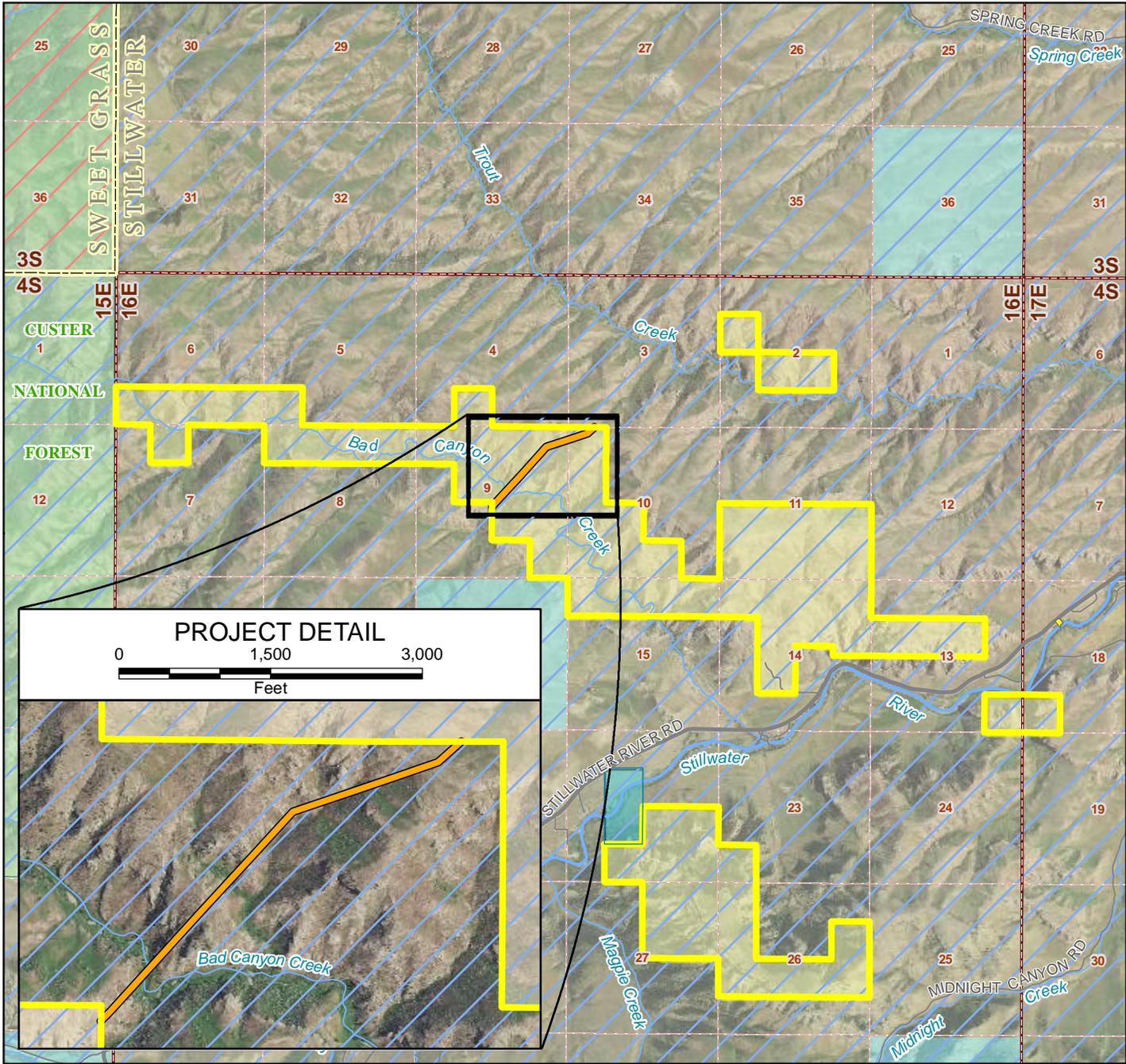
Columbus-Rapelje to  
Chrome Junction  
100 kV Project

**FIGURE 3-2  
WHITETAILED DEER  
DISTRIBUTION**



**POWER ENGINEERS**  
Date: 12/24/2014

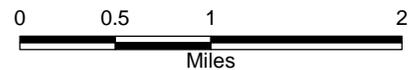
**NorthWestern Energy**



- Project Centerline
- Minor State Highway
- Local Road
- River
- Stream
- Mule Deer Distribution**
- General
- General and Winter
- US Bureau of Land Management
- US Forest Service
- Montana Fish, Wildlife, and Parks
- Montana State Trust Lands
- County Government
- County Boundary
- PLSS Township Boundary
- PLSS Section Boundary

Columbus-Rapelje to Chrome Junction 100 kV Project

FIGURE 3-3 MULE DEER



**POWER ENGINEERS**  
Date: 12/24/2014

**NorthWestern Energy**

### *Species of Concern*

According to MNHP data, two wildlife species of concern are known to occur near Bad Canyon: Yellowstone cutthroat trout and grizzly bear (*Ursus arctos horribilis*). Table 3-2 lists the species of concern identified by the MNHP and the expected occurrence within Bad Canyon. Figure 3-4 identifies the locations of Yellowstone cutthroat trout and grizzly bear in association with Bad Canyon.

**TABLE 3-2 MNHP WILDLIFE SPECIES OF CONCERN**

COMMON NAME	SCIENTIFIC NAME	POTENTIAL TO OCCUR WITHIN PROJECT AREA	STATUS
Fish Species			
Yellowstone cutthroat trout	<i>Oncorhynchus clarkii bouvieri</i>	Yes; upstream of ROW crossing of Bad Canyon.	State species of concern; USFS and BLM sensitive
Mammal Species			
Grizzly bear	<i>Ursus arctos horribilis</i>	Yes; incidental transient occurrence only. No critical habitat present.	Federally threatened

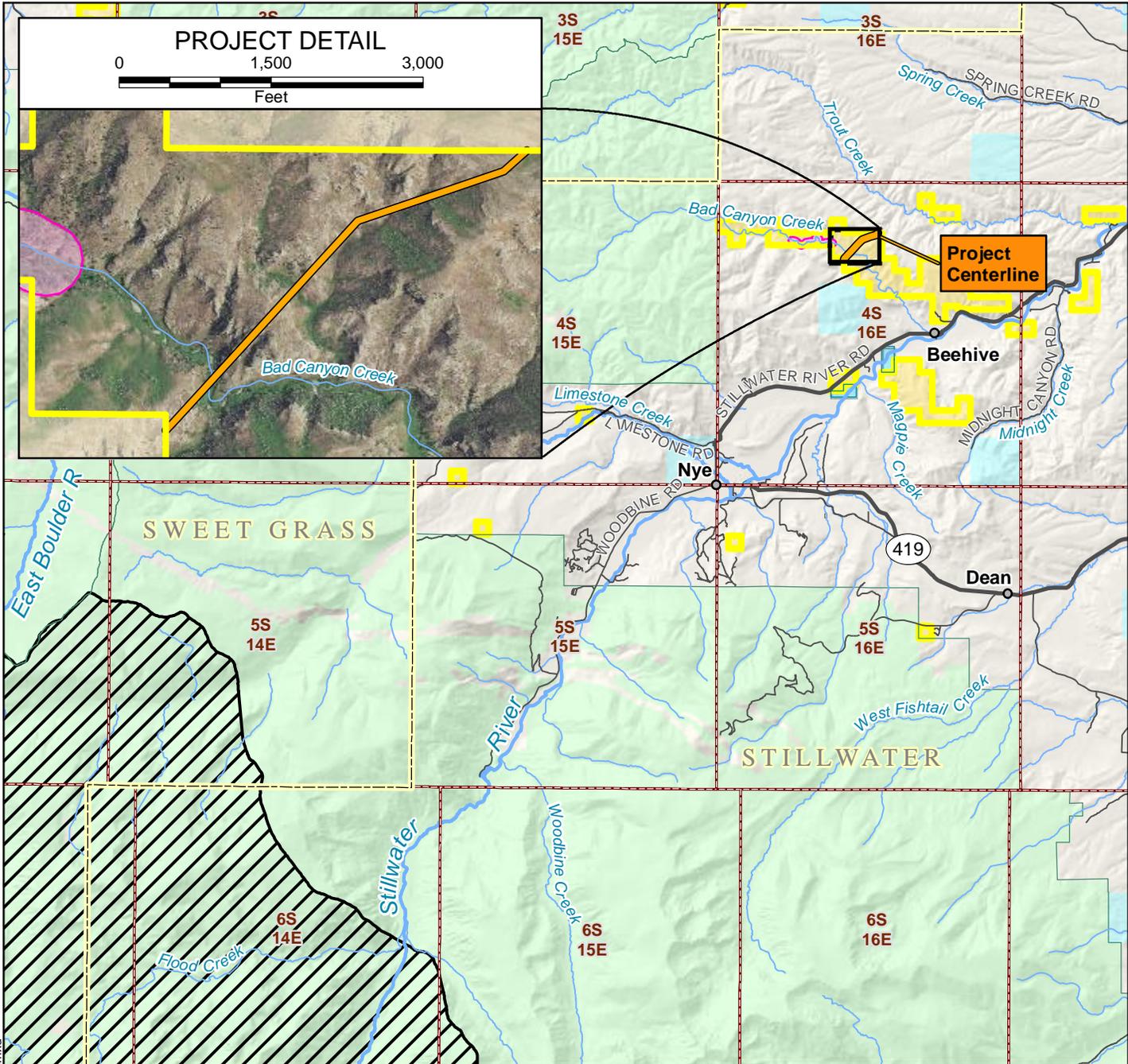
### *Yellowstone Cutthroat Trout*

Yellowstone cutthroat trout’s native range included the Yellowstone River drainage of southwest and south-central Montana. Dewatering (irrigation withdrawals), hybridization, competition with non-native species, and habitat loss have led to reductions in Yellowstone cutthroat trout range and they have been designated as a Montana Fish of Special Concern due to their importance as a native fish fauna (MNHP 2014). Yellowstone cutthroat trout inhabit clear, cold streams, rivers, and lakes with temperatures ranging from 32.0 to 80.6°F and optimal water temperatures ranging from 39.2 to 59.0 degrees Celsius [°C]). Additionally, limited fine sediment load, available gravel substrates, and the presence of riffle-pool stream morphologies are considered important indicators of quality Yellowstone cutthroat trout habitat (MNHP 2014).

According to BLM data, Bad Canyon Creek supports a population of Yellowstone cutthroat trout that has been designated as a “core population” by the Interstate Yellowstone Cutthroat Trout Coordination Team. A core population is one that exhibits no hybridization and is essentially a genetically pure strain (BLM 2009). As previously stated, MFISH data identifies Yellowstone cutthroat trout as occurring in Bad Canyon Creek upstream of the Project Area proposed ROW crossing of Bad Canyon (river mile 3.4). Figure 3-4 depicts the location of the Yellowstone cutthroat trout population in Bad Canyon Creek.

### *Threatened and Endangered Species*

Threatened and Endangered (T&E) species include those species that have been federally listed or are proposed for federal listing by the USFWS as threatened or endangered. According to the Endangered Species Act (ESA) of 1973, threatened species are defined as “any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range,” and endangered species are defined as “any species which is in danger of extinction throughout all or a significant portion of its range.” In accordance with the ESA, the Proposed Action has been analyzed for potential impacts resulting from Project-related activities to federally listed T&E species or designated critical habitat and that analysis is provided in this document.



W:\133211\_Columbus\_Chrome\DD\GIS\Apps\EA\_BLM\Fig.3-4\_Special Status Species.mxd

- Project Centerline
- Yellowstone Cutthroat Trout Occurrence
- Yellowstone Grizzly Bear Recovery Zone
- Minor State Highway
- Local Road
- River
- Stream
- US Bureau of Land Management
- Montana State Trust Lands
- Montana Fish, Wildlife, and Parks
- US Forest Service
- PLSSTownship Boundary
- County Boundary
- Town

Columbus-Rapelje to  
Chrome Junction  
100 kV Project

**FIGURE 3-4  
SPECIAL STATUS SPECIES**



**POWER  
ENGINEERS**  
Date: 12/29/2014

**NorthWestern  
Energy**

Occurrence data of any protected species in or within the vicinity of Bad Canyon was requested from MNHP (MNHP 2014). MNHP identified the grizzly bear as potentially occurring near Bad Canyon. Although MNHP data did not identify greater sage-grouse as occurring within a 1.0-mile radius of Bad Canyon, the area is located near historic sage-grouse habitat and therefore, an analysis of the species is included in the following sections.

### ***Grizzly Bear***

Historically, the grizzly bear was primarily a plains species that occurred in high densities throughout most of eastern Montana, but is currently restricted to more remote, forested areas. In Montana, grizzly bears utilize a wide variety of habitat types depending on seasons and local characteristics. These habitats include: meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, side-hill parks, snow chutes, and alpine slab-rock (MNHP 2014). Movements of grizzlies within their home range are primarily dependent on the availability of food sources. Grizzly bears require large corridors of contiguous forested land for movement within their home range. Den sites typically occur at higher elevations that have a slope of 28 to 35 degrees, with an aspect that maintains deep snow (Foresman 2001).

The grizzly bear is federally listed as threatened by the USFWS and also a state-listed species of concern with a range that currently includes portions of western Montana. Bad Canyon does not occur within a designated grizzly bear recovery zone (Yellowstone Grizzly Bear Recovery Zone is located south/southeast of the Project Area). Grizzly bear habitat does not occur within Bad Canyon and potential habitat is located in forested areas to the south of Bad Canyon. BLM has reported occasional grizzly bear occurrence along drainages near big game winter range areas. Incidental occurrence of a grizzly bear near Bad Canyon is possible. Due to a moderate amount of human activity in the general area of Bad Canyon and the absence of suitable habitat (large corridors of contiguous forest) present within Bad Canyon, it was concluded that grizzly bears are not likely to utilize Bad Canyon other than as transient occurrences.

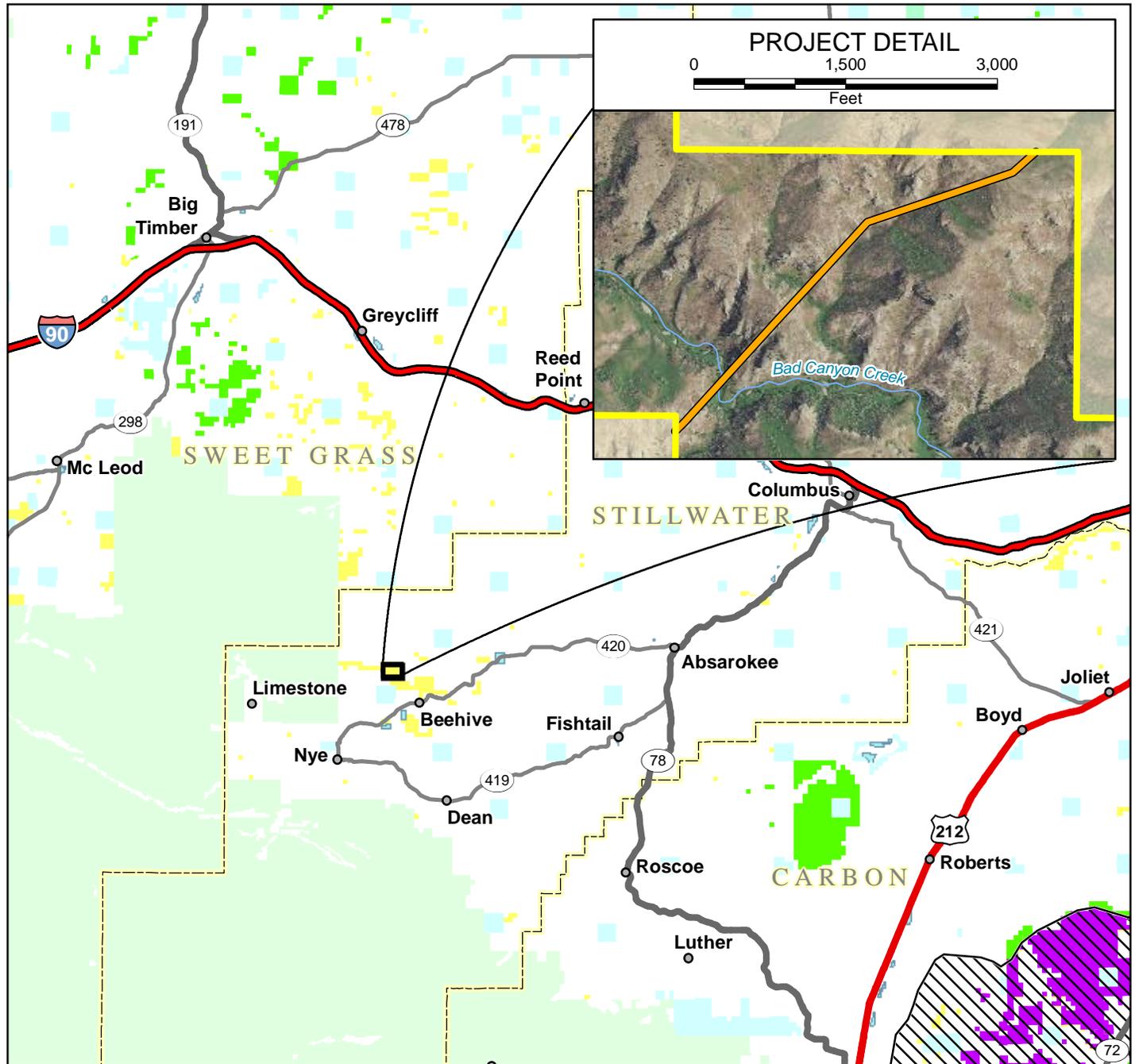
### ***Greater Sage-grouse***

Greater sage-grouse are a candidate species for being federally listed under the ESA by the USFWS. Greater sage-grouse are highly dependent on sagebrush communities at elevations ranging from 4,000 to over 9,000 feet. Habitat fragmentation and destruction across much of the species' historical range has contributed to significant population declines over the past century (MNHP 2014). According to BLM and MFWP data (BLM 2013) there is no previously identified sage-grouse habitat in Bad Canyon (Figure 3-5). Also, no "core population areas" were identified as occurring within or in close proximity to the Project ROW in Bad Canyon (Figure 3-5). Sagebrush communities located along the rim of Bad Canyon could provide potential habitat for greater sage-grouse and the Project Area in general is located within the historic range of sage-grouse. Regular sage-grouse occurrence in the Bad Canyon area is not likely.

#### **3.3.1.2 Impacts**

##### **Alternative A – No Action**

Under the no action alternative, there would be no effect to the wildlife and fish, including state species of concern and T&E species in the Project Area.



-  Project Centerline
-  Interstate Highway
-  US Highway
-  State Highway
-  Minor State Highway
-  Montana Fish Wildlife and Parks Core Area
-  Priority Protection Area
-  General Habitat Area
-  US Bureau of Land Management
-  Montana State Trust Lands
-  Montana Fish, Wildlife, and Parks
-  US Fish and Wildlife Service
-  US Forest Service
-  County Boundary
-  Town

Columbus-Rapelje to  
Chrome Junction  
100 kV Project

**FIGURE 3-5**  
**SAGE-GROUSE HABITAT**

0 4 8 16  
Miles



## **Alternative B – Proposed Action**

### ***Big Game***

Potential impacts to big game species could include minor loss of habitat and temporary displacement during construction activities. A minimal amount (0.018 acre) of the MFWP identified general and winter elk and mule deer habitat would be removed in the Project Area from the installation of the transmission line structures. No crucial winter habitat, fawning, or calving habitat is present in the Project Area and therefore would not be impacted by the Proposed Action. It is anticipated that elk, white-tailed deer, and mule deer would temporarily move a short distance from Project activities and quickly resume use of much of the Project Area following the completion of construction. Permanent impacts in these locations include ground disturbance for pole structure installation. Both temporary and permanent impacts to big game habitat would be minimized to the greatest extent practicable. The Proposed Action would not result in significant impacts to big game species as transmission line corridors are generally not avoided by big game species (Goodwin 1975; Thompson 1977), minimal habitat would be removed, and construction, operation, and maintenance would cause minor temporary impacts.

### ***Raptors***

No raptor nests have been identified in Bad Canyon near the Project ROW. The Project would be developed consistent with the APLIC guidelines for avian safety to reduce risk of collision (APLIC 2012) and electrocution (APLIC 2006). The Project would be operated under NWE's existing Corporate Avian Protection Plan which would further implement mitigation measures throughout the life of the Project. If raptor nests were identified, seasonal timing restrictions during the nesting and breeding seasons for construction activities would be implemented with species-specific nest buffer distances (0.5 mile) recommended by MFWP and BLM to ensure impacts to nesting raptors are minimized or avoided where nests are determined to be active. The Proposed Action would not result in significant impacts to raptor species due to Project BMPs and lack of raptor occurrence in the Project Area.

### ***Neotropical Birds***

Impacts to neotropical birds would be expected to be minimal with the implementation of measures to reduce potential impacts including spanning Bad Canyon Creek and not requiring riparian vegetation removal and line marking to reduce collision hazards. The Proposed Action would not result in significant impacts to neotropical bird species due to Project BMPs and minimal habitat disturbance (0.018 acre), in the Project Area.

### ***Fish***

The Proposed Action has been designed to avoid impacts to perennially-flowing streams that provide fish habitat. No construction activities would occur within the ordinary high water mark of Bad Canyon Creek and the canyon would be spanned by the transmission line. Therefore, no impacts to fish species or habitat would result from the Proposed Action. Additionally, erosion and sediment control BMPs would be installed wherever construction activities would occur. A SWPPP would be developed to manage erosion and sediment control and to identify and locate BMPs to prevent sediment from entering waters of the State (Bad Canyon Creek).

### ***Yellowstone Cutthroat Trout***

As previously stated, no direct impacts to Bad Canyon Creek would result from Project-related construction activities. This drainage would be spanned by the new transmission lines and, therefore, no impacts to Yellowstone cutthroat trout are anticipated to result from the Proposed Action. Additionally, mitigation measures that would be implemented on BLM managed land to minimize impacts to wildlife species are provided in the Wildlife Protection Plan (Section 2.2 of this document).

### ***Grizzly Bear***

Analysis of the Bad Canyon concluded incidental occurrence of a grizzly bear is possible. However, due to human activity at the Stillwater mine (location nearest suitable habitat along the Project Area) and lack of suitable habitat (large corridors of contiguous forest) within Bad Canyon, grizzly bears are not likely to utilize the area other than transient occurrences. Construction crews would be required to minimize bear attractants in Bad Canyon. Minimizing bear attractants would include removal of food related materials daily and following BLM and Forest Service grizzly bear recommendations for minimizing bear attractants. Adverse impacts to grizzly bears or their habitat would not be likely to occur as a result of Project activities.

### ***Greater Sage-Grouse***

Sage-grouse habitat is limited to sagebrush communities. The Derby wildfire have modified native vegetative habitats in and near Bad Canyon and reduced suitable sage-grouse habitat. BLM and MTFWP designated sage-grouse habitat (core areas designated by MTFWP and Priority Protection and General Habitat Areas designated by BLM) is located over fifteen miles from Bad Canyon. Transient sage-grouse occurrence may occur along the rim of Bad Canyon in sagebrush habitat. Minimizing ground disturbance and sagebrush habitat removal to the greatest extent practicable would avoid and minimize potential Project-related impacts to this species. If active sage-grouse leks are identified in or near Bad Canyon, avoidance recommendations from the 2014 Montana Sage Grouse Habitat Conservation Program) would be implemented.

## ***3.3.2 Vegetation***

### ***3.3.2.1 Affected Environment***

The NRCS developed Major Land Resource Areas (MLRAs) and the associated land resource units (LRUs) as the basic units for delineating statewide patterns of soils, climate, water resources, and land use by analyzing elevation, topography, and rainfall (effective amount, timing, kind, and distribution) data. These data are the primary factors used to delineate and map these LRUs in Montana due to their effect on potential native plant communities, land uses, and water resources (NRCS 2006). Bad Canyon corresponds to MLRA: 46 (Northern Rocky Mountain Foothills). MLRA 46 supports grassland vegetation in the valleys and foothills and forest vegetation at higher elevations. The dominant grassland species include bluebunch wheatgrass, rough fescue, Idaho fescue, and western wheatgrass. The dominant species located in forested areas include ponderosa pine, limber pine, Rocky Mountain juniper, common snowberry, and skunkbrush sumac.

The Derby wildfire of 2006 burned approximately 223,570 acres of land extending south from near Nye to near Reed Point, Montana (NIFC 2014). The fire significantly affected the vegetative communities throughout Bad Canyon with shrub, forested, and grassland communities being severely burned. Many of these areas have not regenerated tree and shrub vegetative

communities. The Bad Canyon area associated with the proposed ROW includes grassland vegetation with minimal trees and shrubs.

### 3.3.2.2 Impacts

#### **Alternative A – No Action:**

Under the no action alternative, there would be no effect to the vegetation in the Project Area.

#### **Alternative B – Proposed Action:**

Direct impacts to vegetation in the Project Area would be minor and associated with the installation of six transmission line structures within the Bad Canyon Unit. Permanent impacts (ground disturbance resulting from the installation of the structures) would total approximately 0.018 acre. The placement of the six transmission structures that would be installed in the Bad Canyon Unit would be done by helicopter construction or overland travel with small to medium sized rubber tire excavators or hand-excavated structure holes. This would eliminate the need for new permanent or temporary access roads to structure locations and would therefore minimize land/vegetation disturbance associated with crane pads, structure laydown areas, and vehicles utilized for delivery of structures to sites. Additionally, mitigation measures that would be implemented on BLM managed public land to minimize impacts to vegetation are provided in the Reclamation, Re-vegetation and Noxious Weed Protection Plan (Section 2.2 of this document). The Proposed Action would not result in major impacts to vegetation due to Project BMPs and minimal disturbance (0.018 acre) in the Project Area.

### 3.3.3 *Invasive and Non-native Species*

#### 3.3.3.1 Affected Environment

Noxious weeds are often early-successional, pioneer species that are very successful at colonizing disturbed areas. They typically produce large quantities of easily dispersed seeds that establish quickly and grow to out-compete native plant species for water, nutrients and other resources.

In Montana, noxious weeds are classified into five categories that identify frequency of occurrence, rate of spread, and subsequent levels of concern. Priority 1A noxious weeds are those species that are not currently present in Montana. Management of these species requires eradication if detected, education, and prevention. Priority 1B species have limited presence in Montana. Management of these species includes eradication or containment and education. Priority 2A species are common in isolated areas in Montana. Management requires eradication and containment where less abundant and local weed districts prioritize management practices. Priority 2B species are abundant in Montana and widespread in many counties. Management for these species also requires eradication and containment where less abundant and local weed districts prioritize management practices. Priority 3 species includes regulated plants. These plants have the potential to have significant negative impacts to native ecosystems. The plants may not be intentionally spread or sold other than as a contaminant in agricultural products. The state of Montana recommends research, education, and prevention to minimize the spread of these species. In addition to the state-designated noxious weeds, the Stillwater County Weed District identifies three additional species as noxious weeds within Stillwater County.

Noxious weeds common throughout Stillwater County that are likely to occur within the Project ROW include houndstongue , Canada thistle, spotted knapweed, field bindweed, and leafy spurge. These weeds are all Priority 2B species.

### 3.3.3.2 Impacts

#### **Alternative A – No Action**

Under the no action alternative, there would be no effect (potential increased spread or establishment of noxious weeds/invasive, non-native species) in the Project Area.

#### **Alternative B – Proposed Action**

The Proposed Action would include minimal clearing of land capable of supporting native vegetation. Approximately 0.018 acre of vegetation would be permanently impacted as a result of the installation of the six transmission structures within the Bad Canyon Unit. No temporary impacts to vegetation are expected due to construction methodologies and Project BMPs. Areas of disturbed soil provide an optimal location for noxious weed establishment and subsequent invasion.

Noxious weeds can also spread in areas if measures are not taken to prevent weed infestation establishment. Vehicles, for example, may transport seeds of noxious weeds to the Project Area when brought in from offsite locations and may give these weeds a competitive edge over native vegetation by depositing weed seeds where they would not occur naturally.

BMPs implemented prior to construction (see Section 2.2), would include the preparation of a revegetation plan as required by state statutes pertaining to weed control (7-22-2152, MCA). The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all Proposed Action work areas, access roads and the re-use of sidecast materials and topsoils. Techniques could include reseeding native or other acceptable vegetation species with certified weed-free seed. NWE would develop a Noxious Weed Control Plan (see Section 2.2) in consultation with the Stillwater County Weed District and BLM to minimize the effects of noxious weeds due to Proposed Action activities. The plan would require cleaning of construction vehicles to minimize spread of weeds. In addition, many of the measures to reduce impacts common to several resources that would reduce overall disturbance would be effective at preventing the establishment or spread of noxious weeds. Weeds would be monitored and controlled prior to, during, and following construction of the Project. Weed populations would be surveyed and documented following construction and if it is determined that additional monitoring and control would be necessary, the Stillwater County Weed District/BLM would be consulted to determine a plan of action. Through implementation of these measures, it is not expected that noxious weed infestations would increase compared to the existing condition.

NWE would manage vegetation within the ROW by a variety of methods, including trimming, mowing, and the use of approved herbicides, targeting species that are incompatible with the safe operation, maintenance, and access to the transmission system. Use of herbicides for vegetation control would be selective. Measures to reduce the effects of these activities include the application of herbicides would meet federal, state, and local regulations. Due to the selective nature of vegetation cutting, the limited use of herbicides, and the infrequent occurrence of maintenance activities, the potential effects on vegetation, wildlife, and water quality would be minimal.

### 3.3.4 Wetland/Riparian and Water Resources

#### 3.3.4.1 Affected Environment

Review of the USFWS National Wetlands Inventory (NWI) database identified a riverine, upper perennial, unconsolidated bottom, intermittently exposed waterway (see Figure 3-6, R3UBG; Bad Canyon Creek) and a riparian, forested wetland (see Figure 3-6, Rp1FO) within the Bad Canyon Unit in the area associated with the proposed ROW. Review of the United States Geological Survey (USGS) National Hydrography Dataset (NHD) identified Bad Canyon Creek, a perennial stream and tributary to the Stillwater River as occurring in Bad Canyon. The riparian areas and floodplain associated with Bad Canyon Creek have the potential to support wetland areas; however, a site-specific wetland delineation was not completed prior to the completion of this document. Figure 3-6 depicts the previously identified wetlands and waterways (NWI and NHD) within Bad Canyon and the Project Area.

The Bad Canyon Creek reach that corresponds to the Project Area (headwaters to mouth) is identified by MDEQ as water quality Category 4C, defined as threats or impairments result from pollution categories such as dewatering or habitat modification, and a total maximum daily load (TMDL; calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards) is not required. Bad Canyon Creek fully supports drinking water, agricultural, and aquatic life beneficial uses, but does not support primary contact recreation (such as swimming, water skiing, etc.). The probable cause of impairment is identified as chlorophyll-a, with the probable source identified as rangeland grazing (MDEQ 2014).

#### 3.3.4.2 Impacts

##### **Alternative A – No Action**

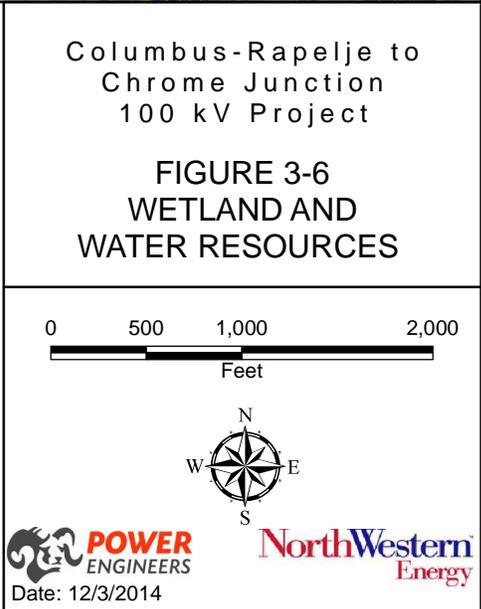
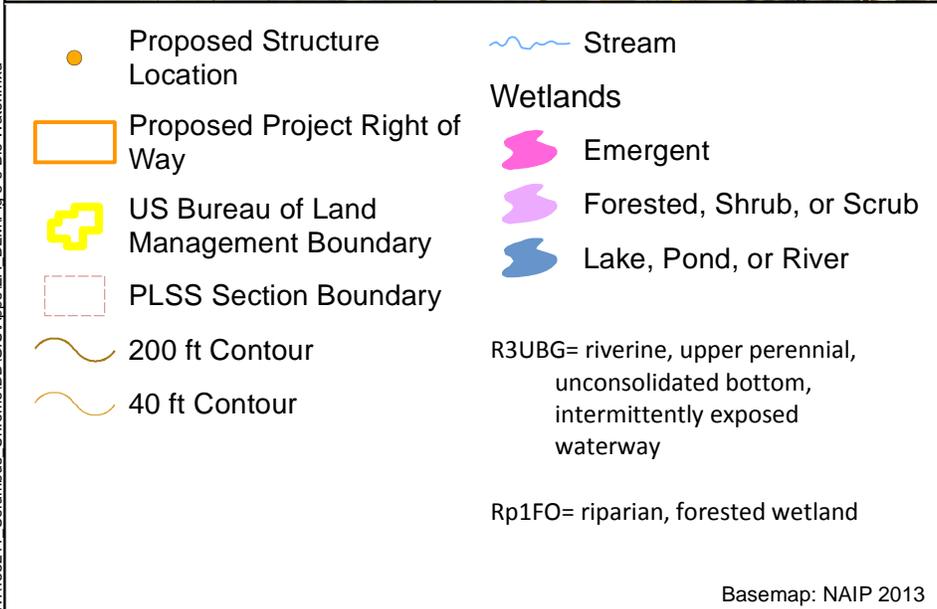
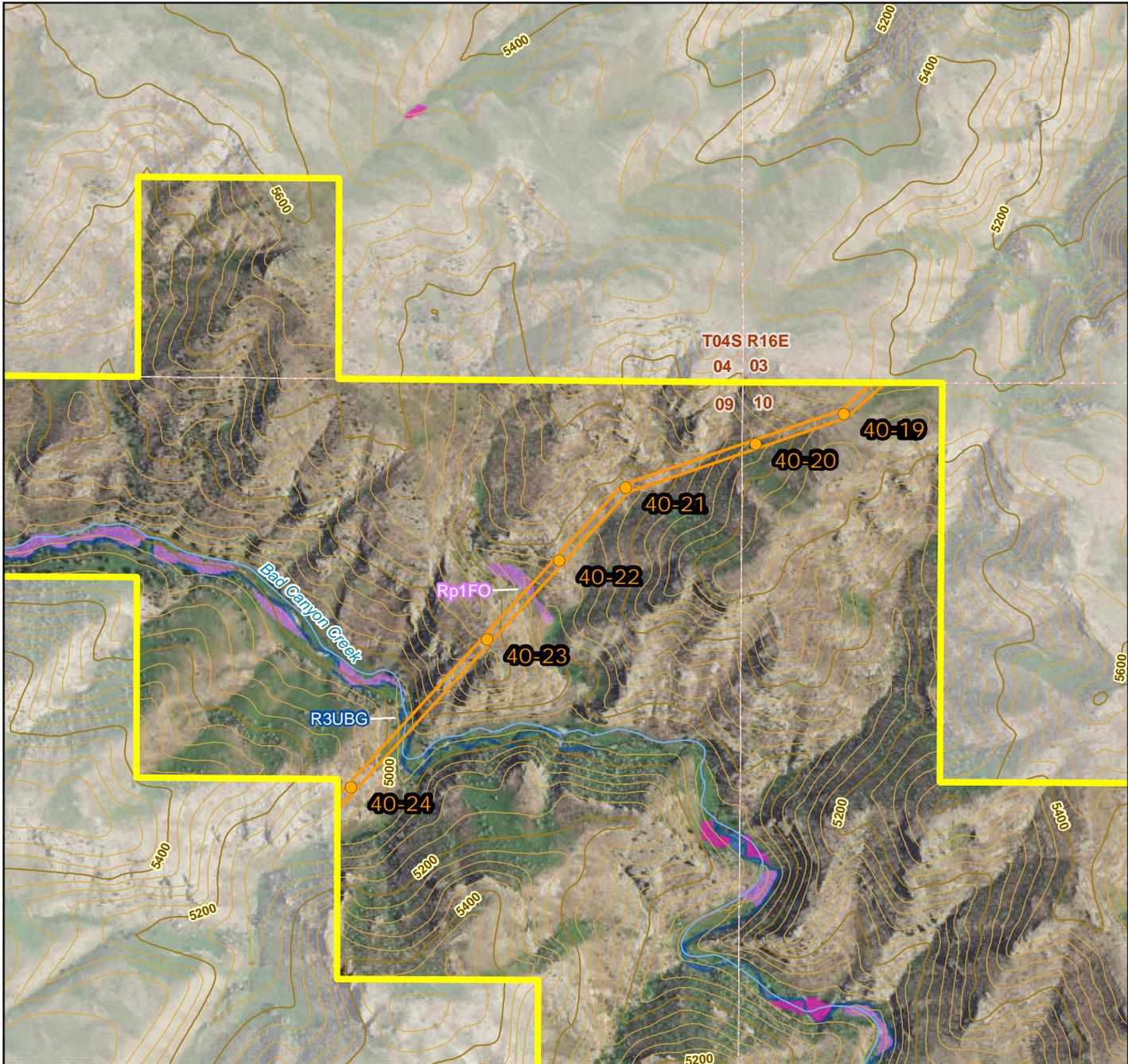
Under the no action alternative, there would be no effect to wetland/riparian and water resources in the Project Area.

##### **Alternative B – Proposed Action**

NWE Proposed Action design would avoid impacts to wetlands and waterways through the placement of transmission structures outside of these resource areas. The transmission line and any access roads would either span or avoid crossing wetland and water resource areas.

Prior to the commencement of construction, NWE would complete a wetland inventory for the entire ROW. NWE would design the Proposed Action to avoid impacts to wetlands and waterways (placement of transmission structures). However, if it was determined that it was necessary to place any fill material in a delineated wetland, a Section 404 Permit (Clean Water Act [CWA]) would be obtained through the United States Army Corps of Engineers (USACE) in advance and if necessary, a Section 401 Water Quality Certification (CWA) administered by the MDEQ. A SWPPP would also be developed for the Project that identifies erosion and sediment control BMPs (see Section 2.2) that would be installed to prevent impacts to wetland and water resources within the Project ROW.

Bad Canyon Creek occurs within the Bad Canyon Unit. Impacts to this waterway would be avoided by spanning the drainage/canyon with the transmission line and would not be expected to further degrade water quality standards. Sedimentation and erosion control devices would be employed as needed to control and contain runoff.



BMPs regarding water-crossing methods, soil stabilization and restoration would help eliminate or reduce potential impacts to water resources. Proper permits for activities in streams or wetlands would be obtained from local, state and federal agencies and requirements in the permits would be followed to ensure protection of water quality and aquatic features. Additionally, BMPs that would be implemented on BLM managed public land to minimize impacts to wetland/riparian and water resources are provided in the Reclamation, Re-vegetation and Noxious Weed Protection Plan and Stormwater Pollution Prevention Plan (Section 2.2 of this document).

### *3.3.5 Visual Resources, Recreation, Wild and Scenic Rivers and Lands with Wilderness Characteristics*

#### 3.3.5.1 Affected Environment

##### ***Visual Management***

By law, BLM is responsible for managing public lands for multiple uses. But BLM is also responsible for ensuring that the scenic values of these public lands are considered before allowing uses that may have negative visual impacts. BLM accomplishes this through its Visual Resource Management (VRM) system, a system which involves inventorying scenic values and establishing management objectives for those values through the resource management planning process, and then evaluating proposed activities to determine whether they conform to the management objectives. The Bureau's VRM system helps to ensure that the actions taken on the public lands today will benefit the landscape and adjacent communities in the future.

In order to meet its responsibility to maintain the scenic values of the public lands, BLM has developed a VRM system that addresses the following:

- Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape, and management of an area with little scenic value might allow for major modifications to the landscape. Determining how an area should be managed first requires an assessment of the area's scenic values.

- Assessing scenic values and determining visual impacts can be a somewhat subjective process. Objectivity and consistency can be greatly increased by using the basic design elements of form, line, color, and texture, which have often been used to describe and evaluate landscapes, to also describe proposed projects. Projects that repeat these design elements are usually in harmony with their surroundings; those that don't create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized.

BLM's VRM system provides a way to identify and evaluate scenic values to determine the appropriate levels of management. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings.

In the case of the proposed project, the public land parcel in Bad Canyon has been inventoried in the course of preparation of the new RMP and is managed as VRM Class III. The management objectives for this class are to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The proposed transmission facilities themselves will range in size, tower type, and materials. Observations on potential impacts include assessments made while traveling on roads and trails,

as well as assessments made from single observation points. The proposed facility's visibility is then compared to the existing landscape for determination of apparent contrasts and mitigation measures.

### ***Recreation and Recreation Areas***

Recreational features in or near the Project Area include: Bad Canyon Creek, the Bad Canyon BLM access road (Beehive Lane), and “trailhead” are associated with BLM managed public land. The area receives moderate dispersed recreational use primarily by hikers, fishermen and hunters.

The BLM does have a non-motorized easement across private lands and there is an undeveloped and primitive non-motorized trailhead located on the south side of the unit. Bad Canyon Creek contains a stable population of Yellowstone cutthroat trout, which is a native species and is a supplemental feature for the unit. Fishing and the natural scenery attract an unknown number of casual recreationists, mostly from the local communities. The surrounding private lands do not provide public access to the Bad Canyon area.

### ***Wild and Scenic Rivers***

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

There are study provisions in the Act — Section 5(a), through which Congress directs the study of select rivers, and Section 5(d)(1), which directs federal agencies to identify potential additions to the National Wild and Scenic Rivers System (National System) through federal agency plans such as the new Billings Field Office RMP.

In order to be eligible for possible inclusion as a Wild and Scenic River, the river segment must be free-flowing and possess at least one outstandingly remarkable value (ORV). The existence of small dams, diversion works or other minor structures at time the river segment is being considered does not automatically disqualify it for consideration. River segments determined to be eligible are assigned a tentative classification as Wild, Scenic, or Recreational based on the level of development and access along the river corridor. Management activities and uses that have the potential to affect the free-flowing condition, outstandingly remarkable values and/or the Wild, Scenic, or Recreational classification of the eligible river segments are generally precluded until such time that suitability studies are completed and a new management emphasis is developed.

The purpose of the suitability phase is to determine whether eligible river segments are suitable or not for inclusion in the NWSRS per the criteria of the WSR Act. The suitability evaluation does not result in actual designation but only a suitability determination for possible designation. Rivers found not suitable are dropped from further consideration and managed according to the objectives outlined in the RMP. The BLM completed the suitability phase for all streams determined to be eligible during the RMP revision process.

Generally, the determination of a specific river segment's suitability is based upon the following considerations:

- Should the river's free-flowing character, water quality, and outstandingly remarkable values be protected, or are one or more other uses important enough to warrant doing otherwise?
- Will the river's free-flowing character, water quality, and outstandingly remarkable values be protected through designation? Is designation the best method for protecting the river corridor?
- Is there a demonstrated commitment to protect the river by any nonfederal entities that may be partially responsible for implementing protective management?

In answering these questions, the benefits and impacts of wild and scenic river designation are evaluated and alternative protection methods considered.

In the case of the Bad Canyon river segment evaluation, the river was found to be free flowing, free of impoundments although in the upper portion of the segment there is a small natural barrier that was reinforced to serve as a fish barrier. The shoreline is undeveloped and mostly primitive in nature. There are a few visible livestock fences that cross the segment and a trail used by the local rancher for livestock management. There is one access road that follows the creek a short distance near the upper end of the segment (Forest Service lands). As noted elsewhere, Bad Canyon Creek supports a population of Yellowstone Cutthroat Trout (YCT) (*Oncorhynchus clarkii bouvieri*) that has been designated a "core population" by the Interstate YCT Coordination Team. A core population is one that exhibits no hybridization and is essentially a genetically pure strain. These pure strain YCT are very valuable in that they can be used to enhance other YCT populations or establish new populations in suitable waters.

These fish values are recognized nationally by the fisheries community. The ecological and sociological impact of losing a pure strain species is significant in itself. YCT are also listed as a Species of Concern by the MFWP and a federally sensitive species by the BLM and U.S. Forest Service (USFS). The BLM, MFWP and USFS reinforced a significant natural barrier to upstream migration of non-native species in 2003. This barrier is located approximately five miles upstream from the lower BLM boundary; therefore most of the segment is not safe from the potential for non-native hybridization. Access to the canyon is difficult resulting in little impact from adjacent land uses. High canyon walls, rock armoring and limited access combine to provide excellent fish habitat and a setting that is primitive in nature. The presence of the core population of YCT in Bad Canyon Creek combined with the isolated, primitive setting of the canyon meets the criteria of an outstandingly remarkable value. Based on these considerations the river segment was found to be eligible and assigned a classification of Scenic.

In the Suitability phase, the river segment was found not to be suitable for management since the YCT core population could be further enhanced and protected under existing cooperative efforts with or without inclusion in the NWSRS. Potential opportunities were also found to exist to acquire additional lands or easements around this segment, with or without inclusion in the NWSRS. It was also found that Bureau of Land Management would have sole responsibility for this segment – no other entity indicated interest in joint management. Costs of administration would be minimal, however. The BLM determination was also that it is able to manage its lands along the segment for the protection of identified river-related values through its RMP prescriptions. In the RMP a Class II VRM classification was proposed which would protect the scenic and geologic values along the segment, however, the final RMP decision was to establish a VRM Class III, which would allow for development activities. This classification would not limit development but would provide limited visual protection measures through project design mitigation. The final decision was to implement these RMP prescriptions.

### *Lands with Wilderness Characteristics*

BLM's obligation is to maintain wilderness resource inventories on a regular and continuing basis for the public lands under its jurisdiction. Accordingly, the BLM Billings Field Office conducted new wilderness inventories as a component of its preparation of its new Resource Management Plan. Agency guidance further directs the BLM to protect wilderness characteristics which have been found in the inventory through land use planning and project-level decisions unless the BLM determines that impairment of wilderness characteristics is appropriate and consistent with other applicable requirements of law and other resource management considerations.

Wilderness characteristics are defined in Section 2(c) of the Wilderness Act as size, naturalness, and outstanding solitude or primitive recreation, and may include other supplemental values, such as ecological, geological or other features of scientific, educational, scenic, or historical value. The following is a brief discussion of the findings for the Bad Canyon Unit:

The unit is bordered by private lands on all sides except the west, which are National Forest lands of the Custer National Forest. These lands are not recommended by the Forest Service for designation as a Wilderness Area. The lands in the unit are less than the minimum size criteria (approximately 2,036 acres), and although the unit is configured in a long and relatively narrow shape which by itself may not usually lend itself to wilderness management, in this case it was determined that the canyon within the unit could be managed by itself, or the entire unit including the canyon and some other uplands along private/public land boundaries. A final decision by the Interdisciplinary team set the unit boundary as the public/private land.

The riparian corridor is in a natural condition, with few invasive species present. A portion of the river segment has had a natural barrier slightly modified for protection of natural resources (fish Species) but this was found to be substantially un-noticeable.

Bad Creek contains a stable population of Yellowstone Cut-throat trout, which is a native species, listed as endangered, and is a supplemental feature for the unit. The lands are important habitat for Grizzly Bear, also a supplemental feature. As well, the riparian corridor serves as an important wildlife migration corridor.

The trout, and the natural scenery, attract an unknown number of casual recreationists, mostly from the local communities, but the location is advertised as a destination in several publications regionally. There are no known commercial, competitive or organized recreation operators. All recreational use is primitive in nature. The surrounding private lands have strictly restricted access as well.

A portion of the unit was previously burned in a wild fire, but is naturally rehabbing. Evidence of fire suppression activities is minimal.

There is abandoned motorized vehicle route which enters the unit from the west across Forest lands. It is naturally rehabbing and is not open for use and has not been for some time. This route has been designated by BLM as non-motorized trail. There is one vehicle route which accesses the lands from the south. It is maintained only by the passage of vehicles and is not open to general use across private lands. This route has received only occasional use related to grazing in the past.

In summary, the area has significant supplemental features of geological, riparian, wildlife, and scenery resources which provide an outstanding level of primitive recreation attractions and experiences. The opportunity for this kind of recreation is further enhanced by the administrative

lack of motorized access across the private lands. Opportunity for solitude is high since the expectation of meeting other people is low.

### 3.3.5.2 Impacts

#### **Alternative A – No Action**

Under the no action alternative, there would be no effect to visual resources, recreation, wild and scenic rivers or lands with wilderness characteristics in the Project Area.

#### **Alternative B – Proposed Action**

##### ***Visual Management***

The need for a reference point on Bad Canyon Creek in the visual resource analysis for the project was recognized early, as that is where most visitors would be expected. The river corridor is remote and has difficult accessibility, but it was also selected as a viewpoint because it had significant scenic values identified in both the Wild and Scenic River Review and the Lands with Wilderness Characteristic Inventory. Although the lands are not managed as either “Wild Lands” or as “Suitable” for possible Wild and Scenic River designation in the new RMP, the scenic value of the existing landscape is recognized, documented, and any possible impacts from the project are considered to be highly sensitive.

Preliminary engineering was conducted to determine the likely structure locations. A “visual influence” viewshed analysis was run from the structures using the preliminary engineered heights to a viewer height of six feet. This analysis showed the area within the Bad Canyon Creek public lands parcel that would be affected by the proposed structures within each distance zone (foreground, middle ground, and background, see Figure 3-7).

In this Alternative, the project would have some visual impacts. The poles themselves would be visible from a number of different vantage points, but have similar linear features as other natural features found in the landscape (dead tree trunks for example). These poles would have the highest visual impact when viewed from below and looking up and along the skyline and from a relatively close proximity. Impacts would be reduced greatly by distance and topography, especially from a viewpoint in the canyon bottom at any medium distance above or below the line crossing. The lines from the poles would have a visual impact as well, since they do not have any natural features which have the same linear character. This visual impact may be higher than the poles, but are somewhat mitigated by measures incorporated in the project design. Any casual observer would notice these linear features, especially against the backdrop of sky, and the visual impact would increase with proximity to the lines.

The contrast in the landscape element of form would not be great, since the shape and mass of landforms and the structures are similar. The element of line contrast would result from the introduction of new bands (the power lines) and their orientation to the landscape. The element of color would not be great and tends to be reduced with distance. The element of texture would be reduced through distance. Directional patterns might affect the contrast but have mitigation measures already specified to reduce them.

In summary, the degree of the contrasts on natural landscape features would be moderate, with the project attracting attention and depending on a casual viewer’s location, may begin to dominate the landscape. These would not exceed the management objectives for the VRM Class III.

### ***Recreation and Recreation Areas***

The temporary presence and noise of people, helicopter, and equipment required for construction of the Project could temporarily reduce opportunities for solitude in the Bad Canyon Unit. These visual and audible intrusions could temporarily interfere with visitor seclusion and isolation, though the degree of impact would vary with each individual visitor. The impact to solitude would be temporary and occur only during the construction activities. Temporary closure of parts of the area could also occur in order to ensure the safety of visitors during construction.

### ***Wild and Scenic Rivers***

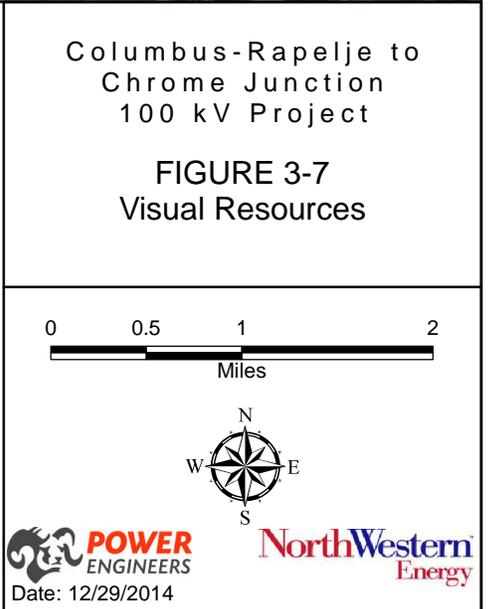
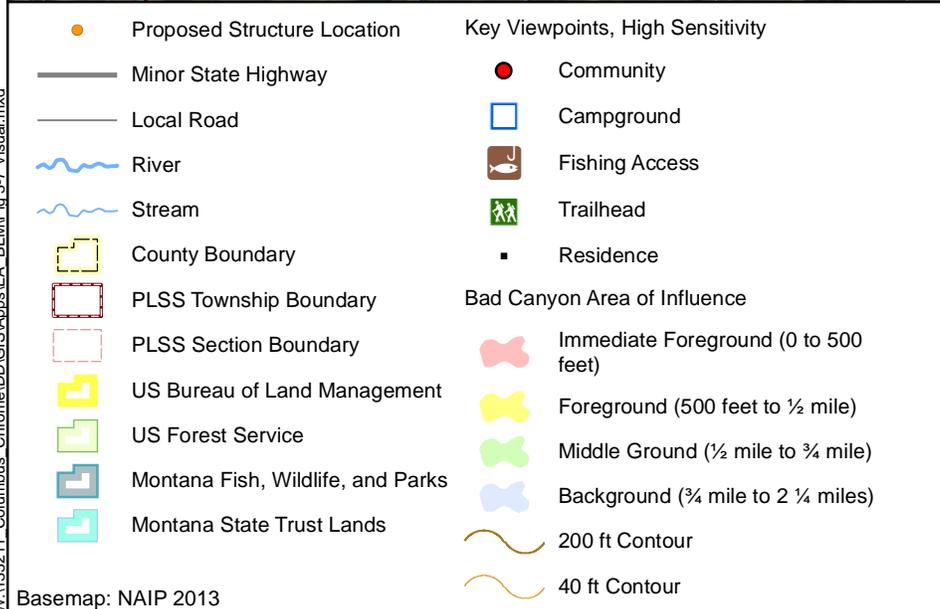
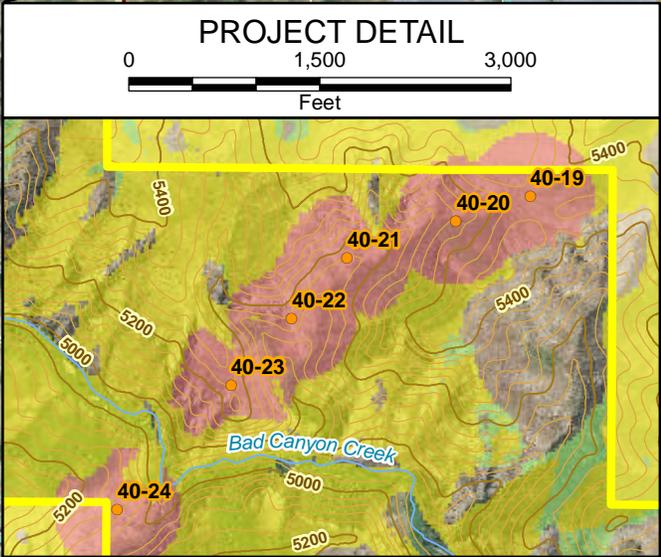
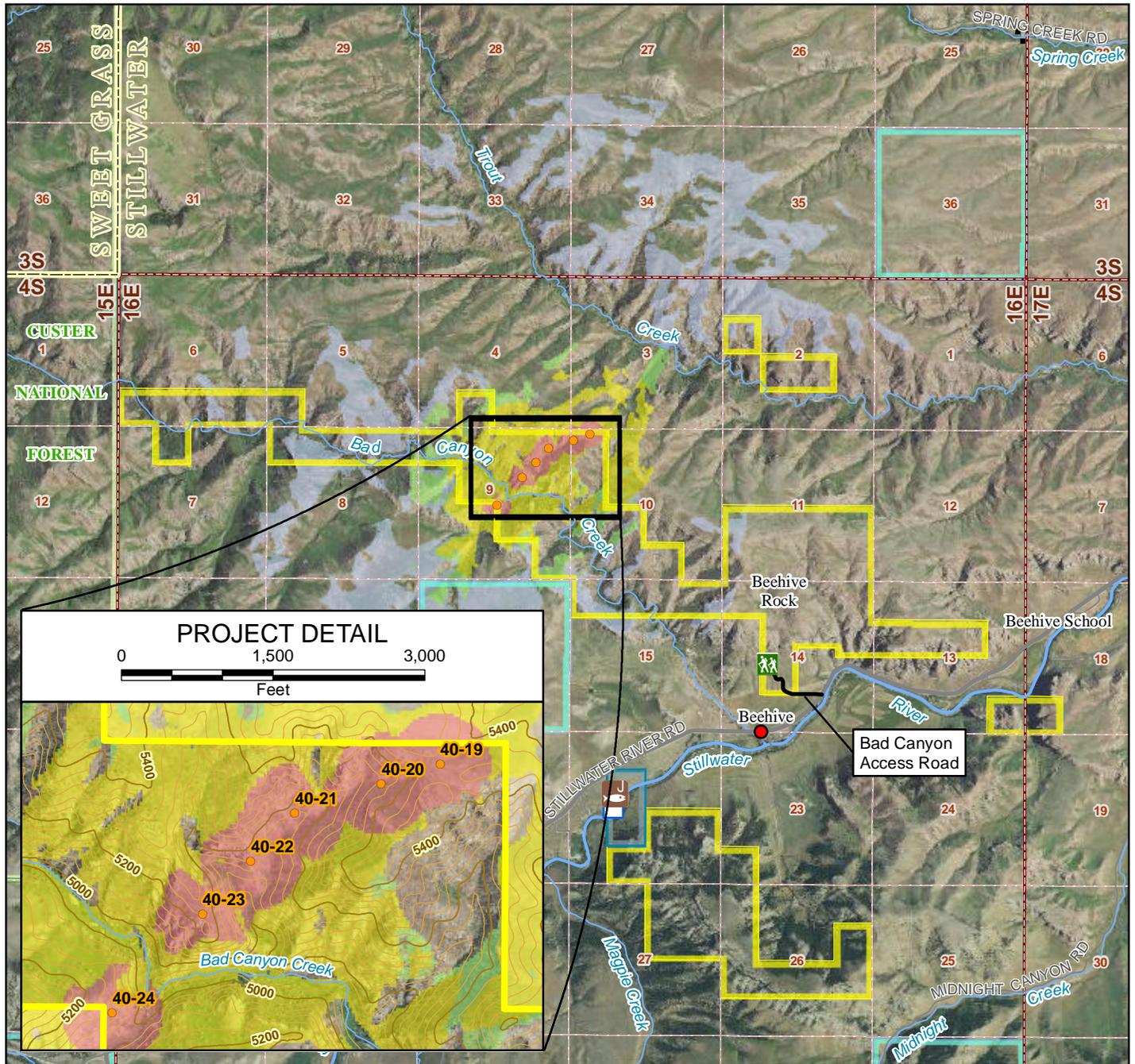
Under the action alternative, there would be no effect to the Wild and Scenic River Segment found to be either eligible or Suitable in the Project Area since the final determination of the Wild and Scenic River review process is that the Bad Canyon river segment is not suitable for possible designation. The potential impact to the individual river segment ORVs would be addressed through those specific Resource Sections.

### ***Lands with Wilderness Characteristics***

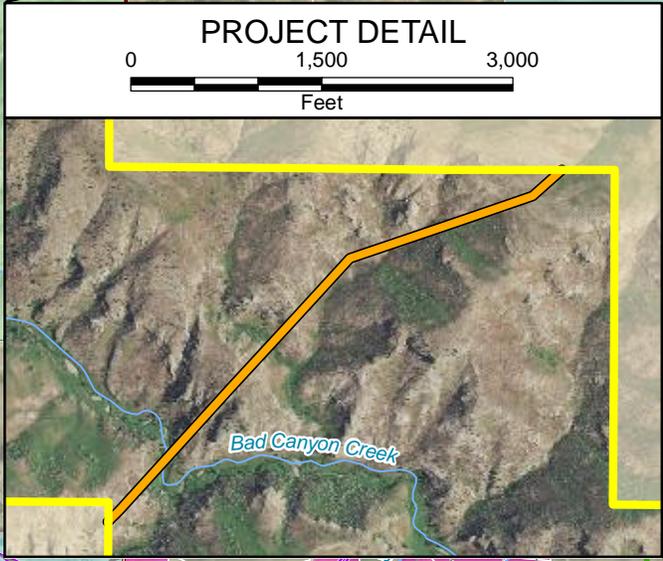
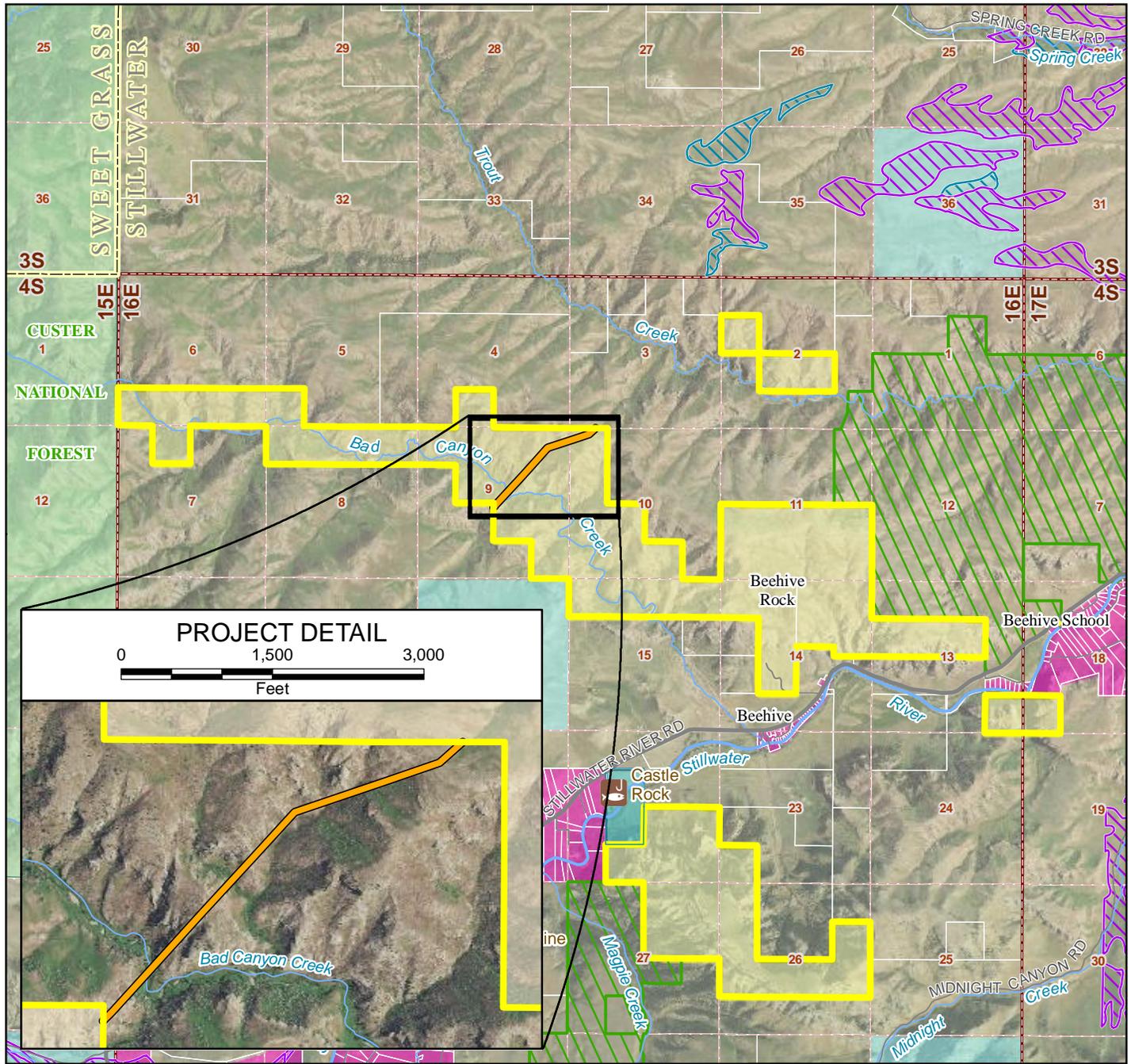
Surface disturbance associated with construction of the transmission line on BLM managed public lands would temporarily degrade the natural characteristics of the Bad Canyon Unit, although these impacts would recede in time. The vegetative and topographical screening provide for solitude in this area. However, at this time the vegetation screening has been largely reduced due to the Derby wildfire of 2006. The topographical screening is still present and largely would not be adversely affected since the actual footprint of construction is minimal in scale with the canyon.

The temporary presence and noise of people, helicopter, and equipment required for construction of the Project could temporarily reduce opportunities for solitude in the Bad Canyon Unit. These visual and audible intrusions could temporarily interfere with visitor sense of seclusion and isolation. The impact to solitude would be temporary and occur only during the construction activities. Temporary closure of parts of the area could also occur in order to ensure the safety of visitors during construction and this would completely eliminate the primitive recreational opportunities for that time period.

Mitigation measures specific to land use that would reduce impacts to the Bad Canyon Unit are included in Section 2.2. Specifically Recommended Mitigation Measure LU-1 would eliminate the need for new access roads while Specifically Recommended Mitigation Measure LU-3 would minimize sensitive feature disturbance and/or reduce visual contrast in designated areas. Noise and worker presence would cease with completion of construction. Land Use mitigation measures LU-2 and LU-4 would reduce visual ground disturbance impacts to land use resources. Immediate foreground and background views of the transmission line would occur from Bad Canyon Creek and this would adversely affect an individual's perception of the naturalness of the unit.



W:\133211 Columbus\_Chrome-DD\GIS\Apps\EA\_BLM\Fig 3-7\_Visual.mxd



- Project Centerline
- Fishing Access Point
- Subdivided Lands
- Property Boundary
- Minor State Highway
- Local Road
- River
- Stream
- Farmland of Statewide Importance
- Unique Prime Farmland
- US Bureau of Land Management
- US Forest Service
- Montana Fish, Wildlife, and Parks
- Montana State Trust Lands
- County Government
- Conservation Easement
- County Boundary
- PLSS Township Boundary
- PLSS Section Boundary

Columbus-Rapelje to Chrome Junction 100 kV Project

FIGURE 3-8 LAND USE



**POWER ENGINEERS**  
Date: 12/24/2014

**NorthWestern Energy**

### 3.3.6 Socioeconomics

#### 3.3.6.1 Affected Environment:

##### ***History and Population***

Bad Canyon is located in Stillwater County in south-central Montana. Stillwater County has had positive growth since the 1980s. The County Seat of Columbus had a year 2010 population of 1,893, while the County's population was 9,117 (United States Bureau of the Census 2010). The closest community to Bad Canyon is Nye, Montana, an unincorporated community with an estimated population of 272 in 2010 (United States Bureau of the Census 2010). Nye is located approximately 5.0 miles southwest of Bad Canyon. The Nye area originally attracted settlers due to mining (copper).

##### ***Housing***

The housing market in Stillwater County area exhibits a moderate degree of tightness. In the year 2000, 18 percent (713 units) of its available housing units were vacant, according to the United States Bureau of the Census. However, when considering seasonal, recreational, or occasional use, the net vacancy rate was 6.0 percent (vacancy rates under 5.0 percent indicate some housing market tightness). Vacancy rates for owner units and renter units were 2.7 and 8.7 percent, respectively, in Stillwater County. In respect to Bad Canyon, housing availability is very limited within the communities of Nye, Beehive, and Dean, the closest areas to Bad Canyon. Housing is more available in the larger communities of Fishtail and Absarokee.

##### ***Employment and Economy***

Stillwater County has a relatively large, diverse, and historically rapidly growing economy. County employment has grown on average every year since 1990. In January 2014, the county unemployment rate was 4.4 percent compared to the statewide rate of 5.4 percent and a national rate of 6.6 percent (Montana Department of Labor and Industry 2014).

The Stillwater County economy is based primarily on agriculture and mining. Agricultural, forestry, fisheries, hunting, and mining accounted for about 22.2 percent of total county employment in the year 2012; this is almost three-times the state average of 8.2 percent. Private employment accounts for approximately 76.6 percent of the County employment. Agricultural, forestry, fisheries, hunting, mining, educational services, health care, and social assistance are the largest private sectors in Stillwater County.

The largest employer/closest industrial operation to Bad Canyon is the Stillwater Mine that focuses on platinum group metals and employs approximately 950 people.

##### ***Public Services***

The relevant services are police and fire protection, emergency medical, and hazardous waste response. In Stillwater County, the relevant police department for the Bad Canyon area is the Stillwater County Sheriff's Department. The County Sheriff's Department employs seven full-time officers.

The Stillwater County Disaster and Emergency Services is the primary responder to any hazardous spills within the county. They respond to hazardous materials requests by police

departments or fire districts having jurisdiction in the location of any events. The Department also performs notifications as appropriate to the MDEQ and/or the Montana Department of Disaster and Emergency Services.

The Stillwater County fire district that covers the Bad Canyon area is Absarokee/Nye. BLM and the Custer National Forest would also have wildland fire resources. Emergency medical services in the area are provided by the fire and police personnel.

### 3.3.6.2 Impacts

#### **Alternative A – No Action:**

Under the no action alternative, there would be no effect to socioeconomics in the Project Area.

#### **Alternative B – Proposed Action:**

The portion of the Proposed Action that occurs on BLM within Bad Canyon includes a 0.88-mile stretch of the transmission line where six transmission structures would be installed. These structures would be transported to the specific locations via helicopter and/or rubber tired vehicles, and crews would hand dig the holes and/or utilize rubber tire equipment. Socioeconomic impacts associated with construction of the Project within Bad Canyon would be minimal. Workers' local spending and construction procurements would be beneficial to the local and state economy.

#### ***History and Population***

Increases in employment in an area generally lead to increases in population, as some of those who take jobs associated with a project move to the area. As noted, the direct Project construction work force would be likely to be drawn from both within and outside the Project Area; however, those who relocate would unlikely to bring dependents. Some very minimal immigration of persons and dependents would be likely to occur even as a result of short-term construction. No significant increases to population would be anticipated to result from the Bad Canyon Project-related construction activities.

#### ***Housing***

The supply of rental and for-sale units in the general vicinity of Bad Canyon is very limited. However, workers on short-term construction projects who relocate to the area are most likely to choose transient accommodations such as hotel/motel rooms or RV parks.

Direct socioeconomic impacts could primarily take the form of increases in demand for transient accommodations from non-local workers recruited to work on the Proposed Action. This might be regarded as a cost in the sense that they could overload available space or displace customary users of motels and campgrounds near the Proposed Action.

After completion of construction, transmission line operations and maintenance activities would have essentially no socioeconomic effects on the area. Personnel requirements would be negligible, and would place no extra burden on housing or other infrastructure and services.

### ***Employment and Economy***

Construction of the Bad Canyon portion of the Project would be anticipated to take one week to complete. Temporary increases in workers' local consumer goods purchases and contractors' procurements of construction supplies would be the principal economic benefits of the construction phase accruing to the local economy. Providers of transient accommodations, eating and drinking places, automotive services, construction materials vendors (e.g., sand and gravel, concrete, lumber), and equipment leasing establishments in communities near the Proposed Action would be the primary beneficiaries. The benefits would be short-term.

### ***Public Services***

Due to the low level of population change associated with the Project (and proposed construction in Bad Canyon), no significant impacts on public services such as sewer, water, schools, police, or fire would be expected. The most direct potential demands would likely be, if they occur, incidents of fire, worker accidents at the site, oil or hazardous materials events, or, potentially, construction materials theft and vandalism. Such events would be highly unlikely to occur.

Stillwater County has emergency response teams and procedures in place that would cover the Bad Canyon area. Similarly, the Proposed Action Area is under the jurisdiction of BLM initial attack for fire and the Sheriff Departments of Stillwater County, as well as for emergency medical services should such needs arise. Furthermore, on-site procedures would be in place to provide BMPs for the health and safety of workers.

### ***3.3.7 Cultural Resources***

#### ***3.3.7.1 Affected Environment***

A Class I inventory of lands within the Project Area was completed to gather data on previously recorded cultural resources and past cultural resource surveys. The Class I inventory included Bad Canyon.

Data sources for the Class I inventory were:

- A record search by the Montana Historical Society (MHS), including:
  - *Cultural Resource Annotated Bibliography System (CRABS)*, a list of cultural resource surveys.
  - *Cultural Resource Information System (CRIS)*, a database of cultural resources within the Project Area.
  - CRIS forms all archaeological and architectural resources found within one mile of the center line.
- The on-line NPS Focus database of National Register of Historic Places (National Register)-listed properties in Stillwater County.
- The on-line list of National Historic Landmarks in Stillwater County available from the NPS.

The Class I inventory identified two previously recorded cultural resources within the Bad Canyon Unit. Site 24ST0098 is a prehistoric site, a single stone circle and a single stone cairn and is located 1.34 miles from the Project Area. Site 24ST0230 is a prehistoric/historic site, a small lithic scatter; early twentieth century line camp and is located 0.9 mile from the Project Area. No

impacts to either of these sites in the Bad Canyon Unit would be anticipated as a result of the implementing the Proposed Action.

Tetra Tech, Inc. completed a Class III Cultural Resource Inventory of the 0.88-mile Bad Canyon ROW crossing on BLM managed public land and an additional 0.25 mile northeast and southwest of BLM managed public land along the transmission line route for a total length of 1.38 miles (Tetra Tech, Inc. 2014). As part of this inventory, the Montana SHPO CRIS/ CRABS database were searched for sites within 0.5 mile of the Bad Canyon crossing. The on-site field review was completed on September 9, 2014 and no cultural resources were identified during the pedestrian inventory of the transmission corridor (Tetra Tech, Inc. 2014). Additionally, no previously recorded sites were identified through the CRIS/CRABS database searches within 0.5 mile of the ROW.

### 3.3.7.2 Impacts

#### **Alternative A – No Action**

Under the no action alternative, there would be no effect to cultural resources in the Project Area.

#### **Alternative B – Proposed Action**

As Project-related impacts would be limited to the installation of six transmission structures in the ROW crossing of Bad Canyon, no impacts to either of cultural sites identified through the Class I Inventory would result from the implementation of the Proposed Action.

Additionally, as no cultural resources were identified during the September 2014 Class III Cultural Resource Inventory completed by Tetra Tech, Inc. of the Bad Canyon ROW, there would be no effect to cultural resources in the Project Area.

Should cultural resources be located during construction of the proposed project, construction would stop and the BLM authorized officer would be notified.

### 3.3.8 Soils

#### 3.3.8.1 Affected Environment

According to NRCS data, three soil map units correspond to the Project ROW within the BLM-administered Bad Canyon area (Figure 3-9). The soil map units include: Absarokee-Sinnigam complex, 15 to 50 percent slopes (5); Hilger-Castner-Rock outcrop complex, 25 to 60 percent slopes (28); and Winkler-Hilger-Rock outcrop association, steep (64). The following table (Table 3-4) describes physical soil characteristics that would influence soil resources within Bad Canyon.

#### ***Drainage Class***

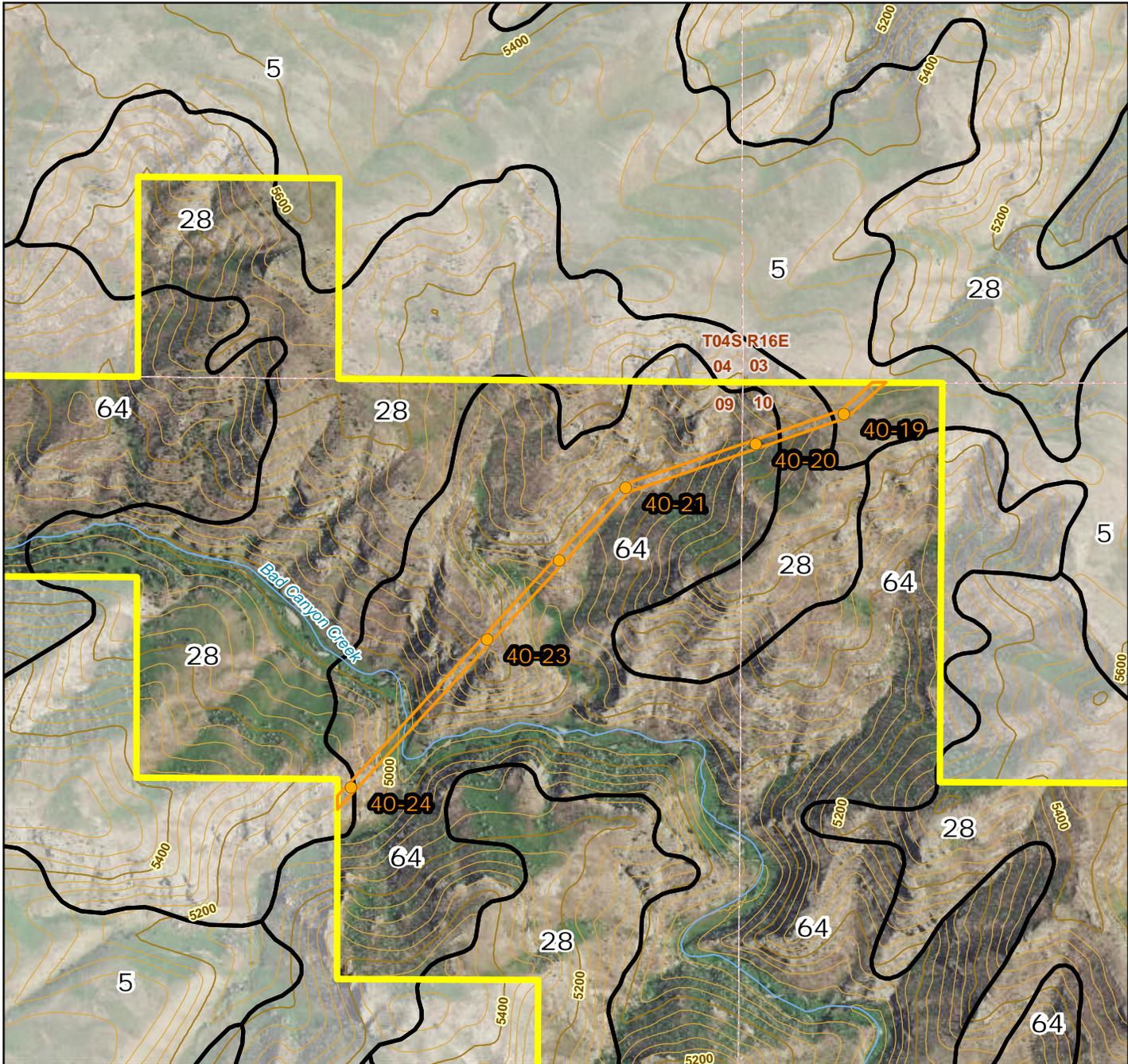
The drainage class rating characterizes the natural drainage capability of each soil map unit as rated by the NRCS. The ratings consider factors such as the degree, frequency, and duration of saturation of each map unit based on its landscape position and soil morphology. Drainage class ratings provide a guide to the limitations and potentials for various land uses.

### ***Hydric Rating***

The NRCS maintains and annually updates a list of hydric soils for the United States. Hydric soils are formed under conditions of saturation, flooding, or ponding for long enough during the growing season to develop anaerobic conditions in the upper part of the soil (NRCS 2014). The hydric soils list is organized in such a way that while it identifies which soil map units have hydric elements, this determination is only made as a percentage of the estimated size of the entire map unit; therefore, even though a soil map unit is identified in the list of hydric soils, a large percentage of the map unit may not actually be hydric.

### ***Range Production***

Total range production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the natural plant community including all vegetation whether or not it is palatable to grazing animals. The values are expressed in pounds per acre of air-dry vegetation with normal, average growing conditions. The higher the rating, the more vegetative growth is expected.



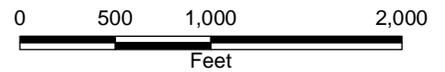
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- Proposed Structure Location
- ▭ Proposed Project Right of Way
- ⊕ US Bureau of Land Management Boundary
- ⊖ Soil Unit Boundary NRCS SSURGO 2014
- ▭ PLSS Section Boundary
- ~ Stream
- ~ 200 ft Contour
- ~ 40 ft Contour

Columbus-Rapelje to  
Chrome Junction  
100 kV Project

**FIGURE 3-9  
SOILS**

Map Unit Symbol	Map Unit Name
5	Absarokee-Sinnigam complex, 15 to 50 percent slopes
28	Hilger-Castner-Rock outcrop complex, 25 to 60 percent slopes
64	Winkler-Hilger-Rock outcrop association, steep



**POWER ENGINEERS**  
Date: 12/1/2014

**NorthWestern Energy**

Basemap: NAIP 2013

***Erodibility***

Soil erosion is the wearing away of physical soil properties by wind and water, and can be influenced by natural and artificial factors. Erosion causes loss in soil structure, organic matter, and nutrients, all of which contribute to healthy plant growth and ecosystem stability.

Water erosion is quantified by the NRCS using the erosion factor K, which indicates the susceptibility of a soil to sheet and rill erosion by water, expressed in tons per acre per year (tons/acre/year) that can be expected to be lost. A soil’s K factor is determined by the percentage of sand, silt, and clay, and the hydrologic factors that influence the area. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water (NRCS 2014).

The NRCS quantifies wind erosion through the wind erodibility index factor. The index factor indicates the susceptibility of a soil to wind erosion, expressed in tons/acre/year that can be expected to be lost (NRCS 2014). The index factor is calculated similarly to the K factor, but surface soil layers, soil moisture, and plant growth also contribute.

***Prime or Unique Farmland***

Farmland classifications identify soil map units as prime farmland, unique farmland, and farmland of statewide importance. Soils classified as prime farmland are those that have the “best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses” (7 CFR Part 657.5[a]). Unique farmland is “land other than prime farmland that is used for the production of specific high value food and fiber crops” (7 CFR Part 657.5[b]). Farmland of statewide importance is land that is “nearly prime farmland and that economically [produces] high yields of crops when treated and managed according to acceptable farming methods” (7 CFR Part 657.5[c]). In addition, land capability classifications describe the ability of soils to produce common cultivated crops and pasture plants without deteriorating over extended periods.

**TABLE 3-3 SOIL MAP UNIT PHYSICAL CHARACTERISTICS**

SOIL MAP UNIT	DRAINAGE CLASS	HYDRIC SOIL	RANGE PRODUCTION	HYDRIC SOIL	ERODIBILITY		PRIME OR UNIQUE FARMLAND	ACREAGE WITHIN THE PROJECT AREA
					Wind	Water		
Absarokee-Sinnigam complex, 15 to 50 percent slopes (5)	Well Drained	No	1510	No	48	.17	No	0.53
Hilger-Castner-Rock outcrop complex, 25 to 60 percent slopes (28)	Well Drained	No	1405	No	56	.05	No	0.73
Winkler-Hilger-Rock outcrop association, steep (64)	Somewhat Excessively Drained	No	360	No	56	.10	No	5.12

Soil map units 5, and 28 are characterized as well drained soils and soil map unit 64 is somewhat excessively drained. None of the soil map units are characterized by NRCS as hydric or containing hydric soil components. The rangeland production rating is moderate/high for soil map units 5 and 28 and low for soil map unit 64. Wind and water erodibility ratings are low/moderate for wind and low for water erosion. None of the soil map units are characterized as prime or unique farmland.

### 3.3.8.2 Impacts

#### **Alternative A – No Action**

Under the no action alternative, there would be no effect to the soils in the Project Area.

#### **Alternative B – Proposed Action**

As previously stated, approximately 0.018 acre of vegetation and associated soils would be permanently impacted as a result of the installation of the six transmission structures within the Bad Canyon Unit. Soil removed from foundation holes would be stockpiled on the work area and used to backfill holes. All remaining soil not needed for backfilling would be spread on the work area and revegetated (seeded) or removed from the site. Approximately 0.003 acre of permanent impact would occur on each of the soil map units 5 and 28 (one structure placed within each soil map unit); approximately 0.012 acre of permanent impact would occur on soil map unit 64 (four structures placed within this soil map unit). Physical soil characteristics of the impacted soil map units (range production) indicate that revegetation in the small disturbed areas would be successful if determined necessary after backfilling the structure holes.

### 3.4 MONITORING AND/OR COMPLIANCE

The following includes monitoring that would occur prior to, during, and following construction within the Bad Canyon area.

- Prior to construction of the project, a site-specific wetland delineation would be completed to identify any wetlands or waterways that would be impacted by the placement of a transmission line structure, lay down area, or work area. These locations would be marked and avoided to the greatest extent practicable. If avoidance of these areas is not feasible, the appropriate permits would be secured through applicable government agencies.
- Weeds would be monitored and controlled prior to, during, and following construction of the Project.
- Prior to the installation of the transmission line and structures in Bad Canyon, a raptor survey would be completed within a 0.5-mile radius of the Project ROW. If raptor nests are identified, construction would be postponed until after the nesting season for the species observed.
- As part of the Project SWPPP an environmental monitor would be present throughout the construction process to ensure that stormwater erosion and sediment controls are functioning properly, no sediment-laden water was entering a water of the state, and to ensure other resources (sage-grouse, etc.) are not present within Bad Canyon and could potentially be impacted.

### 3.5 CUMULATIVE IMPACTS ANALYSIS

“Cumulative impacts” are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

#### 3.5.1 *Past and Present Actions*

Past or ongoing actions that affect the same components of the environment as the Proposed Action are:

No other actions and activities are in place or ongoing that would affect the same environmental resources in Bad Canyon.

#### 3.5.2 *Reasonably Foreseeable Action Scenario*

The following Reasonably Foreseeable Action Scenario (RFAS) identifies reasonably foreseeable future actions that would cumulatively affect the same resources in the cumulative impact area as the Proposed Action and alternatives.

No additional RFAS are anticipated in Bad Canyon.

#### 3.5.3 *Cumulative Impacts*

Cumulative impacts would be negligible as a result of the Proposed Action or No Action Alternatives because permanent impacts to Bad Canyon would be minor and no future actions are planned in Bad Canyon. No major impacts to fish and wildlife would be anticipated; impacts to Bad Canyon Creek and its associated riparian area/wetlands would not be impacted as the canyon would be spanned with the transmission line. The Project would not interfere with Bad Canyon Creek’s free flowing condition as construction would not physically alter the stream bed or banks (impacted the EWSR status). The Project would not impact the population of native Yellowstone cutthroat trout which is a supplemental EWSR feature for the unit. Bad Canyon would still retain naturalness, outstanding opportunities for solitude, and other values that contribute to the wilderness characteristics. The Project would not significantly impact Visual, Land Use, Socioeconomic, and Soil resources. Additionally, no impacts to cultural resources would result from the Project.

## 4.0 CONSULTATION AND COORDINATION

### 4.1 PERSONS, GROUPS, AND AGENCIES CONSULTED

BLM has contacted various agencies and stakeholders concerning the Proposed Project. Table 4-1 summarizes BLM’s consultation and coordination with agencies and stakeholders.

**TABLE 4-1 LIST OF ALL PERSONS, AGENCIES AND ORGANIZATIONS CONTACTED/CONSULTED FOR PURPOSES OF THIS EA**

NAME	PURPOSE
Montana Fish Wildlife and Parks	Comment on Preliminary EA
Montana State Historic Preservation Office	Consultation, Comment on Preliminary EA
Crow Tribe	Consultation, Comment on Preliminary EA
US Forest Service	Comment on Preliminary EA
Montana Department Of Natural Resources and Conservation	Comment on Preliminary EA
Stillwater County Commissioners	Comment on Preliminary EA
Adjacent Landowners	Comment on Preliminary EA
	Comment on Preliminary EA
Stillwater Valley Watershed Council	Comment on Preliminary EA
Stillwater Protective Association	Comment on Preliminary EA
Stillwater County Weed District	Comment on Preliminary EA
Stillwater Mining Company	Comment on Preliminary EA

**4.2 SUMMARY OF PUBLIC PARTICIPATION**

NWE completed an initial siting study in 2010 to determine reasonable and feasible route alternatives for the Project. NWE then began a stakeholder outreach process to gain input from key stakeholders and landowners regarding the Project. NWE updated its initial siting study in 2012 with additional and refined route alternatives based on the results of this outreach process. NWE continues to maintain an active stakeholder outreach process that includes area landowners, federal, state, local government officials, and non-governmental organizations (NGOs).

NWE provided public notice on January 31, 2013 and a second public notice on July 17, 2013 in local and regional newspapers (pursuant to Montana Code Annotated [MCA], MFSA requirements) that described the Proposed Action and announced NWE’s intent to pursue the 75/75 exemption under MFSA. The notices also allowed the public and interested parties to send comments and concerns to NWE and MDEQ related to MFSA. No comments or concerns were submitted.

On **XX, XX, 2015**, the Preliminary EA and an unsigned FONSI statement were mailed with a cover letter to the parties shown in Table 4-1 above. The cover letter specified that the BLM was requesting comments on the Preliminary EA.

4.3 LIST OF PREPARERS:

**TABLE 4.3.1 BLM PREPARERS**

NAME	TITLE	RESPONSIBLE FOR THE FOLLOWING SECTION(S) OF THIS DOCUMENT
Jim Sparks	Field Manager	Project Manager
Craig Drake	Assistant Field Manager	NEPA
John Carroll	Realty Specialist	Land Use
Jayson Parks	Wildlife Biologist	Wildlife
Jennifer Macy	Archeologist	Cultural Resources
Larry Padden	Natural Resource Spec.	Noxious and Invasive Plants
Tim Finger	Recreation Planner	Lands with Wilderness Characteristics, Visual, Wild and Scenic Rivers, Recreation
Dustin Crowe	Rangeland Mgt. Specialist	Vegetation, Soils
Carolyn Sherve-Bybee	RMP Team Leader	Reviewer
Ernie McKenzie	Wildlife Biologist	Fisheries, Riparian

**TABLE 4.3.2 NON-BLM PREPARERS**

NAME/AFFILIATION (IF ANY)	TITLE	RESPONSIBLE FOR THE FOLLOWING SECTION(S) OF THIS DOCUMENT
Dave Dean	Project Manager	Project Manager
Erik Nyquist	Senior Biologist	Water, soils, vegetation, wildlife
Darrin Gilbert	Visual Resource Specialist	Visual, land use
Mark Schaeffer	Land Use Specialist	Land Use, Socioeconomics
Jim Rudolph	Archeologist	Cultural Resources
Austin Streetman	GIS Analyst	GIS analysis, cartographic production
Heidi Horner	Technical Editor	Document Production
Patsy Friend	Word Processor	Document Production
Mary Gail Sullivan	Environmental Manager	NorthWestern Energy-Project Proponent
Tom Pankratz	Project Manager	NorthWestern Energy-Project Proponent
Sam Milodragovich	Wildlife Biologist	NorthWestern Energy-Project Proponent
Sady Babcock	Environmental Permitting	NorthWestern Energy-Project Proponent

## 5.0 REFERENCES AND ACRONYMS

### 5.1 LIST OF REFERENCES USED IN THIS EA:

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## 5.2 LIST OF ACRONYMS USED IN THIS EA

°C	Celsius
°F	degrees Fahrenheit
AC	alternating current
ACEC	Area of Critical Environmental Concern
APLIC	Avian Power Line Interaction Committee
BLM	Bureau of Land Management
BMPs	best management practices
CFR	Code of Federal Regulations
CRABS	Cultural Resource Annotated Bibliography System
CRIS	Cultural Resource Information System
CRP	Conservation Reserve Program
CS-ETIP	Carbon-Stillwater Electric Transmission Infrastructure Project
CWA	Federal Clean Water Act
DNRC	Department of Natural Resources and Conservation
DR	Decision Record
DRMP	Draft Resource Management Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
ER	Environmental Review
ESA	Endangered Species Act of 1973
EWSR	Eligible Wild and Scenic River
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GIS	geographic information system
kV	kilovolt
LRUs	land resource units
MDEQ	Montana Department of Environmental Quality
MDT	Montana Department of Transportation
MFISH	Montana Fisheries Information System
MFSA	Major Facility Siting Act
MFWP	Montana Fish, Wildlife and Parks
MHS	Montana Historical Society
MLRAs	Major Land Resource Areas
MNHP	Montana Natural Heritage Program
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NERC	North American Electrical Reliability Corporation
NESC	National Electrical Safety Code
NGOs	non-governmental organizations
NHD	National Hydrography Database
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRI	National Rivers Inventory
NRIS	Natural Resource Information System
NWE	NorthWestern Energy
NWI	National Wetland Inventory
OPGW	optic ground wire

Plans	Resource Protection Framework Plans
Project	Columbus Rapelje – Chrome Junction 100 kV Transmission Line Project
RFAS	Reasonably Foreseeable Action Scenario
RMP	Resource Management Plan
ROW	right-of-way
SH	State Highway
SHPO	State Historic Preservation Society
SWPPP	Stormwater Pollution Prevention Plan
T&E	threatened and endangered
TMDL	Total Maximum Daily Load
TRANSAC	Transmission Advisory Committee
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VRM	Visual Resource Management
WECC	Western Electricity Coordinating Council
WIU	Wilderness Inventory Unit
WSR	Wild and Scenic River
WSS	Web Soil Survey