Environmental Assessment for Public Review
DOE/EA-1617
Lovell-Yellowtail and Basin-Lovell
Transmission Line Rebuild Project

Big Horn County, Wyoming and Big Horn and Carbon Counties, Montana

U.S. Department of Energy
Western Area Power Administration
Rocky Mountain Region
Loveland, Colorado

Cooperating Agencies:
U.S. Department of the Interior, National Park Service
Montana Department of Environmental Quality

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List of Acronyms

ACEC	Area of Critical Environmental Concern
ACSR	aluminum conductor steel reinforced
ACSS	aluminum conductor steel supported
APLIC	Avian Power Line Interaction Committee
ARPA	Archeological Resource Protection Act
BA-LV	Basin-Lovell
BCC	Birds of Conservation Concern
BIA	Bureau of Indian Affairs
Bighorn Canyon NRA	Bighorn Canyon National Recreation Area
BLM	Bureau of Land Management
BMP	best management practice
BOR	Bureau of Reclamation
CAA	Clean Air Act
CDOW	Colorado Division of Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOD	Department of Defense
DOE	Department of Energy
EA	Environmental Assessment
ELF EMF	extremely low frequency electric and magnetic field
EMF	electric and magnetic field
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
kcmil	thousand circular mils (conductor size designation)
KOP	key observation point
kV	kilovolt
LV-YT	Lovell-Yellowtail
MBTA	Migratory Bird Treaty Act
MDEQ	Montana Department of Environmental Quality
MDEQ-ARMB	MDEQ-Air Resources Management Bureau
MFSA	Major Facility Siting Act
MFWP	Montana Fish, Wildlife and Parks
mG	milligauss
MT DNRC	Montana Department of Natural Resources and Conservation
MVA	megavoltampere (line capacity)
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System

NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRA	National Recreation Area
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NWP	Nationwide Permit
PFYC	Potential Fossil Yield Classification
PM	particulate matter
PRPA	Paleontological Resources Preservation Act
RMP	Resource Management Plan
ROW	right-of-way
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Property
TERO	Tribal Employment Rights Office
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V	volt
VRM	visual resource management
WDEQ	Wyoming Department of Environmental Quality
WDEQ-AQD	WDEQ-Air Quality Division
Western	Western Area Power Administration, Rocky Mountain Customer Service Region
WGFD	Wyoming Game and Fish Department
WSA	Wilderness Study Area
WUS	Waters of the U.S.
WYNDD	Wyoming Natural Diversity Database

Summary

Proposed Project

Western Area Power Administration, Rocky Mountain Customer Service Region (Western) proposes to rebuild the Lovell-Yellowtail (LV-YT) No. 1 and No. 2 115-kilovolt (kV) transmission lines, located in Big Horn County, Wyoming and Big Horn and Carbon Counties in Montana and the Basin-Lovell (BA-LV) 115-kV transmission line in Big Horn County, Wyoming. The LV-YT No. 1 and 2 transmission lines parallel each other and are approximately 47 miles in length with termination points at the Yellowtail Substation near Fort Smith, Montana and the Lovell Substation near Lovell, Wyoming. The BA-LV transmission line is approximately 39 miles in length with termination points at the Basin Substation near Basin, Wyoming and the Lovell Substation. The Nahne Jensen Substation is connected to the BA-LV transmission line near Greybull, WY. The rebuilt lines would be upgraded with a larger conductor and would continue to operate at 115 kV.

The LV-YT No. 1 and No. 2 and BA-LV transmission lines were constructed on wood pole H-frame structures. Western is proposing to use wood pole H-frame structures for the rebuild project as well. The majority of the new 115-kV structures would be up to 10 feet taller than the existing 115-kV structures in order to accommodate the larger conductor. Different structure types may be used in challenging terrain or environmentally sensitive areas. These structure types include glue-laminated self-supporting wood pole structures, single-pole steel structures, and three-pole wood structures with guys. The combined right-of-way (ROW) for the transmission lines is currently 150 feet for LV-YT No. 1 and No. 2, and 75 feet for BA-LV. The ROW would not be expanded for the rebuild project.

The Proposed Project would be constructed in two phases. Phase I would involve construction of a 15-mile section of the LV-YT No. 1 and No. 2 transmission lines located mostly within the Bighorn Canyon National Recreation Area (Bighorn Canyon NRA). As part of Phase I, redundant and abandoned access roads associated with the transmission lines within the Bighorn Canyon NRA would be reclaimed by the National Park Service (NPS). This would be done after construction at Western's cost under an interagency agreement between Western and the NPS (See Appendix I). Construction for Phase I would begin in 2011. Phase II construction would include the rebuild of the remaining 32 miles of the LV-YT No.1 and No. 2 lines as well as the 39 miles of BA-LV transmission line and would begin in 2013.

For the most part, existing access roads would be used and improved if necessary to control erosion. One-half mile of new access roads would be constructed within the Bighorn Canyon NRA to avoid cultural sites. Spur roads would be constructed where necessary to access new structure sites. The identified access roads would continue to be used for maintenance on the rebuilt transmission lines. Access roads and spur roads needed only for construction and not needed for maintenance would be reclaimed. All roads would be reseeded.

Substation equipment at the Yellowtail, Lovell, Basin, and Nahne Jensen Substations would be replaced as needed to match the rating of the rebuilt lines. The substation equipment consists of breakers; disconnect switches, instrument transformers, and associated buswork and jumpers. Substation work would be accomplished within the existing facilities and would not require expansion of the substations.

Purpose and Need

Western's mission is to market and transmit reliable, cost-based hydroelectric power to its customers. Western's primary purpose for completing the LV-YT No. 1 and No. 2 and BA-LV Transmission Line Rebuild Project is to ensure reliable and economical service to its customers. Western needs to accomplish the following:

1. Ensure Reliability and Safety of the Transmission Lines. The LV-YT No. 1 and No. 2 transmission lines were constructed by the Bureau of Reclamation (BOR) in 1956 and 1966, respectively. The BA-LV line was built by the BOR in 1952. The age and condition of the existing transmission lines require increasing maintenance to ensure transmission line reliability. Worker safety during maintenance activities is also a growing concern with these aging lines.

2. Improve Western's capability to transmit electricity to the south and eliminate operational constraints on the electrical system. This requires an increase in the capacity of the transmission line. The present electrical ratings of the Project transmission lines limit Western's ability to transmit and market the hydroelectric power generated at the BOR's Yellowtail Power Plant to the south. This limitation in transmission capacity, at times, causes Western to either purchase replacement power from more expensive generation south of Yellowtail or pay neighboring utilities to transmit Yellowtail generation, both at significant cost to Western and ultimately Western's customers.

3. Acquire and clarify access to the transmission lines for maintenance. Western needs additional rights for access to its transmission lines to ensure that the lines can be efficiently maintained. Western and the NPS identified the need to reclaim old access roads on the Bighorn Canyon NRA and also clear up the access rights for line maintenance. Western, the NPS and BLM identified the need to obtain new permits and clarify access.

Alternatives Considered and Eliminated

Western considered cost effective design alternatives to the Proposed Project. Alternatives not considered, such as relocating the lines and undergrounding the lines, are neither economically feasible nor reasonable and would cause greater environmental damage than the Proposed Project. Three alternatives considered and eliminated for the LV-YT No. 1 and No. 2 rebuild included: 1) replacing rejected 115-kV structures in like kind, 2) rebuilding one of the lines at 230 kV and the other at 115 kV, and 3) rebuilding both lines at 230 kV. Only two of these alternatives (rebuilding one of the lines at 230 kV and one at 115 kV, or rebuilding both lines at 230 kV) would meet the purpose and need of increasing the lines electrical ratings. The 230-kV alternatives would cost considerably more than the Proposed Project.

Alternatives Evaluated

No Action. Western would continue to operate and maintain the existing lines as it does now. All typical maintenance required for the lines would continue to be performed. This includes replacing deteriorating structures as needed, replacing hardware and other components when needed, and maintaining access. The line would continue to operate at its current capacity and would be maintained to ensure reliability and protect public and worker safety. The No Action Alternative would not include increasing the electrical carrying capacity of the transmission lines to accommodate the requirements identified in the purpose and need for the project.

Alternative A for Lovell-Yellowtail. Alternative A: LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel would be a combination of the Proposed Project and the use of double-circuit single-pole steel structures for some segments of the transmission lines outside of the Bighorn Canyon NRA. Two variations are discussed for this alternative:

- A1 - 115-kV double-circuit single-pole steel structures through the Crow Reservation and 115-kV wood pole H-frame structures from the southern Crow Reservation boundary at the Big Horn County [Montana]/Carbon County line to the Lovell Substation.

- A2 - 115-kV double-circuit single-pole steel structures through the Crow Reservation and south of the Bighorn Canyon NRA, with 115-kV wood pole H-frame through the Bighorn Canyon NRA.

Alternative A was developed as a viable alternative to the Proposed Project and is electrically equivalent to the Proposed Project. Alternative A would not require widening of the ROW.

The No Action Alternative is the only alternative considered for the proposal to rebuild the BA-LV transmission line.

Scope of Environmental Assessment

This environmental assessment (EA) was prepared in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) and Department of Energy (DOE) guidance. The EA identifies and analyzes the consequences of the Proposed Project and the No Action Alternative and other action alternatives on the human and natural environment. The Proposed Project incorporates Western's standard construction project practices to avoid or minimize impacts to the extent feasible. In addition, Western has developed project specific measures to address impacts.

Summary of Findings

The EA evaluates the short-term and long-term impacts that may result from the construction and operation of the Proposed Project and alternatives. The results of the resource impact evaluations are compared in Table S-1 (at the end of this section), and include the following findings:

Climate and Air Quality

The Proposed Project and action alternatives would have negligible localized, short-term adverse impacts on air quality. Impacts would primarily be short-term increases in emissions from construction vehicles and fugitive dust generated by construction activity. There would be a negligible long-term impact from the No Action Alternative. More frequent maintenance activities would cause an increase in fugitive dust and vehicle emissions due to more frequent maintenance activities.

The project would have no effect on climate. The project and action alternatives would comply with National Ambient Air Quality Standards and the State Implementation Plans for Wyoming and Montana. There are no federal or state permitting requirements for this source type.

Geology and Paleontology

There are no known geologic hazards (i.e., areas prone to earthquake, landslide, rockfall, or subsidence) within the project area. No active faults, inferred active faults, or geologic hazards are documented in the project area. No impacts to geology would be expected.

The Proposed Project and action alternatives would cross geologic formations with known potential for containing paleontological resources. Field surveys and literature documented fossils along the southern portion of the proposed BA-LV transmission line ROW only in the Willwood Formation. Paleontological resources are not expected to be impacted, but undiscovered fossil remains could be disturbed by excavation. By identifying the location of structures and monitoring in areas that are underlain by exposed bedrock or where bedrock is shallow enough to be disturbed potential impacts to fossil resources in areas underlain by the Willwood Formation could be mitigated.

Western would avoid or minimize potential impacts to paleontological resources during construction through monitoring and data recovery procedures. However, if undiscovered fossils were disturbed, the direct impacts would be adverse and long-term and would be minor or moderate depending upon the particular fossils disturbed.

Impacts from the action alternatives would be similar to those described for the Proposed Project. There are no identifiable impacts from the No Action Alternative.

Water Resources and Floodplains

The Proposed Project and action alternatives would have short-term impacts on water resources.

All surface waters would be spanned and no surface water use is proposed. The project would not impact municipal or private drinking water or ground water. Surface water quality within the project area typically meets water quality standards. Standard construction measures, including erosion control and spill prevention, would be implemented to reduce the potential for sedimentation and water quality impacts. The Proposed Project and all alternatives would have minor to moderate short-term, adverse, indirect impacts from sedimentation due to construction of the transmission lines and improvement of access roads. Along the BA-LV line, short-term, adverse, indirect impacts from the construction of the transmission line and improvement of access roads would be moderate because of the greater number of unimproved crossings along this transmission line.

Long term indirect impacts from sedimentation and erosion for both lines under all alternatives would be negligible to minor because of the time required for reclamation to become effective.

Some of the structures may be located within floodplain zones and would not be placed within designated flood hazard zones unless necessary. Some access roads currently cross designated flood hazard zones. The structures and access roads located within the floodplains do not impede the natural action or function of the floodplains. The installation of culverts and other stream crossing improvements to access roads would be designed to avoid adverse impacts to floodplains. Long-term disturbance within the flood hazard zones from the Proposed Project and action alternatives would be limited to the footprint of the structures.

Impacts to ground water from the reconstruction of the transmission lines would be limited to alluvial aquifers associated with floodplains and terraces along the Bighorn River, Shoshone River, and some of the perennial tributaries to these rivers. There would be negligible, adverse, direct, short-term or long-term impacts from dewatering during construction from the Proposed Project or the action alternatives and deeper aquifers would not be impacted.

There would be no identifiable impacts from the No Action Alternative.

Wetlands and Other Waters of the U.S.

During installation of new structures, Western would avoid existing wetlands and drainages. The lines associated with all action alternatives would span existing stream crossings and wetlands. Impacts to wetlands and other Waters of the U.S. would be limited to relatively short-term, localized minor increases in sediment release at unimproved access road drainage crossings, and possible short-term compaction of wetland vegetation and soils between LV-YT structures 2-7 and 2-8 and BA-LV structures 56-8 and 57-1. Access road crossing improvements for the LV-YT and BA-LV segments would result in minor long-term losses of wetlands and Waters of the U.S., but the losses would be well under 0.10 acre for each drainage crossing. There would be no indirect loss or degradation of federal or state protected wetlands or riparian areas, and there would be no wetland fill impacts exceeding 0.1 acre for any given drainage. Therefore, adverse impacts to wetlands and other Waters of the U.S. would be minor for both the Proposed Project and action alternatives.

Under the No Action Alternative, existing and increasing maintenance traffic at access road creek crossings would continue to result in short-term, localized and minor increases in sediment discharge in these drainages.

Upland Vegetation

Vegetation communities and associated land types identified along the ROW include mixed herbaceous and shrub prairie communities located on nearly level to gentle slopes; coniferous or shrub or cushion plant communities located on ridge tops and hill slopes; and barren or sparsely vegetated dissected badlands. Agricultural communities occur along the Shoshone and Greybull Rivers and Dry and Crooked Creeks.

Impacts to vegetation would include the removal of established vegetation and surface grading. Impacts are direct, adverse, short- to long-term, and minor to moderate depending upon the extent of site-specific disturbances.

Western would minimize or avoid impacts along the ROW during construction to reduce site disturbances. All disturbed areas would be revegetated and restored to control erosion and promote the re-establishment of vegetation. Western would regrade as necessary, prepare the seedbed, seed with adapted plant species, and control noxious and invasive weed species. Disturbed areas would be left in a condition that would facilitate natural revegetation. Revegetation of sites with steeper slopes and shallow or erodible soils, or soils with highly salt or sodium content may not be as successful due to the effects of erosion, runoff and shallow depths, and chemical imbalances. This would not noticeably alter the overall productivity of the local vegetation communities given the small, scattered areas involved.

Impacts from the action alternatives would be similar to those described for the Proposed Project. Adverse impacts to vegetation similar to those that have occurred in the past would increase with increased maintenance under the No Action Alternative.

Soils

Soils along the ROW include deep agricultural types along major watercourses, comparatively shallow soils on hills, ridges and upland plains, and shallow, coarse-textured soils overlying shallow bedrock. Soil characteristics that could affect the success of revegetation include badlands, rock outcrops, shallow/droughty soils, severe erosion hazards, and high clay, salt, and sodium content.

The primary impacts to soils include an increase in the likelihood of erosion and compaction, as well as profile mixing if grading is needed. These impacts would be direct, adverse, and short to long-term, depending upon the time revegetation would take to complete. These impacts would be minor to moderate where no grading would be required and moderate where grading would be required. Mitigation such as revegetation may be required to prevent impacts from increasing.

One new access road (1,500 feet long) would be constructed on the Bighorn Canyon NRA. Some portions of existing access roads would require upgrading, and spur roads to certain structure sites would be constructed. Impacts due to roadwork would include an increase in erosion susceptibility, compaction, upper profile mixing and an overall loss of soil productivity. These impacts would be direct, adverse, short- to long-term and minor to moderate in intensity depending upon the extent of grading and functional life of the road. Existing (redundant) access roads not needed for construction and maintenance would be reclaimed as part of this project resulting in a direct, beneficial, moderate, long-term impact.

Crytobiotic soils occur along portions of the ROW associated primarily with conifer and shrub dominated vegetation communities. Cryptobiotic soil crusts, consisting of soil cyanobacteria, lichens and mosses, play an important ecological role in arid regions. These soils would be disrupted during construction and maintenance resulting in a direct, adverse, minor to moderate, long-term impact lasting until the “crusts” become reestablished.

Indirect impacts are limited to the potential for soil movement off-site from wind and water erosion, potentially resulting in sedimentation of adjacent watercourses. This adverse, long-term impact is presumed to be negligible to minor given the small individual impact areas, their sporadic occurrence across steeper slopes along the ROW, typical distance from watercourses and Western’s Standard Construction Project Practices and Project Specific Mitigation Measures.

Western would reclaim areas adversely affected by construction activities to return soils to a stable and productive condition that supports native plant communities. Western would employ standard techniques to avoid or minimize direct impacts to soils and revegetate following construction. To improve revegetation success where heavy disturbance has occurred, topsoil would be removed, stockpiled, and respread at areas that are not needed for maintenance access. With these construction practices, the adverse impacts to soils would be reduced. It is likely that some soils overlying more steeply sloped areas would not be restored to their original productivity due to the effects of erosion and shallow depths that lead to unacceptably droughty soil profiles. Similarly, soils characterized by high salt or sodium levels that are relatively barren or have sparse vegetation communities would not be revegetated to a higher standard.

Impacts from the action alternatives would be similar to those described for the Proposed Project. More frequent maintenance activities under the No Action Alternative may increase soil erosion.

Wildlife

The Proposed Project and action alternatives would not result in a long-term decrease in economically or ecologically important wildlife populations. Western’s standard construction project practice WILDLIFE-1 would reduce impacts to wildlife. Overall, impacts to wildlife from the project would be relatively minor and short-term ceasing once construction is complete. Habitat loss associated with structures would be long-term, but similar to existing conditions and relatively minor. There would be no long-term habitat loss in higher quality habitats such as riparian or wetlands. The risk of avian collisions with power lines and structures would be long-term, but also relatively minor based on existing conditions.

Impacts from action alternatives would be the same as the Proposed Project, except under Alternative A2. The risk of avian collisions with the powerlines would be slightly higher at the Shoshone River crossing. Impacts from the No Action Alternative would be minimal, resulting from continuing and increased maintenance activities.

Threatened, Endangered, BLM Sensitive, and Other State Species of Concern (T&ESSS)

There are no federal candidate, proposed, threatened, or endangered plant species within the project area. Habitat for 24 plant species considered sensitive by various agencies (See Cedar Creek Associates, Inc. 2010) occurs along and immediately adjacent to the ROW primarily in the northern portion of Big Horn County, Wyoming and the southern and central portions of Carbon County, Montana within the boundaries of Bighorn Canyon NRA. Sensitive species habitat was not observed, or was limited in extent, in southern and central Big Horn County, Wyoming, northern Carbon County, and the majority of Big Horn County, Montana. Based on the analyses provided in Cedar Creek Associates, Inc. (2010), there may be a few minor short-term and long-term adverse impacts to sensitive or species of concern plant habitats, but it is unlikely that these impacts would jeopardize the continuing viability of these species or result in a trend toward a listing as federal threatened or endangered.

Western would implement measures and permit the reestablishment by spreading and repopulating from adjacent, undisturbed terrain.

The Proposed Project and action alternatives would have no effect on threatened, endangered, proposed, or candidate wildlife species, and few habitats of sensitive wildlife species would be affected by direct disturbance. Short-term and localized displacement of sensitive wildlife species within the analysis area would not have any indirect adverse impact on local populations, if they exist, and would not result in a trend towards federal listing or cause a loss of population viability for any of these species. With implementation of mitigation measure T&ESSS-PS-1, there would be no disturbance or loss of burrowing owl or ferruginous hawk nests. No additional impacts from the No Action Alternative are anticipated. Impacts to sensitive plant and wildlife species and their habitat would be minimal, resulting from continuing maintenance activities.

Cultural Resources

Class III cultural resource surveys were conducted for the Proposed Project and action alternatives. Historic Properties are defined as those listed on, or eligible for listing on, the National Register of Historic Places (NRHP). Sixty-eight Historic Properties are identified in the project area. Three types of mitigation measures in place for the project include Western's Standard Construction Project Practices, Project Specific Mitigation Measures for cultural resources, and site-specific avoidance measures. These mitigation measures and practices commit to avoiding direct impacts to sites through careful planning and cultural resource monitoring. A Memorandum of Agreement, Cultural Resources Treatment Plan and Monitoring Plan are being developed by Western and the NPS to ensure protection where avoidance or the recommended construction practices and mitigation measures are not feasible. After consultation with other federal and state agencies, Tribes, and interested parties, a plan will be in place to mitigate adverse impacts.

Western's Standard Construction Project Practices, Project Specific Measures, and site-specific avoidance measures, would reduce impacts on all 68 of the Historic Properties to a negligible, adverse level and would result in no adverse effect for the No Action and all action alternatives.

Land Use, Socioeconomics, Community Resources, and Transportation

Western's transmission lines and ROWs were established as land uses between 1952 and 1966. Phase I of the project is mostly located in the Bighorn Canyon NRA, which has many land uses including dispersed recreational uses throughout the Bighorn Canyon NRA and on the Bighorn River, National Wild Horse Range, Wilderness Study Areas, and historical sites. Phase II of the project occurs on lands outside the Bighorn Canyon NRA including private, federal, state, and tribal lands on the Crow Indian Reservation. The predominant land uses throughout the remainder of the Phase II rebuild project include some dryland farming and irrigated fields near Lovell, Dry Creek, and the Greybull River, rangeland, one industrial property near Lovell, and bentonite mining near the BA-LV line. Lovell, Fort Smith, Greybull, and Basin, the only communities near the Project, would not be adversely affected.

The Proposed Project would result in minor, short-term adverse impacts to the quality of recreational experiences at the Bighorn Canyon NRA and WSAs. The construction activities would include intermittent and temporary presence of construction crews, equipment, and related noise and dust during construction. Long-term, impacts to land use would be minor, since the Proposed Project and action alternatives replace existing transmission lines along the same ROW. The existing ROW would not be widened so no adverse impacts on current or future land uses in the project area would occur. The Proposed Project conforms to federal, state, and local land use and management plans. Direct, adverse, minor to moderate short-term impacts to cultivated farmland from upgrading the transmission lines would include some soil compaction and soil erosion. Short-term impacts to some cropland may occur during construction activities. Short-term impacts within the WSA from construction activity along access roads would also occur. However, provisions in the interagency agreement and Western's standard construction project practices would reduce the impacts to land use and the WSA.

The action alternatives A1 and A2 would have similar land use impacts to the Proposed Project. However, due to increased spans with the double-circuit single-pole steel structures these alternatives would have slightly more beneficial impacts on land uses in the project area. Total land disturbance would be less.

The Proposed Project and action alternatives would have no long-term adverse impacts to socioeconomic conditions and community resources. Short-term impacts would be beneficial short-term economic activity in the project area. Additionally, temporary lodging should be adequate for the short-term construction workforce for both phases of construction. Indirect expenditures in the local area by workers would be considered beneficial impacts. An increase in electrical reliability would ensure a long-term direct benefit from the project.

Only minor traffic delays on local roads would result from project construction. The impacts are expected to be minor, short-term adverse impacts due to the short duration of the construction activity. Minor to moderate impacts may occur on dirt roads from construction equipment movement during wet weather conditions. There would be beneficial long-term impacts from reduced maintenance activity. Reclamation of 12.6 acres of abandoned roads in Bighorn Canyon NRA would be a direct, beneficial long-term impact.

Impacts from the action alternatives would be similar to those described for the Proposed Project. The No Action Alternative would result in adverse long-term minor impacts to land use from increased maintenance activities.

Visual Resources

Visual resources include landscape visual quality and visual sensitivity. Visual quality in the project area ranges from exceptional to common. Most of the landscapes directly affected by the Proposed Project are representative of the region. Areas of exceptional scenic quality, including the Bighorn Canyon and Yellowtail Reservoir, would not be directly affected. Visual sensitivity estimates potential public concern to visual changes. Visually sensitive areas within the project area include the Bighorn Canyon NRA and Bighorn Canyon Road, the Bighorn Tack-On and Pryor Mountain WSAs, the communities of Fort Smith, Lovell, and Basin and several federal and state highways, including U.S. Highways 310 and 14, 16 and 20; Wyoming Highway 37, and Montana Highway 313. Visual impacts were evaluated according to the degree of visual contrast that the Proposed Project and action alternatives would create, when compared to the existing environment with the 115-kV line.

Visual impacts from the Proposed Project would be long-term and would result from the dismantling and removing of the existing 115-kV transmission line and structures, improving access roads, and installing the upgraded 115-kV wood pole structures. The new 115-kV H-frame structures would be approximately 70 feet tall, compared to the existing 60 foot tall 115-kV structures. The average structure spacing would be similar to the existing structures, and the appearance of the new structures would be similar to the existing wood pole H-frame and three-pole wood structures. Due to the relatively small degree of change and weak visual contrasts that would occur to the existing 115-kV system, the visual impacts to highways and residential areas would be minor to negligible.

The adverse visual impacts to Bighorn Canyon NRA would range from minor to moderate depending on viewing location and type of structure installed. Impacts to visual quality would be minor in most instances, due to the slight change in the structure size and design. Some moderate impacts to visual quality may occur where steel pole structures are installed near the Montana-Wyoming border. The larger and more industrial scale of the steel poles would be partially offset, however, since the steel pole structure would replace two sets of H-frame structures, thus reducing the overall amount of ground disturbance. Visual impacts from access roads would range from moderate, where roads are improved across landscapes with moderate to steep slopes to beneficial where existing access roads, no longer needed, are obliterated and reclaimed.

Visually sensitive locations within the Bighorn Canyon NRA include the Bighorn Canyon Road, the NRHP listed Caroline Lockhart Ranch (24CB1085), and hiking trails that are within foreground to middleground viewing distances of the transmission line. Visual impacts would be greatest where the larger structures and conductors are seen within a foreground viewing distance, are skylined, or viewed in open panoramic settings within the Bighorn Canyon NRA. Visual impacts would be substantially reduced in viewing conditions at greater distances and where the line and structures are backscreened by topography and vegetation.

The visual impacts of the Proposed Project on the WSAs would be minor and similar to those described for the Bighorn Canyon NRA. Impacts to residential areas would be minor or negligible, given the intervening middleground to background viewing distances (over one mile) and the presence of other transmission lines in the general vicinities. Impact to the existing residence in the Pryor Mountain Estates subdivision that is within the foreground viewing distance would be minor compared to the existing visual impact of the 115-kV system. Impacts to federal and state highways would also be minor to negligible. Overall, the Proposed Project would create weak changes in visual contrasts when compared to the existing 115-kV transmission line.

The visual impacts of the action alternatives would be the same as the Proposed Project except for visual effects related to taller structures: a) through the Crow Reservation to Yellowtail Substation; and b) to travelers and residents living along or near US Highway 310 (north of Lovell Substation) and 14, Bighorn County Road 12.5, and the community of Lovell.

Despite the increase in height (60 feet to 105 feet) from the new single pole steel structures, impacts to travelers on these roads, as well as rural residential areas are minor to negligible. Removal of two sets of wood H-frame structures and hardware, and intervening distance would reduce the overall mass of the utility corridor.

There would be no additional visual impacts to the landscapes in the Project area from the No Action Alternative.

Table S- 1 Summary Comparison of Impacts

Issues	**Proposed Project**	**Alternative A1**	**Alternative A2**	**No Action**
	115-kV Wood Pole H-Frame Structures	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**Existing 115-kV Wood Pole H-Frame Structures**
Climate and Air Quality	Negligible adverse impacts. Short-term increases in particulates and vehicle emissions during construction. Negligible long-term beneficial impacts due to reduction in maintenance activities and related emissions.	Same as Proposed Project.	Same as Proposed Project.	Negligible adverse impacts. Long-term increase in fugitive dust and vehicle emissions due to more frequent maintenance activities.
Geology and Paleontology	Negligible to minor in areas not underlain by the Willwood Formation (BA-LV). Potential direct short- and long-term impacts if fossils of scientific significance are destroyed. Potential short- and long-term beneficial impacts if fossils of scientific significance are discovered and properly curated.	Same as Proposed Project.	Same as Proposed Project.	No identifiable impacts
Water Resources and Floodplains	Negligible to moderate. Potential minor to moderate, adverse, indirect, short-term construction related impacts to surface water from sedimentation and erosion. Potential moderate indirect short-term adverse impacts from BA-LV transmission line due to the greater number of unimproved crossings. Long-term, adverse, indirect impacts from sedimentation and erosion would be negligible to minor. All surface water channels would be spanned by structures. Some structures may remain in designated floodplains. Negligible, adverse impacts to floodplain function from the project.	Negligible to minor. All impacts the same as Proposed Project, however, short-term total surface disturbance less than LV-YT portion of Proposed Project.	Negligible to minor. All impacts the same as Proposed Project, however, short-term surface disturbance less than LV-YT portion of Proposed Project and Alternative A1.	No identifiable impacts.

Issues	**Proposed Project**	**Alternative A1**	**Alternative A2**	**No Action**
	115-kV Wood Pole H-Frame Structures	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**Existing 115-kV Wood Pole H-Frame Structures**
Wetlands and Other Waters of the U.S. (WUS)	Minor. Limited to relatively short-term, localized, and minor increases in sediment release at unimproved access road drainage crossings, possible short-term compaction of wetland vegetation and soils between LV-YT structures 2-7 and 2-8 and BA-LV structures 56-8 and 57-1. Minor fill impacts, primarily to WUS, would occur from stream crossing improvements, but wetland and WUS losses would be less than 0.10 acre for each drainage.	Same as Proposed Project.	Same as Proposed Project.	No identified impacts beyond existing condition. Maintenance traffic at access road creek crossings would continue to result in short-term, localized, and minor increases in sediment discharge in these drainages.
Upland Vegetation	Minor to moderate depending upon the extent of surface disturbance. Impacts considered direct, adverse and short- to long-term. Impacts to vegetation at staging areas, stringing sites, access road upgrades and construction and redundant road reclamation are assumed to be the same for all action alternatives.	Same as Proposed Project except fewer acres of vegetation would be impacted along the LV-YT ROW compared to the Proposed Project. Greater potential for spur road construction impacts than for Alternative A2 and less than the Proposed Project.	Same as Proposed Project except fewer acres of vegetation would be impacted along the LV-YT ROW compared to Proposed Project or Alt. A1. Fewer potential spur road construction impacts than for the Proposed Project and Alternative A1.	No identifiable impacts. Long-term maintenance of the transmission line would cause minor adverse impacts to vegetation similar to those that have occurred in the past due to expected increased levels of maintenance required.

Issues	Proposed Project	Alternative A1	Alternative A2	No Action
	115-kV Wood Pole H-Frame Structures	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**Existing 115-kV Wood Pole H-Frame Structures**
Soils	Minor to moderate, direct, adverse short- to long-term impacts. Highest number of acres of soil revegetation constraints of all action alternatives. Exact number of acres that may be impacted and locations associated with staging areas stringing sites, access road upgrades and road reclamation are not known at this time but are assumed the same for all action alternatives.	Same as Proposed Project except for fewer acres of soil impacts. Increased potential for spur road construction impacts than for Alternative A2 but less than the Proposed Project.	Similar to Alternative A1, fewer acres of soil affected than the Proposed Project. Fewer acres of soils with constraints to revegetation than for Alternative A1. Fewer potential spur road impacts than the Proposed Project and Alternative A1.	No identifiable impacts. A potential for increased soil erosion from more frequent maintenance activities.
Wildlife	Minor and short-term impacts ceasing once construction is complete. Habitat loss associated with structures would be long-term, but similar to existing conditions and relatively minor. The risk of avian collisions with powerlines and structures would be long-term but also relatively minor based on existing conditions.	Same as Proposed Project.	Construction impacts and long-term habitat loss would be similar to the Proposed Project. The risk of avian collisions with powerlines would be slightly higher at the Shoshone River crossing.	No additional impacts anticipated. Impacts to wildlife species and habitat would be minimal, resulting from continuing maintenance activities.

Issues	Proposed Project	Alternative A1	Alternative A2	No Action
	115-kV Wood Pole H-Frame Structures	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**Existing 115-kV Wood Pole H-Frame Structures**
Threatened, Endangered, and Other Special Status Species	Potential minor, direct, adverse, short and long-term impacts on sensitive plant species. Few habitats of sensitive wildlife species would be affected by direct disturbance. Short-term and localized displacement of sensitive wildlife species within the analysis area would not have any indirect adverse effect on local populations.	Impacts to sensitive plant species would be similar to the Proposed Project except total disturbance in sensitive plant species habitat would be slightly less. Impacts to sensitive wildlife species would be similar to the Proposed Project.	Impacts to sensitive plant species would be similar to the Proposed Project except total disturbance in sensitive plant species habitat would be slightly less than with Proposed Project or Alternative A1. Impacts to sensitive wildlife species would be similar to the Proposed Project.	No additional impacts anticipated. Impacts to sensitive plant and wildlife species and their habitat would be minimal, resulting from continuing maintenance activities.
Cultural Resources	Negligible impacts with Western's Standard Construction Project Practices, Project Specific Mitigation Measures, and site-specific avoidance measures for 68 historic properties. If impacts to historic properties cannot be appropriately reduced using these measures, a mitigation plan would be prepared and implemented to mitigate adverse impacts.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.

Issues	Proposed Project	Alternative A1	Alternative A2	No Action
	115-kV Wood Pole H-Frame Structures	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**Existing 115-kV Wood Pole H-Frame Structures**
Land Use	Slightly adverse, minor, short-term dust, noise, and nuisance impacts to land uses from construction activity. Direct, adverse, short-term minor to moderate impacts to cultivated farmland from soil compaction and some erosion. Beneficial long-term impact from reduced maintenance activity.	Same as Proposed Project. Beneficial long-term impact from a reduction in the number of structures.	Same as Proposed Project. Beneficial long-term impact from a reduction in the number of structures.	Adverse long-term minor impacts to land uses from increased maintenance activities.
Visual	Bighorn Canyon NRA – Moderate to negligible adverse long-term impacts from structures, conductors, and access road improvements. BLM Lands (WSA’s and adjacent lands) – Negligible to minor long-term adverse impacts. Public roads and highways –Minor to negligible long-term adverse impacts. Residential Communities – Minor to negligible long-term adverse impacts.	Bighorn Canyon NRA – Same as Proposed Project. BLM Lands (WSA’s and adjacent lands) – Same as Proposed Project. Public roads and highways - Same or similar to Proposed Project. Residential Communities – Same or similar to Proposed Project.	Bighorn Canyon NRA – Same as Proposed Project.BLM Lands (WSA’s and adjacent lands) – Same as Proposed Project – BA-LV. Similar impacts to Proposed Project – LV-YT. Public roads and highways – Same or similar to the Proposed Project. Residential Communities – Same as Proposed Project – BA-LV. Similar impacts to Proposed Project – LV-YT.	Bighorn Canyon NRA – No identifiable impacts. BLM Lands (WSA’s and adjacent lands) – No identifiable impacts. Public roads and highways – No identifiable impacts. Residential Communities – No identifiable impacts.

Issues	Proposed Project	Alternative A1	Alternative A2	No Action
	115-kV Wood Pole H-Frame Structures	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structures**	**Existing 115-kV Wood Pole H-Frame Structures**
Socioeconomics	Short-term, indirect beneficial impacts including increased economic activity in local jurisdictions from construction workforce, contractor, and Western expenditures. An increase in electrical reliability would ensure a long-term direct benefit from the project.	Same as Proposed Project.	Same as Proposed Project.	No new economic activity in region from new construction activity. Electrical reliability would not be ensured.
Transportation	Short-term minor increase in construction traffic on major and minor thoroughfares. Short-term traffic delay potential, noise and dust from construction traffic. Minor to moderate impacts may occur on dirt roads from construction equipment movement during wet weather conditions. Direct, beneficial long-term impact from reclamation of 12.6 miles of abandoned roads in Bighorn Canyon NRA.	Same as Proposed Project.	Same as Proposed Project.	Potential for increased maintenance traffic on local roadways. Negligible to minor adverse impact.
Project Costs	The estimated construction cost per mile for an 115kV transmission line with H-frame structures is $190K. These are general costs that do not include terrain, access and geologic issues. Actual costs are highly dependent upon the market price of materials as these frequently fluctuate.	The estimated construction cost per mile for an 115kV transmission line with double circuit steel poles is $550K. These are general costs that do not include terrain, access and geologic issues. Actual costs are highly dependent upon the market price of materials as these frequently fluctuate.		

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1.0 Introduction

1.1 Background

Western owns, operates and maintains the LV-YT No. 1, LV-YT No. 2, and BA-LV 115-kV transmission lines. The LV-YT No. 1 and No. 2 lines are each approximately 47 miles long and extend between the Lovell Substation, located near Lovell, Wyoming, and the Yellowtail Substation, located near the Yellowtail Dam and Fort Smith in south-central Montana. The BA-LV transmission line is approximately 39 miles long and extends between the Basin Substation, near Basin, Wyoming, and the Lovell Substation. The Nahne Jensen Substation is a load-serving substation connected to the BA-LV transmission line near Greybull, Wyoming. Figure 2.1-1 shows the location of the Proposed Project and Appendix A contains maps showing pole structure locations.

The LV-YT transmission lines are in Big Horn County, Wyoming, and Carbon and Big Horn Counties, Montana. The BA-LV transmission line is in Big Horn County, Wyoming. The Project crosses federal, state, tribal, and private lands. Public lands are under the jurisdictions of the U.S. Department of Interior including the NPS Bighorn Canyon NRA, Bureau of Land Management (BLM), Bureau of Reclamation (BOR), and Bureau of Indian Affairs (BIA); the U.S. Department of Defense (DOD), and the U.S. Army Corps of Engineers (USACE). The Crow Tribe administers the Crow Reservation lands. Montana school trust lands crossed by the project are administered by the Montana Department of Natural Resources and Conservation (MT DNRC).

The LV-YT No. 1 and No. 2 lines were constructed by the BOR in 1956 and 1966, respectively. They run parallel to each other and the ROWs abut. Western's existing combined ROW for the two LV-YT 115-kV transmission lines is 150 feet, or 75 feet per line. The BA-LV line was constructed in 1952 by the BOR as part of the Lovell-Thermopolis 115-kV transmission line. The existing ROW on the BA-LV line is 75 feet. The lines were built using Douglas-fir wood pole H-frame structures. The LV-YT No. 1 line was constructed with a 397 thousand circular mil (kcmil) aluminum conductor steel reinforced (ACSR) conductor and has a thermal rating of 109 megavoltampere (MVA). The LV-YT No. 2 line was constructed with a 556-kcmil ACSR conductor and has a thermal rating of 133 MVA. The BA-LV line was constructed with a 397-kcmil ACSR conductor and has a thermal rating of 109 MVA. The thermal ratings of these lines are relatively low and contribute to the need for this project, as described below.

Many of the original wood pole H-frame structures are still in use today and approach, or exceed, the end of their useful service life. Western tests wood poles as part of their routine maintenance to estimate the strength of the structures. Wood pole testing is done on each transmission line approximately every ten years. The LV-YT No. 1 and No. 2 lines were last tested in 1996. The data show that 31 percent of the wood pole structures on the No. 1 transmission line do not meet strength requirements and need to be replaced. The No. 2 transmission line had a 7 percent rejection rate. The BA-LV line was last tested in 2006 and had a 5.5 percent rejection rate. As a consequence, the existing transmission lines require increased maintenance to ensure that the lines will continue to operate reliably.

Over the years, some redundant access roads have been built and some of the original roads have not been maintained on parts of the transmission lines within the Bighorn Canyon NRA. The NPS has administrative jurisdiction and management responsibility for the lands within the Bighorn Canyon NRA. Redundant and abandoned access roads associated with the transmission lines within the NRA would be reclaimed by the NPS after Western completes construction at Western's cost. After the Proposed Project is constructed and the roads are reclaimed, Western would only use approved roads for maintaining the lines.

1.2 Purpose and Need for the Project

Western's mission is to market and transmit reliable, cost-based hydroelectric power to its customers. Western's primary purpose for completing the LV-YT No. 1 and No. 2 and BA-LV Transmission Line Rebuild Project is to ensure reliable and economical service to its customers. To do this Western proposes to:

1. Ensure Reliability and Safety of the Transmission Lines. The LV-YT No. 1 and No. 2 transmission lines were constructed by the Bureau of Reclamation (BOR) in 1956 and 1966, respectively. The BA-LV line was built by the BOR in 1952. The age and condition of the existing transmission lines require increasing maintenance to ensure transmission line reliability. Worker safety during maintenance activities is also a growing concern with these aging lines.

2. Improve Western's capability to transmit electricity to the south and eliminate operational constraints on the electrical system. This requires an increase in the capacity of the transmission line. The present electrical ratings of the Project transmission lines limit Western's ability to transmit and market the hydroelectric power generated at the BOR's Yellowtail Power Plant to the south. This limitation in transmission capacity, at times, causes Western to either purchase replacement power from more expensive generation south of Yellowtail or pay neighboring utilities to transmit Yellowtail generation, both at significant cost to Western and ultimately Western's customers.

3. Acquire and clarify access rights to the transmission lines for maintenance. Western needs additional rights for access to its transmission lines to ensure that the lines can be efficiently maintained. Western and the NPS identified the need to reclaim old access roads on the Bighorn Canyon NRA and also clear up the access rights for line maintenance. Western, the NPS and BLM identified the need to obtain new permits and clarify access.

1.3 Decisions to be Made

This environmental assessment (EA) is prepared under the National Environmental Policy Act (NEPA) to provide sufficient evidence and analysis to determine whether a proposed agency action would require preparation of an environmental impact statement or a finding of no significant impact (FONSI).

If Western determines that a FONSI is appropriate they must decide whether to proceed with the transmission rebuild project and choose between alternative transmission line structures and various measures to mitigate construction and operational impacts.

Table 1.3-1 summarizes known and potential authorizing actions for the Proposed Project.

Table 1.3-1 Regulatory Requirements and Required Coordination

Statutory, Regulatory or Permit Requirements	Responsible Agency
National Environmental Policy Act	Western Area Power Administration (Western) *Lead Agency*, National Park Service (NPS) *Cooperating Agency* , Montana Department of Environmental Quality (MDEQ) *Cooperating Agency*
Rights-of-way	NPS, Bureau of Land Management (BLM), Montana (MT), Wyoming (WY), U.S. Army Corps of Engineers (USACE)/WY National Guard
Clean Water Act (CWA), Storm Water Pollution Prevention Plan (SWPPP), National Pollutant Discharge Elimination System (NPDES)	Western, its contractors and others undertaking covered construction projects, MDEQ, Wyoming Department of Environmental Quality (WDEQ)
318 Authorization (Short-term water quality standard for turbidity) http://deq.mt.gov/wqinfo/othercert/318Authorization.mcpx Short Term turbidity waiver Wyoming	Western and its contractors undertaking covered construction projects, MDEQ, Wyoming Department of Environmental Quality (WDEQ).
Clean Water Act, Section 401, 404	Western, MT, WY, USACE
Montana Major Facility Siting Act *Substantive Compliance*	MDEQ
Easement grants and road crossing permits	Big Horn County (MT and WY), Carbon County (MT), Crow Tribe, Wyoming Department of Transportation, Montana Department of Transportation
Review and approval of weed control plans	NPS, BLM, County Weed Control Boards (WY and MT)
National Historic Preservation Act, Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act	Western; MT Historic Preservation Office; WY Historic Preservation Office, Crow Tribe, BLM, NPS, Consulted Tribes.
Compliance with Floodplain and Wetlands Environmental Review Requirements (10 CFR 1022)	Western, Bighorn County, WY
Endangered Species Act (ESA); Migratory Bird Treaty Act (MBTA); Bald and Golden Eagle Protection Act	U.S. Fish and Wildlife Service (USFWS) and Western
Clean Air Act (CAA) (National Ambient Air Quality Standards)	Western, MT, WY
Environmental Justice	Western

1.4 Cooperating Agencies

When a project involves more than one federal or state agency, the agencies cooperate during the planning and decision-making process to complete the environmental review. The federal agency primarily responsible for preparing the EA is the lead agency, and the other participating agencies are cooperating agencies. The Council on Environmental Quality (CEQ) regulations implementing NEPA also allow for the designation of state and local agencies and Indian tribes as cooperating agencies where appropriate.

As the project proponent, Western is the lead federal agency for this EA. The NPS is a cooperating agency for this EA because approximately 20 percent of the length of the LV-YT transmission lines proposed for rebuild is located within the Bighorn Canyon NRA. The NPS is assisting Western by indentifying important resources and impact analysis on the NRA. MDEQ is a cooperating agency and will assist Western with applicable state substantive environmental protection standards administered by various state agencies. MDEQ will also assist Western under the Montana Major Facility Siting Act (MFSA), 75-20-101, et seq, MCA, to ensure that the substantive standards are met.

Although the Crow Tribe did not choose to be a cooperating agency, they were extensively involved in monitoring field work completed on the Crow tribal and NPS lands. Crow representatives and monitors assisted field crews on the Crow Reservation in cultural resources, water resources and biological analyses. Monitors were present during field activities on tribal and NPS lands and provided traditional interpretations of cultural sites, helped identify potential traditional cultural properties (TCP's), and provided information on tribal policies.

No other affected agencies agreed to be cooperating agencies.

1.5 Scoping Results

Public Scoping

Involvement of the public and regulatory agencies in the proposed project ensures that relevant environmental impacts are identified and analyzed. Western notified stakeholders of the project and solicited their concerns through scoping letters dated May 22, 2008. The parties contacted included federal, tribal, state and local governments, and other interested organizations and stakeholders (see Appendix B). During this scoping period, Western received responses from the following agencies: USACE (February 4, 2009), USFWS (June 13, 2008), BLM Billings Field Office (June 2, 2008), Frontier Heritage Alliance, Billings, Montana (June 3, 2008), Wyoming Game and Fish Department (June 20, 2008), and Wyoming Office of State Lands and Investments (June 19, 2008). Western also consulted with the USFWS in writing and informally. Correspondence from state and federal agencies is presented in Appendix C.

A second letter was sent to project stakeholders (landowners, state and local governments, and tribes) on May 14, 2010, notifying them of changes to the project that included the proposed rebuild and upgrade of the BA-LV transmission line.

After consultation with the NPS, public scoping meetings were held July 8, 2008, in Billings, Montana; July 9, 2008, in Crow Agency, Montana; and July 10, 2008, in Lovell, Wyoming. The Project sent notices on May 23, 2008 to interested parties and stakeholders. Western compiled a mailing list of interested and affected parties. The main objectives of the scoping meetings included: (1) introducing the Proposed Project and providing information to the public and agency representatives; (2) describing the Proposed Project needs and benefits; (3) describing the permit requirements including the NEPA process and methods for preparing the EA: (4) describing the project schedule; (5) emphasizing the importance of agency consultation and public involvement to assist in identifying issues and concerns; (6) identifying the purpose and type of public input needed at each stage of the Proposed Project; and (7) informing the public how their input would be used.

The format of the public meetings was an open meeting and workshop with several display stations where information was shared with the public. Public comments were received at the meeting to help define the scope of the EA. The display information addressed the following areas:

- Welcome and Sign-in
- Project Introduction including Purpose and Need
- Environmental Resources Covered
- Transmission Line Design and Electrical Characteristics
- Construction Procedures and Reclamation.

Western and the environmental contractor responded to questions about environmental issues, electrical related issues, project need and benefits, land rights, and construction. An agency and public mailing list was updated to provide information about upcoming meetings and workshops. Following the meetings, Western and the environmental contractor summarized the meetings, attendance; input received, and identified important issues that would need investigation or additional consideration.

Attendance at the Billings and Crow Agency, Montana meetings was light. Issues discussed at the Lovell meeting include the following:

- The current declining economic base in Lovell (tourism from the Bighorn Canyon NRA vs. the prior agricultural base).
- The previously proposed Transpark Road (1973) through the Bighorn Canyon NRA and the desire to reintroduce this project with the cooperation of the Crow Indian Reservation in hopes of generating more economic activity in the Lovell area.
- The visual impact of the current and proposed transmission line rebuild on the primitive environment of the Bighorn Canyon NRA.
- Private landowner interests. Most landowners that attended the meeting were interested in seeing where the rebuild would occur. Most landowners did not express concerns with the rebuild project.
- Access road maintenance on transmission line access roads located on BLM managed land. Some of the existing access roads are in need of repair.
- Access road easements on transmission line access roads located outside the existing ROWs on BLM managed land.

No additional scoping meetings were held when the need for the BA-LV transmission line rebuild was identified. Landowners were notified by mail and were provided an opportunity to comment.

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2.0 Alternatives Including the Proposed Project

Section 2.0 describes Western's Proposed Project and other action alternatives considered during scoping and the alternative development process. Alternatives discussed in this section include design and structure alternatives that have been considered and eliminated from the EA analysis, voltage and structure alternatives that have been analyzed, and the No Action Alternative.

2.1 Description of the Proposed Project

2.1.1 General Description of the Proposed Project

Lovell-Yellowtail Phase I and Phase II and Basin-Lovell

Western proposes to rebuild and upgrade the existing LV-YT No. 1 and No. 2 and BA-LV 115-kV transmission lines by replacing the structures and installing larger conductors. The Proposed Project would be constructed on Western's existing ROW. The transmission lines would continue to operate at 115 kV. Figure 2.1-1 shows the general location of the Proposed Project and the two phases of construction associated with the LV-YT rebuild.

The Proposed Project would be constructed in two phases. Phase I would involve construction of a 15-mile section of the LV-YT No. 1 and 2 transmission lines located mostly within the Bighorn Canyon NRA. Redundant and abandoned access roads associated with the transmission lines within the Bighorn Canyon NRA would be reclaimed by the NPS after Western completes construction at Western's cost. Phase II construction would include rebuilding the remaining 32 miles of the LV-YT No.1 and No. 2 lines and the 39 miles of BA-LV transmission line. The total proposed rebuild for Phases I and II and the BA-LV line section includes 133 miles of transmission line.

Western's Proposed Project includes replacing the original transmission line structures and conductors. The new structures would be wood pole H-frames, up to 10 feet higher than the existing structures to accommodate the larger conductor. Other structure types, such as glue-laminated wood, single-pole steel and three-pole wood structures may be used in some locations to accommodate construction limitations related to topography or preservation of resources. The original conductors would be replaced with larger conductors. Western's proposal is to install approximately 750 115-kV structures along the 47-mile LV-YT No. 1 and No. 2 transmission line between Lovell Substation and Yellowtail Substation. Approximately 312 115-kV structures would be installed on the 39-mile BA-LV transmission line between the Basin Substation and Lovell Substation. Western would remove the existing 115-kV transmission line structures and conductors.

After construction of the Phase I project, the NPS would reclaim redundant and abandoned roads within the Bighorn Canyon NRA as agreed to by the NPS and Western in the interagency agreement (See Appendix I). The reclamation would restore the existing roadways to their natural state by revegetation. NPS would monitor revegetation to ensure it is successful.

During construction, access roads that Western plans to continue to use would be repaired if needed to ensure effective erosion control. All roads would be reseeded when construction is finished. Western would continue to maintain access roads that are used for routine maintenance for the life of the lines. Improvements to existing roads and some new spur roads or access roads to some structure sites may be required.

The existing ROW would be sufficient for the Proposed Project.

Substation equipment at the Yellowtail, Lovell, Basin and Nahne Jensen Substations would be replaced as needed to match the electrical ratings of the rebuilt lines. Substation equipment to be replaced would include breakers, disconnect switches, instrument transformers, and associated buswork and jumpers. Substation work would occur within the existing facilities and would not require expansion of the substations. Substation work would be completed under Phase II of the project.

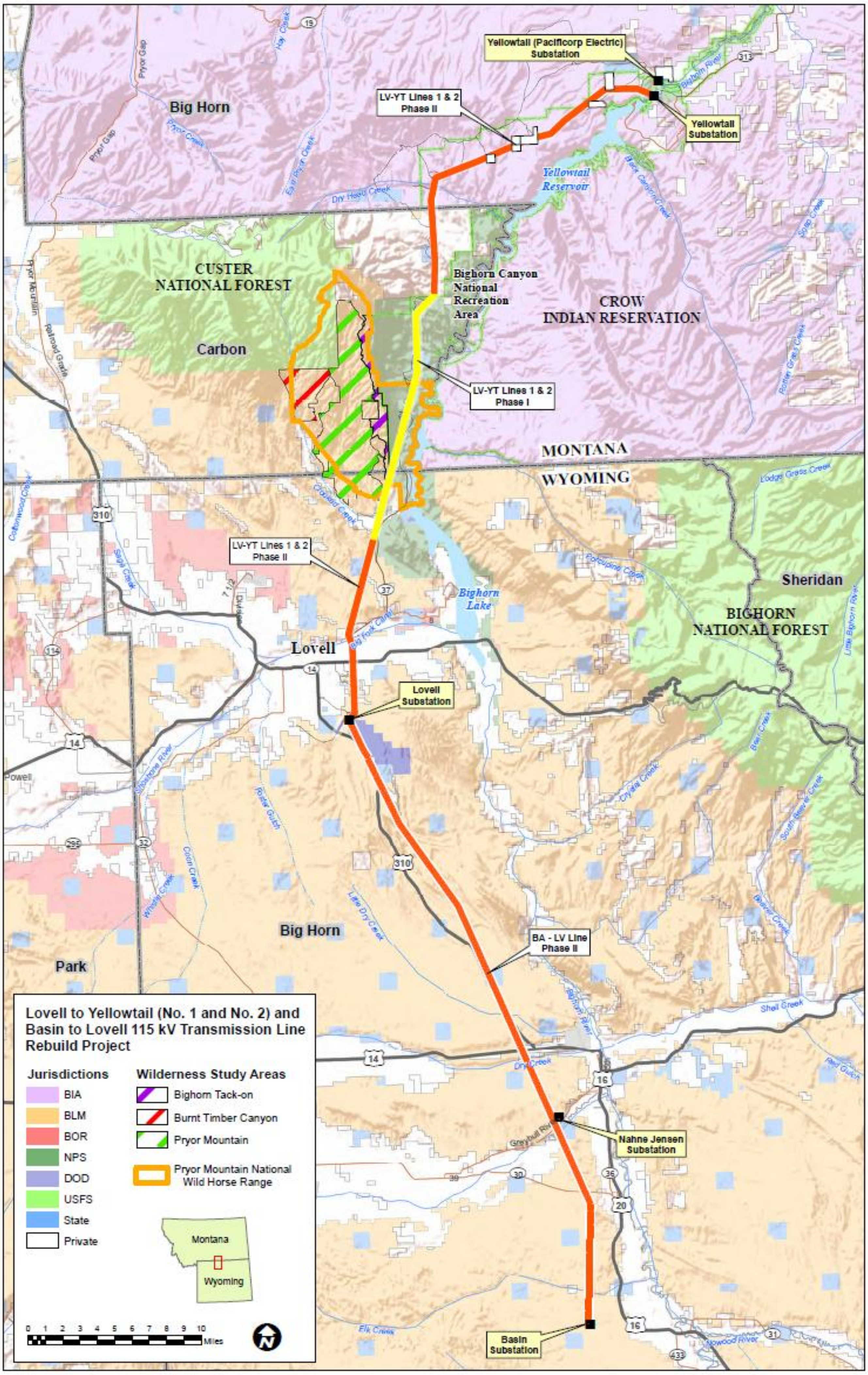

Figure 2.1-1 Construction Phases and Location of LV-YT No.1 and No. 2 and BA-LV Transmission Line Rebuild Project

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2.1.2 Proposed Project Design Requirements

The proposed transmission line design requirements are described below. Table 2.1-1 summarizes the proposed system design and ROW requirements. Appendix A of the EA contains detailed maps of the Proposed Project location, including the current structure locations for the existing lines. Diagrams of the typical appearance of the existing and proposed transmission lines and ROWs are included below.

Table 2.1-1 Typical Transmission Design – New Structures

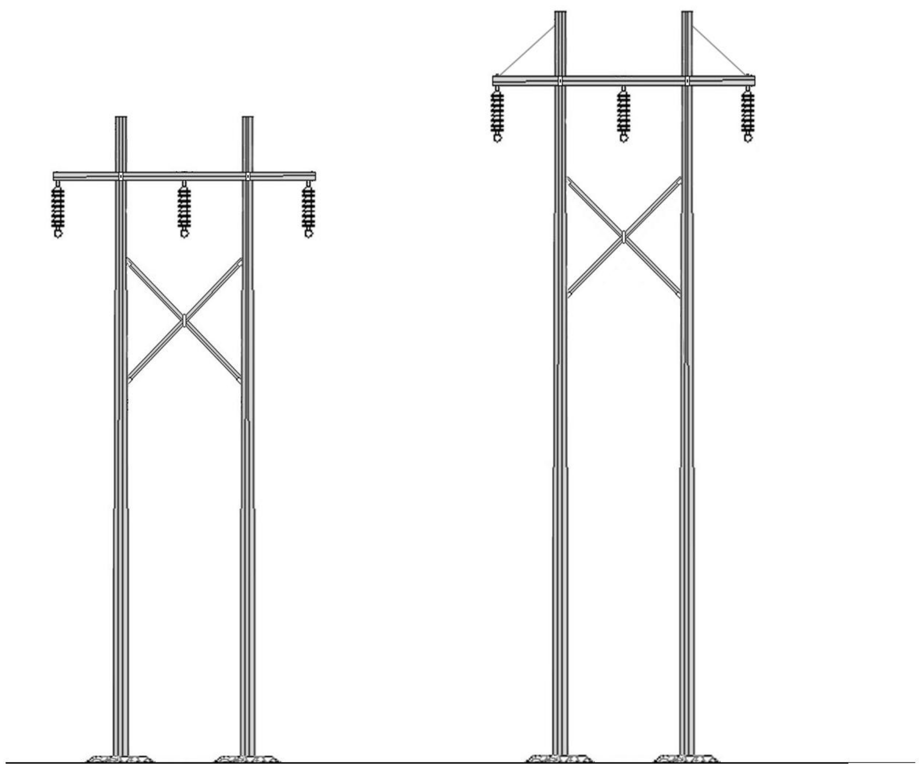
Description	Proposed 115-kV Transmission Structures
	H-Frame Structures (LV-YT No.1 & No. 2 and BA-LV)
Right-of-way width	75 feet per line
Span between structures (average)	600-700 feet
Span between structures (maximum)	1,600 feet
Number of structures (average)	8 per mile
Height of structure (average)	70 feet
Height of structure (typical range)	50-90 feet
Width of structure cross arm	25 feet
Width of structure at ground level	12 feet
Structure base area	3.5 sq. feet per pole
Land disturbed by construction at each structure base	9,500 sq feet (0.22 acres) on average
Length of line per conductor stringing site	1.5-3 miles
Land disturbed at each stringing site	0.25 acre 105 feet x 105 feet
Conductor type and size	ACSS 795 kcmil
Circuit configuration	horizontal
Overhead ground wire	3/8-inch, 7-strand, steel
Fiber optic overhead wire	0.465-inch, aluminum
Electric field at edge of ROW	1.55 kV/meter
Magnetic field at edge of ROW (thermal limit)	200 mG/kiloamp thermal operating limit is 1,600 amps
Minimum ground clearance beneath conductors	22 feet at 392 degrees Fahrenheit (at roads, streets, alleys, grazing, cultivated lands, forests: 99% of project area)

mG –milligauss
Source: Western Area Power Administration

2.1.3 Description of Proposed Transmission Facilities

Proposed Transmission Structure Designs

Western is proposing to rebuild the existing transmission lines in the existing ROW using mostly wood pole H-frame structures. The average height of the new 115-kV H-frame structure would be 70 feet, which is approximately 10 feet taller than the average existing structure. The width at the base of the structures would be 12 feet, with a cross arm length of 25 feet. The distance between structures (spans) would average 600-700 feet. Locations of new structures may not be the same as those of existing structures. Structure locations may be changed based on terrain, soil characteristics, and other factors. The ROW width would remain unchanged at 150 feet for LV-YT and 75 feet for BA-LV. A larger conductor would be installed on the three lines. The wood pole H-frame structures would be set in augered holes with an average depth of 10 feet. Figure 2.1-2 shows a typical existing 115-kV wood H-frame structure, next to the proposed 115-kV wood H-frame structure.



Typical Existing 115-kV wood H-frame (60') and
Typical Proposed 115-kV wood H-frame (70'),
LV-YT and BA-LV Rebuild Project

Figure 2.1-2 Existing and Proposed 115-kV Wood Pole H-Frame Structures

115-kV Double- Circuit Single-Pole Steel Structures – Double-circuit single-pole steel structures would be used if the terrain or other factors do not provide enough room within the ROW for two wood pole H-frame structures adjacent to each other. This may occur in several locations near the Wyoming - Montana border. Single pole steel structures would replace the lattice structures where the line crosses the Bighorn River near Yellowtail Substation. Other areas may require single pole steel structures as well.

Holes for the steel poles would be excavated to a depth at which competent rock is encountered; the average depth is 18 feet, however, a maximum depth of 30 feet may be required. Figure 2.1-3 shows a diagram of the 115-kV double-circuit single-pole steel structure.

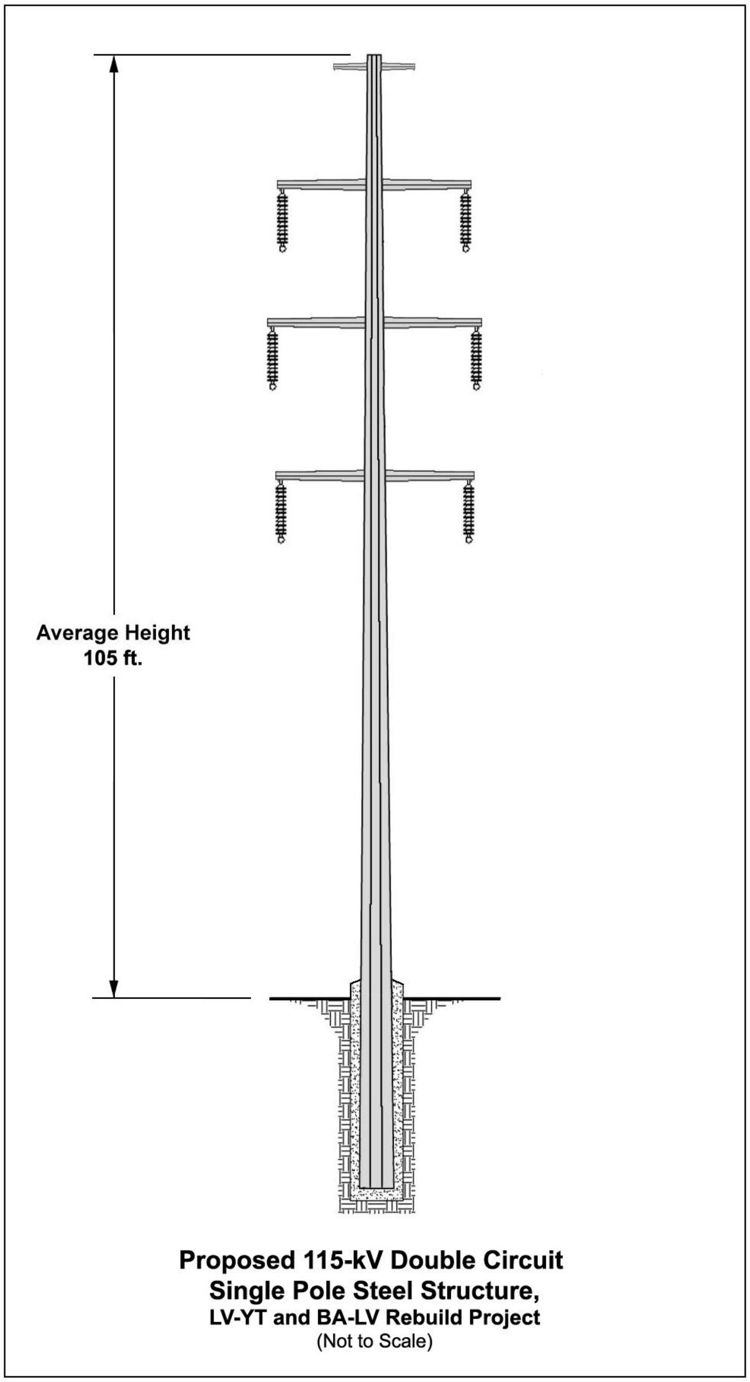


Figure 2.1-3 115-kV Double-Circuit Single-Pole Steel Structure

Glue-Laminated Three-Pole Angle Structure and Steel Three-Pole Self-Supporting Structure
Western may use three-pole glue-laminated angle structures or steel three-pole self-supporting structures in some locations where there is not enough room for guys and anchors to be installed. The holes for the

glue-laminated structure or steel three-pole self-supporting structure would be excavated to a depth at which competent rock is encountered or an average depth of 14 feet. Figure 2.1-4 and Figure 2.1-5 show diagrams of the glue-laminated three-pole angle structure and a three-pole self-supporting structure, respectively.

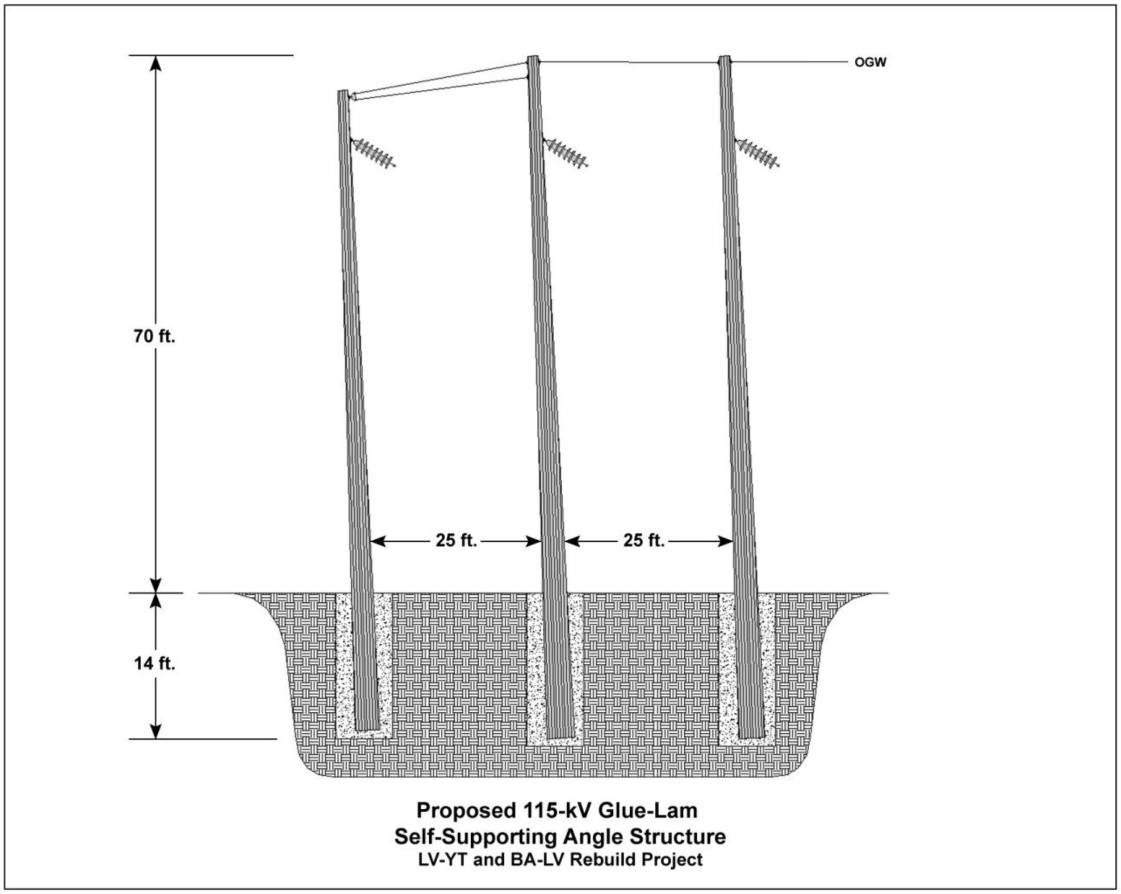
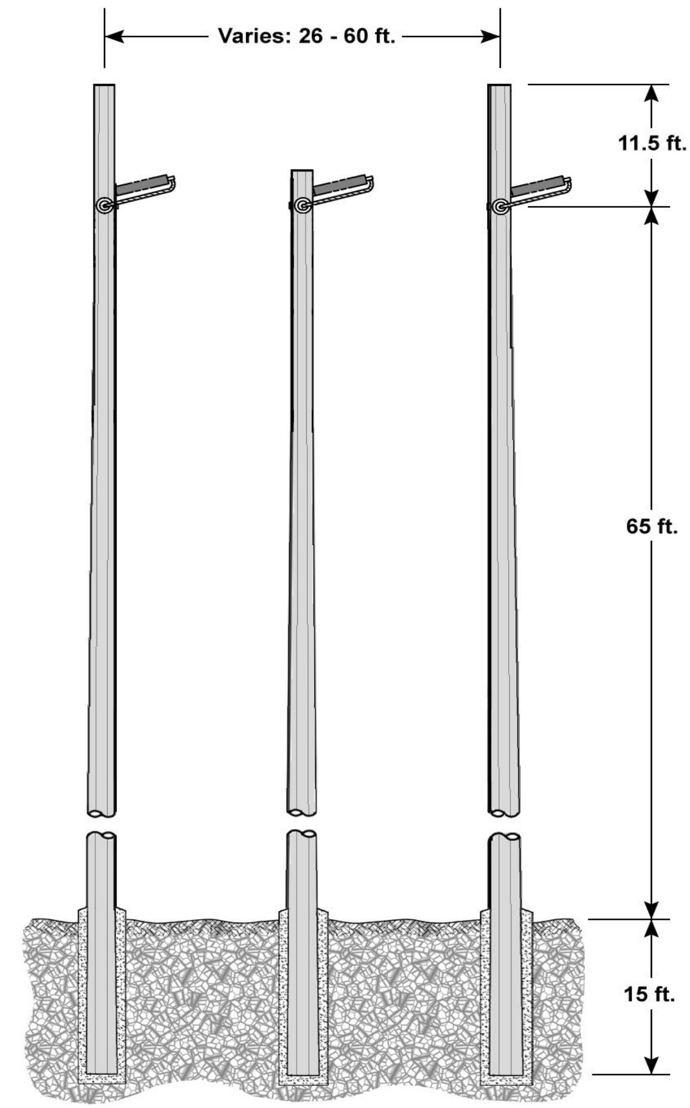


Figure 2.1-4 115-kV Glue-Laminated Three-Pole Angle Structure



Proposed 115-kV 3-Pole Self Supporting Structure
LV-YT and BA-LV Rebuild Project
(Not to Scale)

Figure 2.1-5 115-kV Three-Pole Self-Supporting Structure

2.1.4 Access Roads

Access to the proposed transmission lines structure sites and construction areas would be over existing access roads or by overland construction methods. Western maintains access roads to the transmission lines. Additional spur roads may be needed to access some new structure sites where vegetation or terrain limits the movement of construction equipment or where special resources require avoidance. After construction, access roads would be used occasionally for routine maintenance and emergencies. Some access roads used during construction would be reclaimed along with abandoned access roads. Approximately 12.6 acres of abandoned roads would be reclaimed after construction. Western signed an interagency agreement with the NPS which has detailed stipulations regarding access roads, spur roads, revegetation, and reclamation. In addition, the construction specifications include instructions meeting all NPS requirements regarding access to and along the ROW.

Drainage crossings would be either improved by using culverts or low water rock crossings; or unimproved, if the drainage is crossable by driving without additional construction. Approximately seven improved crossings are anticipated for the LV-YT line and nine for the BA-LV line.

2.1.5 Proposed Substation Facilities and Modifications

Yellowtail, Lovell and Basin Substation Modifications

Equipment at the Yellowtail, Lovell, and Basin Substations including circuit breakers, switches, and bus work may need to be replaced to match the increase in lines electrical ratings. This work would be completed as part of Phase II. New equipment would be located within the existing fenced areas of the substations.

2.1.6 Construction Practices

2.1.6.1 Construction Schedule

Western plans to construct the LV-YT No. 1 and No. 2 rebuild in two phases, with Phase I beginning in 2011 and Phase II beginning in 2013. Construction of the BA-LV transmission line and substation equipment replacements would be completed with Phase II of the LV-YT No.1 and No. 2 project. In summary, the following general construction completion periods are planned:

Lovell-Yellowtail Phase I:

2011-12: Anticipated 2011 through 2012 – Construction schedule for Phase I rebuild of LV-YT No. 1 transmission line within Bighorn Canyon NRA.

Lovell-Yellowtail Phase II, Basin-Lovell and substation equipment replacements:

2013-2014: Anticipated 2 year construction period.

2.1.6.2 Transmission Line Construction

Construction activities for the Proposed Project are summarized below. Table 2.1-2 summarizes the estimated ground disturbances that would be associated with project construction. During construction of Phase I, Western estimates that three construction crews, of five to six persons each, would complete construction along the ROW. Sequential activities for construction would include site clearing and grading, existing line demolition, material hauling, pole excavation, structure framing and erection, conductor stringing and tensioning, pole removal and disposal, and road restoration.

Removal of Existing Transmission Lines – The construction contractor would determine how to remove existing structures. Land owners or land manager would determine if poles would be cut off below ground level or completely removed. Generally, structures would be lowered to the ground and stripped of hardware, arms, and braces. Hardware and parts would be recycled or disposed of by the construction contractor. The conductor may be removed and coiled up prior to “laying” down existing structures or coiled up after the structures have been removed from the ROW. The construction contractor would have the option to remove guy anchors or cut them off 30 inches below ground level. Guy anchors in cultivated areas would be completely removed. In the Bighorn Canyon NRA, guy anchors would be cut off at ground level to minimize disturbance. During construction of the LV-YT lines, one line would remain energized while the other line was being rebuilt. The BA-LV transmission line would be de-energized during construction.

Structure Disposal – Old structures would be removed, recycled or disposed of in compliance with applicable regulations. Associated hardware, including guy wire, guy rods, insulators, and conductor and overhead ground wire, would be recycled or disposed of as appropriate. Existing material would become the property of Western's contractor who would be responsible for its disposal.

Site Clearing and Grading – Standard construction procedures for transmission lines include the movement of vehicles and equipment within the ROW and on established access roads/travel routes outside the ROW. Trees that would grow into the transmission lines would be trimmed or removed. Based on initial construction plans, Western expects that at each structure site, a 9,500 square foot area surrounding the structure would be needed for construction. Some leveling of the ground surface could be needed to assure safe operation of equipment. This would be done within the approximate 9,500 square foot disturbance area. Disturbed areas would be regraded and reseeded as needed. Follow-up monitoring would occur to ensure adequate results.

Table 2.1-2 Summary of Short-Term and Long-Term Surface Disturbance from 115-kV Transmission Line Construction

Project Component	Quantity (Approximate Number)	Short-Term Disturbance	Long-Term Disturbance
Lovell to Yellowtail			
115-kV wood pole H-frame structures	750 structures	164 acres (9,500 sq. feet per structure)	0.12 acres (3.5 sq. feet per pole)
3-pole self-supporting or glue-laminated structures	8 structures	1.75 acres (9,500 sq. feet per structure)	0.007 acres (12.5 sq. feet per pole)
Conductor stringing sites	25 sites	6.25 acres (0.25 acre per site)	NA
Staging areas	2-5 sites	10-25 acres (5 acres per site)	NA
Removal of existing H-frame structures	775 structures	169 acres (9,500 sq. feet per structure)	NA
New access roads	1,500 feet	0.6 (18 foot road width and easement)	0.6 acres (18 foot road width and easement)
LV-YT Total		**351.6-366.03 acres**	**0.73-.13 acres**
Basin to Lovell			
115-kV wood pole H-frame structures	312 structures	68 acres (9,500 sq. feet per structure)	0.05 acres (3.5 sq. feet per pole)
Conductor stringing sites	20 sites	5 acres (0.25 acre per site)	NA
Staging areas	2-3 sites	10-15 acres (5 acres per site)	NA
Removal of existing H-frame structures	308 structures	67 acres (9,500 sq. feet per structure)	NA
New access roads	0	0	0
BA-LV Total		**150-155 acres**	**0.05 acres**

NA – Not Applicable

Wood Pole Structure Replacement – Holes would be augered for new structure poles. Approximately 10 percent of the total structure height plus an additional 2 feet of each structure would be placed underground (e.g., a 70-foot-tall structure would have approximately 9 feet underground). Construction crews would assemble new structures within the ROW, and then position the structures into augered holes using cranes. Dirt from the excavations would be used to backfill around the new poles and to fill in the holes from the removed structures. Excess dirt would be spread near the pole and leveled with existing topography.

Steel Pole Structure Installation – If steel pole structures are used they would be delivered to the construction site in sections. The sections would be off loaded at a staging yard and then taken to each structure location. The foundations for these structures would be excavated. Depending on the type of steel structure selected, after excavating the foundation hole the base section of the structure would be set in the hole and backfilled with concrete (direct bury) or a steel-reinforced cast-in-place concrete foundation would be constructed. The remaining sections of the structure, along with arms, insulators, and hardware, would be assembled on the ground and then set on the base section or concrete foundation using a crane. Once the structure is erected the new conductor would be pulled in, tensioned, and attached.

Conductor Stringing and Tensioning – At tensioning and stringing sites, special equipment would be set up to pull in new conductors. The conductors would be tensioned to allow them to sag to design specifications. Overhead ground wire and fiber optic overhead ground wire would be installed in a similar manner.

Clean-up – Western's contractor would clean up and restore the ROW to its preconstruction condition, to the extent possible. In addition to ROW clean up, restoration, and stabilization, abandoned roads and some construction access roads would be reclaimed. Approximately 12.6 acres of abandoned and/or access roads would be reclaimed after construction.

2.1.7 Operation and Maintenance Practices

Electrical power system dispatchers at Western's Rocky Mountain Region, Power Marketing Operations Center would continue routine operation of the transmission lines. The dispatchers would use communication facilities to monitor the operation and condition of circuit breakers and other electrical system equipment to control the transfer of power over the lines. Because they operate automatically, the circuit breakers ensure safety in the event of a structure or conductor failure. Currently, aerial patrols of the lines are conducted two or three times each year. Ground patrols are normally completed once per year. These patrols would continue as part of Western's routine maintenance program. Current maintenance procedures also include climbing inspections of each structure every five years. In emergencies, prompt crew deployment would ensure rapid repair or replacement of damaged equipment.

2.1.8 Western's Standard Construction Project Practices and Project Specific Mitigation Measures

Western incorporates standard construction project practices that would avoid or minimize impacts to the environment to the extent practicable. These measures are listed on Table 2.1-3. Western would implement Western's Integrated Vegetation Management Guidance Manual and the BLM's Best Management Practices (BMPs). In addition, MDEQ would monitor reclamation success on all lands outside the Reservation in Montana to ensure that state standards for reclamation are met. These practices would be used to control and reestablish vegetation within the ROW. These measures are part of Western's Proposed Action and are considered in the impact assessment section.

Table 2.1-3 Western Standard Construction Project Practices and Project Specific Mitigation Measures

Practice Identifier	Practice
GEN-1	The construction contractor would limit the movement of crews and equipment to the ROW, including access routes. The contractor would limit movement on the ROW to minimize damage to residential yards, grazing land, crops, orchards, and property. Western would reimburse landowners for crop damages and property damage.
GEN-2	The construction contractor would coordinate with the landowners to avoid impacting the normal function of irrigation devices and other agricultural operations during project construction.
GEN-3	ROW would be acquired based on fair market value and in accordance with applicable laws and regulations.

GEN-4	When weather and ground conditions permit, the construction contractor would obliterate construction caused deep ruts on or off road. Ruts would be leveled, filled and graded as approved by Western. Ruts, scars, and compacted soils in pasture and cultivated lands would have the soil loosened and leveled by scarifying, harrowing, disking, or other approved methods. Damage to ditches, tile drains, terraces, roads, and other features would be corrected. At the end of each construction season and before final acceptance of the work in agricultural areas, ruts would be obliterated, and trails and areas that are hard-packed as a result of construction operations would be loosened and leveled. The land and facilities would be restored as nearly as practicable to the original grade. During inclement weather construction activities may be stopped if conditions make landscape damage likely.
GEN-5	Construction roads and trails not required for maintenance access would be restored to the original contour, seeded, and left in a state acceptable to the landowner. The surfaces of these construction roads and trails would be scarified as needed to provide conditions that would facilitate natural revegetation, provide for proper drainage, and prevent erosion.
GEN-6	Construction staging areas on the ROW would be located and arranged to preserve trees and vegetation to the maximum practicable extent. On completion, storage and construction materials and debris would be removed from the site. The area would be regraded, as required, so that surfaces drain naturally, blend with the natural terrain, and are left in a condition that would facilitate natural revegetation, provide for proper drainage, and prevent erosion.
GEN-7	Borrow pits would be excavated so that water would not collect. The sides of borrow pits would be brought to stable slopes, with slope intersections shaped to carry the natural contour of adjacent, undisturbed terrain into the pit or borrow area, giving a natural appearance. Piles of excess soil or other borrow would be shaped to provide a natural appearance.
GEN-8	Approved mufflers and spark arrestors would be used as needed to control construction equipment noise and the risk of fire.
GEN-9	The ROW would be located to the extent practicable to avoid sensitive resources.
GEN-10	Transmission structures would be located to the extent practicable to avoid sensitive resources and, when possible, would span resources.
GEN-11	Topsoil would be removed, stockpiled, and respread in areas of disturbance.
EROSION-1	Water turnoff bars or small terraces would be constructed across ROW trails on hillsides to prevent water erosion and to facilitate natural revegetation.
EROSION-2	To the extent practicable, access roads and trails would follow contours in steeper topography to facilitate erosion control and minimize impacts to other resources such as surface water.
EROSION-3	Grading and vegetation clearing on access roads and trails would be limited to that necessary to allow equipment to pass and for the safe construction and maintenance of the facility.
ENV-1	The construction contractor and Western would comply with applicable environmental protection requirements. Prior to construction, supervisory construction personnel would be instructed on the protection of cultural and environmental resources. To assist in this effort, the construction contract would address: a) federal and state laws regarding antiquities, plants and wildlife, including disturbance, collection and removal; and b) the importance of these resources and the purpose and need to protect them.
VEG-1	Seeding and mulch requirements would be specified. Seed mix would be approved by appropriate land management agencies, the landowner, or the Department of Agriculture. Seed, mulch, and hay approved for use would be certified weed-free.
VEG-2	Minimal removal of native vegetation would be done except where clearing is required for permanent works (such as structures, buildings, access roads) or to protect the transmission facility from trees and other vegetation. To the extent practicable and considering the need to protect transmission lines from encroaching vegetation and vegetation hazards, ensure access to facility for maintenance, and reduce wildfire fuel loads along the ROW, vegetation management would emphasize maintaining native vegetation to reduce visual impacts and maintain natural communities.

VEG-3	The contractor would comply with federal, state, and local noxious weed control regulations and provide a “clean vehicle policy” when entering and leaving construction areas to prevent transport of noxious weed plants and seed. The contractor would transport only construction vehicles that are free of mud or vegetation debris to staging areas and the project ROW. The contractor would also control plant species classified as “invasive” by the National Park Service (NPS) on lands administered by the NPS.
CULT-1	Prior to construction, Western would survey the project area. The surveys would be completed in compliance with Section 106 of the National Historic Preservation Act (NHPA) and coordinated with appropriate federal land management agencies and the State Historic Preservation Office (SHPO). Tribes would be consulted for activities on tribal lands and regarding potential effects on ancestral lands. Mitigation would be implemented as agreed on by Western and consulting parties.
CULT-2	As agreed to with the consulting parties, Western would monitor construction activities, flag and avoid cultural sites, or mitigate cultural sites through data recovery. During inclement weather construction activities may be stopped if snow cover prevents the adequate protection of cultural resources.
CULT-3	Construction contractors would be advised of the need to avoid impacting cultural sites, prohibit removal of artifacts, and other protective actions.
CULT-4	If previously unrecorded cultural sites or artifacts are encountered during construction activities, construction activities would be stopped in the vicinity of the discovery. Western would consult with the SHPO and other parties in accordance with the NHPA and implement agreements made.
SOLID WASTE-1	Construction activities would be performed by methods that prevent accidental spills of solid matter, liquids, contaminants, debris, and other pollutants and wastes into flowing streams or dry water courses, lakes, playas, and underground water sources. These pollutants and wastes include, but are not restricted to, refuse, garbage, cement, concrete, sanitary waste, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.
SOLID WASTE-2	Burning or burying of waste materials on the ROW or at the construction site would not be allowed. The construction contractor would remove waste materials from the construction area. Materials resulting from the contractor's clearing operations would be removed from the ROW and disposed of in accordance with applicable regulations.
WATER-1	Excavated material or other construction materials would not be stockpiled or deposited near or on stream banks, lake shorelines, or other water course perimeters where they could be washed away by high water or storm runoff or could encroach on the actual water source itself. As required by state agencies, the contractor would comply with NPDES requirements and obtain the appropriate permits.
WATER-2	Waste water from construction operations would not enter streams, water courses, or other surface waters without use of turbidity control methods such as settling ponds, gravel-filter entrapment dikes, filter fences, approved flocculating processes that are not harmful to fish, recirculation systems for washing of aggregates, or other approved methods. Waste water discharged into surface water would be essentially free of suspended material. These actions would comply with applicable NPDES permitting requirements.
WATER-3	Activities in riparian areas and wetlands would be minimized and these areas would be spanned whenever practicable. Disturbance to riparian vegetation and wetlands would be avoided whenever practicable. Narrow flood-prone areas would be spanned whenever practicable.
WATER-4	Construction activities would use methods that prevent water pollution. Accidental spills of contaminants, debris, and other objectionable pollutants and wastes into streams, watercourses, lakes, playas, wetlands, etc. would be prevented.
WATER-5	Structure sites, new access routes and other disturbed areas would be located away from rivers, streams, ephemeral streams, ponds, lakes, reservoirs, and playas, whenever practicable.
WATER-6	When needed, culverts, low water crossings, and other devices of adequate design to accommodate estimated peak flow of the water way would be installed at crossings of perennial, intermittent and ephemeral streams. Construction disturbance of the banks and beds would be minimized. The mitigation measures listed for soil and vegetation would be implemented as applicable on disturbed areas.

AIR-1	The contractor would use reasonably available, practicable methods and devices to control or prevent emissions of air contaminants including dust, diesel exhaust, and other identified emissions.
AIR-2	The contractor would prevent nuisance dust from affecting persons and their homes, damaging crops or impairing the safe use of adjacent public roadways. Oil and other petroleum derivatives would not be used as dust control. Speed limits would be enforced to reduce dust problems on dirt roads.
AIR-3	Equipment with excessive emissions of exhaust gases—especially particulates—would not be operated until repairs or adjustments were made.
TRANSPORTATION-1	Construction-caused delays to the operation of in-service railroads would be minimized and coordinated with the railroad operators. During conductor and static-wire stringing, appropriate methods would be used to avoid impacting railroad operations.
TRANSPORTATION-2	The construction contractor would be responsible for ensuring traffic safety on public roads. To the extent practicable, obstruction to traffic and inconvenience would be minimized. Passage of emergency response vehicles would be ensured. Safety for cattle trailing through the NPS would be ensured.
EMF-1	Western would design and include necessary mitigation measures to eliminate problems of induced currents and voltages onto existing conductive objects sharing a ROW. Western would install fence grounds on existing fences that cross or are parallel to the proposed line and in which induced currents are a problem.
EMF-2	Transmission lines would be designed to minimize noise while energized. Transmission lines would be designed to adhere to applicable electric and magnetic field (EMF) standards.
PALEO-1	To prevent impacts to important paleontological resources the contractor would implement agreements made by Western such as avoidance and use of infield monitors.
WILDLIFE-1	Western would design the transmission lines in conformance with Suggested Practices for Protection of Raptors on Power Lines (APLIC 1994) and Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006).
WILDLIFE-2	Western would comply with the Endangered Species Act, Migratory Bird Treaty Act, and other requirements identified through consultation with federal and state wildlife agencies and land management agencies.

Western's Project Specific Measures for the LV-YT No. 1 and No. 2 and BA-LV Transmission Line Rebuild Project	
PALEO-PS-1	The contractor would receive instructions from Western regarding the potential presence of fossils in pole excavations and in areas excavated or disturbed for roadwork. Areas underlying the pole locations and transmission line are identified by geological formation and rated by their Potential Fossil Yield Classification (PFYC). Areas underlain by geologic formations rated as having a PFYC of 4 or 5 must be monitored during surface disturbance. In areas underlain by geologic formation rated as having a PFYC of 3a and 3b, the contractor would report suspected paleontological finds to Western. If fossils of potential scientific significance are encountered during excavation into bedrock of geological formations with PFYC 3a and 3b the private land owner, tribe, or agency with jurisdiction over the lands on which the discovery is made must be notified and a qualified paleontologist should be contacted to evaluate the find and recommend and perform appropriate mitigation if required. If fossils of scientific significance are uncovered during excavation the fossils should be collected by a qualified paleontologist and curated into the collections of the institution listed on the paleontologist's permit. Structures 45-5 to 51-8 should be monitored with the exclusion of 45-5, 47-4, 50-5, 50-6, which have colluviums or alluvium above the Wildwood formation. Once structure sites have been identified, a field monitor could determine locations that may need monitoring during construction. Fewer sites may need to be monitored once structure locations have been determined.
WATER-PS-1	Western or its contractor would obtain permits for unavoidable short-term activity (installation of culverts) that may exceed state surface water quality standards. The applicable permit in Wyoming is a Temporary Turbidity Waiver; the applicable permit in Montana is a 318 Permit for Short-Term Turbidity Standard.
VEG-PS-1	Western would control noxious and invasive weeds within the Bighorn Canyon NRA through the interagency agreement with the National Park Service. This agreement will be developed prior to construction.
SOILS-PS-1	Following seeding, an appropriate mulch material would be properly applied to disturbed soils having a severe erosion hazard that occur on slopes greater than 25 percent. This would reduce erosion, restore soil productivity, and enhance revegetation potential.
SOILS-PS-2	Gen-5 and Gen-6 address the reclamation of roads and trails as well as staging areas. These construction practices would also be applied to structure locations and conductor stringing sites.
WILDLIFE-PS- 1 and T&ESSS-PS-1	Western or its contractor would inventory raptor nests each year prior to construction and would implement steps (avoidance, screening, and timing of construction) to prevent the project from disrupting occupied nests during the breeding season per WGFD and MFWP recommended buffer zones and seasonal restrictions. If construction cannot avoid prairie dog towns between March 1 and October 31, burrowing owl surveys would need to be completed per Colorado Division of Wildlife (2007) guidelines to ensure construction activities would not impact breeding burrowing owls.
WILDLIFE-PS-2 and T&ESSS-PS-1	Install a combination of Bird and Swan Flight Diverters on the overhead static (or shield) wires spanning the Shoshone River, Bighorn River and Greybull River portions of the ROW to reduce the risk for bird collisions with these lines. This recommended mitigation measure is most pertinent for Alternative A2 since this alternative would use single-pole double-circuit structures to cross the Shoshone River corridor. The vertical transmission wire configuration associated with the single-pole structures pose an increased collision risk for birds flying along the Shoshone River corridor. However, bird collision risk would be highest at the river crossings regardless of the wire and pole configurations, and the recommendation for installation of Bird and Swan Flight Deflectors would apply to all the action alternatives.
WILDLIFE-PS-3	To minimize the risk of increased energy expenditures by pronghorn already stressed because of winter weather or birthing, it is recommended that Western, or its contractor, not construct in pronghorn crucial winter range from mid-December through February and in fawning areas from mid-May through mid-June.

T&ESSS- PS-1 and 2	See WILDLIFE-PS-1and 2 above
CULT-PS-1	Impacts to NRHP-eligible cultural sites caused by construction shall be minimized by planning. Whenever possible, project-related ground disturbing activities would be planned outside of the boundaries of Historic Properties. If project-related ground disturbance is planned within 100 feet of a site, an archaeological monitor would be present to ensure that the site is not impacted during construction and that unexpected discoveries are identified immediately and are properly protected, documented, and reported.
VISUAL-PS-1	To minimize visual impacts conductors will be non-specular for Phase I of the project.

Source: Western Area Power Administration

2.2 Alternatives to the Proposed Project

2.2.1 Alternatives Considered and Eliminated

Western considered design alternatives to the Proposed Project. Alternatives not considered, such as relocating the lines and undergrounding the lines, are not economically feasible or reasonable, and would likely cause greater environmental damage than the Proposed Project. Alternatives considered and eliminated for the LV-YT No. 1 and No. 2 and BA-LV rebuild include:

- Rebuild the lines at 230 kV.
- Rebuild one of the lines at 230 kV and the other at 115 kV.

Rebuilding one of the lines at 230 kV and one at 115 kV would meet Western's purpose and need, but was eliminated because it does not provide additional benefits to justify the extra cost. Similarly, rebuilding both lines at 230 kV would meet the purpose and need but was eliminated because it does not provide additional benefits to justify the extra cost.

2.2.2 Structure Alternatives

One alternative structure type is evaluated in this EA to address other viable options for replacing the existing LV-YT No. 1 and No. 2 115-kV transmission lines. This alternative is described below. No structure alternatives are evaluated for the BA-LV 115-kV transmission line.

- Rebuild the LV-YT No. 1 and No.2 115-kV transmission lines using double-circuit single-pole steel structures, with 795-kcmil ACSS conductors for portions of the line segments outside the Bighorn Canyon NRA. This option is electrically equivalent to the Proposed Project and was developed by Western as an alternative to the Proposed Project. This alternative (Alternative A) would provide Western the ability to adjust the transmission line alignment within the existing ROW. Using the proposed alternative structure types requires less maintenance over the life of the lines, but would increase the total cost for construction of Phase II of the project.

Figure 2.2-1 shows the route, structure types, and ROW cross section for the Proposed Project and Alternative A.

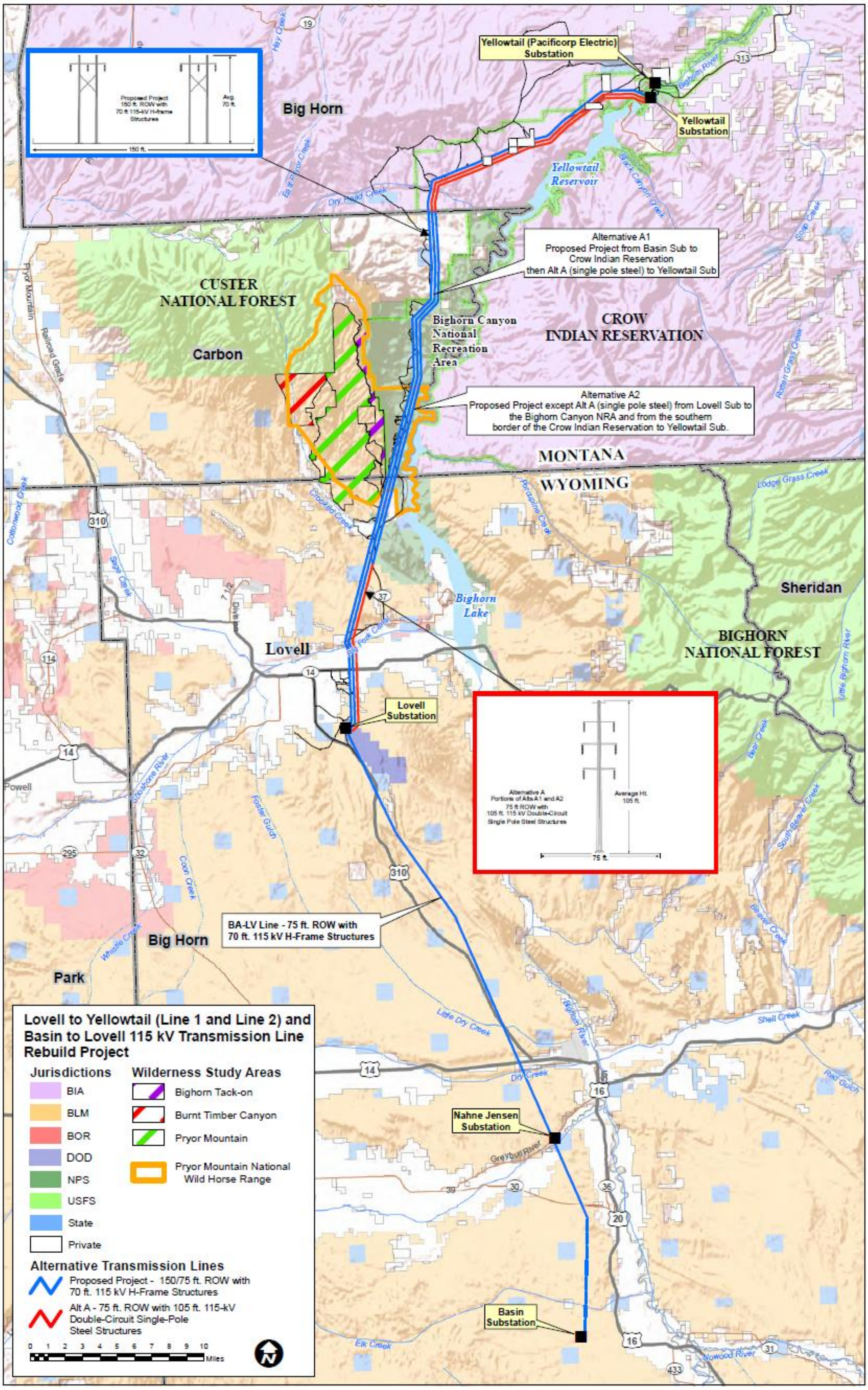


Figure 2.2-1 Route, Structure Type, and ROW Cross Section for the Proposed Project and Alternative A

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2.2.2.1 Alternative A: LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A: LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel would be a combination of the Proposed Project and the use of double-circuit single-pole steel structures for some segments of the transmission lines. Two variations are discussed for this alternative:

- A1 - 115-kV double-circuit single-pole steel structures through the Crow Reservation and 115-kV wood pole H-frame structures from the southern Crow Reservation boundary at the Big Horn County [Montana]/Carbon County line to the Lovell Substation.
- A2 - 115-kV double-circuit single-pole steel structures through the Crow Reservation and south of the Bighorn Canyon NRA, with 115-kV wood pole H-frame through the Bighorn Canyon NRA.

This alternative variation uses two main structure types. Figure 2.2-2 shows the location, height, and ROW cross section for each alternative and structure type.

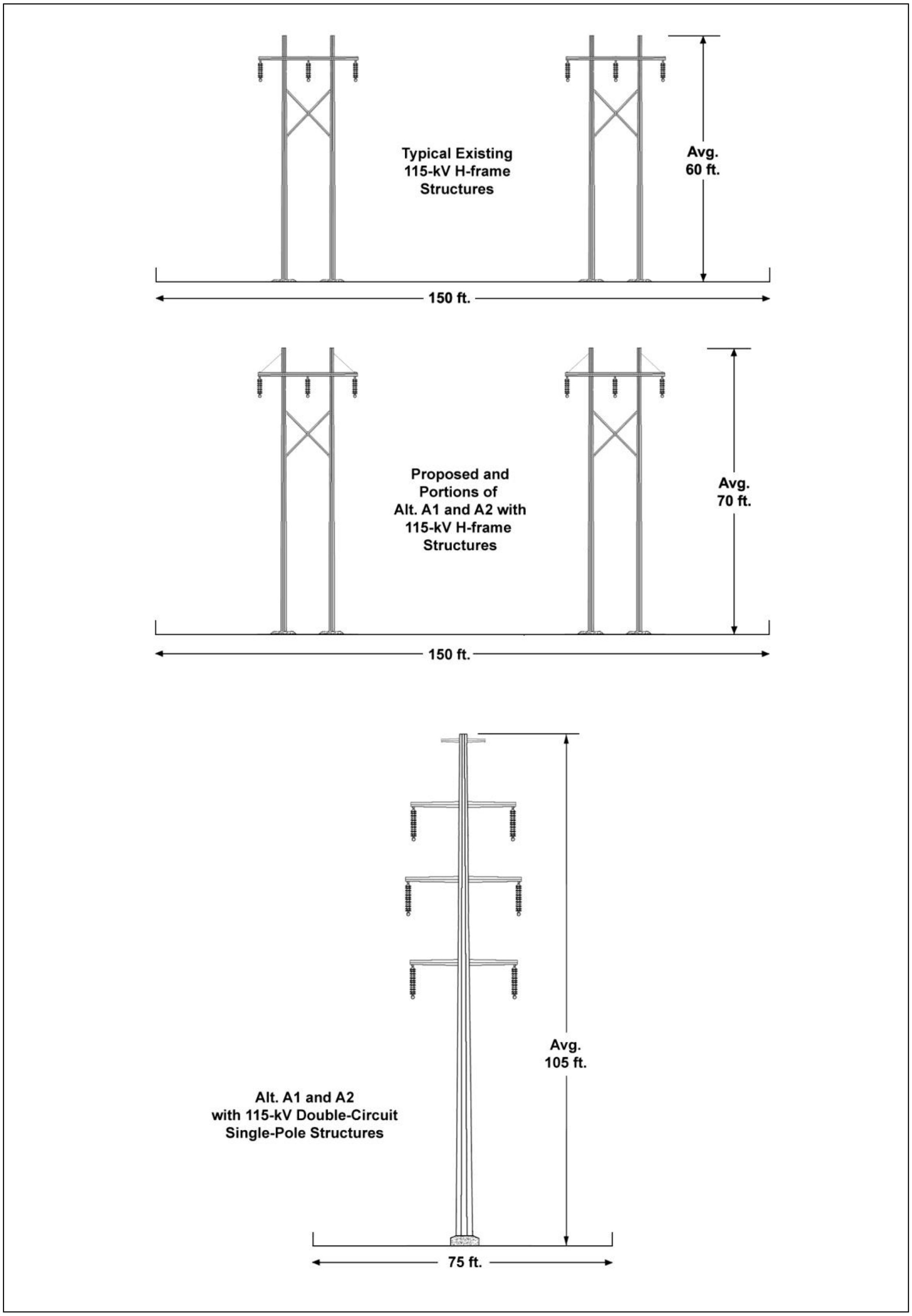

Figure 2.2-2 Cross Sections of ROWs with Structure Types for Proposed Project and Alternative A

Alternative A would be installed similar to the Proposed Project described in Section 2.1.6.2. In addition to the wood pole H-frame installation, the following describes installation of the single-pole steel structures.

Single-Pole Steel Structure Installation – Sections of the steel-pole structures would be delivered to the construction site. These sections would be off loaded at a staging yard and then taken to the structure locations. The foundations for these structures would be excavated using auger equipment to obtain the proper hole depth and diameter. Depending on the type of structure being used, the base section of the structure would be set in the hole and backfilled with concrete or a steel reinforced cast in place concrete foundation would be constructed. The above ground sections of the structure along with arms, insulators, and hardware would be assembled on the ground and then set on the base section or concrete foundation using a crane. After erecting the structure the new conductor would be strung and tensioned.

No additional ROW would be required for either the Proposed Project or Alternative A. Other combinations of single-pole steel and H-frame structures located along the line route may be viable alternatives for the LV-YT Rebuild Project, but are not discussed here. Table 2.2-1 summarizes the transmission line design requirements of the Proposed Project (LV-YT No. 1 and 2 and BA-LV) and Alternative A.

Table 2.2-1 Typical Transmission Design – Proposed Project (LV-YT No.1 and No.2 and BA-LV) and Alternative A (A1 and A2) for LV-YT Nos. 1 and 2

Description	**Proposed Project and portions of Alternative A – 115-kV Wood Pole H-Frame Structures (LV-YT Nos. 1 and 2 and BA-LV)**	**Portions of Alternative A – 115-kV Double-Circuit Single-Pole Steel Structures (LV-YT Nos. 1 and 2)**
Right-of-way width	75 feet per line	75 feet
Span between structures (average)	600-700 feet	800-900 feet
Span between structures (maximum)	1,600 feet	1,600 feet
Number of structures (average)	8 per mile	7 per mile
Height of structure (average)	70 feet	105 feet
Height of structure (typical range)	60-75 feet	100-150 feet
Width of structure cross/davit arm	25 feet at cross arm	20 feet at davit arm
Width of structure at ground level	12 feet	4 to 8 feet
Structure base area	3.5 sq. feet per pole	28 sq. feet per structure
Land disturbed by construction at each structure base	9,500 sq. feet on avg.	9,500 sq. feet. on avg.
Length of line per conductor stringing site	1.5-3 miles	1.5-3 miles
Land disturbed at each stringing site	0.25 acre 105 x 105 feet	0.25 acre 105 x 105 feet
Conductor type and size	ACSS 795 kcmil	ACSS 795 kcmil
Circuit configuration	horizontal	vertical
Minimum ground clearance beneath conductors	22 feet at 392 degrees Fahrenheit (at roads, streets, alleys, grazing, cultivated lands, forests: 99% of project area)	22 feet at 392 degrees Fahrenheit (at roads, streets, alleys, grazing, cultivated lands, forests: 99% of project area)

Source: Western Area Power Administration

Construction activities and ground disturbances that would be associated with the LV-YT Nos. 1 and 2 rebuild under the Proposed Project and Alternative A (A1 and A2) are summarized in Table 2.2-2. Construction activities and ground disturbance for the BA-LV rebuild are summarized in Table 2.1-2.

Table 2.2-2 Summary of Short-Term and Long-Term Surface Disturbance from LV-YT Proposed Project and Alternative A (A1 and A2) Transmission Line Construction

<table>
<tr><th>Project Component</th><th colspan="2">Quantity (Approximate Number)</th><th colspan="2">Short-Term Disturbance</th><th colspan="2">Long-Term Disturbance</th></tr>
<tr><td colspan="7">Proposed Project - LV-YT 115-kV Wood Pole H-Frame Structures</td></tr>
<tr><td>115-kV H-frame structures</td><td colspan="2">750 structures</td><td colspan="2">164 acres
(9,500 sq. feet. per structure)</td><td colspan="2">0.12 acres
(3.5 sq. feet per pole)</td></tr>
<tr><td>3-pole self-supporting or glue-laminated structures</td><td colspan="2">8 structures</td><td colspan="2">1.75 acres
(9,500 sq. feet. per structure)</td><td colspan="2">0.007 acres
(12.5 sq. feet per pole)</td></tr>
<tr><td>Conductor stringing sites</td><td colspan="2">25 sites</td><td colspan="2">6.25 acres
(0.25 acre per site)</td><td colspan="2">NA</td></tr>
<tr><td>Staging areas</td><td colspan="2">2-5 sites</td><td colspan="2">10-25 acres
(5 acres per site)</td><td colspan="2">NA</td></tr>
<tr><td>Removal of existing H-frame structures</td><td colspan="2">775 structures</td><td colspan="2">169 acres
(9,500 sq. feet. per structure)</td><td colspan="2">NA</td></tr>
<tr><td>New access roads</td><td colspan="2">1,500 feet</td><td colspan="2">0.6 acres
(18 foot road width and easement)</td><td colspan="2">0.6- acres
(18 foot road width and easement)</td></tr>
<tr><td>Total</td><td colspan="2"></td><td colspan="2">351.6-366 acres</td><td colspan="2">0.73-.13 acres</td></tr>
<tr><td colspan="7">Alternative A- LV-YT 115-kV Wood Pole H-Frame and 115-kV Double-Circuit Single-Pole Steel Variations</td></tr>
<tr><td></td><td>A1</td><td>A2</td><td>A1</td><td>A2</td><td>A1</td><td>A2</td></tr>
<tr><td>115-kV H-frame structures</td><td>400</td><td>240</td><td>87 acres (9,500 sq. feet. per structure)</td><td>52 acres (9,500 sq. feet. per structure)</td><td>0.06 (3.5 sq. feet per pole)</td><td>0.04 (3.5 sq. feet per pole)</td></tr>
<tr><td>3-pole self-supporting or glue-laminated structures</td><td>8</td><td>6</td><td>1.75 acres (9,500 sq. feet. per structure)</td><td>1.31 acres (9,500 sq. feet. per structure)</td><td>0.007 (12.5 sq. feet per pole)</td><td>0.005 (12.5 sq. feet per pole)</td></tr>
<tr><td>Single-pole steel structures</td><td>150</td><td>231</td><td>33 acres (9,500 sq. feet. per structure)</td><td>50 acres (9,500 sq. feet. per structure)</td><td>0.1 acres (28 sq. feet per structure)</td><td>0.15 acres (28 sq. feet per structure)</td></tr>
<tr><td>Conductor stringing sites</td><td colspan="2">25</td><td colspan="2">6.25 acres
(0.25 acre per site)</td><td colspan="2">NA</td></tr>
<tr><td>Staging areas</td><td colspan="2">2-5</td><td colspan="2">10-25 acres
(5 acres per site)</td><td colspan="2">NA</td></tr>
<tr><td>Removal of existing H-frame structures</td><td colspan="2">775</td><td colspan="2">169 acres
(9,500 sq. feet. per structure)</td><td colspan="2">NA</td></tr>
<tr><td>New access roads</td><td colspan="2">1,500 feet</td><td colspan="2">0.6 acres
(18 foot road width and easement)</td><td colspan="2">0.6 acres
(18 foot road width and easement)</td></tr>
<tr><td>Total</td><td colspan="2"></td><td>307.6 - 322 acres</td><td>289.2-304.1 acres</td><td>0.77 acres</td><td>0.80 acres</td></tr>
</table>

NA: Not Applicable
Source: Western Area Power Administration

2.2.3 No Action Alternative

Under the No Action Alternative, Western would not rebuild or upgrade the existing LV-YT No. 1 and No. 2 or BA-LV transmission lines. Maintenance requirements on these lines would likely increase and the lines would become difficult to maintain in service beyond six years given their age and deteriorating condition. Western would replace deteriorating structures as needed. Replacements of cross arms and other hardware would be required to keep the lines reliable and to ensure public and worker safety. Reliability problems and the frequency of repairs would increase as the lines continue to age. The No Action Alternative would not provide the needed transmission line capacity increase sought by Western. This alternative would not fill Western's stated purpose and need for the project.

3.0 Affected Environment and Environmental Consequences

3.1 Overview of Analysis Approach

Potential impacts are described in terms of type, context, duration, and intensity. General definitions of these terms are below.

- Type describes the impact as beneficial or adverse, direct or indirect.
    - Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
    - Adverse: A change that moves the resource away from a desired condition or detracts from its appearance or condition.
    - Direct: An effect on a resource by an action at the same place and time. For example soil compaction from construction traffic is a direct impact on soils.
    - Indirect: An effect from an action that occurs later or perhaps at a different place and often to a different resource, but is still reasonably foreseeable. For example removing vegetation may increase soil erosion and cause increased sediment in a stream.
    - Cumulative: Impacts to resources that are added to existing impacts from other actions. For example, surface water sediment runoff from the project, added to the sediment load from other unrelated projects in the area, may produce additional decrease in surface water quality.
- Context describes the area (site-specific) or location (local or regional) in which the impact will occur.
- Duration is the length of time an effect will occur.
    - Short-term impacts generally occur during construction or for a limited time thereafter, generally less than two years, by the end of which the resources recover their pre-construction conditions.
    - Long-term impacts last beyond the construction period, and the resources may not regain their pre-construction conditions for a longer period of time. For example, visual impacts from the transmission line would be long term since they continue as long as the project is in place.

The intensity of an impact is based on how the Proposed Project would affect each resource. The levels used in this EA are:

- Negligible: Impact at the lowest levels of detection with barely measurable consequences.
- Minor: Impact is measurable or perceptible, with little loss of resource integrity and changes are small, localized, and of little consequence.
- Moderate: Impact is measurable and perceptible and would alter the resource but not modify overall resource integrity, or the impact could be mitigated successfully in the short term.
- Major: Impacts would be substantial, highly noticeable, and long term.

3.2 Climate and Air Quality

3.2.1 Affected Environment

The study area for climate and air quality includes the Bighorn River drainage and surrounding area.

3.2.1.1 Climate and Air Quality

The Proposed Project would not have short- or long-term, measurable direct, indirect or cumulative effects on climate. There is no further discussion of climate impacts.

Information on climate is provided as background information pertinent to the air quality analysis. Specifically, climatic (atmospheric) conditions determine the dispersion and transport of pollutants.

The climate of the project area varies with terrain and elevation and the strong influence of the surrounding major topographical features such as the Absaroka Range and the Bighorn Mountains to the west and east of Lovell, respectively. These mountain ranges impede air flow from both the west and east, consequently also impeding the flow of moisture into the Bighorn Basin, making it the driest part of Wyoming. Drier climates are prone to be dustier. Annual average precipitation data for the project area are in Table 3.2-1.

Table 3.2-1 Annual Average Precipitation

Station Name	Average Annual Precipitation (inches)	Period of Record
Basin, WY	6.46	1898 – 4/30/2010
Greybull, W	6.87	1897 – 4/30/2010
Lovell, WY	6.66	1897 – 4/30/2010
Yellowtail, MT	17.8	1951 – 4/30/2010

Source: WRCC 2010

Wind data for the project area are not readily available. The closest available data to Lovell, Wyoming are from Cody and Greybull, Wyoming. These data indicate prevailing wind directions from the north and northwest with an average annual speed of approximately seven miles per hour (WRCC 2010). Wind speed is directly linked to the amount of fugitive dust that is generated. Fugitive dust increases with higher wind speeds, especially in drier areas.

The climatic conditions indicate the potential for stable atmospheric conditions. Air pollutants would not be dispersed as effectively under stable conditions versus unstable conditions. Higher concentrations of pollutant would be expected under stable conditions. The Big Horn canyon topography may limit the dispersal of pollutants.

Applicable Laws and Regulations

Federal actions must conform to the Clean Air Act (CAA). The Environmental Protection Agency (EPA) has primary federal responsibility for implementing the CAA. In Wyoming, the WDEQ-Air Quality Division (WDEQ-AQD) administers CAA requirements and the MDEQ-Air Resources Management Bureau (MDEQ-ARMB) does so in Montana. Wyoming and Montana have developed State Implementation Plans (SIPs). The SIPs describe how each state assures compliance with the CAA.

The EPA develops National Ambient Air Quality Standards (NAAQS). The Proposed Project lies within areas that are in compliance with the NAAQS for all critical pollutants. This includes compliance with standards for carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter, and lead. This means that the project is located within an “attainment” area (EPA 2010).

Under the CAA, proposed new sources of air pollutants must obtain construction and operating permits. The project is located within an attainment area, and is exempt from New Source Performance Standards

(NSPS) and would not be required to obtain federal or state air quality permits. The Proposed Project would be a temporary and transient operation with a relatively small amount of air emissions. Effects on air quality would be short term and limited to the vicinity of the construction activities.

Air Pollutants of Potential Concern

Particulates are the air pollutants of potential concern for the project. Pollutants would occur primarily from short-term construction-related activities or short-term maintenance activities, and to smaller degree exhaust (tailpipe) emissions, such as diesel particulates and carbon monoxide from construction or maintenance vehicles. The majority of particulate matter is made up of solid particles, such as the dust generated when construction vehicles drive on a dirt road.

Two standards have been established for particulate matter (PM), one addressing particles of 10 microns or less (PM-10), and another for particulate matter less than 2.5 microns in diameter (PM-2.5). The very small “fine” particles, PM-2.5 and smaller, are considered to be the greatest potential health concern. Most of these fine particles come from combustion processes, for example, vehicle exhaust. Smaller dust particles impact visibility to a greater extent than larger particles. As noted above, the project is located in an attainment area for all NAAQS (EPA 2010).

3.2.2 Environmental Impacts and Mitigation Measures

3.2.2.1 Issues and Significance Criteria

The project’s potential to violate air quality standards designed to protect the public’s health and welfare was evaluated.

The Proposed Project or action alternatives would have significant impacts on air quality if:

- The construction, maintenance or operation of the Proposed Project or action alternatives would violate federal or state standards.

3.2.2.2 Impacts of the Proposed Project

The Proposed Project would:

- comply with the NAAQS and the Montana and Wyoming SIPs, and
- have a negligible, short-term, direct adverse impact on air quality.

There are no federal or state permits required for this source type, and the Proposed Project would release small amounts of pollutants for short, intermittent periods. The Proposed Project would not affect areas designated Class I under the CAA.

The Proposed Project would result in short-term negligible increases in particulates from the movement of vehicles, equipment and soil disturbances. There would also be short-term emissions of diesel particulate matter, nitrogen oxides, hydrocarbons, carbon monoxide, and sulfur dioxide from construction and maintenance vehicles. Long-term, the proposed project would result in minor reductions in particulates and other vehicle air pollutants, since maintenance activities are expected to be less frequent than under the no action alternative.

3.2.2.3 Impacts of the Alternatives

Alternative A – LV-YT 115-kV Wood H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Impacts for Alternatives A1 and A2 would be similar to the Proposed Project and would create the same types of short-term and long-term impacts.

3.2.2.4 Impacts of the No Action Alternative

Under the No Action Alternative the impacts to air quality would primarily result from maintenance activities, similar to those previously described. Although maintenance activities are expected to increase under the No Action Alternative and, therefore, emissions from these activities would also increase, no violation of federal or state standards would result.

3.2.2.5 Mitigation Measures

No mitigation measures in addition to Western Standard Construction Project Practices AIR-1, AIR-2 and AIR-3 (Table 2.1-3) are needed for air quality.

3.3 Geology and Paleontology

Any surface disturbance affects the geological environment. The geological environment includes soils, bedrock, fossils, landslides, and other ground and slope failure.

3.3.1 Affected Environment

The Proposed Project crosses the northern part of the Bighorn Basin of Wyoming on the south and the northernmost margin of the Bighorn Mountains of Montana on the north. The lines cross the eastern edge of the Bighorn Basin and the Dryhead Creek area between the Bighorn and Pryor Mountains. From Lovell south, the transmission lines cross relatively flat areas of the Bighorn Basin. North of Lovell, the lines lie in or adjacent to a rugged area of hogbacks, cuestas, mesas, buttes, narrow gorges, and canyons. The Pryor Mountains are a faulted anticlinal massif. The Bighorn Mountains consist of folds complicated by reverse faulting to the west along their northwestern margin. The Bighorn and Pryor Mountains and Bighorn Basin formed during the late Cretaceous through Paleocene.

3.3.1.1 Geology

Sedimentary bedrock underlying the project area includes several geologic formations of Paleozoic (Pennsylvanian and Permian), Mesozoic (Triassic, Jurassic, and Cretaceous), and Cenozoic (Paleocene and Eocene) age (NPS 2005). Geologic maps and reports documenting the geology of the project area include the work of Thom et al. (1935), Andrews et al. (1944), Richards (1955), Love and Christiansen (1985), Hallberg et al. (1999 and 2001), Lopez (2000), Vuke et al. (2000), and Taylor et al. (2007). Several surfaces of probable late Tertiary and Quaternary age are capped with remnants of what were once widespread landslide and debris-avalanche deposits. Other landscape features include quaternary gravel terraces, bedrock terraces, alluvial deposits in stream valleys, and colluvial deposits on hillsides.

Geologic Hazards

Geologic hazards that could affect the area include earthquakes, floods, and landslides. The most likely hazards are mass movements on steep slopes. Flash flooding may be a hazard in narrow canyons. These areas are limited in the project area.

Seismicity. There are no known active faults mapped within 100 miles of the Proposed Project. The nearest active faults in Wyoming, the Upper Yellowstone, are just over 100 miles away. The nearest active fault in Montana, the Emigrant Fault, is about 130 miles away. No earthquake epicenters are recorded in the vicinity of the line. The nearest earthquakes have occurred in the Yellowstone area, along the western flank of the southern parts of Bighorn Range and northern flank of the Owl Creek Range. Four magnitude 2.5 and greater earthquakes have been recorded in Big Horn County, Wyoming between

1925 and 1998 (USGS 2010; USGS and Montana Bureau of Mines and Geology 2010; University of Wyoming 2010).

Mass Movement. Though ancient mass movements occurred in the vicinity, there have been no modern areas of mass movement according to the field survey or map review. The steepest grades in the area occur along the southern edge of East Pryor Mountain (structures 15-1 to 15-4), Deadman Creek (structure 28-4), Dry Head Creek (structure 32-1), Pitch Fork Creek (structure 33-5) and Hoodoo Creek (structure 36-6). The Tensleep Sandstone, which forms the rim rock at the creek crossings, dips gently and is not likely to erode and cause mass movements. The steepest dips in the project area are at the southern edge of the East Pryor Mountains. The stream geometry at this location is unlikely to cause erosion that would result in major mass movements.

Research in Bighorn Canyon NRA indicates three episodes of mass movement have impacted historic structures at two ranches (Lockhart & Hillsboro) in the past 100 years. For example, one episode recorded after 1954 caused destruction of segments of the Bad Pass Trail and headwall movement (approximately 650 feet) of a major drainage near the historic Ewing-Snell Ranch. Recent and ancient mass movements along the east flank of the Pryor Mountains provide evidence that major storms or earthquakes can result in damaging mass movements within the project area.

Small scale mass movement from erosional undercutting of existing cutbacks could occur in the project area along steep-sided river or creek drainages.

3.3.1.2 Paleontology

Fossil Occurrences and Results of Field Investigations

Geologic formations identified in the literature and records reviews with a Potential Fossil Yield Classification (PFYC) of 3a and 3b, 4, or 5 were surveyed for fossil resources. The PFYC system was developed by the USFS and BLM to classify geological deposits with paleontological resources. The PFYC system assigns a value of 1 or 2 to formations with very low to low potential to contain significant fossils, a value of 3a and 3b to formations with moderate or unknown potential to contain significant fossils, and a value of 4 or 5 to formations with high to very high likelihood of containing significant fossils (see Appendix D). The entire route was reviewed during the field survey.

Fossils of scientific significance were found in the Willwood Formation of early Eocene age underlying the southern end of the BA-LV line. The Willwood Formation is exposed between the Greybull River and the Basin Substation. Other formations with scientifically significant fossils known within a few miles of the corridor include the Lance (BA-LV), Sykes Mountain, Cloverly, and Morrison Formations (LV-YT). These formations are all poorly exposed; however, excavations up to 30 feet in depth could reach these formations and possibly impact buried fossils.

Other than the southern end of the BA-LV line (Willwood Formation), the potential for disturbing paleontological resources of PFYC 4 and 5 during project construction is considered relatively low (Winterfeld 2010). This is based on literature reviews, field surveys, and the general lack of bedrock exposure, along with the relatively young age of the Quaternary sediments in the project area.

Fossils found in the Willwood, Lance, Sykes Mountain, Cloverly, and Morrison Formations are summarized below. Fossils found in the remaining formations within the project area are summarized in Appendix D and described in Winterfeld (2010).

Tertiary Sedimentary Rocks: Fossils from the Willwood Formation (PFYC 4-5) include the remains of a variety of vertebrates including mammals, amphibians, reptiles, and birds of early Eocene age.

Scientifically significant fossil vertebrates were first collected by J.L. Wortman in 1880. Since then, over 120,000 specimens have been recovered from the formation from more than 75 expeditions spanning over a century. New specimens and new species continue to be found in the formation. These findings add significantly to the understanding of geology and paleontology. Bown and others (1994) listed 208 species of mammals in 44 families and 26 orders from the formation. Numerous fossil localities are known from rocks of the formation underlying the southern end of the BA-LV section. Fossil vertebrate material was identified at several of these localities during the field survey.

<u>Cretaceous Sedimentary Rocks</u>: Vertebrates, non-marine invertebrates, plants, and trace fossils were found at widely dispersed localities in the Lance Formation (PFYC 4-5) throughout Wyoming. Vertebrate fossils from the Lance Formation include: sharks, rays, bony fish, amphibians, turtles, lizards, champsosaurs, snakes, crocodiles, ornithischian and saurischian dinosaurs, pterosaurs, birds, and mammals (Weishample 1992; Breithaupt 1985; Clemens et al. 1979; Clemens 1966; Estes 1964; Dorf 1942). In addition, several species of bivalve and gastropod invertebrate and annelid worm tests are known from the formation (Keefer 1965; Brown 1962). Only poorly preserved wood fossils were found in the Lance Formation during the field survey.

The Sykes Mountain and Cloverly Formations (PFYC 4-5) yield an important dinosaur fauna (Ostrom 1969, 1970). The Crooked Creek Natural Area, or Tillett Fossil Area, is a few miles west of the transmission line. The most fossils have been found in the light gray siltstone near the base of the Cloverly Formation. Fossils discovered in this layer include: a large carnivore, a sauropod, an ankylosaur, an ornithopod dinosaur, most of a skeleton of a primitive duckbill, and a small carnivore. This 280-acre National Natural Landmark is located about 15 miles east of Lovell, Wyoming (Sherve-Bybee 2008).

<u>Jurassic Sedimentary Rocks</u>: The Morrison Formation (PFYC 4-5) is well known for its dinosaurian fauna (Ostrom and MacIntosh 1966), dinosaur tracks, and trace fossils of invertebrates (Hasiotis 2004, 2005). Only one small exposure of Morrison rocks occurs along the line; this exposure yielded no fossils during the field survey.

3.3.2 Environmental Impacts and Mitigation Measures

3.3.2.1 Issues and Significance Criteria

Geology

Impacts to geology, excluding paleontology or soils which are covered separately, could be significant if the following were to occur from the Proposed Project:

- Mineral resources of economic value to the region and the residents of the state are lost or made inaccessible for future use.

There is little potential that the transmission line would impact or make mineral deposits inaccessible. There are no known commercial mineral deposits within the area. Potential effects of seismicity, erosion, or slope failures are of minor interest for the Project.

Paleontology

The Paleontological Resources Preservation Act defines a paleontological resource as any fossilized remains, traces, or imprints of organisms, preserved in or on the Earth’s crust, that are of paleontological interest and that provide information about the history of life on Earth. Archaeological resources and cultural items are not considered paleontological.

Impacts to paleontological resources would be direct, adverse, and long-term if:

- Rare or scientifically significant fossils are destroyed directly or indirectly by the project without being discovered, properly excavated, and curated.

The Proposed Project could inadvertently destroy fossils during construction; however, the potential for direct long-term impacts to paleontological resources is considered low, given the conditions observed in the field. To ensure that impacts to paleontological resources are avoided or reduced, Western would contact the Department of Geology at the University of Wyoming, Laramie, Wyoming; the Museum of the Rockies, Bozeman, Montana, or the NPS if fossils are discovered.

3.3.2.2 Impacts of the Proposed Project

Soil impacts and erosion are discussed in Section 3.7. Impacts to sedimentary bedrock can impact paleontology. The greater the amount of bedrock impacted the greater the chance of impacts to paleontology.

Excavation for structure foundations could be up to 30 feet deep with a potential for direct impacts to the geology or to paleontological resources.

Geology

No areas of mass movement along the existing transmission lines were identified from literature, map reviews, and field surveys.

No impacts to geology are expected if construction techniques described in Sections 2.1.6 and 2.1.8 are used during excavation and maintenance of the Project. Adverse geological impacts that might occur during construction are considered negligible and long-term.

Paleontology

Literature review and the field survey documented the known scientifically significant fossils within the Proposed Project area only in the Willwood Formation west of Greybull and Basin, Wyoming (BA-LV). However, undiscovered fossils of scientific significance could be affected negatively by the project, particularly in formations of high or moderate paleontological interest.

The most paleontologically significant geologic units in the project area are the Willwood, Lance Formations (BA-LV), Sykes Mountain, Morrison, and Cloverly Formations (LV-YT) (PFYC 4-5). The Willwood Formation is exposed between the Greybull River and the Basin Substation. The Lance Formation is poorly exposed. The Cloverly and Morrison Formations are chiefly covered by alluvium in the valley of Crooked Creek; however, excavations up to 30 feet deep could penetrate these units and possibly impact buried fossils. Other formations with known paleontological resource potential (PFYC 3a and 3b) include the Fort Union, Meteetsee, Mesaverde, Cody, Frontier, Mowry, Shell Creek, Muddy, Thermopolis, and Sundance Formations (Appendix D).

Based on field observations, most geologic units within the project area are expected to have a very low potential for impacts to paleontological resources. On-site conditions that reduce the potential for encountering fossils of scientific value include cover by soil, alluvium or colluviums, and a lack of rocks known to contain vertebrate remains.

Impacts to paleontological resources would not be expected but undiscovered fossil remains could be disturbed by excavation. Potential impacts to fossil resources in areas underlain by the Willwood Formation could be mitigated by identifying the location of structures and monitoring in areas that are underlain by exposed bedrock or where bedrock is shallow enough to be disturbed.

If undiscovered fossils were disturbed, the direct impact would be adverse, long-term, and could be minor or moderate depending on the particular fossils disturbed.

3.3.2.3 Impacts of the Alternatives

Impacts of Alternative A

The Proposed Project and Alternatives A1 and A2 include ground disturbances with potential direct impacts to geological and paleontological resources. The Proposed Project and Alternatives A1 and A2 include surface disturbance from the removal of old structures, building of new structures, and the use of staging areas and conductor stringing sites. The Proposed Project and Alternatives A1 and A2 vary in the number of structures and total area of short and long-term disturbance. The Proposed Project has more short-term ground disturbance than Alternatives A1 and A2 and similar ground disturbance to Alternatives A1 and A2 in the long-term (See Table 2.1-2). The potential for direct impact to geological and paleontological resources is related to the amount of surface disturbance. The potential for impact is highest for the Proposed Project and somewhat less for Alternatives A1 and A2.

Disturbances to geology are not expected for Alternatives A1 and A2 if best management practices, including construction measures described in Sections 2.1.7 and 2.1.8 (Table 2.1-3), are followed. No major fossil resources were discovered during the field survey, so it is unlikely that fossils would be impacted by Alternatives A1 or A2. The likelihood of impacts to fossil resources is lessened because exposures of paleontologically sensitive bedrock formations (PFYC 4 and 5) are limited along the existing transmission line.

3.3.2.4 No Action Alternative

The No Action Alternative would avoid direct impacts to geology or paleontological resources during typical maintenance activities, which would continue under this alternative. Existing structures are typically supported without engineered foundations, using direct burial of the end of the structure. If existing structures located in rock outcroppings are replaced because of deterioration or damage, they would be replaced in the same hole from which the old structure is removed or near to it. No impacts are expected.

3.3.2.5 Mitigation Measures

Geology

Impacts to geology are not expected if measures for construction described in Table 2.1-3 are adhered to during implementation and maintenance of the new transmission line. No additional mitigation measures are recommended.

Paleontology

Western Standard Construction Project Practices and project specific measure PALEO-PS-1 (Table 2.1-3) would be used to ensure that impacts to paleontological resources are mitigated.

Project Specific Measure PALEO-PS-1. The contractor would receive instructions from Western regarding the potential presence of fossils in pole excavations and in areas excavated or disturbed for roadwork. Areas underlying the pole locations and transmission line are identified by geological formation and rated by their Potential Fossil Yield Classification (PFYC). Areas underlain by geologic formations rated as having a PFYC of 4 or 5 must be monitored during surface disturbance. In areas underlain by geologic formation rated as having a PFYC of 3a or 3b, the contractor would report suspected paleontological finds to Western. If fossils of potential scientific significance are encountered during excavation into bedrock of geological formations with PFYC 3a or 3b the private land owner, tribe, or agency with jurisdiction over the lands on which the discovery is made must be notified and a qualified paleontologist should be contacted to evaluate the find and recommend and perform appropriate mitigation if required. If fossils of scientific significance are uncovered during excavation the fossils should be collected by a qualified paleontologist and curated into the collections of the institution listed on the paleontologist's permit. Structures 45-5 to 51-8 should be monitored with the exclusion of 45-5, 47-4, 50-5, 50-6, which have colluviums or alluvium above the Wildwood formation. Once structure sites have been identified, a field monitor could determine locations that may need monitoring during construction. Fewer sites may need to be monitored once structure locations have been determined.

3.4 Water Resources and Floodplains

Federal regulations that ensure the protection of water resources include the Safe Drinking Water Act (SDWA) and the Clean Water Act (CWA). The SDWA protects drinking water resources and requires strategies to prevent pollution. The CWA regulates pollutant discharge into streams, rivers and wetlands. The EPA has established primary and secondary standards to guarantee quality drinking water. The WDEQ and the MDEQ implement the standards set by the EPA and regulate the discharge of pollutants into surface and ground water and enforce the Primary Drinking Water Regulations. Crow Tribal government and the federal government administer CWA regulations through the EPA for actions within tribal lands.

Section 402 of the CWA authorizes discharges of storm water under the National Pollutant Discharge Elimination System (NPDES). The states of Montana and Wyoming are delegated the NPDES program under the CWA in 1974 and 1975, respectively, and have adopted their own state Pollutant Discharge Elimination System programs. If applicable, Western would issue a Notice of Intent to obtain coverage under the MDEQ general permit and WDEQ general permit and would prepare a Storm Water Pollution Prevention Plan (SWPP Plan). The SWPP Plan includes stabilization practices, structural practices, storm water management, and other controls.

Authorizations from the USACE under Section 404 of the CWA is required when there is a discharge of dredge or fill material into waters of the U.S. (WUS), including wetlands (see Section 3.5 for definition of WUS). The Proposed Project may impact some wetlands. The following Nationwide Permit (NWP) under 33 CFR 330 may be applicable to activities proposed by this project:

- NWP No. 12 – Utility Line Activities: allows for the construction, maintenance, and repair of utility lines and associated facilities in Waters of the U.S.; this includes wetlands, provided the activity does not result in a loss of greater than 0.50 acres of non-tidal wetlands.

Floodplains are land areas adjacent to rivers and streams that are subject to recurring flooding. Floodplains typically help moderate flood flow, recharge ground water, spread silt to replenish soils, and provide habitat for a number of plant and animal species. Executive Order 11988, Floodplain Management, requires federal agencies to ensure their actions minimize the impacts of floods on human health and safety, and restore the natural and beneficial values of floodplains. DOE regulations in 10 CFR parts 1021 and 1022 require public notification of floodplain involvement (DOE 2003) (see Appendix E). Western sent a notification of proposed floodplain action for the LV-YT transmission lines to affected landowners, the NPS, and other agencies on January 9, 2009. Notification of proposed floodplain and wetlands actions for the BA-LV transmission line was sent to the WDEQ, BLM, Federal Emergency Management Agency (FEMA), USACE, and other local agencies on October 28, 2010.

3.4.1 Affected Environment

The project area includes the Proposed Project ROW, access roads, and substation sites.

Surface Water

Lovell-Yellowtail

The Bighorn River flows through Big Horn County, Wyoming, and is the county line between Carbon County, and Big Horn County, Montana. The Bighorn River is the major drainage in the project area and is a tributary to the Yellowstone River in Montana. The confluence of the Shoshone River and the Bighorn River is at Bighorn Lake, northeast of Lovell, Wyoming.

The beneficial use water quality classification system implements the Water Quality Control Act in Wyoming and the Water Quality Act Montana. The Crow Tribal government has not currently adopted a similar system for implementation of the Water Quality Act within the Crow reservation.

Water quality along the Wyoming portion of the transmission lines is classified by the WDEQ (2007). Streams and rivers along this reach have the designation Class 2AB and include (listed from the Lovell Substation to the north) Sand Draw, Shoshone River, Bighorn River, and Crooked Creek. Class 2AB waters support all beneficial uses, including drinking water, game fish, non-game fish, fish consumption, other aquatic life, recreation, wildlife, agriculture, industry, and scenic values (WDEQ 2007).

Water quality along the Montana portion of the transmission lines is classified by the MDEQ (2010a). The classification for the “Bighorn drainage above, but excluding Williams Coulee near Hardin” is B-1. Waters classified as B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming , and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply (MDEQ 2010b).

Section 303(d) of the federal CWA requires that states’ list waters that do not fully support existing or designated uses and require development of a Total Maximum Daily Load (TMDL). The Shoshone River upstream from the confluence with Bighorn Lake is on the Wyoming 2010 303(d) List of Waters Requiring TMDLs for fecal coliform (WDEQ 2010).

There are no 303(d) listed waters requiring TMDLs in the Montana portion of the project area (MDEQ 2010b).

Water quality in Bighorn Canyon NRA is described in the Strategic Plan 2001 – 2005 (NPS 2000). The goal of the NPS is that water quality within the park is unimpaired. Baseline water quality was deemed unimpaired from 2000 through 2005. Sedimentation is a water quality issue that faces the park at the southern end of the Bighorn Reservoir. The NRCS estimated in 1994 that 4,000 tons of sediment enters the southern end of the reservoir per day. The identified causes of this sediment are, according to the Soil Conservation Service, erosion of stream banks, flows returned to the river after cropland irrigation, erosion from croplands due to irrigation practices, and erosion from rangeland (NPS 2000).

The existing transmission lines cross the Shoshone River and several other perennial streams in the project area, including Crooked Creek in Wyoming, and Layout Creek, Davis Creek, Deadman Creek, Dry Head Creek, Spring Creek, Hoodoo Creek, and Bighorn River in Montana. The remaining drainages within the project area that are crossed by the existing transmission lines and access roads are ephemeral streams. The larger perennial drainages are often located within deeply incised canyons that are tributary to the Bighorn River. The transmission line ROW and access roads cross 101 surface water drainages. Most of these drainages (80) are ephemeral channels that flow during snow melt or local precipitation. The transmission lines cross canals nine times and perennial streams twelve times (JNS, Inc. and Cedar Creek Assoc., Inc. 2010). Table 1 in JNC, Inc. and Cedar Creek Assoc., Inc. (2010) lists all drainages and irrigation canals or ditches that are crossed by the existing transmission line or access roads. The alignment of the two transmission lines would be located within the same corridor as the existing lines.

Existing access roads cross drainages approximately 26 times. Fourteen of these crossings had either culvert(s) or bridge crossings. Improvements to stream crossings would occur at seven locations. One of these improvements would be a rock crossing and six culvert installations are planned. Both of these types of improvements would be constructed according to Western Standard Construction Project Practices (Table 2.1-3). Four of the culvert installations would occur in ephemeral streams (located in Wyoming). Installations would be planned during periods when no flow is present. Layout Creek (located within the Bighorn Canyon NRA in Montana) and Deadman Creek (located in Montana) are perennial streams. Short-term Turbidity Standard Authorizations would be required if installation of culverts is likely to cause unavoidable short-term sediment and turbidity violations of state surface water quality standards. An existing culvert located at Rotten Creek (located within the Crow Reservation) would require placement of additional fill to stabilize the culvert, however, no new fill would be required in the drainage. Western's Project Specific Measure WATER-PS-1 requires that Temporary Turbidity Waivers (in Wyoming) and Short-Term Turbidity Authorizations (318 Permits in Montana) are obtained prior to installation of culverts.

Access roads cross drainages at five locations with no road improvements: Tributary to North Fork Trail Creek (dry in August 2008), Dry Head Creek, Spring Creek, Pitchfork Creek and Hoodoo Creek. During the period from July 30, through August 5, 2008, four of these unimproved crossings (all but Tributary to North Fork Trail Creek) had some water flowing across the access road, but by the beginning of November 2008, Rotten Creek, Spring Creek, Pitchfork Creek and Hoodoo Creek all were dry. All of these unimproved crossings (except tributary to North Fork Trail Creek) are along BIA Road 192.

Basin-Lovell

All of the drainages along the BA-LV segment of the project are tributary to the Bighorn River. Streams and rivers along this reach have the Wyoming designation Class 2AB supporting all beneficial uses (WDEQ 2007).

The Greybull River upstream from the confluence with Bighorn River and lower Dry Creek have been listed on the Wyoming 2010 303(d) List of Waters Requiring TMDLs for fecal coliform (WDEQ 2010).

The BA-LV line crosses the Greybull River and Dry Creek. These two drainages are the only perennial drainages along the ROW from Basin to Lovell. The existing BA-LV line crosses a total of 96 drainages. Of this total, the transmission line crosses 2 perennial drainages, 92 ephemeral drainages, and 2 canals or ditches. One pond located near an abandoned strip mine between structure numbers 73-3 and 73-4 (Appendix A) is also spanned by the line. Five wetland areas were noted in the field survey along this segment. The following drainages and tributaries to these drainages are crossed by the transmission line and access roads and are described in Table 2 in JNS, Inc. and Cedar Creek Assoc., Inc. (2010):

- South Fork Elk Creek
- Elk Creek
- Antelope Creek
- Tributaries to the Bighorn River
- Greybull River
- Dry Creek
- Little Dry Creek
- Lovell Draw
- Sand Draw

Access roads cross a total of 91 ephemeral drainages. The two perennial drainages along the ROW are not crossed by access roads. There are a total of 15 culverts in access roads along this segment crossing 11 drainages. Three locations have double culverts, and one stream is crossed twice near the same location. There are 80 unimproved road crossings of ephemeral drainages. Two of these access road crossings were inaccessible during field reconnaissance in June, 2010; a tributary to the Bighorn River (between structures 76-2 and 76-3) and a tributary to Sand Draw (between structures 81-5 and 81-6). Steep banks at these crossings make it difficult for vehicles to cross. There is evidence that all terrain vehicles (ATVs) are able to cross these drainages during times of no flow or low flow.

Floodplains

Lovell-Yellowtail

FEMA maps show 100-year floodplains at seven locations along the LV-YT line corridor along a 15-mile section between Western's Lovell Substation, and the Montana state line (FEMA 1998). Access roads cross the designated floodplains at 17 locations. Table 3.4-1 shows the existing number of structures and access roads within each floodplain, and the distance along the line that falls within the floodplain. Figures E-1 through E-6 show the locations of the primary floodplains in the area (FEMA 1998). Floodplain hazard mapping is not available for the portions of the project area located in Carbon, or Big Horn Counties, Montana. The transmission lines currently span several undesignated floodplains and the structures for the transmission lines are not located in stream channels or valley bottoms. The rebuilt transmission lines would be located along the same alignment as the existing lines and would also span floodplains that are not delineated by FEMA. New structures would be located to avoid stream channels and valley bottoms.

Basin-Lovell

The BA-LV line crosses 100-year floodplains shown on FEMA maps at six locations (FEMA 1998). Access roads (including State Highway 310) cross designated 100-year floodplains at 10 locations. Of these 10 locations, State Highway 310 spans tributaries to Little Dry Creek at 5 locations in an approximate 2.5 mile stretch of highway. The access roads that parallel the transmission line and one access road used to reach the Basin Substation cross these designated floodplain zones at 5 locations. The transmission line spans the floodplains of the Greybull River and Dry Creek; however, there is no access road crossing at either of these locations. The existing number of structures and access roads within each floodplain for the BA-LV line are shown in Table 3.4-1. Figures E-7 through E-12 show the locations of these designated floodplains. FEMA floodplain delineations were available for the entire length of the BA-LV transmission line.

Ground Water

Lovell-Yellowtail

Ground water in the project area is found in unconsolidated deposits of alluvium and colluvium associated with floodplains and terraces along the Bighorn River, Shoshone River, and some of the perennial tributaries to these rivers. The depth to the water table in these deposits is generally shallow.

The largest water yields from the bedrock aquifers come from confined aquifers that are predominately composed of thick porous and permeable sandstone, limestone, or dolomite, such as the Tensleep Sandstone, Madison Limestone and Bighorn Dolomite (Late Ordovician to Mississippian age), and Flathead Sandstone (Middle Cambrian age). The aquifers with the most potential for development as a water supply are predominantly composed of sandstone, such as the Lance Formation, Mesaverde Formation, and Frontier Formation (Upper Cretaceous age) (Plafcan et al. 1993).

Basin-Lovell

Ground water resources along the BA-LV line have been developed within the alluvium and colluvium of the Greybull River and Dry Creek and the bedrock aquifers mentioned above (Plafcan et al. 1993).

Table 3.4-1 Structures and Access Roads within Designated Flood Hazard Zones along Existing Transmission Lines

River/Stream Name	Township	Range	Section	Quarter Section Quarter Section	Structure Numbers within Designated Flood Hazard Zones	Number of Structures within Designated Flood Hazard Zones	Approx. Distance across Designated Flood Hazard Zones (feet)	Approx. Location of Access Road Crossing	Approx. Distance across Designated Flood Hazard Zone (feet)	Fig No.	Remarks
Lovell-Yellowtail Line No. 1 (East)											
Little Dry Creek	55N	95W	6	NW NW				US Highway 310	95	3.4-1	
Sand Draw	55N	95W	6	NW NE				US Highway 310	234	3.4-1	
Lovell Lakes	56N	96W	TR38					US Highway 310	1684	3.4-2	
Lovell Lakes	56N	96W	TR38					County Road 12.5 to Lovell Substation	281	3.4-2	
Sand Draw	56N	96W	30	NE SW				County Road 12.5 to Lovell Substation	178	3.4-2	
Sand Draw	56N	96W	31	(NW, NE, SW and SE) NW				2 track road from US 310 to Lovell Substation	701	3.4-2	Located in center of NW quarter of Section 31
Sand Draw	56N	95W	30	SE NE				4 WD road parallels lines	457	3.4-2	
Sand Draw	56N	95W	30	SE NE	1-1 - 1-2	1	537		682	3.4-2	Same distance for access road parallel to transmission line
Shoshone River	56N	95W	6	E 1/2 SE	4-6 - 4-8	2	1231		1231	3.4-3	Same distance for access road parallel to transmission line
Shoshone River	56N	95W	TR 10					Access road parallel to line and State Highway 37, then turns to west across SH 37 to access south bank of Shoshone River	744	3.4-3	
Shoshone River	56N	95W	TR 83,84					State Highway 37 and bridge across Shoshone	1868	3.4-3	

River/Stream Name	Township	Range	Section	Quarter Section Quarter Section	Structure Numbers within Designated Flood Hazard Zones	Number of Structures within Designated Flood Hazard Zones	Approx. Distance across Designated Flood Hazard Zones (feet)	Approx. Location of Access Road Crossing	Approx. Distance across Designated Flood Hazard Zone (feet)	Fig No.	Remarks
Tributary to Shoshone River	57N	95W	22,23					State Highway 37	2540	3.4-4	
Crooked Creek	57N	95W	10	W1/2 SW	9-7 - 10-1	2	973		973	3.4-5	Same distance for access road parallel to transmission line
Crooked Creek	57N	95W	10	W1/2 SW	10-1 - 10-3	1	655		672	3.4-5	Same distance for access road parallel to transmission line
Crooked Creek	57N	95W	10	SE NW				Gravel road from west side of SH 37 to structure No. 10-5	1771	3.4-5	
Crooked Creek	57N	95W	10					State Highway 37	1266	3.4-5	
Crooked Creek	57N	95W	3	SW NE	11-3 - 11-5	3	1774		2132	3.4-5	Same distance for access road parallel to transmission line
Crooked Creek	57N	95W	3					Gravel from west side of SH 37, west through Section 4, then north to Section 33, then east through Section 34	557	3.4-5	
Crooked Creek	57N	95W	3					2 Track access road, leaves to north from gravel road	454	3.4-5	
Crooked Creek	58N	95W	35, 36					State Highway 37	6789	3.4-5, 3.4-6	
Crooked Creek	58N	95W	34	NW SE	12-1 - 12-3	2	1258		1258	3.4-5, 3.4-6	Same distance for access road parallel to transmission line
Crooked Creek	58N	95W	33	NE SW, SE NW				Gravel road	627	3.4-6	

River/Stream Name	Township	Range	Section	Quarter Section Quarter Section	Structure Numbers within Designated Flood Hazard Zones	Number of Structures within Designated Flood Hazard Zones	Approx. Distance across Designated Flood Hazard Zones (feet)	Approx. Location of Access Road Crossing	Approx. Distance across Designated Flood Hazard Zone (feet)	Fig No.	Remarks
Big Coulee	58N	95W	34	NE NE	12-5 - 12-7	2	1023		1023	3.4-6	Same distance for access road parallel to transmission line
Big Coulee	58N	95W	34					Gravel road	920	3.4-6	
Lovell-Yellowtail Line No. 2 (West)											
Sand Draw	56N	95W	30	SE NE	1-1 - 1-2	1	682	See Lovell-Yellowtail Line No. 1-same access roads.			
Shoshone River	56N	95W	6	E 1/2 SE	4-5 - 4-8	3	868	See Lovell-Yellowtail Line No. 1-same access roads.			
Crooked Creek	57N	95W	10	W1/2 SW	9-8 - 10-1	2	917	See Lovell-Yellowtail Line No. 1-same access roads.			
Crooked Creek	57N	95W	10	W1/2 SW	10-1 - 10-2	2	672	See Lovell-Yellowtail Line No. 1-same access roads.			
Crooked Creek	57N	95W	3	SW NE	11-2 - 11-5	3	2132	See Lovell-Yellowtail Line No. 1-same access roads.			
Crooked Creek	58N	95W	34	NW SE	12-1 - 12-3	3	1225	See Lovell-Yellowtail Line No. 1-same access roads.			
Big Coulee	58N	95W	34	NE NE	12-6 - 12-8	2	989	See Lovell-Yellowtail Line No. 1-same access roads.			
Basin-Lovell Line											
South Fork Elk Creek	50 N	93 W	29	SE NE				Gravel road	643	3.4-7	
Elk Creek	50 N	93 W	18	SE SW	47-4	1	1214	Access road along line veers to east near north edge of floodplain.	1293	3.4-7	
Tributary to Antelope Creek	51 N	93 W	31	E 1/2	50-5 - 50-7	3	2610	Access road along line veers to west near north edge of floodplain.	2754	3.4-8	
Greybull River	52 N	94 W	36	SW NW	57-2	1	1058			3.4-9	No access across floodplain.
Dry Creek	52 N	94 W	10	NE NW	61-7	1	596			3.4-10	No access across floodplain.
Tributary to Little Dry Creek	53 N	94 W	27	NW SW		0	182			3.4-11	No access across floodplain.

River/Stream Name	Township	Range	Section	Quarter Section Quarter Section	Structure Numbers within Designated Flood Hazard Zones	Number of Structures within Designated Flood Hazard Zones	Approx. Distance across Designated Flood Hazard Zones (feet)	Approx. Location of Access Road Crossing	Approx. Distance across Designated Flood Hazard Zone (feet)	Fig No.	Remarks
Tributary to Little Dry Creek	53 N	94 W	28, 21	NE NE SE SE	65-5	1	874	Access road along line	905	3.4-11	
Tributary to Little Dry Creek	53 N	94 W	27, 28, 21, 17	Various				State Highway 310	861	3.4-11	Highway spans floodplains along tributaries in 5 locations.
Tributary to Bighorn River	54 N	95 W	11	NE NW		0	285	Access road along line	1933	3.4-12	

3.4.2 Environmental Impacts and Mitigation Measures

3.4.2.1 Issues and Significance Criteria

Surface Water

Impacts to surface water would be significant if:

- Water quality and instream flows are modified by construction or accidental contamination so water users are measurably affected.
- Impacts from the project cause downstream effects to fish populations or other aquatic life.

Floodplains

Impacts to floodplains would be significant if:

- The siting of the transmission line structures in a floodplain would increase the potential for flooding.
- The construction of the transmission line or access roads would violate applicable floodplain protection standards.

Ground Water

Impacts to ground water would be significant if:

- Construction of foundations for the transmission line structures measurably impacts the quantity and quality of ground water used for public water supplies and irrigation, or the water quality violates state water quality criteria.

3.4.2.2 Impacts of the Proposed Project

Surface Water

The Proposed Project would not use or consume surface water, so the impact to the quantity of surface water flows would be negligible. Direct, short-term impacts to surface water quality and aquatic habitat could result from accidental spills of petroleum products, hydraulic fluids, or antifreeze. The potential for spills would be negligible, as refueling would not occur within 500 feet of surface water, and Western's construction contractor would be required to implement a spill response plan to clean up spills and reduce the potential for water pollution. Western Standard Construction Project Practice SOLID WASTE-1 addresses accidental spills (Table 2.1-3).

Lovell-Yellowtail

The existing transmission lines cross a total of 101 drainages. Twelve of these are perennial streams or rivers, nine are canals, and 80 are ephemeral drainages (JNS, Inc. and Cedar Creek Assoc., Inc. 2010). Four historic canals were recorded along the transmission line alignments (see Table 3.10-1, and footnotes). The transmission lines currently span all of these drainage features and structures are not located within a body of water. The Proposed Project would also span all of these drainage features, and replacement structures would not be placed within a body of water so there would be no direct, adverse, short-term or long-term impacts to surface water quantity, quality or aquatic habitat.

Soil disturbance during construction could cause indirect impacts to surface water. Construction is planned to be completed in phases, and short-term disturbance would occur from mid-2011 through the end of 2014.

Phase I construction would occur mostly within the Bighorn Canyon NRA boundary, but some construction would be done on private property within the Crooked Creek area. Access roads would cross drainages twelve times during Phase I construction. There are currently culverts at eight of these crossings, and three additional culverts would be installed: two at locations within the Bighorn Canyon NRA (an unnamed tributary to Crooked Creek, and Layout Creek), and one on private property in the Crooked Creek Drainage. There is one unimproved crossing of a tributary to North Fork Trail Creek where there is no defined channel.

Access roads would cross drainages 14 times during Phase II of construction. Five of these drainages are crossed via culverts, and one is crossed by a bridge. Installation of culverts is planned at three locations within private property. One rock crossing is planned at a tributary to Grapevine Creek within the Crow Reservation. The remaining four crossings are located along BIA Road 129 and would remain unimproved crossings. The following Western Standard Construction Project Practices would mitigate the effects of sedimentation and erosion: GEN-1, GEN-2, GEN-5, GEN-6, GEN-10, EROSION-1, EROSION-2, WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, and WATER-6 (Table 2.1-3). In addition, the following project specific measure would be implemented:

<u>Project Specific Measure WATER-PS-1</u>. Western or its contractor would obtain permits for unavoidable short-term activity (installation of culverts) that may exceed state surface water quality standards for a short time. The applicable permit in Wyoming is a Temporary Turbidity Waiver; the applicable permit in Montana is a 318 Permit for Short-Term Turbidity Standard.

The LV-YT lines would have a negligible adverse long-term impact on quantity of surface water flow, aquatic habitat and surface water quality. Fish populations or other aquatic biota would not be impacted in the long-term from the construction or operation of the project.

Short-term, adverse, indirect impacts from construction of the transmission lines and improvement of access roads (including 1,500 feet of new access road construction) along the LV-YT lines would be minor to moderate.

Long-term, adverse, indirect impacts from sedimentation and erosion would be negligible to minor because reclamation of new road construction may take longer than 2 years to be effective. After reclamation of disturbed areas is complete the long-term, adverse, indirect impacts from sedimentation and erosion would become negligible.

There would also be negligible long-term, beneficial, indirect impacts from the reclamation of 12.6 acres of redundant and abandoned roads.

Basin-Lovell

The existing BA-LV line crosses 96 drainages. The Greybull River and Dry Creek are the only perennial drainages crossed by the line; 92 drainages crossed are ephemeral. There are two canals or ditches that are also crossed by the transmission line. The Agrarian Ditch is the only historic canal crossed by the transmission line ROW (see Section 3.10). The transmission line currently spans all of these drainages and structures are not located within an identifiable stream channel. The rebuilt transmission line would also span the drainages and structures would not be placed within a body of water. There would be no direct, adverse, short-term or long-term impacts to surface water quantity, quality, or aquatic habitat from the construction of the rebuilt transmission line or access roads.

There would be no construction along the BA-LV line during Phase I. Construction would commence from Basin to Lovell during Phase II and there would be indirect impacts to surface water quality and aquatic habitat from construction.

Access roads currently cross 91 ephemeral drainages. There are 15 culverts located within access roads along this segment crossing 11 drainages. There are 80 unimproved crossings of ephemeral drainages.

Access and ROW roads for the BA-LV line would need to be improved at nine crossings as shown in Table 3.5-2. There would be six culvert installations along the line: one culvert crossing at South Elk Creek, three culvert crossings on tributaries to Bighorn River, and two culvert crossings on tributaries to Sand Draw. Rock crossings would be constructed at Elk Creek and at a ditch located immediately south of the Greybull River (between structures 56-7 and 56-8).

The Western Standard Construction Project Practices and Project Specific Mitigation Measures referenced for the LV-YT line would also be followed for the BA-LV line.

Direct, short-term impacts to surface water quality and aquatic habitat that could result from accidental spills of petroleum products, hydraulic fluids, or antifreeze would be negligible.

The BA-LV line would have a negligible adverse long-term impact on quantity of surface water flow, aquatic habitat, and surface water quality.

Short-term, adverse, indirect impacts from the construction of the transmission line and improvement of access roads would be moderate because of the greater number of unimproved crossings along this transmission line.

Long-term, adverse, indirect impacts from sedimentation and erosion would be negligible to minor. No new access roads are planned for the BA-LV line.

Floodplains

Lovell-Yellowtail

The existing transmission line ROWs and access roads cross both designated and undesignated flood hazard zones. Where possible, structures would not be placed within these flood hazard zones. The proposed spacing of structures along the ROWs would be similar to the existing spans, and would average 600 to 700 feet, with a maximum span of 1,600 feet for H-frame structures. The longest existing span along the ROW is approximately 2,300 feet, crossing the Bighorn River at the Yellowtail Dam. This span is accomplished with a lattice steel tower on each side of the river; these towers would be rebuilt in approximately the same locations. Proposed spacing of structures for Davis Creek (approximately 1,600 feet), Hoodoo Creek (approximately 1,550 feet), Deadman Creek and Pitchfork Creek (each approximately 1,100 feet) would also be rebuilt with the same spacing as the existing lines.

No designated flood hazard mapping is available for portions of the project area located in Montana. In areas without mapped designated floodplains, the deeply incised canyons and identifiable stream channels (ephemeral and perennial) would be spanned with similar spacing as the existing lines. Some of the structures could be located within floodplains. Structures that could be located in undesignated floodplains of some of the larger perennial drainages, including Layout Creek, Davis Creek, Deadman Creek, Dry Head Creek, Pitchfork Creek, Hoodoo Creek, Tributary to Grapevine Creek, and the Bighorn River, are presented in Table 1 in JNS, Inc. and Cedar Creek Assoc., Inc. (2010). Floodplains may also be present along some ephemeral drainages crossed by the transmission lines in the Montana portion of the project area, including tributaries to Crooked Creek, Bighorn River, Booz Canyon, Layout Creek, South Fork Trail Creek, North Fork Trail Creek, Petes Canyon, Deadman Creek, Davis Creek, Templeton Creek, Dry Head Creek, Pitchfork Creek, and Grapevine Creek (JNS, Inc. and Cedar Creek Assoc., Inc. 2010). There are a total of 24 designated floodplain areas that would be crossed by the proposed project or access roads in the Wyoming portion of the project.

There are 17 designated floodplains crossed by existing access roads, including US Highway 310, State Highway 37, County Road 12.5, two-track access roads, and four-wheel drive access roads. The interagency agreement between Western and the NPS would be implemented with regard to access road stabilization, maintenance, reclamation, and restoration as well as the standard construction project practices and project-specific mitigation measures. There would be negligible adverse, direct short-term impacts from the expected roadwork to the designated floodplains and no impact to the existing roads that already cross these flood hazard zones.

The existing and proposed transmission lines cross flood hazard zones in seven locations. There are currently 29 existing structures located within these zones. Table 3.4-1 shows the locations of these areas as well as the number of structures currently located within flood hazard zones.

Replacement structures would be located near existing structures and would span identifiable channels, as they do currently. Activity within the floodplains could include the removal of existing structures, augering holes for replacement structures, and installation of replacement structures. The spacing of proposed replacement structures would be similar to the spacing of structures on the existing lines. The total number of structures required for the proposed project would be approximately 750. Installation of structures in the designated flood hazard zones would be limited to the Sand Draw, Shoshone River, Crooked Creek, and Big Coulee Creek drainages.

Long-term disturbances within the flood hazard zones from the transmission lines would be limited to the footprints of the structures and access roads.

The structures and access roads located within the floodplains do not currently impede the natural action or function of the floodplains. Structures have existed in these floodplains since 1956 and floods have not caused any damage to structures. There is no potential for the structures to cause flooding. Roads may be damaged by the passing of a flood.

Indirect impacts would be similar to those described above, under surface water. Indirect, adverse, short-term and long-term impacts would be negligible. The following Western Standard Construction Project Practices would minimize impacts to floodplains: GEN-10, WATER-1, WATER-3, WATER-5, and WATER-6 (Table 2.1-3).

Basin-Lovell

The existing ROW along the BA-LV line crosses designated flood hazard zones. Access roads cross these flood hazard areas in a total of nine locations. The access road that parallels the transmission line crosses designated flood hazard zones in the following three areas: Elk Creek, Antelope Creek, and a tributary to Little Dry Creek. An access road leading to the Basin Substation crosses the flood hazard zone of South Fork of Elk Creek; State Highway 310 spans the flood hazard zone of a tributary to Little Dry Creek in five locations. There would be no impact to the existing roads that already cross these flood hazard zones.

The BA-LV line crosses flood hazard zones in seven locations. There are a total of seven structures located within these flood hazard zones (Table 3.4-1). The replacement structures would also span identifiable channels. Activity in the floodplains is the same as described in the LV-YT discussion above, and the proposed spacing of replacement structures would also be similar to the spacing of structures on the existing line. Installation of structures in the designated flood hazard zones would be limited to Elk Creek, a tributary to Antelope Creek, Greybull River, Dry Creek, a tributary to Little Dry Creek, and a tributary to Bighorn River.

The footprints of seven structures (approximately 7 square feet per H-frame structure, or 0.001 acres) and the presence of the existing access roads would be the extent of long-term disturbance within the designated flood hazard zones. Similar to the LV-YT transmission lines, the structures and access roads located within the floodplains do not currently impede the natural action or function of the floodplains. There is no potential for the structures to cause flooding. Roads may be damaged by the passing of a flood.

Indirect impacts would be similar to those described above, under surface water. Indirect, adverse, short-term and long-term impacts would be negligible. Western Standard Construction Project Practices and Project Specific Mitigation Measures set out for limiting impacts from construction in floodplains are the same as for the LV-YT lines.

Ground Water

Lovell-Yellowtail

Impacts to ground water from the reconstruction of the transmission lines and improvement of access roads would be limited to alluvial aquifers associated with floodplains and terraces along the Bighorn River, the Shoshone River, and some of the perennial tributaries to these rivers. The depth of the structures would range from approximately 10 feet for wooden structures to a maximum of 30 feet for steel structures. Excavation for steel structures would extend to competent rock or to a maximum depth of 30 feet, whichever is reached first. Ground water could be encountered during excavation for and construction of structures, requiring dewatering of the excavated areas. Water removed from the excavation would be discharged back to the surface, and would likely infiltrate and return to the alluvial aquifer with no substantial net loss of ground water from the impacted aquifer or any connected aquifers. Since excavation and construction for the structures would occur relatively quickly, dewatering operations would be of short duration, and would remove small volumes of ground water.

The following Western Standard Construction Project Practices (Table 2.1-3) would be followed: GEN-7, SOLID WASTE-1, WATER-1, and WATER-4. These construction practices pertain to the construction of borrow pits to prevent water collection, and the control of waste waters from dewatering work to prevent discharge into surface waters.

There would be negligible, adverse, direct, short-term or long-term impacts from dewatering during construction. Deeper aquifers would not be impacted by the project.

Basin-Lovell

Impacts to ground water along the BA-LV line would be the same as the LV-YT lines. The same construction practices would be followed that are listed in the previous section. There would be negligible, adverse, direct, short-term or long-term impacts from dewatering during construction.

3.4.2.3 Impacts of the Alternatives

Lovell-Yellowtail

The alternatives discussed below follow the same route as the Proposed Project. The same processes for the removal of existing structures, construction of new structures, and the direct effects on surface water quantity and quality, floodplains, and ground water resources impacted would be the same as noted in Section 3.4.2.2, Impacts of the Proposed Project. Locations of access roads would not change, and the impacts from these roads would remain the same as with the Proposed Project. Impacts to water resources from accidental spills would remain the same as with the Proposed Project.

While the area of construction disturbance and length of the span between structures varies between the Proposed Project and Alternatives A1 and A2, construction of these alternatives still would not impede natural action or function of floodplains, and there would be no potential for these structures to cause flooding.

Differences noted in the following discussions are related to the short-term and long-term, indirect effects from construction disturbance.

Basin-Lovell

There are no alternatives to the Proposed Project for the Basin-Lovell transmission line portion of the project.

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A1

The construction disturbances from Alternative A1 would be less than from the Proposed Project, and more than the disturbances from Alternative A2 (See Table 2.1-2). The indirect, adverse, short-term impacts from construction disturbances to surface and ground water would remain minor, and the indirect, adverse, long-term impacts would be negligible to minor.

Alternative A2

The construction disturbances from Alternative A2 would be less than from the Proposed Project and Alternative A1 (See Table 2.1-2). The indirect, adverse, short-term impacts from construction disturbances to surface and ground water would remain minor, and the indirect, adverse, long-term impacts would be negligible to minor.

3.4.2.4 Impacts of the No Action Alternative

Under the No Action Alternative maintenance activity would increase, which could lead to short-term, negligible increases in adverse impacts to surface water from sedimentation and erosion due to increased access to the LV-YT and BA-LV lines.

3.4.2.5 Mitigation Measures

Implementation of Western Standard Construction Project Practices (Table 2.1-3) GEN-2, GEN-4, GEN-5, GEN-6, GEN-10, EROSION-1, EROSION-2, WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, and WATER-6 and Project Specific Measure WATER-PS-1 would mitigate the effects of sedimentation and erosion on surface water.

Project Specific Measure WATER-PS-1. Western or its contractor would obtain permits for unavoidable short-term activity (installation of culverts) that may exceed state surface water quality standards for a short time. The applicable permit in Wyoming is a Temporary Turbidity Waiver; the applicable permit in Montana is a 318 Authorization for Short-Term Turbidity Standard.

Western Standard Construction Project Practices GEN-1, WATER-1, WATER-3, WATER-5, and WATER-6 would minimize impacts to floodplains and GEN-7, SOLID WASTE-1, WATER-1, and WATER-4 would minimize impacts to ground water. No additional mitigation measures would be required.

3.5 Wetlands and Other Waters of the U.S.

Wetlands are defined under the Clean Water Act (CWA) as areas that are inundated with enough surface or ground water to sufficiently and regularly support a prevalence of aquatic, semi-aquatic, or wetland vegetation. Wetlands are characterized by distinct soil types, and unique plant and wildlife communities (EPA 2001). Wetlands enhance both water quality and supply by retaining and removing sediment. They provide flood storage, ground water recharge and discharge, shoreline anchoring, and unique habitat for plants and wildlife. Section 404 of the CWA protects wetlands by giving regulatory and permitting authority of wetlands to the U.S. Army Corps of Engineers (USACE). Executive Order 11990 requires federal agencies to minimize the destruction or modification of wetlands and enhance the natural and beneficial values of them. DOE regulations found at 10 CFR 1022 require public notification of wetland involvement.

Waters of the U.S. (WUS) are defined by the USACE as traditional navigable waters, wetlands adjacent to traditional navigable waters, non-navigable tributaries of traditional navigable waters, and wetlands that directly abut such tributaries. WUS are jurisdictional and regulated by the USACE.

The wetland and WUS analysis areas addressed by this document consist of a 300-foot-wide corridor for LV-YT and a 200-foot-wide corridor for BA-LV along the transmission line ROWs and drainage crossings by existing access roads.

3.5.1 Affected Environment

Lovell-Yellowtail

Wetlands within the LV-YT analysis area are associated primarily with perennial drainages and springs. The characteristics of drainages, wetlands, and other WUS are summarized in Lovell-Yellowtail and Basin-Lovell Transmission Line Rebuild Drainage and Wetland Crossings Technical Report [JNS, Inc. and Cedar Creek Associates, Inc. (2010)]. Eighty of the 101 drainages crossed by the ROW and access roads (JNS, Inc. and Cedar Creek Associates, Inc. 2010) are ephemeral channels that flow during snowmelt or local storms. The ephemeral channels range from steep-sided and incised to flat and shallow, but are generally narrow, with no defined channel, and support only upland vegetation within their embankments. These ephemeral drainages with no defined channel or perennial wetlands were not classified as WUS, but a final determination would need to be made by the USACE.

Eight drainages have a defined channel where they crossed the ROW but did not support wetlands (JNS, Inc. and Cedar Creek Associates, Inc. 2010). These drainages were assumed to have a continuous channel connection to the larger perennial streams in the area and were classified as WUS. The WUS classification could not be confirmed in the field for many of the smaller drainages because access in most areas was restricted to the ROW and designated access roads.

Eleven ROW crossings of perennial drainages with flowing water support wetland vegetation along the embankments (JNS, Inc. and Cedar Creek Associates, Inc. 2010). Wetlands and water in these drainages were classified as WUS. Additional wetlands and possible WUS are supported below two springs and along nine irrigation canals (JNS, Inc. and Cedar Creek Associates, Inc. 2010) that have been constructed in agricultural land primarily within the Shoshone River Basin. The most extensive wetland crossing area is associated with pastureland between the Lovell Canal and the Globe Canal south of U.S. Highway Alternate 14.

Vegetation supported by wetlands ranges from emergent herbaceous communities along the smaller perennial drainages, to mixed shrub and tree riparian communities along the larger drainages. The larger drainages in the LV-YT project area are the Shoshone River, Bighorn River, Dry Head Creek, Pitchfork Creek, Davis Creek, and Hoodoo Creek. Except for the Shoshone River, the larger drainages are within canyons with steep to near-vertical rock side slopes and concave canyon bottoms. The Shoshone River typifies a prairie water course that is not confined within steep canyon walls. Stream courses range from meandering to nearly straight. Common wetland herbaceous vegetation species recorded along the stream courses and canals are meadow foxtail (*Alopecurus pratensis*), foxtail barley (*Hordeum jubatum*), Nebraska sedge (*Carex nebrascensis*), reed canarygrass (*Phalaris arundinacea*), Baltic rush (*Juncus balticu*s), common threesquare (*Schoenoplectus pungens*), common cattail (*Typha latifolia*), and showy milkweed (*Asclepias speciosa*). Typical shrub and tree species recorded along the larger streams and irrigation canals include coyote willow (*Salix exigua*), Russian olive (*Elaeagnus angustifolia*), narrow-leaf cottonwood (*Populus angustifolia*), boxelder (*Acer negund*o), and chokecherry (*Prunus virginiana*).

USACE jurisdiction is uncertain for canals and these features are noted as possible WUS in JNS, Inc. and Cedar Creek Associates, Inc. (2010). The USACE usually takes jurisdiction over irrigation canals if they intercept and drain into WUS. The jurisdictional status of irrigation canals was not determined in the field due to access restrictions, and because all canals and associated wetlands are currently spanned by the existing transmission lines and would be spanned by the transmission line rebuilds with no impacts to wetlands or waters within these irrigation features. Isolated wetlands with no connection to WUS are also noted in JNS, Inc. and Cedar Creek Associates, Inc. (2010).

Basin-Lovell

Wetlands within the BA-LV analysis area are associated with three of the larger drainages (Greybull River, Dry Creek, and Little Dry Creek), two irrigation canals/ditches, and an abandoned strip mine pond. JNS, Inc. and Cedar Creek Associates, Inc. (2010) summarize the characteristics of drainages, wetlands, and other WUS. Ninety-three of the 98 drainages crossed by the ROW and access roads (JNS, Inc. and Cedar Creek Associates, Inc. 2010) are ephemeral channels that flow only during snowmelt or local storms. The ephemeral channels range from steep-sided and incised to flat and shallow. Most have a defined channel but supported little to no vegetation or only upland vegetation within their embankments. The Project assumed that these drainages have a continuous channel connection to the larger perennial streams in the area and were classified as WUS. The WUS classification could not be confirmed in the field for some of the smaller drainages because of access considerations across private property.

There are two ROW crossings of perennial drainages (Greybull River and Dry Creek with flowing water and wetland vegetation along the drainage embankments (JNS, Inc. and Cedar Creek Associates, Inc. 2010). Wetlands and water in these drainages were classified as WUS. Additional wetlands and WUS are supported at the ROW crossings of Little Dry Creek, a tributary to Little Dry Creek, Agrarian Ditch, and a ditch and associated wetlands on the south side of the Greybull River (JNS, Inc. and Cedar Creek Associates, Inc. 2010). The most extensive wetland crossing area undulates in and out of the ROW between the ditch and wetlands on the south side of the Greybull River between structures 56-6 and 57-1 (see Appendix A). Two structures (56-7 and 56-8) are in this wetland. The ROW crosses one additional wetland. This is an isolated wetland (no connection to WUS) that has formed around the perimeter of an abandoned strip mine pond between structures 73-3 and 73-4.

Wetland vegetation supported in the BA-LV analysis area consists primarily of emergent herbaceous communities. Mixed herbaceous/shrub/tree riparian communities are supported only along the Greybull River and Dry Creek. Common herbaceous vegetation species recorded along the stream courses and canals are meadow foxtail, foxtail barley, reed canarygrass, rush (*Juncus* sp.), spikerush (*Eleocharis* sp.), and showy milkweed. Shrub and tree species recorded at the Greybull River and Dry Creek crossing were coyote willow, Russian olive, eastern cottonwood (*Populus deltoides*), and tamarisk (*Tamarix ramosissima*).

3.5.2 Environmental Impacts and Mitigation Measures

3.5.2.1 Issues and Significance Criteria

A significant impact on wetlands or WUS would result if the following were to occur from construction or operation of the Proposed Project.

- A wetland or other WUS fill impact of equal to or greater than 0.5 acre for any separate and distinct drainage affected, thereby requiring a Section 404 Individual Permit application to the USACE.

According to the USACE, Wyoming Regulatory Office (Wolken 2010), placement of fill of less than 0.10 acre in each separate drainage classified as WUS would be covered under the USACE existing Nationwide Permit for access road improvements associated with utility projects. A Nationwide 12 Permit would only be required if a fill in any single drainage equaled or exceeded 0.1 acre. Fill equal to or exceeding 0.5 acre would require an Individual Permit for the project.

Table 3.5-1 summarizes direct, indirect, short-term, and long-term wetland impacts for the Proposed Project. These impacts are discussed in greater detail in the following section.

Table 3.5-1 Wetland Resources – Summary of Impact Types and Duration

Direct Impacts	**Short-Term**	**Long-Term**
Minor increases in sediment release in wetlands or other WUS where access road construction traffic crosses flowing WUS or wetlands without culverts or bridge crossings.	X	
Possible minor compaction of soils and wetland vegetation by overland construction traffic across the wetland pasture between existing structures 2-7 and 2-8 for LV-YT and between structures 56-6 and 56-8 for BA-LV.	X	
Less than 0.1 acre loss of wetlands from low water crossing fill for the ditch near structure 56-6 and fill for ground stabilization for wetlands between structures 56-8 and 57-1.		X
Indirect Impacts		
Possible increase in runoff and sediment into wetlands in or near ROW.	X	
Accidental spills of fuel, oil, or other contaminants into wetlands or other WUS.	X	

3.5.2.2 Impacts of the Proposed Project

Short-term impacts would be direct disturbance (such as wetland vegetation removal/crushing or placement of fill in wetlands or WUS) associated with the construction phases of the Proposed Project or action alternatives. Long-term impacts would be those that remain following reclamation of disturbed sites (i.e., sites where new permanent structures are established or permanent fill is placed in wetlands or WUS). The existing transmission lines currently span all drainages (including WUS and wetlands), and there are no structures within wetlands or other WUS except for structures 56-7 and 56-8 on the BA-LV line. This condition would remain unchanged with the Proposed Project. New spans would be similar, and construction and placement of new structures in wetlands or other WUS would be avoided except for the BA-LV structures 56-7 and 56-8.

As indicated in Table 3.5-1, there would be two potential short-term, direct impacts to wetlands and WUS. One would be a minor and localized increase in sediment release to wetlands and WUS at unimproved access road crossings of drainages (JNS, Inc. and Cedar Creek Associates, Inc. 2010). This would be the case at the access road crossings of Layout Creek, Dry Head Creek, Spring Creek, Pitchfork Creek, and Hoodoo Creek upstream of the transmission line ROW for the LV-YT line. The access road crossing of Rotten Creek has an existing culvert that would require additional fill stabilization over the culvert, but no fill would be placed in the drainage. There are also two unimproved ROW access road crossings of unnamed wetland drainages, one between existing structures 22-6 and 23-1 (tributary to North Fork Trail Creek with no WUS or wetlands within the ROW) and one between existing structures

42-8 and 43-1 (wetland drainage tributary to Grapevine Creek). For the BA-LV line, access and ROW roads would need to be improved at nine crossings as indicated in Table 3.5-2.

Table 3.5-2 Access Road Concerns Along the ROW for the BA-LV Transmission Line

Drainage Name	Township	Range	Section	Quarter Section Quarter Section	Structure Nos.	Drainage Type	Wetlands	WUS	Issue	Action Required
Tributary to South Fork Elk Creek	50N	93W	19	NE NW	46-1 to 46-2	ephemeral	no	yes	drainage cut across road	3 ft. x 25 ft. culvert requiring 60 sq. ft. of fill in WUS
Elk Creek	50N	93W	18	SW SE	47-4 to 47-5	ephemeral	no	yes	drainage cut across access road	low water crossing requiring lay back of steep banks above average high water line and 600 sq. ft. of rock and gravel fill in WUS
Unnamed Ditch	52N	94W	36	SE SW	56-7 to 56-8	irrigation ditch connected by wetlands to Greybull River	yes	yes	ditch cut and wetlands across road	low water crossing requiring 400 sq. ft. of rock and gravel fill in WUS and wetlands
NA – (above the average high water line of the Greybull River)	52N	94W	36	NW SW	56-8 to 57-1	wetland connection between ditch and Greybull River	yes	yes	wetlands between ditch and river; soft, unstable ground	unstable/soft surface requiring placement of Geomat and ~2800 sq. ft. of road base
Tributary to Bighorn River	54N	95W	12	SW SW	74-3 to 74-4	ephemeral	no	yes	drainage cut across road	2 ft. x 22 ft. culvert with wing on west side requiring 55 sq. ft. of fill
Tributary to Bighorn River	54N	95W	11	NE NW	75-4 to 75-5	ephemeral	no	yes	drainage cut across road	3 ft. x 20 ft. culvert or 40 ft, low water crossing requiring 200 sq. ft. of fill
Tributary to Bighorn River	54N	95W	2	SW NW	76-2 to 76-3	ephemeral	no	yes	drainage cut across road	3 ft. x 18 ft. culvert requiring 80 sq. ft. of fill
Tributary to Sand Draw	55N	95W	28	NE NE	78-7 to 78-8	ephemeral	no	yes	drainage headcutting into road	2 ft. x 16 ft. culvert requiring 45 sq. ft. of fill
Tributary to Sand Draw	55N	96W	8	NW NE	81-5 to 81-6	ephemeral	no	yes	drainage cut across road	3 ft. x 22 ft. culvert requiring 80 sq. ft. of fill

With the LV-YT segment, construction traffic travel across Layout Creek, Dry Head Creek, Spring Creek, Pitchfork Creek, and Hoodoo Creek at access road crossings would cause a minor increase in vehicle use beyond existing local ranch traffic, except at Layout Creek, and a minor, localized increase in sediment loads in these drainages. Construction traffic crossing of the wetland drainage tributary to Grapevine Creek would result in the short-term crushing of minor amounts of wetland vegetation, and minor increases in downstream sediment loads. Under normal climatic and hydrologic conditions, wetland vegetation impacted by truck traffic would be expected to recover to baseline conditions within one to two growing seasons. Western would install a culvert at the Layout Creek crossing, and construct a rock fill wet crossing at the wetland drainage tributary to Grapevine Creek (between structures 42-8 and 43-1) to reduce drainage disturbance and sediment discharge impacts at these drainage crossings. Improvements at these two drainages would result in approximately 300 square feet of fill in WUS, which is well under the 0.1-acre (4,356 sq. ft.) threshold that would trigger the requirement for a Nationwide 12 permit application to the USACE. The remainder of the unimproved access road drainage crossings would remain as unimproved. Once construction traffic would cease, stream and wetland conditions at the unimproved road crossings would quickly return to currently existing conditions.

With the BA-LV segment, all but two of the proposed access road crossing improvements are in ephemeral drainages supporting no wetland vegetation. As indicated in Table 3.5-2, fill required in each drainage crossing being upgraded would be less than 0.1 acre and would be permitted under the USACE existing Nationwide Permit. Similar to LV-YT, construction vehicle crossings of unimproved drainage crossings would result in minor, localized increase in sediment loads only during flow periods.

The minor compaction of soils and wetland vegetation across the wetland pasture between existing structures 2-7 and 2-8 on the LV-YT line would result in short-term, direct impacts. There is no established two-track access road along this portion of the ROW. Construction equipment could travel along the wetland portion of the ROW in this area with minimal wetland damage during drier times of the year, but some compaction of vegetation and wetland soils could occur with this travel. Both soil and vegetation would be expected to recover within a growing season after construction is complete. There is a similar situation on the BA-LV in wetlands south of the Greybull River between structures 56-6 and 56-8. Construction traffic would be able to stay to the west of the existing wetlands along this segment, except in the immediate vicinity of structures 56-7 and 56-8 where there would be some compaction of vegetation and wetland soils associated with the replacement of these poles. There would be a long-term loss of wetlands with the constructed (rock/gravel) low water crossing at the ditch between structures 56-7 to 56-8 and in the wetlands between structures 56-8 to 57-1 where Geomat material and road base placement would be required to stabilize the surface for construction access to structure 57-1 (Table 3.5-2). Total fill placement in wetlands for these two access improvements would remain below 0.1 acre.

Indirect impacts could result in increased erosion or sedimentation in wetlands and other WUS along the proposed ROW. This would be an indirect impact because construction would avoid wetlands and other WUS, but runoff from disturbed sites could impact nearby wetlands and drainages. As part of the Proposed Project, Western would implement their Standard Construction, and Maintenance Practices GEN-1, SOLID WASTE-1, WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, WATER-6 (Table 2.1-3), which would reduce the potential for adverse direct and indirect impacts to wetlands and other WUS to negligible levels.

Accidental spills of petroleum products, hydraulic fluids, or antifreeze could also adversely impact wetlands, and Western would require the construction contractor to adhere to Western Standard Construction Project Practices SOLID WASTE-1 and WATER-4 (Table 2.1-3) to reduce the risk of pollutant release into streams and wetlands. Western would also require the construction contractor to have in place a spill containment plan, which would require a prompt response to control and clean any spills, and reduce potential for water pollution and wetland degradation.

In summary, impacts to wetlands and other WUS would be limited to relatively short-term, localized minor increases in sediment release at unimproved access road drainage crossings, and possible short-term compaction of wetland vegetation and soils between LV-YT structures 2-7 and 2-8 and BA-LV structures 56-8 and 57-1. Access road crossing improvements would result in minor long-term losses of wetlands and WUS, but the losses would be well under 0.10 acre for each drainage crossing. There would be no indirect loss or degradation of federal or state protected wetlands or riparian areas, and there would be no wetland fill impacts exceeding 0.5 acre for any given drainage. Therefore, impacts to wetlands and other WUS would be minor.

3.5.2.3 Impacts of the Alternatives

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

The construction disturbance from Alternative A1 would be less than the Proposed Action but more than the disturbance from Alternative A2 (See Table 2.1-2). Alternative A2 disturbance would be less than the Proposed Action and Alternative A1. Short-term direct and indirect impacts to wetlands would be similar to those described for the Proposed Project (Section 3.5.2.2) since locations of access roads would not change, and the impacts from these roads would remain the same. As for the Proposed Project, the transmission lines associated with the alternatives would span all drainages (including WUS and wetlands) and there would be no new structures within wetlands or other WUS. New spans would be similar or longer, and construction and placement of new structures in wetlands or other WUS would be avoided. Therefore, there would be no long-term direct impacts to wetlands or other WUS other than those discussed for the Proposed Project.

3.5.2.4 Impacts of the No Action Alternative

Under the No Action Alternative, increased maintenance of the line could result in increased impacts to vegetation cover, but additional impacts to wetlands and other WUS would be unlikely. Impacts would be similar to those already produced by ongoing maintenance of the line. Maintenance traffic at access road creek crossings would continue to result in short-term, localized, and minor increases in sediment discharge at drainage crossings.

3.5.2.5 Mitigation Measures

No mitigation measures are required beyond Western Standard Construction Project Practices GEN-1, SOLID WASTE-1, WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, and WATER-6 (Table 2.1-3).

3.6 Upland Vegetation

3.6.1 Affected Environment

Vegetation communities along the ROW and adjacent access roads were field surveyed between July 31 and August 4, 2008 for the LV-YT project area and between June 11 and June 14, 2010 for the BA-LV project area. Sample points represented the dominant vegetation types and major communities. Dominant species, total plant cover percentage, topographic relief, elevation, and overall slope were recorded at the sample points and weed species were noted. Additional data was gathered on site stability, existing erosion, and revegetation constraints.

3.6.1.1 Native Plant Communities

Twenty-two vegetation communities and three associated land types were identified along the ROW. They included mixed herbaceous and shrub prairie communities on nearly level to gently sloping sites;

coniferous or shrub or cushion plant communities on ridge tops and hill slopes; and barren or sparsely vegetated dissected badlands. Agricultural crops occurred along the Shoshone and Greybull Rivers and Dry and Crooked Creeks.

Tables 3.6-1 and 3.6-2 summarize the locations of the vegetation communities and note dominant communities and those supporting sensitive plant species. Detailed field survey information is presented by county below.

Big Horn County, Wyoming

Lovell-Yellowtail

The vegetation community bordering the Lovell Substation is a Gardner Saltbush/Herbaceous type occurring on a nearly level upland plain. Total vegetation cover is estimated at 25 percent. Dominant plant species include Gardner saltbush (*Atriplex gardneri*), cheatgrass (*Bromus tectorum),* sheep fescue (*Festuca ovina*), and blue grama (*Chondrosum gracile*). The soils appear stable, though sheetwash was observed and the area had been grazed.

The Mixed Dryland Shrub/Herbaceous Grassland Community is a common vegetation type. This community has typically become established on nearly level to gently rolling upland plains and ridges. Total plant cover ranges from 25 to 30 percent. Dominant plant species include Gardner saltbush, Wyoming sagebrush (*Seriphidium vaseyanum* var. *wyomingensis*), and winterfat (*Krasheninnikovia lanata*). Prickly pear cactus (*Opuntia polyacantha*), Indian ricegrass (*Achnatherum hymenoides*), and bottlebrush squirreltail (*Elymus longifolius*) are also present. Soils show evidence of erosion in the form of sheetwash, pedestalling, and gravel pavements.

A Halogeton/Barren Uplands Community provides an estimated vegetation cover of 15 percent on gentle hillslopes. The barren element of this community consists of essentially bare to very sparsely vegetated soils with moderate rilling.

The Black Greasewood/Bottomlands Community has become established across the ROW on nearly level to gently sloping swales, low terraces, and bottomlands. Total vegetation cover typically ranges from 20 to 30 percent. Dominant plant species include black greasewood (*Sarcobatus vermiculatus*), halogeton (*Halogeton glomeratus*), and Gardner saltbush. Annual wheatgrass (*Eremopyrum triticeum*) also dominates on a site-specific basis.

The Mixed Shrub/Herbaceous Community occurs on gentle slopes. Dominant species include Wyoming sagebrush, four-wing saltbush (*Atriplex canescens*), broom snakeweed (*Gutierrezia sarothrae*), and rubber rabbitbrush (*Chrysothamnus nauseosus*); Indian ricegrass, alkali sacaton (*Sporobolus airoides*) and kochia (*Bassia sieversiana*) occur variably in the understory. Total vegetation cover ranges from 20 to 35 percent. Soils typically have signs of erosion including pedestalling, rills, and localized gullies.

The Shrub-Herbaceous Hill Slope Community occurs on gentle to steep hill slopes and associated toe slopes. The slopes are derived primarily from the Chugwater Sandstone and the Cloverly/Morrison Formations. Total vegetation cover ranged from 30 percent at the Chugwater sample point to 5 percent at the Cloverly/Morrison sample point. Dominant species at the Chugwater point included alkali sacaton, Wyoming sagebrush, prickly pear cactus, and yucca (*Yucca glauca*) and soils showed sheetwash, pedestalling and rilling. Plant species at the Cloverly/Morrison point included shadscale saltbush (*Atriplex confertifolia*), broom snakeweed, rubber rabbitbrush, Indian ricegrass, and a phlox (*Phlox* sp.). Soils here have a gravel pavement indicating an erodible surface.

Agricultural lands including hay fields, row crops, fallow fields and irrigated pasture occur along the ROW, especially along the Shoshone River and Crooked Creek. Total vegetation cover is estimated at 80 percent and soils are typically stable.

Basin-Lovell

The Gardner Saltbush Community, along with its community variations, is the most common community along the ROW. This community is typically found on nearly level to gently rolling upland plains but it can also occur on steeper slopes. The dominant species is Gardner saltbush. Other species occurring locally include Wyoming sagebrush, shadscale saltbush, Indian ricegrass, Sandberg bluegrass (*Poa secunda*), prickly pear cactus, and wild onion (*Allium textile*). Plant cover ranges from 20 to 40 percent with higher values the norm, particularly where there is more grass cover. Evidence of erosion includes sheetwash, pedestalling, and partial gravel pavements in localized areas.

The Mixed Shrub Community, the second most common community, is highly variable in terms of dominant shrubs. Wyoming sagebrush, Gardner saltbush, shadscale saltbush, fourwing saltbush, winterfat, rubber rabbitbrush, and Douglas rabbitbrush (*Chrysothamnus viscidiflorus*) are locally dominant given slope and soil characteristics. Grass species including needle-and-thread, bluebunch wheatgrass (*Pseudoroegenaria spicata*), Sandberg bluegrass, and crested wheatgrass (*Agropyron cristatum*) are also found in this community. Slopes typically range from nearly level to gently sloping but the community can also occur on steeper slopes (45+ percent) across upland plains, ridges, and sideslopes. Plant cover normally ranges from 25 to 40 percent. Gravel pavement, sheetwash, and pedestalling occur in areas.

The Wyoming Sagebrush/Gardner Saltbush Community is a common type occurring on upland rolling plains and ridges. Plant cover typically ranges from 35 to 40 percent with Wyoming sagebrush and Gardner saltbush most common. Needle-and-thread, Sandberg bluegrass, prickly pear cactus, and shadscale saltbush also occur locally. Sheetwash and pedestalling are present.

The Mixed Shrub/Herbaceous Community occurs on nearly level to steeply rolling hill and ridge tops across limited areas of the ROW. Dominant species include winterfat, shadscale saltbush and either needle-and-thread or Indian ricegrass depending upon site-specific conditions. Vegetation cover ranges from 30 to 40 percent and soils typically show pedestalling.

Occurring along the northern portion of the ROW, the Gardner Saltbush/Birdsfoot Sagebrush Community occurs on nearly level to gently rolling upland plains. The dominant species are Gardner saltbush and birdsfoot sagebrush (*Artemisia pedatifolia*). Grasses include Indian ricegrass, bottlebrush squirreltail, and Sandberg bluegrass. Total vegetation cover ranges from 35 to 45 percent. Soils commonly show pedestalling.

The Black Greasewood/Mixed Shrub Community occurs across the ROW on nearly level to moderately rolling uplands swales. Vegetation cover ranges from 20 to 40 percent with black greasewood and Gardner saltbush dominating. Wyoming sagebrush may also dominate locally while shrub species such as shadscale saltbush and bud sagebrush (*Artemisia spinescens*) also occur on a site-specific basis. Common grasses occurring on more sandy soils include Sandberg bluegrass, bottlebrush squirreltail, and alkali sacaton. Pedestalling is commonly observed.

Agricultural lands occur along the Greybull River and adjacent to Dry Creek. The land along the Greybull River consists primarily of a fallow field with herbaceous species such as kochia, whitetop (*Cardaria draba*), alkali sacaton, and cheatgrass at 20 to over 70 percent cover. The soil is stable and exhibits salt deposits at the surface indicating a saline soil condition. The agricultural land adjacent to Dry Creek consists of primarily of an irrigated wheat crop.

Badlands are characterized by highly variable, often dissected, terrain. Slopes are typically moderately steep to steep with inclusions of rolling and nearly level areas on ridge tops, in swales, and across low-lying areas. Rock outcrops and surface rock exposures are occasionally present but not dominant. The soil surface may be cracked and rills and gullies have formed on more steeply sloping areas. Sheetwash is common. The soils are typically barren or support a sparse community of shrub and herbaceous species. Stands of Gardner saltbush, black greasewood, and Wyoming sagebrush are established in swales and low-lying areas where soil depth and a lack of active erosion allow. Badlands are most common in the southern portion of the ROW.

Disturbed lands occur along central and north-central portion of the ROW. These disturbed lands are characterized by nearly level to steeply sloping terrain with topographic variation most notable in a mined area. Barren soils are common. Vegetation cover, where present, consists of a variety of weedy species such as kochia and whitetop. Where soil conditions are favorable, shrub species such as rubber rabbitbrush, Gardner saltbush, black greasewood, tall sagebrush, and Wyoming sagebrush have typically become established. These areas are susceptible to rill and gully erosion where rolling and steeper slopes dominate. Sheetwash is a common condition.

Carbon County, Montana

Lovell-Yellowtail

A Sparse Juniper and Curl-Leaf Mountain Mahogany Community is present across rocky limestone ridge sideslopes near the southern end of the ROW. The slopes are steep, exceeding 45 percent, and overlain with 75 percent bedrock exposures and rock fragments. Total plant cover is approximately 20 percent, with cover decreasing as elevation increases. Dominant plant species include Utah juniper (*Juniperus osteosperma*), curl-leaf mountain mahogany (*Cercocarpus ledifolius*), skunkbush sumac (*Rhus trilobata*), and bluebunch wheatgrass. The surface is subject to sheetwash and downslope rock movement.

A Mixed Woody-Herbaceous and Cushion Plant Community is common in the ROW across intermittent, broad ridge crests and gentle sideslopes with shallow soils overlying limestone, sandstone, and clayey bedrock. Gravel pavement between plants is common and pedestalling is occasional. Total plant cover ranges from 15 to approximately 40 percent with coarse rock fragments making up the majority of the remaining surface cover. Plants within this vegetation type are highly variable. Species such as carpet phlox (*Phlox hoodii*), longleaf phlox (*Phlox longifolia*), various sageworts (*Arenaria* sp.), bluebunch wheatgrass, and Sandberg bluegrass are common. Shrub species such as black sagebrush (*Seriphidium novum*) and broom snakeweed also occur as does fringed sagebrush (*Artemisia frigida*) and rabbit buckwheat (*Eriogonum brevicaule* var. *canum*). Juniper and juniper/shrub communities, as described for Carbon County, are common community inclusions occupying the slopes and draws adjacent to these ridge crests.

The Juniper Ridge Slope Community occurs on ridge side slopes overlain by shallow soils or with bedrock exposures. The community is dominated, variably, by stands of Utah juniper or Rocky Mountain juniper (*Juniperus scopulorum*) with total cover ranging from about 40 to 60 percent. Understory species include Wyoming sagebrush, broom snakeweed, bluebunch wheatgrass, and prickly pear cactus. These moderately sloping soils are subject to sheetwash.

The Shrub and Juniper Ridge Top Community occurs over a ridgetop formation. The shallow soils are stable, with occasional rock outcrops. Total plant cover ranges from 60 to 70 percent with the dominant species being Wyoming sagebrush, black sagebrush, Utah juniper, Rocky Mountain juniper, Sandberg bluegrass, and bluebunch wheatgrass.

The Curl-Leaf Mountain Mahogany and Ridge Complex Community overlies limestone ridges. The typically shallow soils are subject to sheetwash and pedestalling and rock outcrops are relatively common. Total vegetation cover is about 40 percent but varies with slope and the percentage of rock outcrop. Coarse fragments and bare ground cover 55 percent of the surface. Dominant species include curl-leaf mountain mahogany and Utah juniper with bluebunch wheatgrass, three-awn (*Aristida purpurea*), and various cushion plants species in the understory.

The Mixed Sagebrush and Grasslands Community is typically along the northern-most portion of the ROW on nearly level, convex fans and terraces. The soils are stable. Total vegetation cover is approximately 60 percent. Dominant plant species include low sagebrush (*Seriphidium longiloba*), Wyoming sagebrush, silver sagebrush (*Seriphidium cana*), and fringed sagebrush. Common herbaceous species include needle-and-thread, prairie junegrass (*Koelaria macrantha*), and carpet phlox.

The Mixed Herbaceous Uplands Community is common along the northern portion of the ROW overlying stable, nearly level convex fans and terraces. The total vegetation cover is about 65 percent and dominant species include needle-and-thread, Sandberg bluegrass, and fringed sagebrush. Where more intense grazing is evident, the prevalence of broom snakeweed increases.

Big Horn County, Montana (Crow Indian Reservation)

Lovell-Yellowtail

The Mixed Herbaceous Uplands Community typically occurs across nearly level to gently rolling hills, terraces, broad ridges and sedimentary uplands. Total vegetation cover ranges from 60 to 80 percent. Common species include bluebunch wheatgrass, green needlegrass (*Nassella viridula*), needle-and-thread, prairie junegrass, Sandberg bluegrass, fringed sagebrush, and cudweed sagewort (*Artemisia ludoviciana*). Western wheatgrass (*Pascopyrum smithii*) may locally dominate as can golden aster (*Heterotheca villosa*), golden banner (*Thermopsis* sp.), Arkansas rose (*Rosa arkansana*), and various cushion plants. Cheatgrass is a common along some stretches of the ROW and may, under disturbed or heavily grazed conditions, be a dominant grass. Soils are typically stable with occasional sheetwash and pedestalling.

The Mixed Sagebrush/Grasslands Community overlies stable, nearly level to gently sloping hills and broad ridges. Total vegetation cover typically ranges from 60 to 75 percent, with values up to 90 percent observed. Dominant sagebrush species include low sagebrush, Wyoming sagebrush, silver sagebrush, and fringed sagebrush. Common understory species vary, but include those listed for the Mixed Herbaceous Uplands community above. Carpet phlox and rubber rabbitbrush are also locally common and cheatgrass may be co-dominant in some areas.

Across a rolling ridgetop adjacent to Pitchfork Creek, a Limber Pine/Rocky Mountain Juniper and Low Sagebrush Community occurs on a convex slope typically overlain by shallow soils to bedrock. Total cover is about 45 percent. Dominant plant species include limber pine (*Pinus flexilis*), Rocky Mountain juniper, and low sagebrush with prairie junegrass, bluebunch wheatgrass, Sandberg bluegrass, and needle-and-thread in the understory. Sheetwash and pedestalling are present.

Common vegetation communities along major drainages such as Dry Head, Pitchfork, and Hoodoo Creeks, and the Bighorn River are highly variable. These areas typically have steep to near vertical canyon sideslopes, and rock ledges subject to sheetwash, pedestalling, and soil creep. Vegetation communities are dominated by curl-leaf mountain mahogany, chokecherry (*Prunus virginiana*), snowberry *(Symphoricarpos* sp.) and skunkbush sumac. Various juniper and pine species may also occur in association with these shrubs.

Access to the Yellowtail Substation was restricted and no data could be collected at this site. It appeared that the vegetation community surrounding this facility consisted of a mixed shrub type that included pine and juniper trees.

3.6.1.2 Noxious and Invasive Weeds

Noxious weeds in Big Horn County, Wyoming, Carbon County, Montana, and Big Horn County, Montana are non-native plant species that have been designated by the counties due to their invasiveness, aggressiveness, or the rate at which they spread and adversely affect desired native plants or agricultural crops and rangelands. Invasive weeds are non-native species, in addition to noxious weed species, designated by a particular agency as requiring control. These species hamper the establishment and growth of desired native vegetation on disturbed areas.

The Project obtained lists of the weeds that are currently considered noxious or requiring control (Brockness 2008; Ostwald 2008; Richardson 2008; The Big Horn County Weed Board and Brockness 2008; Wyoming Weed and Pest Council 2008a, 2008b, 2010a, 2010b). A total of 69 plant species fall into these categories across the three counties in the Project area (see Appendix F).

A weed inventory was not done as a part of this environmental review. However, if weed species were observed during the field survey, the species and their locations were recorded. Western will complete a post construction weed survey along the transmission line ROW and access roads in Montana and a pre-construction and post-construction weed survey within the boundaries of the Bighorn Canyon NRA.

Lovell-Yellowtail

Field bindweed (*Convolvulus arvensis*) was observed between structures 12-2 and 13-3 in an irrigated pasture, in a drainage at structure 42-7, and at an access road crossing along BIA Route 192 (Section 27) at Hoodoo Creek. Limited populations of Canada thistle [*Breea* (*Cirsium*) *arvense*] were recorded in drainages near structures 38-2 and 38-4 and along BIA Route 192 in drainages in Sections 27 (Hoodoo Creek) and 30. Houndstongue (*Cynoglossum officinale*) is established to a limited extent in a drainage at structure 42-7, while Russian knapweed (*Acroptilon repens*) was observed in a drainage at structure 7-3 and in an irrigated pasture between structures 12-2 and 12-3. The infestations of Russian knapweed are notable, particularly within the irrigated pasture. Both Russian olive (*Elaeagnus angustifolia*) and tamarisk (*Tamarix* spp.) have become established at wetter sites such as irrigation ditches and stream courses along the southern portion of the ROW. Russian olive was recorded between structures 2-5 and 3-1, at structures 4-2 and 4-8, and along the Shoshone River. Tamarisk was noted between structures 2-5 and 3-1, and in the riparian zone bordering the Shoshone River (structure 4-6).

Basin-Lovell

Whitetop was found in drainages at or near structures 53-4, 54-8 and 60-4. It was also noted in fields and along field borders between structures 56-6 and 57-1, at structures 58-2 and 58-7, and between structures 69-8 and 70-1. Both Russian olive and tamarisk were found associated with water bodies. Russian olive and tamarisk were found along the Greybull River between structures 57-1 and 57-3 and along Dry Creek between structures 61-7 and 62-1. Tamarisk was also found along a tributary to Little Dry Creek at structure 64-6 and around abandoned mine ponds near structures 73-3 and 74-6.

3.6.2 Environmental Impacts and Mitigation Measures

3.6.2.1 Issues and Significance Criteria

A significant impact on vegetation would result if the following were to occur from construction or maintenance of the Proposed Project:

- A reduction in plant cover and production on disturbed sites causes a detrimental impact to current land uses such as grazing and other agricultural uses.
- Introduction or increase spread of noxious weeds that are not controlled on Project easements.

See Section 3.9 (Threatened, Endangered, and Other Special Status Species) and the technical report, BLM Sensitive and Other State Species of Concern, found in the administrative record at Western's offices for issues and significance criteria associated with rare plants and their associated native plant communities.

3.6.2.2 Impacts of the Proposed Project

Tables 3.6-1 and 3.6-2 summarize the impacts by the Proposed Project in acres to the vegetation communities.

Lovell-Yellowtail

The amount of disturbance to vegetation during project construction is related to the need for grading or movement of construction vehicles in ungraded areas. Removal of the structures would not likely require grading except at a few sites. Structure installation would mostly occur on nearly level and more gently sloping sites and would not require grading. Agricultural cropland and hay land are included in this category (the paragraph below describes where grading would be required due to vegetation disturbance). Vegetation productivity may be reduced until the site is revegetated. These direct impacts are adverse, long-term (greater than 2 years), and minor to moderate in areas supporting non-agricultural vegetation communities. Impacts to agricultural areas would be minor. Vegetation disturbances from activities at stringing sites would be similar to those at non-graded construction sites. Drought conditions could hamper revegetation efforts on areas to be revegetated.

On more steeply sloping sites, grading would be required for structure installation and removal. The disturbed area would be graded to facilitate revegetation. Most established vegetation, including the upper root systems, would be removed. The most noticeable direct, adverse impacts from grading would occur in vegetation on shallow soils (<12.0 inches to bedrock) with soil textures dominated by gravels and cobbles. These impacts would be moderate and long-term, assuming successful revegetation.

Structure installation sites would require minor excavation to set structure bases into the ground. Some vegetation would be permanently lost along the ROW at structure bases (See Table 2.1-2).

Grading would be required along some sections of the ROW and access roads to support equipment access. The vegetation along the ROW could be crushed or adversely affected, potentially reducing or locally eliminating vegetative cover. However, vegetation is sparse to non-existent near and in many of the existing roads that would be used during construction. This direct, adverse impact on the more productive vegetation communities (which are not common) would be minimal and long-term. Where grading is required to improve or construct access roads (including the new 1,500-foot road in the Bighorn Canyon NRA and the spur roads discussed below), vegetation would be removed from the disturbed site to allow equipment access and passage. This would be a moderate and long-term impact to vegetation. Vegetation communities on exceptionally shallow soils or those that include cushion plants, may be more susceptible to disruption, and could take longer to recover naturally. Parts of BIA Road 192 would need to be graded for improved access. A limited area of vegetation would be affected.

Short spur roads would be constructed as needed for access from existing roads to specific structure sites. The locations of spur road construction have not been finalized. Vegetation communities would be directly impacted from vegetation removal, but the acres involved for each spur would be small and occur sporadically along the ROW. Given the standard construction project practices Western would use (Table

2.1-3), including minimizing on-site impacts, and facilitating natural plant growth, adverse impacts to vegetation would be minor and long-term. Where spur roads are reserved for maintenance access, this adverse, direct impact would be minor to moderate and long-term. This would also apply to minor upgrades along existing access roads.

Staging areas would be on level to nearly level sites, typically on private land. They would not be located in dissected, badland and ridgetop terrain, in wetland or riparian areas, or within the boundaries of the Bighorn Canyon NRA. Direct, adverse impacts to vegetation would include removal of vegetation by clearing and grubbing, and for material storage.

Western would mitigate impacts to areas adversely affected by construction. Vegetation communities occurring on sites with favorable conditions along the majority of the ROW and access road locations would be returned to a stable, productive condition. Table 2.1-3 lists the Standard Construction Project Practices and Project Specific Mitigation Measures. Appendix F (Proposed Seed Mixtures for Reclamation) presents seed mixtures for use on disturbed areas on the ROW. These construction practices should reduce impacts to vegetation throughout the project area.

Revegetation of some sites with steeper slopes and shallow, erodible soils would be more difficult. These sites are small and occur sporadically along the ROW. Erosion, runoff, and shallow depths would lead to soil conditions that cannot hold sufficient moisture to support vegetation. Revegetation techniques have been adopted to address these conditions and promote reclamation success. This would not noticeably affect the overall productivity of the local vegetation communities.

Structure sites currently have stable vegetation communities that are usually the same as nearby vegetation. This shows the long-term potential for successful reclamation. Exceptions to this include the Halogeton/Barren Uplands Community, portions of the Mixed Dryland Shrub/Herbaceous Grassland, and the Black Greasewood/Bottomlands communities in Big Horn County, Wyoming.

Reclamation of access roads no longer needed for construction and maintenance would be coordinated with the NPS through the interagency agreement.

Accidental spills of fuels, lubricants, and other materials could cause damage to vegetation. Western would require the construction contractor to have a spill response plan to address this potential impact. If spills occur, the contractor would remove affected soil and vegetation and dispose of it according to the spill response plan. This type of direct impact would be rare and the affected areas would be revegetated. This adverse impact would be negligible to minor and short term.

Indirect impacts to vegetation are expected. Vegetation growing adjacent to impact sites could be adversely affected by soil erosion. This adverse, potentially long-term impact would likely be negligible to minor, as individual impact areas are small, sporadically located along the ROW, and Western has committed to effective construction and revegetation practices. If weeds become established on disturbed sites they could invade adjacent undisturbed areas. However, Western would follow established weed control guidelines, and the construction and reclamation practices would prevent or greatly reduce the introduction or increase of noxious weeds. Where weed control is necessary, chemical weed control would be limited to “spot” applications to maintain vegetation community diversity. Negligible impacts to native plant communities would occur.

The impacts to vegetation are limited in extent in any one area and occur intermittently along the 47-mile LV-YT ROW. The comparatively larger disturbances associated with staging areas (5.0 acres per site) also occur intermittently and would be located on level to nearly level terrain. Western would minimize disturbances, and employ methods to revegetate disturbed areas, so disturbances from this project would not reduce the overall cover and productivity of the vegetation. Isolated small sites with severe revegetation constraints could have reduced cover and productivity despite revegetation efforts. Current land uses such as grazing and other agricultural uses should not be negatively impacted by this project.

Basin-Lovell

Grading, road construction, upgrading access, equipment travel and other construction impacts to vegetation from the BA-LV project are similar in type to those described for the LV-YT project. No new access roads, with the possible exception of short spur roads, would be required for the BA-LV line. As noted for the LV-YT area, few minor, short-term, indirect impacts are expected.

Western would use Standard Construction Project Practices and Project Specific Mitigation Measures (Table 2.1-3) to minimize, and reclaim or revegetate disturbances. Disturbed areas characterized by steeper slopes and shallow, erodible, or saline and high sodium content soils and barren areas and mining areas, would be more difficult to revegetate and take longer to stabilize. On the few barren sites, revegetation may not be successful.

3.6.2.3 Impacts of the Alternatives

Construction activities for maintenance of project elements for the alternatives discussed below would be the same as described for the Proposed Project, unless otherwise noted.

Table 3.6-1 contains the acreages of vegetation communities that would be impacted by the alternatives compared to the Proposed Project for structure removal and installation.

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A1

Alternative A1 would disturb fewer acres than the Proposed Project and slightly more than Alternative A2 (See Table 2.1-2). With a proposed 558 structures to be installed, the potential need for spur road construction would be less than for the Proposed Project and comparatively more than for Alternative A2. The potential for weed invasion, based on the total acres affected, would be less than for the Proposed Project and greater than for Alternative A2.

The differences in long-term disturbances between all action alternatives would be negligible.

Alternative A2

Alternative A2 is similar to Alternative A1 in estimated impact acreage for structure removal and construction (See Table 2.1-2). Alternative A2 would have a lower potential for weed invasion than Alternative A1 or the Proposed Project. Similarly, with fewer poles that would be installed, the potential need for spur road construction would be less than for Alternative A1and the Proposed Project.

3.6.2.4 Impacts of the No Action Alternative

Under the No Action Alternative there would be no additional impacts to vegetation. Long-term maintenance of the transmission line would result in minor impacts to vegetation similar to those impacts that have occurred in the past.

3.6.2.5 Mitigation Measures

Western Standard Construction Project Practices GEN-4, GEB-5, GEN-6, GEN-7, GEN 10, GEN 11, EROSION-1, EROSION-2, EROSION-3, ENV-1, VEG-1, VEG-2, VEG-3 (Table 2.1-3) and the interagency agreement between Western and the NPS would avoid or reduce potential impacts to vegetation for most of the project area.

Specific Mitigation Measure VEG-PS-1. Western would control noxious weeds and identified invasive species within Bighorn Canyon NRA through the interagency agreement with the National Park Service. This agreement will be developed prior to construction.

Table 3.6-1 Comparative Summary of Estimated Impacts (Acres) to Vegetation Communities within the LV-YT ROW

		Proposed Structure Removal and Installation Disturbances				
Vegetation Community Name	**Structure Locations1**	**Existing Structure Removal: All Action Alternatives (ac.)**	**Proposed Project (ac.)**	**Alternative A1 (ac.)**	**Alternative A2 (ac.)**	**Comments**
Big Horn County, WY						
Mixed Dryland Shrub/Herbaceous Grassland	0-1 to 2-6 4-8 to 8-8	27.7	28.4	25.1	10.9	Dominant vegetation type; saline soils present
Halogeton/Barren Uplands	8-8 to 9-5	2.2	1.6	2.5	0.91	Saline soils present
Black Greasewood/Bottom-lands	9-5 to 11-5	7.5	6.6	6.8	4.4	Saline soils present
Mixed Shrub/Herbaceous	12-3 to 13-7	5.7	4.9	5.4	5.6	Secondary sensitive species host community
Shrub-Herbaceous/Hill Slope	13-7 to 14-7	4.2	3.3	4.3	4.0	Primary sensitive species host community
Agricultural Lands	2-6 to 4-2 11-7 to 12-3	7.5	8.3	8.8	4.9	
Industrial Area	4-2 to 4-6	1.5	1.6	1.6	0.5	
Carbon County, MT						
Sparse Juniper/ Curl-Leaf Mountain Mahogany	14-7 to 15-4 16-1 to 16-4	3.5	3.3	3.7	3.9	Primary sensitive species host community
Mixed Woody-Herbaceous/ Cushion Plant	15-4 to 16-1 16-4 to 18-3 19-1 to 20-4 21-6 to 22-5 23-5 to 24-2	19.2	19.8	20.4	21.9	Dominant vegetation type; primary sensitive species host community
Juniper Ridge Slope	18-7 to 19-1 22-5 to 23-5	3.7	3.3	3.2	3.4	Primary sensitive species host community

		Proposed Structure Removal and Installation Disturbances				
Vegetation Community Name	**Structure Locations1**	**Existing Structure Removal: All Action Alternatives (ac.)**	**Proposed Project (ac.)**	**Alternative A1 (ac.)**	**Alternative A2 (ac.)**	**Comments**
Shrub/Juniper Ridge Top	20-5 to 21-3	2.6	3.3	2.2	2.7	Primary sensitive species host community
Curl-Leaf Mountain Mahogany/ Ridge Complex	18-3 to 18-7	2.0	1.6	1.6	1.7	Primary sensitive species host community
Mixed Sagebrush/Grasslands	20-4 to 20-5 21-4 to 21-6 24-3 to 24-6 24-7 to 28-6	17.9	16.6	12.2	12.9	Dominant vegetation type
Mixed Herbaceous Uplands	28-6 to 30-7	7.9	8.2	3.1	3.3	Dominant vegetation type
Big Horn County, MT						
Mixed Herbaceous Uplands	32-7 to 33-2 38-5 to 46-3	29.0	28.5	11.2	11.8	Dominant vegetation type
Mixed Sagebrush/Grass-lands	30-7 to 33-2 33-8 to 36-6 36-7 to 38-5	24.5	24.8	9.3	9.9	Dominant vegetation type
Limber Pine/Rocky Mountain Juniper/Low Sagebrush	33-2 to 33-8	2.4	1.6	0.2	0.3	
Totals	**NA**	**169.0**	**165.7**	**122.0**	**103.0**	**NA**

[1] Structure locations refer to existing west line pole numbers.

Table 3.6-2 Comparative Summary of Estimated Impacts (Acres) to Vegetation Communities within the BA-LV ROW

		Proposed Structure Removal and Installation Construction Disturbances		
Vegetation Community Name	**Structure Locations[1]**	**Existing Structure Removal: All Action Alternatives (ac.)**	**Proposed Project (ac.)**	**Comments**
Big Horn County, WY				
Gardner Saltbush	45-5 to 45-8, 46-3 to 47-3, 48-5 to 48-7, 49-3 to 50-1, 50-4 to 51-6, 51-8 to 52-2, 53-4 to 54-2, 54-5 to 55-7, 57-3 to 57-7, 58-2 to 61-2, 63-6 to 66-7, 67-8 to 68-2, 69-7 to 70-1, 70-2 to 73-1, 75-4 to 75-6, 75-8to 76-7, 80-3 to 80-5, 80-7 to 81-7, 83-4 to 83-7	33.0	33.3	Dominant vegetation type
Mixed Shrub	47-4 to 47-5, 54-2 to 54-5, 61-3 to 61-7, 62-8 to 63-6, 68-7 to 69-1, 69-4 to 69-6, 76-7 to 79-5, 80-5 to 80-7	9.7	9.8	Sub-dominant vegetation type
Wyoming Sagebrush/ Gardner Saltbush	45-8 to 46-3, 48-2 to 48-3, 49-1 to 49-3, 51-6 to 51-8, 57-7 to 58-2, 69-6 to 69-7, 73-1 to 73-3, 75-6 to 75-8	4.6	4.7	
Mixed Shrub/Herbaceous	52-4 to 52-8, 82-7 to 83-3	2.2	2.2	
Gardner Saltbush/ Birdsfoot Sagebrush	79-5 to 79-7, 81-4 to 81-5, 81-7 to 82-7, 83-3 to 83-4, 83-7 to 83-8, 84-1 to 84-3	3.5	3.5	
Black Greasewood/ Mixed Shrub	66-7 to 67-8, 68-2 to 68-5, 70-1 to 70-2, 73-6 to 74-4, 80-1 to 80-3	5.1	5.2	
Agricultural Lands	56-6 to 57-1, 62-1 to 62-7	1.8	1.8	
Badlands	47-4 to 47-7, 47-8 to 49-1, 50-1 to 50-4, 52-8 to 53-4, 55-7 to 56-6, 79-7 to 80-1	4.4	4.4	Includes steep, dissected, often bare terrain
Disturbed Lands	62-3 to 62-4, 64-5 to 64-7, 73-3 to 73-6, 74-4 to 75-4, 79-3 to 79-4	3.5	3.5	Includes mining operation
Totals		67.8	68.4	

[1] Structure locations refer to existing pole numbers. Note: The acreage totals depicted here estimated based on Table 2.2-2.

3.7 Soils

Soils along the ROW of the Proposed Project are highly variable due to the range of climatic, geologic, and topographic conditions. Soils impacts related to the Proposed Project include erosion susceptibility, the potential for successful revegetation, a loss of soils that uniquely support threatened or endangered plant species, and potential for contamination of soils that support a sensitive ecosystem.

3.7.1 Affected Environment

Soil maps were evaluated for the soils that would be disturbed by the Proposed Project and alternatives. Existing information developed by the Natural Resources Conservation Service (NRCS) was used. Soil maps for Big Horn County, Wyoming were obtained from the NRCS office (Richards 2008, 2010) in Lovell, Wyoming and the BLM office (Wilson 2010) in Powell, Wyoming. Soil characteristics data were obtained from additional personal contacts (Kiricofe 2010; Hansen 2008a, 2008b; Jones 2008), technical guidance documents (NRCS 2008a), and the NRCS online Soil Data Mart information service (NRCS 2008b, 2008c, 2010). Published county soil surveys were obtained for Big Horn County (Meshick et al. 1977) and Carbon County (Parker et al. 1975) Montana, to determine soils that are present in the Project area.

A field survey was conducted during July-August 2008 and June 2010 to note general soil characteristics along the ROW. General soil characteristics are described below; more detailed information is on file at Western’s office.

3.7.1.1 General Soil Characteristics

Soils include deep agricultural types along major watercourses, comparatively shallow soils on hills, ridges and upland plains, and shallow, coarse-textured soils overlying shallow bedrock. Soil characteristics that could affect the success of revegetation were noted along portions of the ROW. These constraints include badlands, rock outcrops, shallow/droughty soils, and severe erosion hazards as well as clayey, saline, and high sodium content soils.

In general, soils throughout the project area are derived from parent materials that include shale and sandstone residuum (soil formed in place by natural weathering), mixed alluvium (soil formed from materials transported by water), and granite and gneiss outwash. Slopes generally range from 0 to 30 percent with slopes over 60 percent common in badlands and rock outcrop areas. Soil depths typically range from 5 inches to over 60 inches depending primarily upon parent materials type, slope, and topographic position. Soil textures are highly variable and include channery loams, gravelly loams, sandy loams, loamy sands, silty loams, clay loams, silty clays, and clays. Soils are typically well drained with low water holding capacities, though deeper soils with moderate to high water holding capacities are associated with lowland and agricultural lands. Erosion hazard is rated from slight to severe depending on site specific conditions including slope length and percent, soil texture, and vegetation cover.

Soil pH values typically range from 7.4 to 9.0. Soils in the project area are predominantly non- to slightly saline and generally non- to slightly sodic (high sodium content). Soil salinity and sodium content affect the ability of the soil to support plant growth. Soil salinity is estimated by the electrical conductivity of a saturated paste, with values of >8 mmho/cm indicating high salinity. Electrical conductivity of soils in the project area typically ranges from 0 to 16 mmho/cm. Though common soil salts do not result in a toxic soil condition, high salinity levels do promote a droughty soil profile. Sodium content is measured by the sodium adsorption ratio (SAR), the proportion of sodium relative to other cations in the soil. Soils with SAR values above 12 are considered high sodium and may have soil structure issues resulting in drainage problems, stemming from reduced infiltration and permeability. These problems are most notable in soils with clayey textures. SAR values for project area soils typically range from 0 to 30. Soils most affected by high soil salt and sodium content occur south of Lovell, WY.

Some exceptions to the generalized soil conditions described above include soils overlying agricultural fields along the Shoshone River and Crooked Creek in Big Horn County, Wyoming. These soils occur on alluvial fans and flats and are currently under productive cultivation and agricultural management. These soils are typically deep with high available water capacities and are typically moderately well to somewhat poorly drained.

Additionally, there are limited badlands and rock outcrop formations along the ROW primarily in northern Big Horn County, Wyoming and southern Carbon County, Montana. Badlands and rock outcrops are typically barren or sparsely vegetated with soils limited to localized pockets or hill and alluvial fan inclusions on slopes. Soil overlying badlands likely have moderate to high salt or sodium levels. Where soils occur, they are subject to erosion, except on more level areas supporting a vegetation cover.

Tables 3.7-1 and 3.7-2 show the locations of soils with shallow depth, severe erosion potential, high clay content, high electrical conductivity, and high SAR revegetation constraints for the LV-BA and BA-LV lines, respectively.

3.7.1.2 Cryptobiotic Soils

Cryptobiotic soils, also known as biological soil crusts, are soils in which concentrations of cyanobacteria, green algae, lichens, mosses, microfungi, and other bacteria have become established (Belnap et al. 2001). These crusts form a rough "carpet" on the surface of the soil that reduces wind and water erosion, fixes nitrogen, and adds organic matter to the soil (Eldridge and Greene 1994). The underground part of the crust forms a matrix that binds soil particles together (Belnap 1995) resulting in a more stable upper soil profile. These soils were typically identified within the project area visually by their gray to blackish color or slightly raised form above the surrounding soil surface.

Across the LV-YT ROW, cryptobiotic soils were most commonly observed at elevations ranging from about 3,800 to 4,700 feet within a variety of plant communities. Plant communities dominated by trees such as Utah juniper (*Juniperus osteosperma*), Rocky Mountain juniper (*Juniperus scopulorum*), and limber pine (*Pinus flexilis*), with an understory of shrub and various herbaceous species, were most notably associated with this soil characteristic. Cryptobiotic soils were observed in this community around structures 18-7 and 33-3 and from structures 20-7 to 24-6 and 32-3 to 32-6. Mixed shrub communities also supported cryptobiotic soil around structures 16-7 and 32-1 and from structures 20-7 to 24-6 where shrub communities were interspersed with the juniper-dominated communities noted above. This soil characteristic was also found at grass and grass-cushion plant community sample points. The grass-cushion plant communities were typically located on higher ridge tops with a lower coarse fragment surface cover. Observations of cryptobiotic soils at such sites were made at structure 20-3 and from structure 20-7 to 24-6 in a complex with juniper and mixed shrub communities.

Cryptobiotic soils were less common across the BA-LV portion of the ROW occurring within a black greasewood community at structure 61-7. These soil conditions were observed sporadically at other sites along the ROW though the concentrations of cryptobiotic soils were limited. It is assumed that soil salinity and sodium levels effectively preclude the establishment of cryptobiotic soils along portions of this stretch of the ROW.

Cryptobiotic soils are assumed more common along the ROW than as noted during the field surveys and may also have become established along access roads that are not presently in use. This soil condition, however, is not likely to occur in association with cultivated areas, stream channel banks, rock outcrop formations, recently disturbed sites, active road surfaces, or other areas lacking an overlying soil profile.

3.7.2 Environmental Impacts and Mitigation Measures

3.7.2.1 Issues and Significance Criteria

A significant impact on soils would result if the following were to occur from construction or operation of the Proposed Project:

- Severe erosion due to disturbance of areas of steep slopes (slopes greater than 20-25 percent).

- Compaction or mixing of soils that would result in long-term loss of productivity or significantly alter current use or revegetative growth.
- Loss of soils that uniquely support threatened or endangered plant species, or contamination of soils that support an existing sensitive ecosystem.

3.7.2.2 Impacts of the Proposed Project

The amount of disturbance to soils during project construction is related to grading. Removal of the structures would not likely require grading except at a few sites. Installation of the majority of new structures would also not require grading. Direct impacts under the no-grading scenario would be confined to surface soil disturbances leaving the subsoils essentially undisturbed, except for potential compaction. Removal of vegetation at the structure sites would result in a limited increase in erosion susceptibility and a minor decrease in soil productivity. Erosion susceptibility is limited given the low acres involved. The potential for water erosion is also reduced somewhat given the more gentle slopes, with the established vegetation bordering these limited areas reducing the potential effects of wind erosion.

Soil compaction can cause a decrease in aeration and infiltration thus potentially reducing soil productivity. These potential direct impacts on the soil resource in the no-grading scenario are considered adverse, short- to long-term, and minor to moderate. Impacts in agricultural areas are considered minor since revegetation would mimic annual seedbed preparation and planting activities.

Grading would be required on more steeply sloping sites. Western would attempt to avoid such sites to promote efficient installation, but such slopes cannot be completely avoided. Depending on the depth of disturbance, the soil profile would be disrupted and the soil horizons mixed during soil removal and regrading. Across the majority of the ROW, minor soil profile mixing would not result in soil adverse physical and chemical impacts that would seriously reduce revegetation success.

Soils that exhibit higher salt or sodium contents (Tables 3.7-1 and 3.7-2) could increase in salt or sodium in the upper portion of the soil profile due to grading, potentially inhibiting revegetation in localized areas. However, these soils are typically located on more gentle slopes where grading would not be required.

The greatest impacts from grading would be on shallow soils (<12.0 inches to bedrock) (Tables 3.7-1 and 3.7-2) containing a high percentage of coarse fragments leading to inherently droughty soil conditions. Grading would increase the water erosion susceptibility of the soils given that grading would occur on steeper slopes. Wind erosion susceptibility would also increase. However, the presence of mature vegetation communities bordering such disturbances would reduce this susceptibility. The affected soils would be subject to erosive forces and compactions until the soils are stabilized. This array of direct, adverse impacts associated with grading is considered to be moderate in intensity and long-term.

At structure installation sites, construction would require minor excavations in order that the structures could be set in the ground prior to line stringing. This represents a direct, adverse, long-term, negligible impact to soils

Twenty-five conductor stringing sites would be located intermittently along the ROW resulting in surface disturbance (See Table 2.1-2). Though the exact locations of stringing sites are unknown, such sites would be located on comparatively gentle slopes that would not require grading. Impacts to the soil resource, in terms of type, duration, and intensity, would be limited to the soil surface and would be similar to impacts associated with structure installation and removal impacts described above where grading is not required.

The construction and operation of two to five staging areas would also result in surface disturbance (See Table 2.1-2). Staging areas would typically be located on private land on level to nearly level land. Staging areas would not be located in dissected/badland/ridgetop terrain, wetland/riparian areas, or the Bighorn Canyon NRA. No grading is planned for these areas. Site disturbances would likely be limited to vegetation removal. The potential for erosion by water is limited on these level areas, however, there is potential for wind erosion on these relatively large (5 acre) disturbances. Existing soils would be subject to compaction as site use intensifies.

To complete structure installation, removal, and stringing, construction equipment would travel along much of the ROW and on existing access roads. Site grading would not be required except in limited areas along existing access roads (including two-track roads). Portions of existing access roads requiring upgrading are represented in Appendix A as blue lines. Affected soils would be subject to varying levels of compaction and increased soil erosion potential. These direct, adverse impacts on the existing soils would be long-term and minor in most areas and potentially moderate in more steeply sloping areas. In addition, a 1,500 foot access road would be constructed in the Bighorn Canyon NRA. Impacts resulting from access road construction would be similar to spur road construction impacts, as noted below. Blade work on Road BIA192 would also be needed for equipment access.

Construction of short spur roads is proposed, as necessary, to provide access from existing roads to specific structure sites. Specific spur road locations are not known at this time. Soils would be directly impacted, but it is assumed that the area involved for each spur road would be minimal and would occur sporadically across the length of the ROW. Direct, adverse, minor to moderate, long-term impacts to soils would include an increase in erosion susceptibility, increased compaction, and a reduction in soil productivity until specific spur roads are reclaimed. Spur roads that are left for maintenance access would have water bars installed to reduce the erosion hazard. Western’s construction supervisor would decide spur road locations after consultation with the landowner, tribe or land management agency.

Western would reclaim areas adversely affected by construction activities to return soils to a stable and productive condition supporting native plant communities. Western’s Standard Construction Project Practices shown in Table 2.1-3 and the interagency agreement with the NPS are designed to avoid, protect and reduce impacts to existing vegetation and soils. It is assumed that the adverse impacts to the soil resource can be successfully mitigated.

While site restoration is assumed to be successful overall with time (see field survey notation below), it is likely that some soils overlying the more steeply sloping areas would not be restored to their original productivity due to the effects of erosion/runoff and shallow depths leading to an unacceptably droughty soil profile. This impact would not perceptibly alter the productivity of the soil resource in the study area given the small acreage involved and the intermittent nature of the impact. Many of the soils under consideration here are not productive due to shallow soil depths, low available water capacities, and high coarse fragment contents. This latter analysis is most applicable to high salt or sodium content soils of Big Horn County, Wyoming (see Tables 3.7-1 and 3.7-2).

Along the BA-LV line, soils characterized by high salt or sodium contents that currently have barren soils, sparse vegetation cover, and saltbush shrub communities lacking much of an herbaceous component, are unlikely to be revegetated to a higher standard. However, given their existing vegetative condition in terms of grazing value, these small, intermittent impacts would not alter the existing land uses or overall regional soil productivity.

Established cryptobiotic soils would be disrupted on sites disturbed during construction and maintenance. Direct, adverse, minor to moderate, long-tem impact, lasting until the “crusts” become reestablished, would occur.

Indirect impacts related to the soils resource are limited to the potential for soil and wind erosion resulting in sedimentation of adjacent watercourses. This adverse, long-term impact is presumed to be negligible to minor given the small individual impact areas involved, their intermittent occurrence across steeper slopes along the ROW, typical distance from watercourses, and the construction and mitigation practices to which Western has committed.

With respect to the significance criteria, the construction practices and mitigation used would prevent the long-term loss of soil productivity, prevent the significant alteration of current land uses, and promote vegetation re-growth over the vast majority of the project area. No threatened or endangered plant species or their habitat is known to occur along the ROW or associated proposed disturbances. Therefore, no soil loss would occur that would affect the continued existence of such species or their habitat. Soils impacted by the Project would not contaminate an existing sensitive ecosystem. The construction practices and mitigation measures committed to would serve to limit erosion on the impacted soils. However, across impacted areas overlain by soils characterized by a “severe” erosion hazard on slopes greater than 25 percent, Western’s standard construction project practices may be insufficient to stabilize the soil surface and restore site productivity.

During the field reconnaissance completed in July-August 2008 and June 2010, it was observed that the existing structure sites had stable soils and vegetation communities that were, in the majority of cases, indistinguishable from the surrounding area. This is an indication of the long-term potential for successful revegetation acknowledging the length of time these sites have had to revegetate. Exceptions to this were limited along the ROW and occurred primarily in association with areas where high salt or sodium content soils dominate.

Existing access roads not needed for construction and maintenance would be reclaimed as part of the Proposed Project. The reclamation activities are being planned in cooperation with the NPS.

During construction and associated activities fuels, lubricants, and other materials may be accidentally spilled causing a potential degradation of the soil resource. Western would have a spill response plan in place to address such impacts. Given that such occurrences would be rare, and the affected areas would be properly treated, this adverse, direct impact is considered negligible to minor and short-term.

3.7.2.3 Impacts of the Alternatives

In general, the type, context, duration, and intensity of the impacts of the action alternatives are considered the same as described for the Proposed Project. The variation in indirect impacts to soils under the Proposed Project and any alternative is negligible. Table 3.7-1 presents the estimated acreages of areas of soil constraints to be impacted by each of the action alternatives as compared to the Proposed Project.

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A1

Disturbances associated with structure removal and installation, conductor stringing sites, staging areas and new access road construction under Alternative A1 would be less than the Proposed Project, but slightly more than Alternative A2 (See Table 2-1-2). The potential need for spur road construction would be less for this alternative than the Proposed Project due to the fewer number of poles that would be installed (558 versus 758) and greater than that of Alternative A2 (477 poles). The potential for weed invasion given the total areas to be affected would be less than for the proposed project and slightly more than for Alternative A2.

Impacts to soils, cryptobiotic soils, and the potential for accidental spills of fuels, lubricants, etc., would increase with increases in acres of disturbance.

Alternative A2

Impacts to soils would be less for Alternative A2 compared to the Proposed Project or Alternative A1 (See Table 2.1-2) due to fewer structures. Alternative A2 would also have a lower potential for weed invasion and spur road construction than either Alternative A1 or the Proposed Project due to the smaller impacted area involved.

3.7.2.4 Impacts of the No Action Alternative

Under the No Action Alternative, there would be no additional impacts to soils. Current rates of natural erosion would continue with a potential for a slight increase given the need for increased transmission line maintenance through time.

3.7.2.5 Mitigation Measures

Western Standard Construction Project Practices GEN-1, EROSION-1, EROSION-2, EROSION-3, and VEG-2 and Project Specific Measures SOILS-PS-1 and SOILS-PS-2 (Table 2.1-3) and the interagency agreement between Western and the NPS would avoid or reduce impacts to soil resources throughout most of the project area.

Project Specific Measure SOILS-PS-1. Following seeding, an appropriate mulch material would be properly applied to disturbed soils having a severe erosion hazard that occur on slopes greater than 25 percent. This would reduce erosion, restore soil productivity, and enhance revegetation potential.

Project Specific Measure SOILS-PS-2. Gen-5 and Gen-6 address the reclamation of roads and trails as well as staging areas. These construction practices would also be applied to structure locations and conductor stringing sites.

Table 3.7-1 Summary of Soil Revegetation Constraints by County – LV-YT Line (Acres)

		Proposed Construction Disturbances			
Soil Constraint	**Structure Locations[1]**	**Existing Structure Removal: All Action Alternatives**	**Proposed Project**	**Alternative A1**	**Alternative A2**
Big Horn County, WY					
Badlands/Rock Outcrops/Shallow Soil Inclusions	2-3 to 2-4, 8-6, 12-5, 13-3	1.8	1.8	3.2	2.6
Shallow Soils (<21" to bedrock)	0-2 to 1-1, 1-3 to 1-4, 1-6 to 2-3, 5-8, 7-8 to 8-5, 10-3 to 10-7, 13-7 to 14-6	16.3	16.0	19.4	10.1
Severe Erosion Hazard (wind and/or water)	0-2 to 0-6, 1-3 to 1-4, 1-6 to 2-2, 2-5, 5-8, 6-3 to 7-5, 7-8, 8-5, 8-7 to 10-2, 10-4 to 10-6, 11-5 to 11-7, 12-2, 12-7 to 13-2, 13-4 to 14-6	28.2	27.6	29.8	17.4
Clayey Soils	0-1 to 0-4, 1-7 to 2-2, 5-7, 6-3 to 6-6, 6-7 to 8-5, 8-7 to 9-4, 9-7 to 10-2, 11-5	17.8	17.4	18.5	7.4
Potential High Salt Content (electrical conductivity >8 mmho/cm)2	0-2 to 1-1, 1-8 to 2-2, 2-5, 5-7 to 5-9, 6-3 to 6-6, 6-7 to 8-5, 8-7 to 9-4, 9-7 to 10-2, 10-5 to 10-6, 11-6, 12-5 to 12-7, 14-8	21.3	20.9	24.8	10.0
Potential High Sodium Content (sodium adsorption ratio >12)2	0-2 to 0-4, 0-6 to 1-1, 1-7 to 2-2, 7-5 to 8-5, 10-5 to 11-5, 11-8, 14-3 to 14-4, 14-7	14.4	14.1	17.3	9.5
Carbon County, MT					
Rock Outcrops/ Shallow Soil Inclusions	15-1 to 19-1, 20-4, 23-8 to 23-9, 24-7	14.8	14.5	18.1	19.1
Shallow Soils (<21" to bedrock)	14-7, 19-1 to 19-2, 19-5 to 20-2, 20-3, 20-5, 20-6 to 21-3, 22-2 to 24-1, 24-4 to 24-6, 25-2 to 25-6, 26-6 to 27-1, 28-5 to 28-7	16.9	16.6	12.2	19.5

		Proposed Construction Disturbances			
Soil Constraint	**Structure Locations[1]**	**Existing Structure Removal: All Action Alternatives**	**Proposed Project**	**Alternative A1**	**Alternative A2**
Severe Erosion Hazard (wind and/or water)	19-1 to 19-2, 19-5 to 20-2, 20-3, 20-5, 20-6 to 21-1, 22-2 to 24-1, 24-4 to 24-6, 25-4 to 25-5, 26-6 to 27-1, 28-5, 28-6 to 28-7	14.8	14.5	16.2	17.2
Clayey Soils	24-4 to 24-6	1.5	1.5	1.6	1.7
Big Horn County, MT					
Rock Outcrops/ Shallow Soil Inclusions	46-3	0.2	0.2	0.2	0.2
Shallow Soils (<21” to bedrock)	31-4 to 34-1, 36-3, 36-6 to 41-3, 42-4 to 45-1, 45-4, 45-6 to 46-1	40.9	40.0	13.3	14.0
Severe Erosion Hazard (wind and/or water)	31-5 to 32-5, 32-6 to 32-7, 36-6, 46-3 to 46-5	8.0	7.8	2.2	2.3
Clayey Soils	34-2 to 34-6, 41-4 to 41-6	4.2	4.1	1.8	2.0

[1] Structure locations refer to existing west line pole numbers

Table 3.7-2 Summary of Soil Revegetation Constraints – BA-LV Line (Acres)

		Proposed Construction Disturbances	
Soil Constraint	**Structure Locations[1]**	**Existing Structure Removal: All Action Alternatives**	**Proposed Project**
Big Horn County, WY			
Badlands/Rock Outcrops/Shallow Soil Inclusions/ Mine Disturbance	47-5 to 47-7, 48-3 to 48-4, 48-7 to 49-1, 50-1 to 50-2, 52-2, 53-1 to 53-4, 55-7 to 56-6, 73-3 to 73-6, 74-5 to 75-4, 79-9 to 80-1	7.7	7.8
Shallow Soils/Droughty Conditions (<21" to bedrock)	45-6 to 45-8, 46-4, 46-6 to 47-3, 47-5 to 49-3, 49-5 to 50-2, 52-3 to 54-3, 54-5 to 55-7, 57-2 to 57-3, 57-6 to 62-1, 62-8 to 71-6, 72-4 to 73-1, 73-6 to 74-2, 75-1 to 76-4, 76-7 to 77-7, 78-6 to 78-8, 79-3 to 80 2, 83-7 to 84-1	46.6	47.1
Severe Erosion Hazard (wind and/or water)	45-6 to 45-8, 46-4, 46-5 to 47-3, 47-5 to 49-3, 49-5 to 50-2, 53-1 to 54-1, 54-5 to 55-6, 57-4 to 61-1, 64-2 to 71-2, 71-5 to 71-6, 73-6 to 74-2, 75-1 to76-4, 76-7 to 77-5, 82-8 to 83-7, 84-2 to 84-4	37.4	37.8
Clayey Soils	45-6 to 45-8, 46-4, 46-6 to 47-3, 47-5 to 49-3, 49-5 to 50-2, 53-1 to 54-1, 54-5 to 55-6, 57-4 to 61-1, 62-1 to 62-7, 64-2 to 64-6, 69-8-to 70-3, 70-7 to 71-6, 75-6 to 75-8, 79-1 to 79-8, 80-3 to 80-8, 83-2 to 84-3	28.4	28.7
Potential High Salt Content (electrical conductivity >8 mmho/cm)2	45-6 to 46-4, 46-6 to 49-3, 49-5 to 50-2, 53-1 to 54-1, 54-5 to 55-6, 56-7 to 57-1, 57-4 to 61-1, 61-7, 66-7 to 67-1, 69-7 to 70-3, 70-7 to 71-7, 75-6 to 75-8, 79-1 to 79-2, 80-4 to 83-2	28.2	28.5
Potential High Sodium Content (sodium adsorption ratio >12)2	45-5 to 46-4, 46-6 to 49-3, 49-5 to 50-2, 50-5 to 50-7, 53-1 to 54-1, 54-6 to 55-6, 56-7 to 57-1, 57-4 to 61-5, 61-7 to 62-2, 62-4 to 62-8, 63-7 to 64-6, 66-7 to 67-1, 69-7 to 70-3, 70-7 to 71-6, 72-6 to 72-8, 75-6 to 75-8, 79-1 to 80-1, 80-4 to 84-3	37.4	37.8

[1] Structure locations refer to existing pole numbers

3.8 Wildlife

The project analysis area for wildlife resources includes a 0.5-mile corridor along each side of linear features (transmission lines and access roads) and around project construction areas and substations. The Bighorn River and Yellowtail Reservoir and associated canyon are located outside of the wildlife analysis area.

Wildlife habitats and features were evaluated along the existing ROW and accessible access roads for the LV-YT segment from July 31 through August 4, 2008 and for the BA-LV segment from June 11 through June 13, 2010. The field surveys were conducted to characterize existing wildlife habitats, as well as to identify any unique or sensitive natural resource features. Observations recorded during the field evaluation of the analysis area included: major wildlife habitats/vegetation communities present within the property; dominant vegetation associated with each habitat/community; unique habitat features; and observations of wildlife species or definitive sign. Locations of all raptor nests within the analysis area were recorded with a hand-held GPS unit. The Montana and Wyoming Natural Heritage Programs, Montana Fish, Wildlife and Parks (MFWP), Wyoming Game and Fish Department (WGFD), and NPS were also contacted to obtain wildlife resources information for the analysis area. Information from MFWP for the Montana portion of the analysis area was limited by the fact that majority of the Montana portion of the analysis area is within the Crow Indian Reservation, within which wildlife resources are not managed by MFWP. The Crow Tribe was also contacted for wildlife information pertinent to the analysis area within the Crow Indian Reservation, but no response was received from the Tribe.

3.8.1 Affected Environment

The topography, water resources, and vegetation within the analysis area create a diversity of habitats and habitat features that support a variety of wildlife species. Dominant wildlife habitats/vegetation communities within the analysis area consist of irrigated agricultural lands, desert shrub, mixed shrub/grassland, greasewood bottomlands, mixed shrub herbaceous, juniper/mountain mahogany, mixed woody-herbaceous/cushion plant, juniper ridge, mixed sagebrush/grasslands, sagebrush/saltbush, saltbush, mixed herbaceous grasslands, and badlands. Riparian and wetland communities are associated primarily with the perennial drainages crossed by the ROW. More detailed descriptions of riparian/wetland communities and upland communities are provided in Sections 3.5 and 3.6, respectively.

3.8.1.1 Big Game

Lovell-Yellowtail

Six big game species are found within the LV-YT portion of the analysis area region: mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), bighorn (mountain) sheep (*Ovis canadensis*), black bear (*Ursus americanus*), and mountain lion (*Puma concolor*). Some species' ranges are restricted. Moose (*Alces alces*) and elk (*Cervus elaphus*) are listed as occurring within Bighorn Canyon NRA (NPSBD 2006), but suitable habitats for these species are lacking within the analysis area, and MFWP and WGFD big game range maps do not indicate the presence of these species within or near the analysis area. The Bighorn Canyon NRA likely lacks suitable habitat to support a population of moose, and moose presence in the Bighorn Canyon NRA is likely from occasional dispersing individuals from nearby areas such as the Bighorn National Forest (Keinath 2005). Similarly, elk may occasionally wander into the Bighorn Canyon NRA from higher elevation Bighorn Mountains habitats. White-tailed deer are relatively common in other portions of the Bighorn Canyon NRA but are uncommon in the analysis area portions of the Bighorn Canyon NRA (Bromley 2009). Within the Wyoming portions of the LV-YT analysis area, white-tailed deer are restricted to the Shoshone River drainage basin and associated, adjacent agricultural areas. Since elk and moose are rare in the LV-

YT analysis area and do not occur in the BA-LV analysis area (see subsequent Big Game section for BA-LV), these species are not addressed in this document.

The entire analysis area is classified as yearlong range for mule deer (MFWP 2010; WGFD 2010), and is located with Montana Hunting District 510 and Wyoming Hunt Area 122 and Herd Unit 122 (Shoshone River). Mule deer occupy almost all ecosystems in Wyoming and Montana from grasslands to alpine tundra (Foresman 2001; Clark and Stromberg 1987). They are most abundant in shrubland habitats in broken terrain that provide abundant forage and cover. Mule deer typically exhibit seasonal movement in response to weather patterns. The higher elevations are used predominantly as summer range, while lower elevation areas are used for winter range. Shrub browse is the principal forage consumed by mule deer year-round, but in the spring there is some shift to grasses and forbs. Winter range is located at lower elevations in sagebrush and mixed shrub habitats, especially where exposures limit snow accumulations.

White-tailed deer occupy a variety of habitats, but they are typically associated with riparian woodlands and nearby irrigated agricultural lands of the eastern plains of Wyoming. They do not occupy dense coniferous forests, dry shrublands, or open prairie. The Shoshone River Basin is classified as yearlong range for white-tailed deer (WGFD 2010). White-tailed deer tend to feed more on grasses and forbs as opposed to browse, in contrast to mule deer. White-tailed deer often favor crops such as corn and wheat over native forbs, grasses, or browse.

Pronghorn habitat preferences include mountain-foothill shrublands and basin sagebrush/grasslands. Pronghorn prefer native grasslands and semi-desert scrublands and are not common in areas converted to agricultural uses. Along the LV-YT line, their distribution is restricted to the vicinity of the Lovell Substation. This portion of the analysis area is classified as yearlong range for the Carter Mountain pronghorn herd by WGFD big game range mapping (WGFD 2010).

Bighorn sheep can be found in a wide variety of terrain types (from gentle slopes to cliffs) and habitats (from shrublands to alpine tundra). Preferred habitat areas are typically near escape terrain (steep slopes and cliffs) with abundant forage (mixed herbaceous grassland habitats) and unobstructed visibility (MFG 2009; Cerovski et al. 2004). They often use slopes and cliffs with south-facing exposure and limited snow accumulation during the winter months. Within the LV-YT project area, bighorn sheep are restricted to Carbon County, Montana including shrubland habitats along the Bighorn River Canyon and rugged terrain associated with side drainages from approximately Porcupine Creek north to the Deadman Creek/Templeton Creek area (MFWP 2010).

Research on bighorn sheep in the Bighorn Canyon NRA indicate most bighorn distribution is tied closely to the habitats along the edge of Bighorn Canyon. Bighorn observations were clustered near the edge of Bighorn Canyon (within 1 kilometer or 0.6 mile) primarily near the lower end of the NRA, south of Layout Creek, but also scattered along the canyon edge upwards towards the north (Schoenecker et al. 2004, Gudorf 2004, and Wockner et al. 2004). Researchers and Park personnel have observed lambing primarily in microhabitats on benches along the Bighorn Canyon wall (Schoenecker et al 2004).

Black bears are omnivorous but feed primarily on herbaceous vegetation and berries. Riparian, wetland, and other habitats along the perennial drainages area may represent some of the more important habitats for black bear in the analysis area. Black bears occur year-round in the Carbon County portion of the analysis area from approximately Layout Creek north to the Carbon/Big Horn county line (MFWP 2010). A black bear sow and cub were observed in the Dry Head Creek drainage during the July/August field survey. Black bear are also mapped as a year-round resident in Bighorn County, Wyoming (WGFD 2010). Riparian, wetland, and other habitats along the perennial drainages (Shoshone River) are likely to be the most used habitats.

Mountain lion occur throughout the analysis area with their range closely tied to their principal prey, deer and other ungulates. Preferred habitat of mountain lions consists of rough or steep terrain in remote areas with suitable rock or vegetation cover. They are typically shy and avoid areas with human activity. A major habitat requirement is the presence of deer (Clark and Stromberg 1987). Mountain lion, like their prey, are typically wide-ranging. They follow their prey's seasonal movement and inhabit summer range or winter range in conjunction with deer. As a result of their wide-ranging habits, population densities are usually low. Documented home ranges for mountain lion in the Western U.S. range from 20 to 300 square miles (Anderson 1983).

Basin-Lovell

Five big game species are found within the BA-LV portion of the analysis area: mule deer, white-tailed deer, pronghorn, black bear, and mountain lion. Their habits and habitat preferences within this analysis area are similar to those described for LV-YT, except as indicated in this section.

The north end (north of structure 81-6) and approximate southern half (south of structure 65-8) of the analysis area is classified as yearlong range for mule deer (WFGD 2010). The remainder of the analysis area is classified as “habitats of limited importance to the species (OUT).” The analysis area is within Wyoming Hunt Areas 122, 124, and 125 and corresponding Herd Units 211 (Shoshone River), 210 (Greybull River), and 209 (Basin), respectively. There is no mule deer crucial winter range in the analysis area, although there are areas of mapped crucial winter range near the south end of the ROW (WGFD 2010) (see Figure 3.8-1).

The majority of the analysis area is in habitats of limited importance to white-tailed deer (WGFD 2010). Yearlong range for white-tailed deer in the analysis area is restricted to the ROW crossings of the Greybull River, Dry Creek, and Little Dry Creek drainages (WGFD 2010). These areas of yearlong range are located within Hunt Area 124 and Herd Unit 210 (Bighorn Basin).

Pronghorn yearlong range occurs along the entire analysis area except for the Greybull River drainage basin, which is classified as habitat of limited importance to the species (WGFD 2010). The portion of the analysis area south of the Greybull River is also classified as winter range (WGFD 2010). One relative small area of pronghorn crucial winter and yearlong range is located within the southern portion of the analysis area between structures 49-1 to 51-8 and 52-4 to 53-3 (Figure 3.8-2). Crucial winter range is defined by the WGFD as “winter range, which has been documented as the determining factor in a population’s ability to maintain itself at a certain level (theoretically at or above the population objective) over the long term.” A small portion of a mapped pronghorn parturition area (WGFD 2010) also overlaps the ROW from structures 54-7 to 55-2 (Figure 3.8-2). WGFD mapped parturition areas indicate areas with seasonally high concentrations of birthing animals. The analysis area north of the Greybull River is in Hunt Area 78 (Herd Unit 205 - Carter Mountain), while the area south of the Greybull River is in Hunt Area 77 (Herd Unit 204 - Fifteen Mile).

Black bear are mapped as a year-round resident in Bighorn County, Wyoming (WGFD 2010) but riparian, wetland, and other habitats along the Greybull River and Dry Creek are likely to be the only habitats consistently used by black bear.

3.8.1.2 Other Mammals

Lovell-Yellowtail

Based on known ranges and habitat preferences, a variety of mammalian predators and small mammal species, including bats, are present in the analysis area. Most of these species are relatively widespread and common. There are no identified issues regarding potential effects of the Proposed Project on these species.

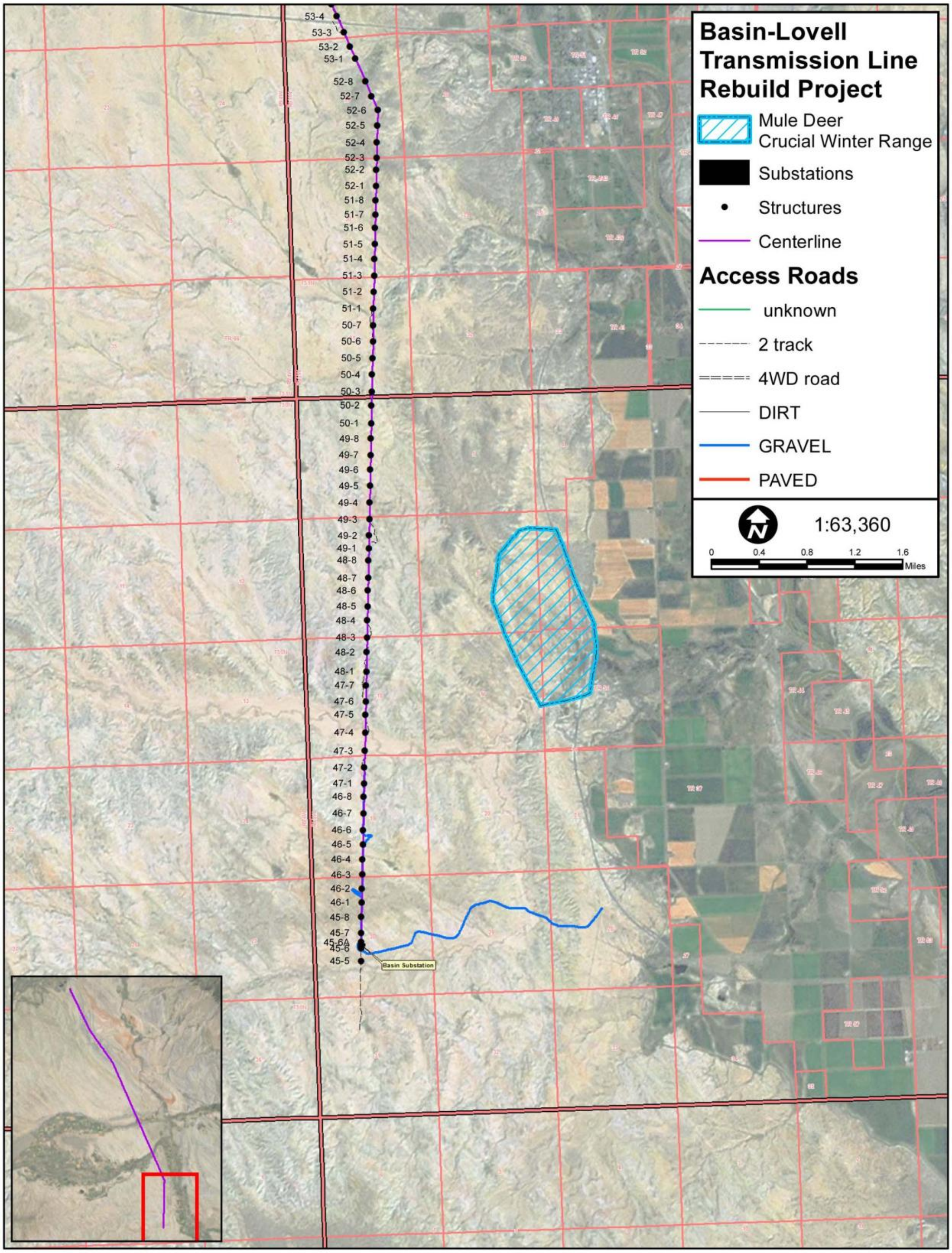

Figure 3.8-1 Mule Deer Crucial Winter Range Near the BA-LV Analysis Area

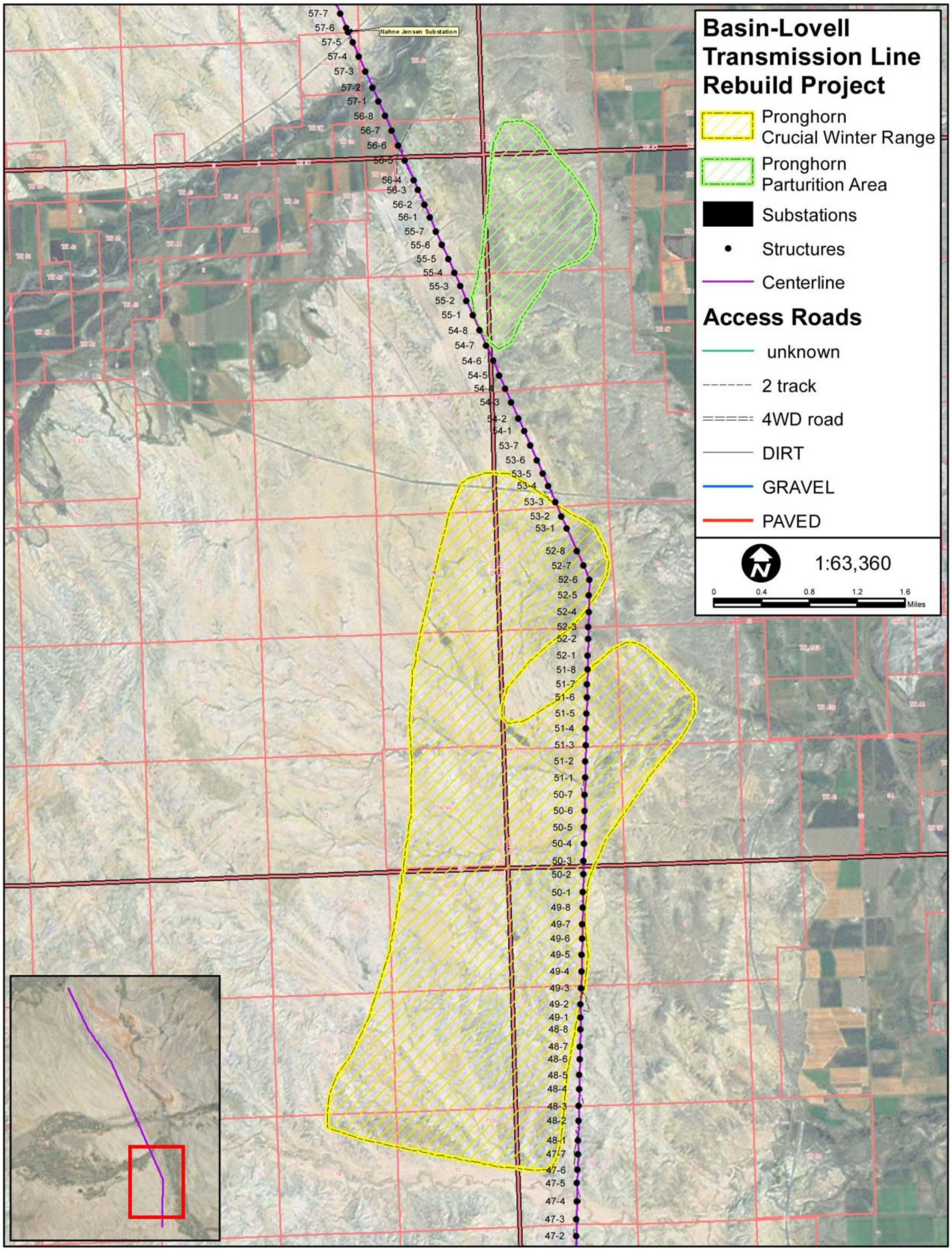

Figure 3.8-2 Pronghorn Crucial Winter Range and Parturition Areas Near the BA-LV Analysis Area

Five bat species, black-tailed prairie dog (*Cynomys ludoviciana*), swift fox (*Vulpes velox*), and western spotted skunk (*Spilogale gracilis*) are listed as BLM Sensitive species potentially occurring within or near the analysis area. Montana Species of Concern (Tier I - MFWP 2005) potentially occurring within or near the analysis area include spotted bat (*Euderma maculatum*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and black-tailed prairie dog. These species are briefly discussed here; a more detailed analysis is provided in Cedar Creek Associates, Inc. (2010).

BLM sensitive Montana Species of Concern bat species may forage over the analysis area, and suitable roost sites for some species, like spotted bat and pallid bat, may be present in the rocky canyon walls of the larger tributaries to the Bighorn River. However, suitable buildings, caves, and/or abandoned mines for use as maternity or winter hibernation sites are lacking within the analysis area.

The USFWS was petitioned to list the black-tailed prairie dog as threatened or endangered. On December 3, 2009 the USFWS published notice in the Federal Register that listing the black-tailed prairie dog as threatened or endangered is not warranted at this time (USFWS 2009). Black-tailed prairie dogs inhabit grasslands and sparse shrublands. Although suitable habitat for black-tailed prairie dog is present in the analysis area from approximately existing structure 24-7 north to the transmission line crossing of the Bighorn Canyon, no active or inactive prairie dog towns were found in or near the ROW. Black-tailed prairie dogs are also not present within the Bighorn Canyon NRA (Keinath 2005).

Swift fox reside in short-grass and mid-grass prairies over most of the Great Plains including central and eastern Wyoming (Clark and Stromberg 1987). Swift fox also use agricultural lands and irrigated meadows. In Montana, swift fox inhabit open prairie and arid plains, including areas intermixed with winter wheat fields (MFG 2009). The analysis area is near the western periphery of the known range of the swift fox. In the analysis area, suitable habitat for this species in the analysis area is primarily in Big Horn County, Montana from approximately existing structure 24-7 north to the transmission line crossing of the Bighorn Canyon.

Western spotted skunk is commonly associated with semiarid shrub habitats in broken country. The analysis area is near the eastern edge of this species range within Montana (MFG 2009), and its presence within the analysis area is unknown. Canyons, broken country, and riparian habitat within the Bighorn Canyon NRA represent suitable habitat for western spotted skunk. However, Keinath (2005) concluded that spotted skunks are rare, perhaps even accidental, in the Bighorn Canyon NRA, and the most likely inhabitant is the eastern spotted skunk (*Spilogale putorius*), if spotted skunks occur in the Bighorn Canyon NRA. The same conclusion would apply to the entire analysis area.

Wild horses are a species of public concern and portions of the analysis area in the Bighorn Canyon NRA are within the Pryor Mountain Wild Horse Range. The Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) directs the Secretary of the Interior in the protection and control of free-roaming horses and burros on public lands. Pryor Mountain wild horses are descendents of Spanish horses brought to the New World by conquistadors in the 16th century. These horses range from the high mountain meadows in the Pryor Range to desert badlands near the edge of the Bighorn River Canyon. Wild horses of the Pryor Mountain herd are relatively common residents in portions of the Bighorn Canyon NRA and were observed on occasion within or near the analysis area during field surveys.

Basin-Lovell

Similar to the LV-YT analysis area, a variety of mammalian predators and small mammal species, including bats, are present in the BA-LV analysis area. The populations of the majority of these species are relatively widespread and common. There are no identified issues regarding the Proposed Project's potential effects on these species.

Three bat species, white-tailed prairie dog (*Cynomys leucurus*), and swift fox are listed as BLM Sensitive species potentially occurring within the Cody Field Office District. The BA-LV analysis area is outside of the known range of the swift fox (WGFD 2005). The other four Sensitive species are briefly discussed here, and a more detailed analysis is provided in Cedar Creek Associates, Inc. (2010).

Sensitive bat species may forage over the analysis area, and suitable roost sites for some species may be present in areas of rock outcrop and trees along the perennial drainages. However, suitable buildings, caves, or abandoned mines for use as maternity or winter hibernation sites are lacking within the analysis area.

On May 26, 2010 the U.S. Fish and Wildlife Service completed a status review of the white-tailed prairie dog and has determined it does not warrant protection as a threatened or endangered species under the Endangered Species Act (USFWS 2010). This species is typically found in shrub-steppe and grassland environments in cool intermountain basins, generally west of areas occupied by black-tailed prairie dogs. White-tailed prairie dogs typically occupy cooler, higher elevation grasslands with more abundant shrub cover than black-tailed prairie dogs. Unlike black-tailed prairie dogs, white-tails do not clip and maintain the vegetation in a close-cropped condition to assist predator detection (Keinath 2004).

The Wyoming Natural Diversity Database (WYNDD) (2010) database search for the BA-LV analysis areas indicated a few records of white-tailed prairie dog towns within one mile of the ROW, and the June 2010 field surveys located six white-tailed prairie dog towns within or near the ROW corridor (see Figures 3.8-3, 3.8-4, and 3 8-5). Three of these towns were relatively small (4.1 to 12.7 acres) and isolated, and only one of these, the 12.7-acre town, was determined to be occupied. The other two were unoccupied based on the fact that no prairie dogs were observed or heard, and all burrows observed in these two towns were either collapsed or the entrances were filled with debris or cobwebs. The three larger towns located ranged in size from 52.1 to 122.0 acres. These larger towns were all determined to be unoccupied (based on the above criteria) except for a small north portion (approximately 4.0 acres) of the 92.4-acre town (see Figures 3.8-3, 3.8-4, and 3 8-5).

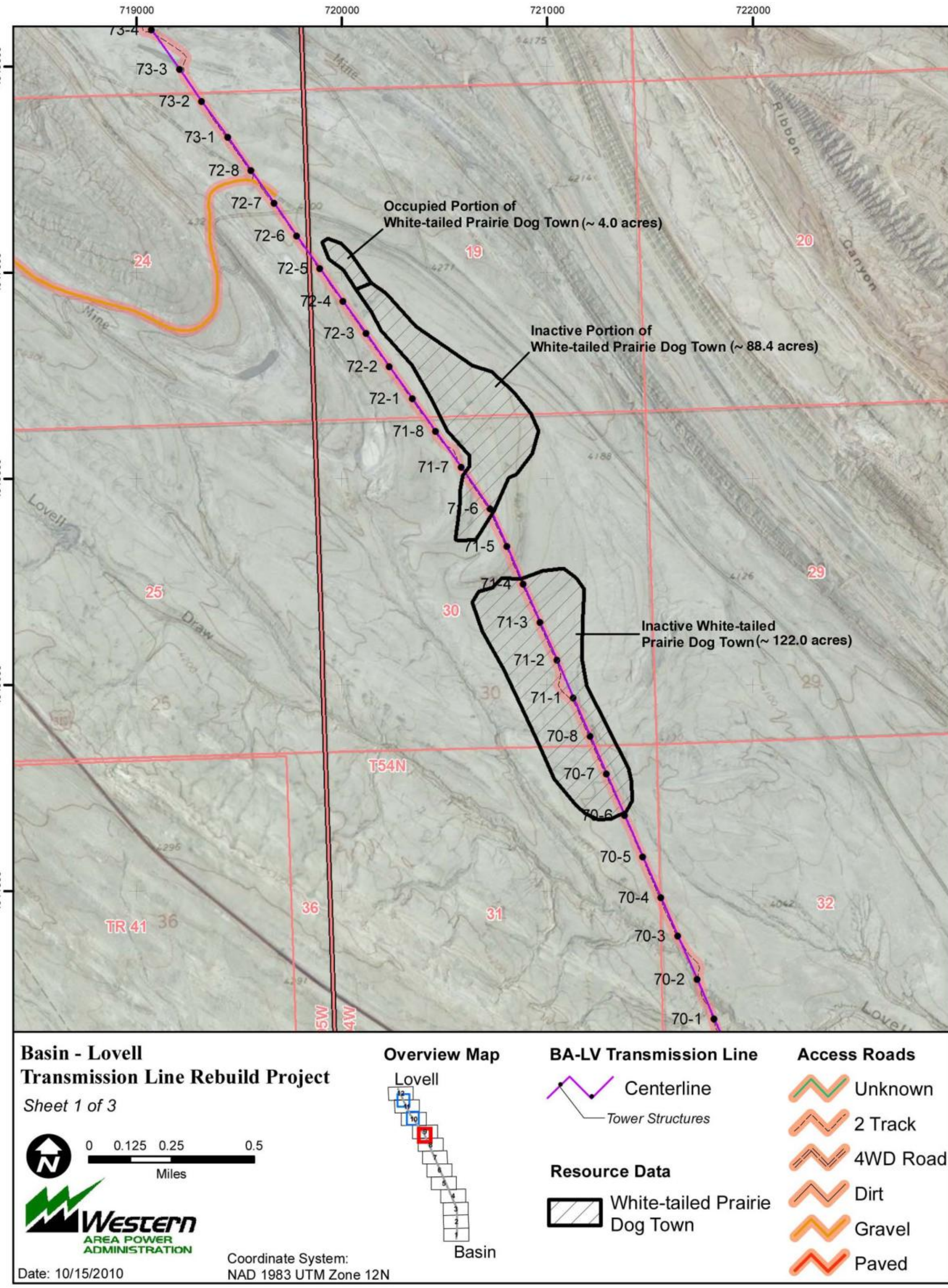

Figure 3.8-3 White-tailed Prairie Dog Town Mapping

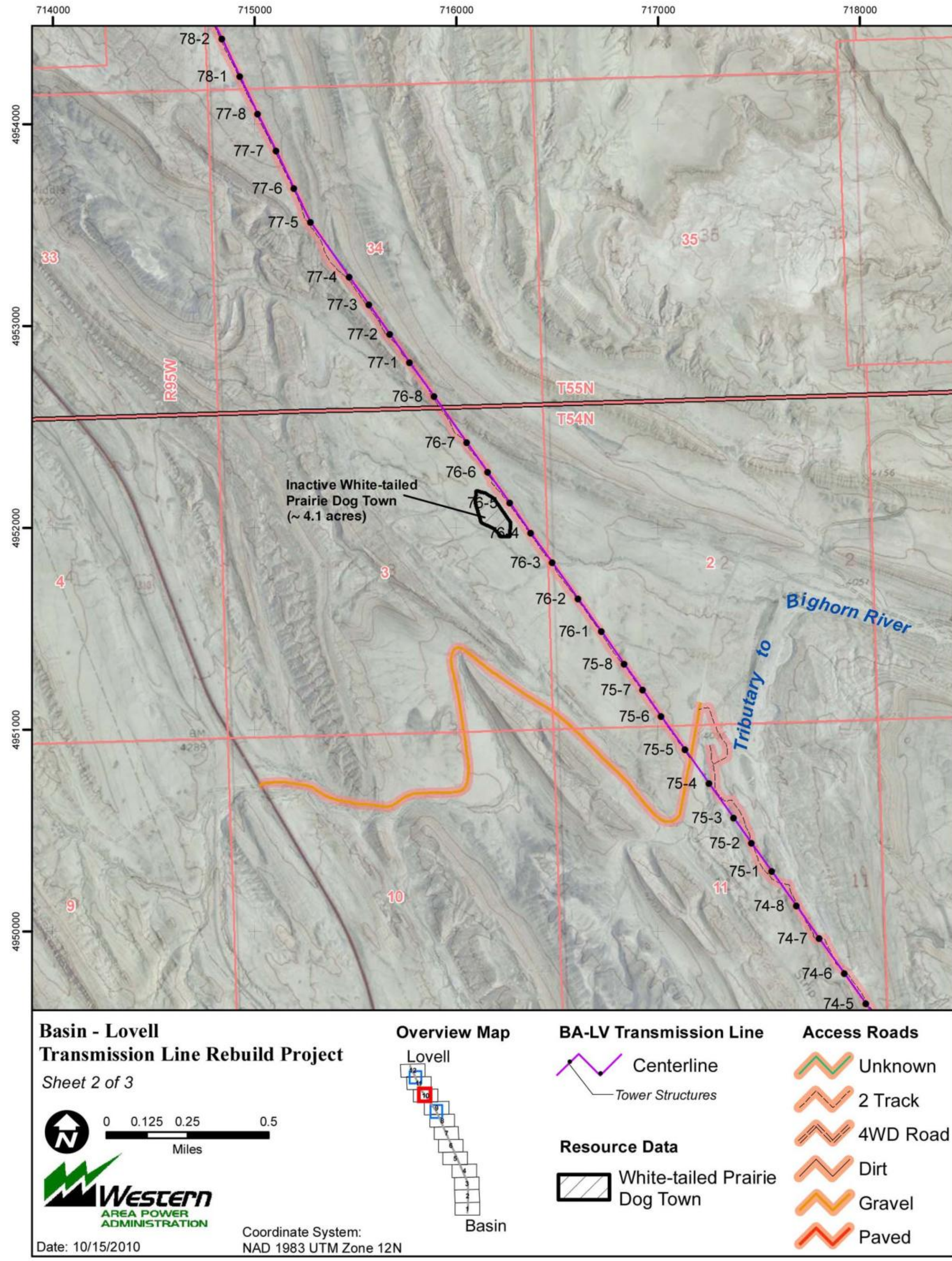

Figure 3.8-4 White-tailed Prairie Dog Town Mapping

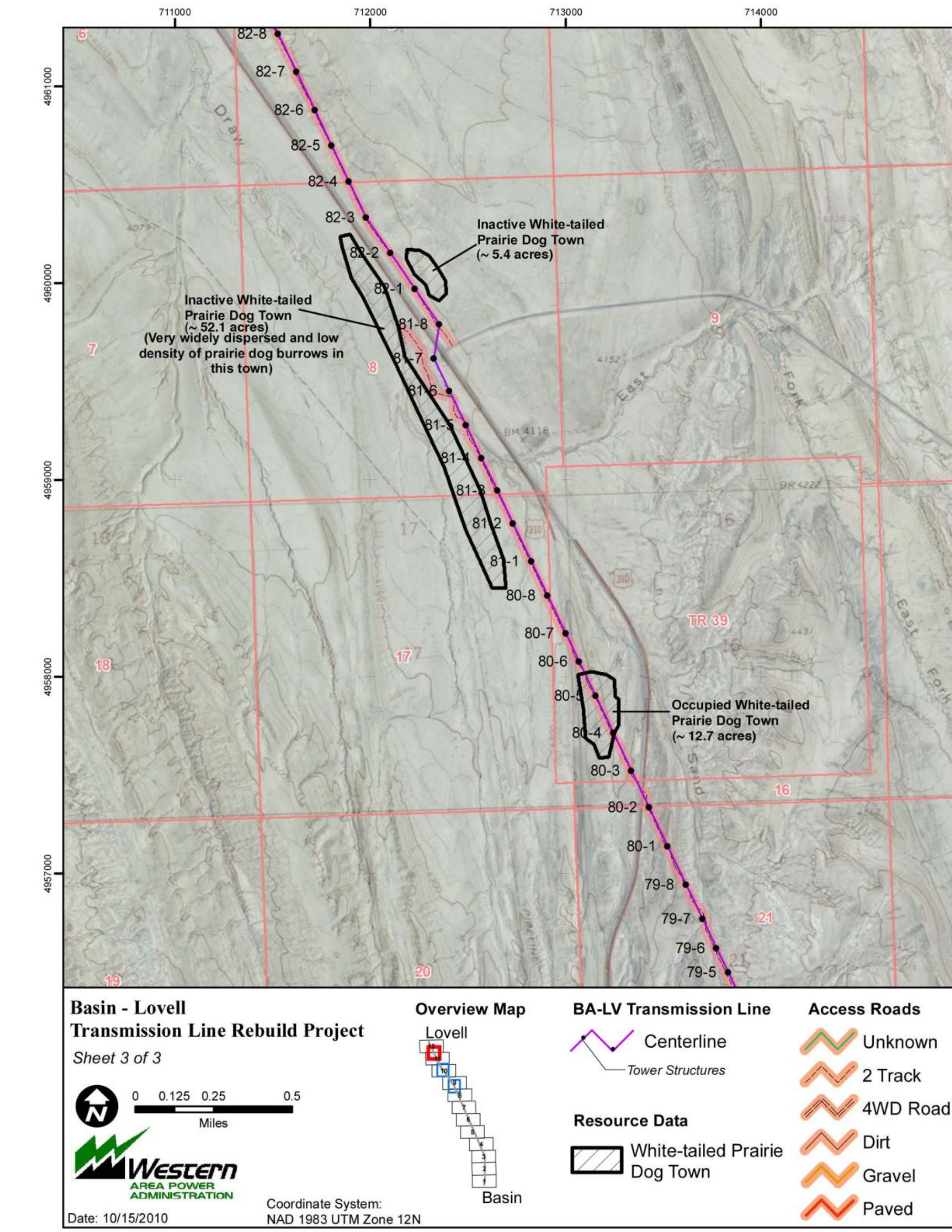

Figure 3.8-5 White-tailed Prairie Dog Town Mapping

3.8.1.3 Waterbirds

Lovell-Yellowtail

Waterbirds include waterfowl, shorebirds, and other wading birds typically associated with wetlands and bodies of surface water. The project area is located within the Central Flyway for waterfowl. Although waterbird habitat is limited along the ROW corridor, wet meadows in the Shoshone River basin, the Shoshone River, and perennial streams serve as resting and stopover sites for migratory waterbirds as well as foraging and breeding habitat for a few summer residents. The nearby Bighorn River corridor provides suitable resting and foraging sites for a number of migratory waterbirds but breeding habitat is limited by steep canyon walls along most of the river corridor near the analysis area.

Several species of wading/shore birds and waterfowl may occur as year-round residents or summer breeders along the Shoshone River and perennial streams that drain into the Bighorn River. Wading/shore birds include great blue heron *(Ardea herodias*), killdeer (*Charadrius vociferous*), American avocet (*Recurvirostra americana*), and spotted sandpiper (*Actitis macularia*). Waterfowl species likely to occur in aquatic habitat supported in the analysis area include Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), northern pintail (*Anas acuta*), blue-winged teal (*Anas discors*), northern shoveler (*Anas clypeata*), gadwall (*Anas strepera*), and American widgeon (*Anas americana*).

The project area is within the breeding range of long-billed curlew (*Numenius americanus*), a Bird of Conservation Concern (BCC) (see Section 3.8.1.6). This Neotropical migrant breeds from southwestern Canada to Texas (Terres 1980) and winters along beaches and mudflats on the California coast and as far south as Honduras and Costa Rica (Ehrlich et al. 1988). Long-billed curlews nest in shortgrass prairie, sagebrush-grasslands, rangeland, and wet and irrigated meadows, usually near water (Cerovski et al. 2004). Within the analysis area, suitable foraging habitat is only present in the Shoshone River basin in association with wet meadows, wetlands, moist pasture habitats, and agricultural fields between existing structure numbers 2-6 and 4-6.

Upland sandpiper (*Bartramia longicauda*) and mountain plover (*Charadrius montanus*) are two other BCC waterbird species that may occur in the analysis area as summer breeders, although the analysis area is near the western edge of their breeding ranges (MFG 2009). They differ from most shorebirds in that they do not prefer habitats near or associated with water. Mountain plover is a BLM Sensitive species and a federal Candidate species and is discussed in Section 3.9. The upland sandpiper breeds from south-central Canada through the Great Plains to northern Oklahoma, and eastward to portions of New York and New England (Terres 1980). It nests in native prairie, dry meadows, open fields, and occasionally cultivated lands (MFG 2009). In contrast to mountain plover, upland sandpipers nest and forage in dense grass cover and often use fence posts and other elevated sites as lookout posts (Kingery 1998). Suitable breeding habitat exists for this species in the analysis area north of existing structure 25-1 to the Bighorn River canyon.

Basin-Lovell

General species and habitat information presented for waterbirds under the preceding section also applies to BA-LV analysis area. Waterbird habitat in the BA-LV analysis area is limited primarily to aquatic and wetland habitat at Greybull Creek and Dry Creek and at two abandoned strip mine ponds between structures 73-3 to 73-4 and 74-5 to 74-6.

Suitable foraging and nesting habitat for long-billed curlew is only present in the Greybull River and Dry Creek basins in association with wet meadows, wetlands, moist pasture habitats, and agricultural fields between existing structures 56-5 to 57-2 and 61-7 to 62-7.

Upland sandpiper and mountain plover are two other BCC waterbird species that may occur in the analysis area as summer breeders. Breeding by upland sandpiper has not been documented in the region of the BA-LV analysis area (Cerovski et al. 2004), and preferred nesting habitats of native prairie, dry meadows, open fields, and occasionally cultivated lands are generally lacking along the BA-LV ROW. Although mountain plover breeding has been documented in the region of the BA-LV analysis area (Cerovski et al. 2004), preferred short-grass prairie habitats with a high proportion of bare ground are lacking along the BA-LV ROW. As indicated in Section 3.8.1.2, white-tailed prairie dogs typically occupy grasslands with more abundant shrub cover than black-tailed prairie dogs, and white-tailed prairie dog towns within and near the BA-LV do not provide suitable habitat conditions for breeding mountain plovers.

3.8.1.4 Upland Game Birds

Lovell-Yellowtail

Gray partridge (*Perdix perdix*), ring-necked pheasant (*Phasianus colchicus*), chukar (*Alectoris chukar*), wild turkey (*Meleagris gallopavo*), plains sharp-tailed grouse (*Tympanuchus phasianellus jamesi*), mourning dove (*Zenaida macroura*), ruffed grouse (*Bonasa umbellus*), blue grouse (*Dendragapus obscurus*), and greater sage-grouse (*Centrocercus urophasianus*) are upland game birds potentially occurring within the analysis area. All have been documented within the Bighorn Canyon NRA (NPS Inventory and Monitoring Program 2010). Greater sage-grouse is a federal Candidate and BLM Sensitive species and is discussed in Section 3.9.

Gray partridge and ring-necked pheasant, both exotic game bird species, prefer a mix of cultivated and open grassland habitats and are only likely to be present in the agricultural areas in the Wyoming portion of the analysis area near the Shoshone River. The preferred habitat for chukar, another exotic game bird, consists of semi-arid, steep, rocky terrain with an abundance of cheatgrass (*Bromus tectorum*) and brushy draws (MFG 2009). Suitable habitat for chukar exists within the Bighorn Canyon NRA portions of the analysis area. Preferred habitats for wild turkey include riparian woodlands and open ponderosa pine woodland intermixed with grassland and brushy draws. Ponderosa pine woodlands are lacking, and riparian woodlands are only present at the ROW crossings of perennial drainages. Therefore, wild turkey presence in the analysis area is uncommon. Plains sharp-tailed grouse is year-round resident of grassland habitats in eastern Montana. They prefer native grasslands intermixed with brushy drainages and grainfields. Grassland drainages with dense tree and shrub stands are required for food, resting, escape, and winter cover (MFG 2009). These habitats are generally lacking, and sharp-tailed grouse are not likely to be present within the analysis area.

Mourning doves occur nearly statewide in Wyoming and Montana except at higher elevation and densely forested habitats. They inhabit shrubland and grassland habitats in the region; however, they prefer agricultural areas and open woodlands with scattered trees and shrubs near water. Within the analysis area, mourning doves are likely to be most common along Shoshone River riparian habitats and agricultural habitats as well as riparian habitats along the perennial stream courses draining into the Bighorn River. Mourning doves are present in the region only during the summer months. They migrate to warmer climates in the southern United States and Mexico for the winter.

Ruffed grouse are associated with dense brushy cover in mixed conifer and deciduous tree woodlands in the mountains and foothills as well as brushy cover in deciduous tree woodlands in riparian areas along stream courses. Riparian habitats along the perennial drainages represent the only suitable habitat for ruffed grouse within the analysis area. This species is a year-round resident.

Blue grouse typically inhabit coniferous forest, aspen and willow stands, and open mountain-park meadows (Cerovski et al. 2004). However, in summer they can be found far from mountain forests in lower elevation grass-forb and deciduous dense shrub habitats (MFG 2009). Riparian habitats along the perennial drainages represent the only suitable habitat for blue grouse within the analysis area, and this species would only be present during the summer months.

Basin-Lovell

Gray partridge, ring-necked pheasant, chukar, wild turkey, mourning dove, and greater sage-grouse are upland game birds potentially occurring within the BA-LV analysis area. Greater sage-grouse is a federal Candidate and BLM Sensitive species and is discussed in Section 3.9. Gray partridge and ring-necked pheasant prefer a mix of cultivated and open grassland habitats and are only likely to reside in the agricultural areas in the BA-LV analysis area near the Greybull River and Dry Creek. Suitable terrain for chukar along the BA-LV ROW is relatively limited because of the preponderance of relatively flat to rolling terrain without areas of rock outcrop. Areas of suitable rock outcrop and rocky slope slopes habitat within one mile of the ROW are located to the east of the ROW from structure 64-6 to 68-5. Preferred habitats for wild turkey include riparian woodlands and open ponderosa pine woodland intermixed with grassland and brushy draws. Ponderosa pine woodlands are lacking, and riparian woodlands are only present at the ROW crossings of the Greybull River and Dry Creek. Therefore, wild turkey presence in the analysis area is uncommon. Within the analysis area, mourning doves are likely to be most common along the Greybull River and Dry Creek riparian habitats and agricultural habitats. This species presence was documented in these habitat areas by the June 2010 field survey.

3.8.1.5 Raptors

Lovell-Yellowtail

Raptors are protected under state and federal laws including the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Raptor use of the project area is restricted primarily to open-country associated species. Raptor species potentially present as year-long residents or summer breeders within the LV-YT project area include osprey (*Pandion haliaetus*), golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), Swainson’s hawk (*Buteo swainsonii*), ferruginous hawk (*Buteo regalis*), American kestrel (*Falco sparverius*), prairie falcon (*Falco mexicanus*), peregrine falcon (*Falco peregrinous*), burrowing owl (*Athene cunicularia*), great horned owl (*Bubo virginianus*), long-eared owl (*Asio otus*), and short-eared owl (*Asio flammeus*) (MFG 2009; Cerovski et al. 2004). Cooper’s hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), and eastern screech owl (*Otus asio*) are associated with woodlands and would only be present along the perennial drainages supporting riparian woodlands, although sharp-shinned hawk may inhabit open shrublands as well. The presence of all of these species has been documented in the Bighorn Canyon NRA (NPS Inventory and Monitoring Program 2010). Bald eagle, peregrine falcon, ferruginous hawk, and burrowing owl are listed as BLM Sensitive species for the analysis area and are discussed in greater detail in Cedar Creek Associates, Inc. (2010).

In the analysis area region, osprey, golden eagle, bald eagle, red-tailed hawk, Swainson’s hawk, and great horned owl typically nest in relatively larger trees with open crowns. Bald eagle and osprey require trees along major rivers, lakes, and reservoirs. Osprey will also nest on power poles, artificial platforms, and other man-made structures. All but bald eagle, osprey, and Swainson’s hawk may also nest on rock ledges on cliffs and rock outcrops. Great horned owls do not build their own nests and often occupy old nests of eagles, hawks, ravens, and crows. All of these species, except bald eagle and osprey, prefer primarily open shrublands and grassland areas for hunting. Bald eagles and osprey forage primarily for fish along major rivers and lakeshores. During the winter bald eagles will also forage over open shrublands and grasslands for rabbits, prairie dogs, and big game carrion. Large cottonwood trees along the perennial drainages provide the only suitable tree nest sites for tree-nesting species in the analysis area. Trees along the Shoshone River provide suitable nesting sites for bald eagle and osprey, although no bald eagle or osprey nests are known to be within four and one mile of the ROW, respectively (WYNDD 2008). Suitable cliff nesting habitat is also present at the ROW crossing of the Bighorn River and along some of the larger tributary drainages to the Bighorn River such as Dry Head, Pitchfork, and Hoodoo Creeks. No tree or cliff nests were located within the analysis area during the late July/early August 2008 field survey.

Prairie falcon and peregrine falcon nest on ledges and in rock cavities on cliff faces. Peregrine falcons prefer tall, remote cliff sites usually near water, wetlands, or riparian corridors where prey is abundant. Several peregrine nest sites (eyries) have been located on the cliff walls of the Bighorn River/Yellowtail Reservoir within the Bighorn Canyon NRA (Bromley 2008), but suitable nesting habitat for this species is lacking within the analysis area except at the ROW crossing of the Bighorn River. A peregrine falcon was observed in flight at this section of the ROW during the late July/early August field 2008 survey. No evidence of falcon nesting activity (cliff ledges or cavities with whitewash streaking) was recorded during the late July/early August 2008 field survey.

The American kestrel is a cavity nester, and abandoned woodpecker holes are used as nest sites. American kestrel inhabits a variety of open and wooded habitats, although it avoids densely forested habitats. American kestrel was observed during the late July/early August 2008 field survey and it is a likely nester in riparian habitats along the perennial drainages.

Turkey vultures nest on cliff ledges, in hollows in snags or stumps, or in caves. Because of a lack of suitable nesting habitat, turkey vultures are not expected to breed in the project area but may be present as summer visitors. This species was observed in the analysis area during the late July/early August 2008 field surveys.

Ferruginous hawk inhabits grasslands, shrublands, and steppe-deserts of the Western U.S. It is a summer resident and breeder in eastern Montana and Wyoming (MFG 2009; Cerovski et al. 2004). Habitat occupied by ferruginous hawk in Montana and Wyoming consists of mixed-grass prairie, shrub-grasslands, grasslands, grass-sagebrush complex, and sagebrush steppe (MFG 2009; Cerovski et al. 2004). Nesting occurs on bluffs, buttes, rock outcrop or pillars, ridge tops, high points on open ground, and in isolated trees and large shrubs. No nest sites or suitable nesting habitat for ferruginous hawk were located within the analysis area during the late July/early August 2008 field survey.

Burrowing owls are a migratory species in Wyoming and Montana. This species resides in both states spring through fall, typically in grasslands and mountain parks in or near prairie dog towns. Abandoned prairie dog, ground squirrel, badger holes are used for cover and nesting, and burrowing owls hide in burrows when they feel threatened. Families of owls remain together in prairie dog towns until they migrate south to Mexico and Central America for the winter. No suitable burrow nesting habitat (prairie dog towns) or burrowing owls were observed during the late July/early August 2008 field survey.

Northern harriers and short-eared owls nest on the ground in low shrubs or in pockets of dense shrub and grass cover, often near wetlands. Other preferred habitats include shortgrass prairie, agricultural areas, and marshes (Cerovski et al. 2004; MFG 2009). Suitable nesting habitats exist within the analysis area for these species, but they were not observed during the late July/early August 2008 field survey.

Long-eared owls, like great horned owl, do not build their own nest and usually occupy abandoned magpie, hawk, crow, or squirrel nests in tall shrubs or trees (Ehrlich et al. 1988). Although primarily an open-country hunter, long-eared owls typically nest in juniper thickets, woody draws, and edges of riparian woodlands (MFG 2009). Nest sites are often at forest edges near water or moist meadow habitats

(Terres 1980). Riparian and juniper woodlands represent suitable nesting habitat for long-eared owl in the analysis area.

Basin-Lovell

General information on species presence and habitat requirements provided for the LV-YT portion of the analysis area also apply to the BA-LV analysis area. This section summarizes the potential for nesting by raptor species in the BA-LV analysis area. The BA-LV analysis area is characterized by relatively flat to gently rolling terrain supporting primarily saltbush, mixed shrub, sagebrush/saltbush, badlands, and agricultural communities. As a result, suitable nesting habitat is limited for most raptor species potentially nesting in the region. Bald eagle, peregrine falcon, ferruginous hawk, and burrowing owl are listed as BLM Sensitive species for the analysis area and are discussed in greater detail in Cedar Creek Associates, Inc. (2010).

Cooper's hawk, sharp-shinned hawk, American kestrel, and eastern screech owl are associated with woodlands and would only be present along the Greybull River and Dry Creek where riparian woodlands are supported. A few isolated cottonwood trees are also supported along the South Fork Elk Creek at the south end of the analysis area. Riparian woodlands along the Greybull River and Dry Creek also represent suitable nesting habitat for long-eared owl in the analysis area. One stick-nest structure was found in a partially decadent cottonwood tree on the South Fork Elk Creek. This nest (species ownership undetermined) was unoccupied and in poor condition (partially collapsed). Its location was a little over 0.5 mile west, southwest of the Basin Substation. No other nest structures or nest cavities were noted in trees in or near the ROW at the Greybull River and Dry Creek crossings. Trees at the ROW crossings of the Greybull River and Dry Creek consist primarily of Russian olive, small cottonwood, and tamarisk trees, which do not have sufficient size or structure to support nesting by the larger tree-nesting species such as bald eagle, osprey, red-tailed hawk, and Swainson's hawk. No other tree nest sites were located along the BA-LV ROW, and no raptor nests were found on the BA-LV pole structures.

Cliff faces suitable for nesting by cliff nesting species such as golden eagle, red-tailed hawk, great horned owl, peregrine falcon, and prairie falcon were only found at two locations in the analysis area. An exposed rock face was located by the June 2010 field survey immediately west of the ROW between structures 74-8 and 75-1. A single, unoccupied stick nest was found on a rock ledge at this site. The nest was determined to be a common raven nest based on the extensive amount of whitewash (excrement) surrounding the nest and lack of whitewash streaking below the nest. Another area of vertical rock faces is located approximately 0.4 mile west, southwest of structure 76-5 and approximately 0.3 mile north, northwest of an existing access road. A red-tailed hawk-sized stick nest was observed in this area. The nest was unoccupied and exhibited no evidence (whitewash) of recent occupation.

No suitable turkey vulture nesting habitat was observed in the analysis area, and turkey vultures are not likely to breed near the ROW. It is a common summer resident, and this species was observed in the analysis area during the June 2010 field survey.

One area of rock outcroppings and small rock pinnacles suitable as nesting habitat for ferruginous hawk nesting habitat within one mile of the ROW is located to the east of the ROW from structure 64-6 to 68-5. The June 2010 field survey confirmed the presence of two occupied and three unoccupied ferruginous hawk nests in this area. One occupied nest had both adults present with the female on the nest in incubation posture. The other occupied nest contained three live downy young, but no adults were observed in the vicinity. Distances from the ROW were approximately 160 feet and 850 feet, respectively, for these two nests. Of the three unoccupied nests, one was in disrepair while the other two were in relatively good condition. These nest locations ranged from 850 to 1,200 feet to the east of the ROW.

Suitable burrowing owl nesting habitat (prairie dog towns) exists at the six unoccupied or active white-tailed prairie dog towns located along the ROW, although no burrowing owls or evidence of their nesting were observed during the June 2010 field survey.

Suitable ground-nesting habitat for northern harrier and short-eared owl exists within the analysis area, especially near the Greybull River and Dry Creek, but these species were not observed during the June 2010 field survey.

3.8.1.6 Other Birds

Lovell-Yellowtail

A number of songbird and other bird species may also occur along the analysis area, although songbird diversity is restricted by relatively low vegetation species diversity and structure except in riparian habitats along the perennial drainages. Most of the songbirds in the project area are open-country species associated with grassland and shrubland habitats. The majority migrate to and from the area and occur only as summer residents. Many of the summer residents are Neotropical migrants that winter in Central and South America. The Migratory Bird Treaty Act (MBTA) provides federal legal protection for bird species listed at 50 CFR 10.13. The USFWS places the highest management priority on Birds of Conservation Concern (BCC) (USFWS 2002). The BCC list was developed as a 1988 amendment to the Fish and Wildlife Conservation Act. This Act mandated that the USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." The goal of the BCC list is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions. These species would be consulted on in accordance with Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (January 10, 2001).

The habitats and ranges of the BCC for the Badlands and Prairies (BCR-17) (USFWS 2002) were reviewed to create a list of BCC potentially occurring in the analysis area. Potential breeding bird populations within the analysis area on this list include ferruginous hawk, golden eagle, peregrine falcon, prairie falcon, mountain plover, upland sandpiper, long-billed curlew, black-billed cuckoo (*Coccyzus erythropthalmus*), burrowing owl, short-eared owl, Brewer's sparrow (*Spizella breweri*), grasshopper sparrow (*Ammodramus savannarum*), Baird's sparrow (*Ammodramus bairdii*), McCown's longspur (*Calcarius mccownii*), and chestnut-collared longspur (*Calcarius ornatus*). The remaining species on the BCC list for Badlands and Prairies either have ranges outside of the analysis area, prefer habitats not found in the analysis area, or occur only as migrants in the area during spring and fall migration. Ferruginous hawk, golden eagle, peregrine falcon, prairie falcon, burrowing owl, and short-eared owl are discussed in Section 3.8.1.5. Mountain plover, upland sandpiper, and long-billed curlew are discussed in Section 3.8.1.3.

Black-billed cuckoos nest in deciduous woodlands, mixed deciduous/coniferous forests, cottonwood/riparian forest, and urban woodlands usually near water (MFG 2009; Cerovski et al. 2004). They are known breeders within the analysis area (Cerovski et al. 2004). Riparian woodlands along the perennial drainages in the analysis area are suitable nesting habitat for black-billed cuckoo.

Baird's sparrow nests on the ground and prefers to nest in native short-grass prairie habitats and lightly grazed pastures (MFG 2009; Wiggins 2006; Cerovski et al. 2004). It is considered a common breeder in eastern Montana, but breeding has not been documented in Wyoming, where it is considered primarily a spring and fall migrant in the eastern portions of the state (Wiggins 2006). Its current breeding range, as mapped by Wiggins (2006), does not include the analysis area. Baird's sparrow may occur as a migrant but its breeding range does not include the project area. It has not been documented in the Bighorn Canyon NRA (NPS Inventory and Monitoring Program 2010).

Grasshopper sparrow breeds in most grassland habitats but prefers large grassland patches avoiding smaller patches with low area to edge ratios (Slater 2004). In Wyoming and Montana they nest in open grasslands and grassland/shrublands. Suitable breeding habitat exists for this species in the analysis area north of existing structure 25-1 to the Bighorn River canyon.

Brewer's sparrow is sagebrush obligate that is often the most abundant songbird in sagebrush shrub steppe habitats, although declining populations have been documented by Breeding Bird Surveys in the northern Great Plains and Rocky Mountain states from sagebrush habitat degradation or conversion (Holmes and Johnson 2005). They appear to prefer relatively dense large unfragmented stands of sagebrush (Holmes and Johnson 2005). Although Brewer's sparrow has been documented in the Bighorn Canyon NRA (NPS Inventory and Monitoring Program 2010), sagebrush stands within the analysis area were judged to be too small, sparse, and low to support breeding populations of Brewer's sparrow.

Chestnut-collared longspur's distribution is tied to short-grass and mixed grass prairie habitats. This species prefers level to rolling native mixed grass and shortgrass prairie that has been recently grazed or mowed (MFG 2009). Pastures with non-native grass species are also used but native grasslands are preferred (Sedgwick 2004a). They generally avoid areas of dense, tall vegetation, preferring sparser upland grasslands (Sedgwick 2004a). Suitable breeding habitat exists for this species in the analysis area north of existing structure 25-1 to the Bighorn River canyon.

McCown's longspur breeding habitat requirements are similar to chestnut-collared longspur. They breed in shortgrass prairie, especially where vegetation coverage is sparse or where it is interspersed with shrubs or taller grasses. Blue grama (*Bouteloua gracilis*) and buffalograss (*Bouteloua dactyloides*) are the dominant grasses in nesting areas (Sedgwick 2004b). Suitable breeding habitat exists for this species in the analysis area north of existing structure 25-1 to the Bighorn River canyon.

Basin-Lovell

Information on other birds presented for the LV-YT analysis area applies to the BA-LV analysis except as noted in the following paragraph.

Riparian woodlands along the Greybull River and Dry Creek drainages represent potential suitable nesting habitat for black-billed cuckoo in the BA-LV analysis area although a relatively dense overstory of canopy species such as eastern cottonwood preferred by black-billed cuckoo is lacking. Baird's sparrow may occur as a migrant but its breeding range does not include the BA-LV analysis area Cerovski et al. 2004), and suitable grassland breeding habitat is lacking. Suitable grassland breeding habitat is also lacking for grasshopper sparrow. Brewer's sparrow was observed to be relatively common in an area of denser stands of sagebrush within the Mixed Shrub community (see Section 3.6) from structure 77-5 to 78-8 and is a likely breeder in that portion of the analysis area. Suitable shortgrass and mixed-grass prairie breeding habitat for chestnut-collared longspur and McCown's longspur is lacking within the BA-LV analysis area.

3.8.1.7 Amphibians and Reptiles

No amphibian or reptiles were identified as an issue or species of concern during the scoping process for the Proposed Project. However a number of amphibians and reptiles listed as BLM Sensitive may be found in the LV-YT and BA-LV analysis areas. These species are discussed in Cedar Creek Associates, Inc. (2010).

3.8.2 Environmental Impacts and Mitigation Measures

3.8.2.1 Issues and Significance Criteria

Impacts to wildlife resources would be considered significant if project construction and operation results one or more of the following:

- A long-term decrease in economically or ecologically important wildlife populations.
- A loss of individuals of a population of wildlife that would result in the species being listed or proposed for listing as federal threatened or endangered.
- Any violation of any statutes and regulations pertaining to wildlife.
- Substantial interference with the movement of native, resident or migratory wildlife species for more than two reproductive seasons.
- Substantial local loss of wildlife habitat (as compared to total available resources within the area) or habitat productivity.

Table 3.8-1 provides a summary of direct, indirect, short-term, and long-term wildlife impacts identified for the Proposed Project. These impacts are discussed in greater detail in the following sections.

Table 3.8-1 Wildlife Resources – Summary of Impact Types and Duration

Direct Impacts	**Short-Term**	**Long-Term**
Construction-associated loss of primarily shrub/herbaceous grasslands, mixed woody-herbaceous cushion plant, mixed sagebrush/grasslands, and mixed herbaceous upland habitats	X	
Structure establishment with associated minor amounts of habitat loss		X
Loss of some trees in ROW		X
Construction-related minor reductions in small mammal and ground nesting songbird (if during breeding season) populations within the ROW	X	
Disturbance of raptor nesting and production loss (not expected with mitigation)	X	
Indirect Impacts		
Risk of waterbird and raptor collisions with powerlines or structures (same impact as No Action or existing condition)		X

No construction or operation related permits would be required for wildlife resources unless the need would arise for the removal, or "take," of a raptor nest. With required mitigation measure WILDLIFE-PS-1 in Section 3.8.2.4 it is unlikely any take of a raptor nest would be necessary. If it is determined that the take of a raptor nest would be unavoidable, Western would need to apply for an "Incidental Take" permit from the USFWS.

3.8.2.2 Impacts of the Proposed Project

Lovell-Yellowtail

Overall, the potential impacts to analysis area wildlife from the Proposed Project would be low. Additionally, the project would not likely have measurable impacts on area wildlife populations. The majority of habitats disturbed during project construction would be reclaimed to herbaceous communities in the short-term, given herbaceous habitat components revegetate more quickly than shrub components. Shrub components of habitats would take longer to revegetate, but should reinvade reclaimed areas over time, as evidenced by reclaimed areas along the existing ROW. Tree removal along the ROW would be small given the ROW currently exists. The long-term habitat loss from structure placement would be minor and incremental for area wildlife, particularly since this project would be a rebuild of two existing lines. As part of the Proposed Project, Western would implement their Standard Construction Project Practices GEN-1, GEN-5, GEN-6, and GEN-10 (Table 2.1-3), which would minimize habitat disturbance and long-term habitat loss.

Increased noise and human presence present along the ROW and substation sites during line construction would temporarily limit wildlife use of these areas during the active construction period. Common wildlife responses to noise disturbances are either avoidance or accommodation. The more secretive and smaller animals would typically coexist with most noise sources. Other animals, particularly those that rely on auditory cues for communication and orientation (e.g., birds) and hunted species (big game) would avoid the vicinity of a noise source, moving out of the area until the source would drop to an acceptable background level for that species. Abrupt and intermittent noises would be less likely accommodated than steadier, continuous noises (e.g., truck traffic). Individual animals would likely avoid the project areas until construction is complete, and then return to the project area and adjacent habitats upon cessation of construction activities.

Basin-Lovell

General information on wildlife impacts presented for the LV-YT analysis area apply to the BA-LV analysis except the area of disturbed habitat associated with the BA-LV ROW would be less than that of the LV-YT ROW .

Big Game

Lovell-Yellowtail

Potential impacts to big game animals could include individual mortality from collisions with construction vehicles (direct impact), small amounts of habitat loss (direct impact), and temporary displacement during line and substation construction due to human activity (indirect impact). The risk of vehicle collisions would be very low in the Proposed Project area, due to the lack of big game concentration areas, the relative openness of habitats along the ROW and access roads, and the relative slow vehicle speeds required for safe travel along most access roads.

Animal displacement from occupied habitats on and near construction sites would be temporary and short-term. Given the narrow, linear configuration of the project area and phasing of construction, only a fraction of available habitat would be disturbed at any one time during the construction period. Additionally, the effects of displacement would be minimal for wide-ranging species, such as mule deer, pronghorn, mountain lion, and black bear, given the extent of undisturbed and similar habitat available in surrounding areas. No construction activities would occur within canyon areas potentially inhabited by bighorn sheep because the new lines would span drainages and associated canyons as do the existing lines. However, activities involved with stringing the lines across the drainages and canyons, such as helicopter use, have the potential to displace bighorn sheep especially when these activities occur near areas of precipitous terrain preferred by bighorns for escape cover and predator avoidance. Human and machinery disturbance near spring lambing areas is a particular concern since disturbance near bighorn nursery bands typically causes ewes and lambs to flee up to 3 miles (Feist 1997, as cited in Dyke et al. 2010) from preferred lambing habitats to areas containing marginal habitat, resulting in lambs being more susceptible to various mortality factors.

As indicated in Section 3.8.1.1 most bighorn sheep habitat use is correlated closely to the edges of Bighorn Canyon (within 1 kilometer or 0.6 mile), and documented lambing activity occurs on benches along the Bighorn Canyon wall. The existing ROW is setback well over a mile from most portions of the Bighorn Canyon except where it crosses Bighorn Canyon at the Yellowtail Substation and from approximately the Devils Canyon Overlook to Layout Creek in the NRA. In this area the ROW approaches to within 0.75 to 0.5 mile of the edge of Bighorn Canyon. However, the ROW does not cross any precipitous canyons or drainages suitable as lambing habitat in this area and lambing activities occurring below the Bighorn Canyon edge are not likely to be affected by construction activities since potential lambing areas would be physically and visually shielded from construction activities by the canyon wall.

Long-term habitat loss impacts associated with structure footprints and substation expansion would be relatively minor in comparison to the extent of undisturbed and similar available habitats surrounding the ROW. Long-term habitat loss would occur primarily in shrub/herbaceous grasslands, mixed woody-herbaceous cushion plant, mixed sagebrush/grasslands, and mixed herbaceous upland habitats with minor amounts of other habitats being affected (see Section 3.6). There would be no direct or indirect impacts to identified big game crucial winter range or winter concentration areas. In addition, project development would not result in any long-term movement barriers or result in fragmentation of large blocks of habitat. Operational impacts would be similar to the existing condition since access roads would be essentially the same as those used previously for maintenance activities.

Basin-Lovell

Information on big game impacts presented for the LV-YT analysis area apply to the BA-LV analysis except as noted below.

Long-term habitat loss would occur primarily in Gardner Saltbush, Mixed Shrub, Wyoming Sagebrush/Gardner Saltbush, Mixed Shrub/Herbaceous, Gardner Saltbush/Birdsfoot Sagebrush, and Black Greasewood/Mixed Shrub communities (see Section 3.6). Portions of the BA-LV ROW south of the Greybull River pass through a pronghorn parturition (birthing) area and crucial winter range. Construction activities associated with the Proposed Action during parturition or winter could displace pronghorn from the ROW and result in increased energy expenditures by animals already stressed because of parturition or winter weather. In the worst case, survival rates could be reduced for pregnant, newborn, or wintering pronghorn. In order to prevent increased stress to pronghorn during the parturition period or severe winter weather months, it is recommended that Western, or its contractor, not conduct line rebuild activities in pronghorn parturition areas from mid-May through mid-June and in crucial winter range from mid-December through February (see Project Specific Measure WILDLIFE-PS-3 in Section 3.8.2.5).

Other Mammals

Lovell-Yellowtail

Project construction could result in direct mortality of small, less mobile mammals within the ROW corridor. Small mammals would be more subject to mortality from construction than big game, but impacts would be minor because overall disturbance would be small and of short duration. In addition, most of these species have high reproductive potential and are common in surrounding habitats.

There would be no direct impacts to black-tailed prairie dog towns as none exist within the project area. Construction-related direct and indirect impacts to other more mobile mammals and sensitive species such as swift fox, western spotted skunk, and wild horse would be minor and of short duration. These species are likely to avoid the immediate area of construction resulting in short-term displacement. However, given the extent of undisturbed and similar available habitats surrounding the relatively narrow and linear project area, short-term displacement would be unlikely to have any long-term effects on local populations. Operational impacts would be similar to the existing condition since access roads would be essentially the same as those used previously for maintenance activities.

Basin-Lovell

Impacts on other mammals in the BA-LV analysis area would be similar to those described for LV-YT except that line rebuild activities have the potential to impact existing white-tailed prairie dog towns within the ROW. As indicated on Figures 3.8-3a, 3.8-3b, and 3.8-3c, there are six prairie dog towns near or within the BA-LV ROW. Of these, only three of the town's boundaries overlap with the ROW, and only one town has an active portion of the town within the ROW. Short-term construction disturbance and long-term disturbance for two permanent pole structures would occur in this town. In addition to these direct habitat losses, overland travel by construction equipment could crush or cave-in some burrows and result in a loss of prairie dogs. It is unknown how many burrows or prairie dogs might actually be impacted by the short-term and long-term habitat losses. It may not be feasible to try and avoid burrows during construction since the 9,500 square-foot construction footprint would likely encompass at least a few burrows based on the typical burrow spacing of white-tailed prairie dogs. However, minor modifications in structure placement could minimize the number of burrows impacted. Overall, direct losses of prairie dogs would be relatively minor in relation to the size of the town, and due to their high reproductive potential, prairie dogs would quickly expand back into reclaimed areas once construction activities are completed.

Raptors

Lovell-Yellowtail

No existing raptor nest sites have been located within the analysis area. If transmission line construction occurred adjacent to a newly constructed and occupied raptor nest during the breeding season, it would be possible that individual production could be lost for that year, constituting an adverse impact as well as a violation of the Migratory Bird Treaty Act. In order to avoid or minimize impacts to raptors including BBC raptor species (ferruginous hawk, golden eagle, peregrine falcon, prairie falcon, burrowing owl, and short-eared owl), Western or its subcontractor would conduct raptor surveys prior to construction and implement appropriate measures to preclude disturbance of raptor nests (see Section 3.8.2.5, Project Specific Mitigation Measure WILDLIFE-PS-1). With implementation of this measure, construction-related impacts are not likely. Raptor nest surveys would not be necessary where construction would occur outside of the breeding and nesting season (generally mid-February through July 31).

During operation, raptors could be susceptible to power line strikes (Olendorff and Lehman 1986; Thompson 1978) and electrocution risk. The potential risk of birds colliding with transmission lines depends on a number of factors, such as habitat type, line orientation to migratory flyways and foraging flight patterns, number of migratory and resident bird species, species' composition and area familiarity, visibility and weather patterns, types of human-related disturbance, and line design (Beaulaurier et al. 1982; Anderson 1978). The flight altitude and flight speed of species approaching the line and the wing loading to aspect ratio also are key factors in collisions (Rayner 1988; Beaulaurier et al. 1982). In addition, some bird species groups or bird species may be vulnerable to power line strikes due to blind spots in their visual field (Martin and Shaw 2010). The Avian Power Line Interaction Committee

(APLIC) has developed a reference, *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (APLIC 1994) that depicts many of the factors associated with avian collision risks.

The potential for bird collisions with the proposed transmission line rebuild would likely be relatively low for most of the ROW. This assessment is based on several area-specific factors. These factors include: 1) with the exception of the ROW crossing of the Shoshone River and the Bighorn River, the ROW does not cross habitats that typically attract large numbers of birds, 2) the Shoshone River and Bighorn River are the only bird concentration areas or high value use areas (e.g., foraging, roosting) occurring on or near the ROW corridor, 3) there is no historical evidence to suggest the existing 115-kV transmission lines have posed a high collision risk to either resident or migratory raptor species. Some mortality from collisions could occur but would not likely adversely impact resident or migratory raptor populations. The highest potential for raptor collisions is currently where the existing transmission lines cross the Shoshone River and Bighorn River corridors. Bird collisions have not been identified as an issue at these river crossings, but data for bird collision mortalities at river crossings are difficult to obtain (Easterly 2008). The WGFD, USFWS (Billings, Montana Field Office), and Montana Fish, Wildlife & Parks have recommended the installation of Bird Flight Diverters on the overhead static (or shield) wires spanning these two river crossings to reduce the risk of bird collisions (Puchniak 2009; Easterly 2008). The USFWS further recommended alternating placement of Swan Flight Diverters and Bird Flight Diverters as the most effective configuration of deflector placement (Puchniak 2009).

Regarding bird electrocution risk, lines built to the existing 115-kV specifications do not pose an electrocution risk to birds. The APLIC's *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) recommends 60 inches of horizontal space and 40 inches of vertical space between energized or grounded portions of the structures. The dimensions of all of the proposed line upgrade structures far exceed these dimensions. Therefore, the clearances on the proposed transmission line upgrade structures would be greater than any raptor's wing span or height that could occur in the project area. As indicated by Western Standard Construction Project Practice WILDLIFE-1, Western will design the transmission lines in conformance with *Suggested Practices for Protection of Raptors on Power Lines* (APLIC 1994) and *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006).

Basin-Lovell

The raptor impact discussion for the LV-YT analysis area also applies to the BA-LV analysis area. In addition, there are known raptor nest sites that have been documented within 0.5 mile of the BA-LV ROW. Specifically, five ferruginous hawk nests (2 occupied and 3 unoccupied) were located during the June 2010 field survey. Ferruginous hawks are particularly prone to disturbance during the nesting season because of their tendency to nest on the ground in relatively open habitats. However, as long as Project Specific Mitigation Measure WILDLIFE-PS-1 (see Section 3.8.2.5) is followed, there should be no disturbance of nesting ferruginous hawks and other raptor species in the BA-LV analysis area.

Federal and state laws prohibit the killing of burrowing owls. If a prairie dog town is being used by burrowing owls, these birds can be killed inadvertently during earth moving for construction. The Colorado Division of Wildlife (CDOW) recommends that prairie dog towns be surveyed on two consecutive mornings for burrowing owl presence if a prairie dog town is to be disturbed between March 1 and October 31 (CDOW 2007). If burrowing owls are determined to be present, construction activities should be completed between November 1 and the end of February to ensure burrowing owls are not inadvertently killed. Depending on the location and timing of construction activities, additional surveys to update prairie dog burrow locations and determine presence or absence of burrowing owls may be necessary. Burrowing owl surveys would be completed if construction would impact prairie dog towns between March 1 and October 31 (see Section 3.8.2.5, WILDLIFE-PS-1). With implementation of this measure, adverse effects on burrowing owls are unlikely.

Waterbirds, Upland Game Birds, and Other Birds

Lovell-Yellowtail

The potential for collision and electrocution impacts to other bird species, especially waterfowl, from project construction and operation would parallel that discussed for raptors. Some mortality from collisions could occur but would not likely adversely impact local or migratory bird populations. The highest potential for waterbird collisions is currently where the existing transmission lines cross the Shoshone River and Bighorn River corridors. The WGFD, USFWS (Billings, Montana Field Office), and MFWP have recommended the installation of Bird Flight Diverters on the overhead static (or shield) wires spanning these two river crossings to reduce the risk for bird collisions (Puchniak 2009; Easterly 2008).

Bird species are highly mobile, and incidents of direct mortality from construction would be low if construction would occur outside the breeding season (March through August). Construction during the nesting season could result in the inadvertent loss of nests by ground nesting birds in the ROW or displacement of individual birds in and adjacent to the ROW from increased noise levels. Potential displacement or direct disturbance of breeding waterbirds, game birds, or other species (e.g., songbirds) could result in the loss of a breeding pair's annual productivity, and would be in violation of the Migratory Bird Treaty Act. However, given the relatively narrow and linear configuration of the project area, the small disturbance area at any given time, the temporary nature of the proposed disturbances, and that the project would occur within an existing ROW, impacts to nesting birds would be minor and any reduction in breeding bird productivity should be regained the following breeding season. In addition, suitable breeding habitat for most waterbird and game bird species addressed by this analysis (Sections 3.8.1.3 and 3.8.1.4) would not be impacted by the Proposed Project since waterbodies, wetlands, drainages, and riparian habitats would be spanned by the rebuilt lines.

Ground-disturbing activities during the nesting season could result in the inadvertent destruction of nests, but since disturbance would be small relative to the amount of potential nesting habitat, the potential for adverse impacts would be small. Based on the analyses presented in Sections 3.8.1.3 and 3.8.1.6, BCC species potentially affected by ground-clearing activities during the nesting season would be limited to upland sandpiper, long-billed curlew, grasshopper sparrow, McCown's longspur, and chestnut-collared longspur. However, the overall impact risk to these species would be low as overland travel would be restricted to existing access and ROW roads.

Basin-Lovell

The impact discussion provided for the LV-YT analysis area also applies to the BA-LV analysis area, except that Brewer's sparrow is the only BCC species potentially affected within the BA-LV analysis area.

Impact Summary

The proposed rebuild of existing lines would not result in a long-term decrease in economically or ecologically important wildlife populations, or result in a population trend for any species that would require its listing as a federal threatened or endangered species. There would be no violation of any statutes or regulations pertaining to wildlife as long as mitigation measure WILDLIFE-PS-1 is implemented (see Section 3.8.2.5). There would also not be a substantial loss of wildlife habitat or interference with movement of any native, resident or migratory wildlife species for more than two reproductive seasons. Therefore, most impacts to wildlife from project implementation would be relatively minor and short-term, ceasing once construction is complete. Habitat loss associated with structures would be long-term, but similar to existing conditions and relatively minor. There would be no long-term habitat loss in higher quality habitats such as riparian or wetlands. The risk of avian collisions with powerlines and structures would be long-term but also relatively minor based on existing conditions.

3.8.2.3 Impacts of the Alternatives

The alternatives discussed below follow the same route as the Proposed Project. However, the area of construction disturbance and length of the span between structures varies between the Proposed Project and Alternatives A1 and A2. Location of access roads would not change and the impacts from the roads are the same as the Proposed Project.

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A1

The construction disturbance from Alternative A1 would be less than the Proposed Project but more than the disturbance from Alternatives A2 (See Table 2.1-2). Impacts to wildlife species would be similar to those described for the Proposed Project.

Alternative A2

The construction disturbance from Alternative A2 would be less than the Proposed Action and Alternative A1 (See Table 2.1-2). Impacts to wildlife species would be similar to those described for the Proposed Project, except for waterfowl and raptors such as osprey using the Shoshone River corridor. The double-circuit single-pole steel structures proposed for this alternative represent a somewhat higher collision risk for waterfowl and raptors flying along the Shoshone River corridor as there would be three sets of transmission wires and one set of overhead static wires arranged in a vertical fashion with the single-pole steel structure configuration (see Figure 2.1-3). All transmission lines within the H-frame structures would be in the same vertical plane with only the overhead static wires vertically positioned above the transmission lines (see Figure 2.1-2). The configuration of wires crossing the Bighorn River would be similar to the existing condition, regardless of the pole structures are to be used over the remainder of the ROW.

It is difficult to assess how much more of collision risks the conductor configuration of single-pole structures would create for waterfowl and raptors as wires arranged in a vertical separated configuration would be more visible than sets of wires all in the same plane. The risk for bird collisions with wires of either the H-frame or single-pole steel structures could be reduced with the installation of Bird and Swan Flight Diverters on the overhead static (or shield) wires spanning the Shoshone, Bighorn, and Greybull river corridors.

3.8.2.4 Impacts of the No Action Alternative

Under the No Action Alternative, there would be no associated short or long-term direct impacts or indirect effects to wildlife resources related to the construction of new lines. Wildlife impacts associated with periodic maintenance activities and potential collision risks with the existing lines and structures would remain similar to the existing condition although the frequency of such maintenance activities may increase.

3.8.2.5 Mitigation Measures

As part of the Proposed Project or action alternatives, Western would implement their Standard Construction Project Practices GEN-1, GEN 5, GEN-6, GEN-10 (Table 2.1-3), which would minimize habitat disturbance and long-term habitat loss. In addition, it is recommended that the following Project Specific Mitigation Measure be implemented to reduce potential impacts to nesting raptors and migratory birds in flight along the Bighorn River and Shoshone River travel corridors.

Project Specific Measure WILDLIFE-PS-1.Western or its contractor would conduct a raptor nest inventory each year prior to construction and would implement mitigation (avoidance, screening, and timing of construction) to prevent the project from disrupting any occupied nests during the breeding season as per WGFD and MFWP recommended buffer zones and seasonal restrictions. If construction cannot avoid prairie dog towns between March 1 and October 31, burrowing owl surveys need to be completed as per CDOW (2007) guidelines to ensure construction activities would not impact breeding burrowing owls.

Project Specific Measure WILDLIFE-PS-2. Install a combination of Bird and Swan Flight Diverters on the overhead static (or shield) wires spanning the Shoshone River, Bighorn River and Greybull River portions of the ROW to reduce the risk for bird collisions with these lines. This mitigation measure is most pertinent for Alternative A2 since this alternative would use single-pole, double-circuit structures to cross the Shoshone River corridor. The vertical transmission wire configuration associated with the single-pole structures pose an increased collision risk for birds flying along the Shoshone River corridor. However, bird collision risk would be highest at the river crossings regardless of the wire and pole configurations, and the recommendation for installation of Bird and Swan Flight Deflectors would apply to all the action alternatives.

Project Specific Measure WILDLIFE-PS-3. In order to minimize the risk of increased energy expenditures by pronghorn already stressed because of winter weather or birthing, it is recommended that Western, or its contractor, not conduct line rebuild activities in pronghorn crucial winter range from mid-December through February and in fawning areas from mid-May through mid-June.

3.9 Threatened, Endangered, and Other Special Status Species

The Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544), as amended, protects plants and animals listed as threatened, endangered, proposed, and candidate species and their critical habitats. Section 7 of the ESA requires federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of Proposed, Endangered, or Threatened species, or result in the destruction or adverse modification of their critical habitats. In addition, BLM Manual 6840 establishes sensitive species policy to ensure that BLM actions do not contribute to the loss of viability or cause sensitive species to trend toward federal listing. The goals of the BLM's sensitive species policy are to: 1) maintain vulnerable species and habitat components in functional BLM ecosystems, 2) ensure sensitive species are considered in land management decisions, 3) prevent a need for species listing under the ESA, and 4) prioritize needed conservation work with an emphasis on habitat.

The analysis area for threatened, endangered, and other special status species includes the Proposed Project ROW, access roads, and construction areas. The regional setting and surrounding areas of the project facilities and activities were also considered in this assessment. The USFWS offices in Cheyenne, Wyoming and Helena, Montana were contacted to obtain a listing of proposed, candidate, threatened, and endangered species for the Proposed Project (see Appendix C). The USFWS provided a list of threatened, endangered, proposed, and candidate species potentially present in the project area in its June 13, 2008 and December 17, 2008 letters (Kelly 2008; Wilson 2008). More recently (October 2010) the USFWS online county listings for threatened, endangered, proposed, and candidate species (USFWS 2010b, 2010c) were accessed to obtain updated lists for the Proposed Project. The Montana Natural Heritage Program (2008a) and Wyoming Natural Diversity Database (WYNDD 2008a, 2010) were also accessed to obtain listings of BLM Sensitive and other state species of concern for the project area. Finally, BLM

Sensitive species lists for Wyoming (BLM 2002, 2010) were reviewed to obtain a list of Sensitive species for the Cody and Worland Field Offices (see technical report – BLM and Other State Species of Concern found in the administrative record at Western's offices).

3.9.1 Affected Environment

3.9.1.1 Threatened, Endangered, Proposed, and Candidate Species

Based on information from Montana and Wyoming Ecological Field Offices of the USFWS there are no federal candidate, proposed, threatened, or endangered plant species within the Montana or Wyoming portions of the project area. The Wyoming BLM in a personal contact, however, requested that the potential presence of the Ute ladies'-tresses orchid (*Spiranthes diluvialis*, listed threatened) be considered as a part of the species of concern analysis in Wyoming (Harrell 2008). Wildlife species listed as federal candidate, proposed, threatened, or endangered within the Montana or Wyoming portions of the project area include Sprague's pipit (Candidate), greater sage-grouse (Candidate), and mountain plover (Proposed as Threatened).

Ute Ladies'-Tresses Orchid

This species of orchid typically occurs in seasonally moist soils and wet meadows near springs, lakes, or perennial streams and their floodplains at or below approximately 7,000 feet elevation. Typical sites include old stream channels and alluvial terraces, subirrigated meadows, and other sites where the soil is saturated to within 18.0 inches of the surface at least temporarily during the spring and summer growing seasons. Associated vegetation typically falls into the facultative wet (FACW) classification and occurs primarily in areas where vegetation is relatively open and not overly dense, overgrown, or overgrazed. It also appears to prefer well-drained soils with fairly high moisture content. This species rarely occurs in deeply shaded sites and is not found in uplands, sites entirely inundated by standing water, heavy clay soils, very saline sites, heavily disturbed sites (including plowed fields), steep stream banks, or sites supporting stands of dense rhizomatous plant species (USFWS 1992, 2007). This orchid flowers from late July/August to early September but may not flower each year. Portions of populations may remain dormant below ground each year (WYNDD 2008b).

The Ute ladies'-tresses orchid has been found in Wyoming in Converse, Goshen, Laramie, and Niobrara counties and in Montana in Beaverhead, Broadwater, Gallatin, Jefferson and Madison counties. It is not known within Big Horn County, Wyoming or Carbon or Big Horn Counties, Montana, which are outside of the known range of this species.

Sprague's Pipit

The USFWS recently reviewed a petition for listing the Sprague's pipit as threatened or endangered. Its 12-month finding indicated that listing the Sprague's pipit is warranted, but precluded by higher priority listing actions. The USFWS will develop a proposed rule to list the Sprague's pipit as its priorities allow (USFWS 2010d). As a result, the Sprague's pipit was placed on the list of species that are Candidates for ESA protection.

Sprague's pipit is a summer resident in the grasslands of central and eastern Montana, North Dakota, central South Dakota, northwest Minnesota, and Canada. It winters in eastern Texas, southeast Arizona, southern Oklahoma, southern Arkansas, northwest Mississippi, southern Louisiana, and northern Mexico. Sprague's pipits prefer to breed in large patches of native, medium to tall grass prairies that are lightly to moderately grazed (Casey 2000). It occurs in the Big Horn and Carbon County, Montana portions of the analysis area only as a migrant with breeding populations occurring to the north, east and west of the LV-YT analysis area (MFG 2009).

Greater Sage-Grouse

The USFWS recently reopened a review of petitions for listing the greater sage-grouse as threatened or endangered. Its 12-month finding indicated that listing the greater sage-grouse (rangewide) is warranted, but precluded by higher priority listing actions. The USFWS will develop a proposed rule to list the greater sage-grouse as its priorities allow (USFWS 2010e). As a result, the greater sage-grouse was placed on the list of species that are Candidates for ESA protection.

The WGFD has developed the Wyoming Greater Sage-grouse Conservation Plan (WGFD 2003) and the Montana Sage Grouse Work Group (MSGWG) has developed the Management Plan and Conservation Strategies for Sage Grouse in Montana-Final (MSGWG 2005) to identify reasons for the decline of sage-grouse and to increase the present distribution and abundance of sage-grouse in Wyoming and Montana. Greater sage-grouse Core Breeding Area mapping was developed in 2008 by the Wyoming Sage-grouse Implementation Team and local sage-grouse working groups, and signed by the Wyoming Governor. The Core Breeding Area boundaries were modified further in 2010 and released to the public on June 28, 2010. Pursuant to this new Core Breeding Area mapping the Wyoming Governor has issued Executive Order (EO) 2010-4 (August 18, 2010), which replaces EO 2008-2, issuing stipulations and guidance for protection of greater sage-grouse Core Breeding Areas.

Greater sage-grouse is a year-round resident and breeder in sagebrush habitats throughout Wyoming and southwestern and eastern Montana. Sagebrush with interspersed diverse native grass and forb understory is the key sage-grouse habitat on a yearlong basis (MSGWG 2005; WGFD 2003). Sagebrush provides forage, nesting habitat, security, and thermal cover for sage-grouse. During the summer, moist areas that support succulent herbaceous vegetation are used as brood rearing habitat. During the winter, sage-grouse feed on sagebrush leaves and buds, and require sagebrush above snow (MSGWG 2005; WGFD 2003). Open, often elevated areas within sagebrush habitats usually serve as breeding areas (strutting grounds or lek sites). Greater sage-grouse has declined throughout its range, although the causes of the decline have not been quantified (MSGWG 2005; WGFD 2003).

WGFD (2010) mapping for sage-grouse indicates there are no sage-grouse Core Breeding Areas near the LV-YT analysis area, and the closest known sage-grouse lek sites in Wyoming are over seven miles to the east of the analysis area (WGFD 2010). The closest Core Breeding Area is located two miles or more to the east of the Bighorn Reservoir. Field surveys found no suitable sagebrush habitat for sage-grouse along the Wyoming portions of the ROW. MFWP (2010) mapping for sage-grouse shows only a very small portion of the Montana portion of the LV-YT analysis area (far northeast corner of Carbon County, Montana) as occupied sage-grouse habitat. The mapped area corresponds to the approximate section of the analysis area from the Bighorn Canyon NRA boundary north to the Carbon County/Big Horn County boundary. The late July/early August 2008 field surveys documented mixed sagebrush/grassland habitat in this area, although most sagebrush cover in this area is provided by low sagebrush (*Artemisia arbuscula*), and sagebrush cover within the ROW did not appear to be dense enough to be optimal for greater sage-grouse. Occasional surveys by MFWP personnel in this area have not located any evidence of resident sage grouse populations or breeding activity (Stewart 2008). Observations of sage grouse within the Bighorn Canyon NRA indicate this species occurs in sagebrush habitats near the analysis areas, but there are no leks near the analysis area (Bromley 2009).

For the BA-LV analysis area, WGFD (2010) mapping indicates the closest sage-grouse Core Breeding Areas are approximately 16 miles west and 22 miles east of the ROW. The closest active sage-grouse leks are located 3.3 and 4 miles west of the ROW. Sage-grouse may occasionally use the BA-LV analysis area, but large blocks of Wyoming sagebrush habitat, required by sage-grouse for much of its life history requirements are essentially lacking within the BA-LV analysis area.

Mountain Plover

The mountain plover was recently proposed for listing as threatened by the USFWS (2010f). Mountain plover is a migratory species in Wyoming and Montana. This species resides in both states spring through fall and breeds on the eastern plains. It winters in the southwestern United States and northern Mexico. Mountain plover is one of the few shorebirds that do not prefer habitats near or associated with water. This species is an inhabitant of arid, shortgrass prairie dominated by blue grama (*Bouteloua gracilis*) and buffalograss (*Bouteloua dactyloides*) with scattered clumps of cacti and forbs (Plumb et al. 2005; Dinsmore 2003). It is considered a disturbed-prairie or a semi-desert species. Mountain plovers are very selective in choosing nest sites, preferring expansive, arid flats with very short grass and a high proportion of bare ground. In parts of its breeding range the mountain plover selectively nests in prairie dog towns. Prairie dogs create unique patches of habitat ideal for mountain plovers. In shortgrass prairie, prairie dog grazing promotes the short grasses like buffalograss and grama grasses, and their digging creates areas of bare soil important for plover nesting (Plumb et al. 2005; Dinsmore 2003).

Although mountain plover has been documented in the Bighorn Canyon NRA (NPS Inventory and Monitoring Program 2010), the late July/early August 2008 field survey determined that suitable mountain plover nesting habitat does not exist within the LV-YT analysis area. Mountain plover breeding has been documented in the region of the BA-LV analysis area (Cerovski et al. 2004), but its preferred shortgrass prairie habitat with a high proportion of bare ground is lacking along the BA-LV ROW. Although white-tailed prairie dog towns were found along the BA-LV ROW, this prairie dog species typically occupy grasslands with more abundant shrub cover than black-tailed prairie dogs, and white-tailed prairie dog towns within and near the BA-LV do not provide suitable habitat conditions for breeding mountain plovers.

3.9.1.2 BLM Sensitive and Other State Species of Concern

Twenty-four plant and 67 wildlife BLM Sensitive species or State Species of Concern were determined to be potential inhabitants or migrants within or near the project area (Cedar Creek Associates, Inc. 2010). The habitat requirements, distribution, and potential occurrence of these species are summarized in Cedar Creek Associates, Inc. (2010).

3.9.2 Environmental Impacts and Mitigation Measures

3.9.2.1 Issues and Significance Criteria

Impacts to proposed, threatened, endangered, candidate, and other special status species would be significant if effects from transmission line construction or maintenance result in either of the following:

- A jeopardy Biological Opinion under Section 7 of the ESA for a proposed, threatened, or endangered species.
- A population reduction or loss of habitat for a candidate or sensitive species that could result in its listing as federal threatened or endangered.

Table 3.9-1 provides a summary of direct, indirect, short-term, and long-term special status and sensitive species impacts identified for the proposed action by this analysis. These impacts are discussed in greater detail in the following sections.

Table 3.9-1 Special Status and Sensitive Species – Summary of Impact Types and Duration

Direct Impacts	Short-Term	Long-Term
Some minor direct disturbance impacts to sensitive plant and wildlife species' habitats	X	X
Indirect Impacts		
Possible minor displacement of sensitive wildlife species	X	not applicable

No construction or operation related permits would be required for special status and sensitive species

3.9.2.2 Impacts of the Proposed Project

Proposed, Threatened, and Endangered Species

Habitat for proposed, threatened, or endangered plant species does not exist within the LV-YT or BA-LV analysis areas and there would be no direct or indirect, short-term or long-term adverse impacts to listed plant species or their habitats.

As indicated in Section 3.9.1.1, there is no suitable breeding or nesting habitat for Sprague's pipit, greater sage-grouse, or mountain plover within or near the LV-YT or BA-LV analysis areas. In addition, the analysis areas are not within any areas mapped as Core Breeding Areas for greater sage-grouse in Wyoming. Transmission line rebuild activities have a slight risk of causing minor displacement of migratory mountain plovers or Sprague's pipits or transitory greater sage-grouse, but there would be no effect on breeding birds. Minor displacement of these birds during construction phases would have no effect on population trends of these species.

BLM Sensitive and Other State Species of Concern

Based on the analyses provided in Cedar Creek Associates, Inc. (2010), there may be a few minor short-term and long-term impacts to sensitive or species of concern plant habitats, but it is unlikely that these impacts would jeopardize the continuing viability of these species or result in a trend toward a listing as federal threatened or endangered. Potential populations of the BLM Sensitive species persistent sepal yellowcress (*Rorippa calycina*) were found at two locations along the ROW. The habitat supporting these populations is localized within two drainages but is relatively extensive, occurring within and well outside of the ROW. The habitats are currently subject to limited impacts by grazing and passage along the ROW, and it is reasonable to assume that neither this species nor its habitat would be jeopardized by transmission line construction or maintenance.

Few habitats of sensitive wildlife species would be affected by direct disturbance. Short-term and localized displacement of sensitive wildlife species within the analysis area would not have any indirect adverse effect on local populations, if they exist, and would not result in a trend towards federal listing or cause a loss of population viability for any of these species. Based on field surveys completed for the LV-YT and BA-LV analysis areas, breeding or resident populations of only three species (ferruginous hawk, burrowing owl, and white-tailed prairie dog) could be adversely affected by construction activities and only within the BA-LV ROW. These potential effects are addressed in Section 3.8 (Wildlife).

For local populations of state species of concern, less mobile small mammals and reptiles, such as Merriam's shrew (*Sorex merriami*), Preble's shrew (*Sorex preblei*), greater short-horned lizard (*Phrynosoma hernandesi*), and sagebrush lizard (*Sceloporus graciosus*), and ground nesting birds, such as grasshopper sparrow (*Ammodramus savannarum*), chestnut-collared longspur (*Calcarius ornatus*), and McCown's longspur (*Calcarius mccownii*), could be adversely affected by construction. These potential effects are addressed in Section 3.8 (Wildlife).

3.9.2.3 Impacts of the Alternatives

The alternatives discussed below follow the same route as the Proposed Project. However, the area of construction disturbance and length of the span between structures varies between the Proposed Alternative and Alternatives A1 and A2. Location of access roads would not change and the impacts from these roads would remain the same as the Proposed Project.

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A1

Alternative A1 would use a combination of 115-kV wood pole H-frame structures from the southern border of the Crow Reservation south to the Lovell Substation and double-circuit single-pole steel structures over the portion of the route from the southern portion of the Crow Reservation to the Yellowtail Substation. The construction disturbance from this alternative would be less than the Proposed Project but more than the disturbance from Alternative A2 (See Table 2.1-2). Impacts to federal listed, BLM Sensitive, and other state species of concern would be similar to those described for the Proposed Project (Section 3.9.2.2).

Alternative A2

Alternative A2 is also a combination of 115-kV wood pole H-frame structures from the southern border of the Crow Reservation through the Bighorn Canyon NRA, and double-circuit single-pole steel structures throughout the Crow Reservation as well as south of the Bighorn Canyon NRA. The construction disturbance from this alternative would be less than the Proposed Project and Alternative A1 (See Table 2.1-2). Impacts to federal listed, BLM Sensitive, and other state species of concern would be similar to those described for the Proposed Project (Section 3.9.2.2) except for bald eagle, trumpeter swan, and migrant waterbird species. The double-circuit single-pole steel structures proposed for this alternative represent a somewhat higher collision risk for trumpeter swans and bald eagles flying along the Shoshone River corridor since there would be three sets of transmission wires and one set of overhead static wires arranged in a vertical fashion with the single-pole steel structure configuration (see Figure 2.1-3). It is difficult to assess how much more of a collision risk the wire configuration with the single-pole structure would create for trumpeter swan and bald eagle since wires arranged in a vertical separated configuration would be more visible than sets of wires all in the same plane. The risk for bird collisions with wires of either the H-frame or single-pole steel structures could be reduced by the installation of a combination of Bird and Swan Flight Diverters on the overhead static (or shield) wires spanning the Shoshone River and Bighorn River corridors.

3.9.2.4 Impacts of the No Action Alternative

Under the No Action Alternative, there would be no upgrades of the existing line segments or expansions of existing substations, and there would be no associated potential for short- or long-term direct impacts or indirect effects to threatened, endangered, or other special status species. Western would continue to operate and maintain the existing 115-kV lines, which have had no identified effect on threatened, endangered, or other special status species.

3.9.2.5 Mitigation Measures

As part of the Proposed Project, Western would implement their Standard Construction Project Practices GEN-1, GEN 5, GEN-6, GEN-10 (Table 2.1-3), which would minimize habitat disturbance and long-term habitat loss for BLM-sensitive and other state species of concern. In addition, the following Project Specific Mitigation Measure would be implemented to reduce potential impacts to nesting burrowing owls and ferruginous hawks, trumpeter swans, bald eagles, and sensitive plant species.

Project Specific Measure T&ESSS-PS-1. Western or its contractor would conduct a raptor nest inventory each year prior to construction and would implement mitigation (avoidance, screening, and timing of construction) to prevent the project from disrupting any occupied nests during the breeding season as per WGFD and MFWP recommended buffer zones and seasonal restrictions. If construction cannot avoid prairie dog towns between March 1 and October 31, burrowing owl surveys need to be completed as per CDOW (2007) guidelines to ensure construction activities would not impact breeding burrowing owls.

Project Specific Measure T&ESSS-PS-2. Install a combination of Bird and Swan Flight Diverters on the overhead static (or shield) wires spanning the Shoshone River, Bighorn River and Greybull River portions of the ROW to reduce the risk for bird collisions with these lines. This mitigation measure is most pertinent for Alternative A2 since this alternative would use single-pole, double-circuit structures to cross the Shoshone River corridor. The vertical transmission wire configuration associated with the single-pole structures pose an increased collision risk for birds flying along the Shoshone River corridor. However, bird collision risk would be highest at the river crossings regardless of the wire and pole configurations, and the recommendation for installation of Bird and Swan Flight Deflectors would apply to all the action alternatives.

3.10 Cultural Resources

Cultural resources are fragile and nonrenewable remains of prehistoric and historic human activity, occupation, or endeavor as reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture, and natural features that are of importance in human history. Cultural resources comprise the physical remains themselves, the areas where important human events occurred even if evidence of the event no longer remains, and the environment surrounding the actual resource. The cultural resources inventory and analysis were conducted by Alpine Archaeological Consultants, Inc. in 2009, 2008, 2007, 2006, and 2001 (Kullen 2010; Landt and Alexander 2010; Landt 2009; Cater 2001; Chandler and Cater 2001). Because of the sensitive nature of cultural resources, the Technical Reports for this project are on file with Western Area Power Administration, Loveland, Colorado and are not included with the EA. These reports are protected from public disclosure and are exempt from the Freedom of Information Act.

The National Historic Preservation Act (NHPA) of 1966, as amended, is the primary regulation by which cultural resources are protected from the effects of federal undertakings. Section 106 of the Act established the requirement for federal agencies to consider the effects of their undertakings upon “any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.” Historic Properties generally are not considered until they are at least 50 years old, and include both prehistoric and historic cultural resources. The criteria used to assess the significance of recorded cultural resources were those published in 36 CFR 60. The criteria read as follows:

National Register Criteria for Evaluation

The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

(A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
(B) that are associated with the lives of persons significant in our past; or
(C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(D) that have yielded, or may be likely to yield, information important in prehistory or history.

Prehistoric cultural resources are generally evaluated with respect to a site's potential for yielding scientifically valuable information (Criterion D). The measure of the importance of the scientific data is based upon research questions widely recognized as appropriate by the scientific community. Traditional Cultural Properties may also be considered eligible under any of the NRHP criteria. Historic sites can potentially meet any of the four criteria in the regulations for eligibility to the NRHP.

Concurrence letters from the State Historic Preservation Offices (SHPOs) are included in Appendix G. A Memorandum of Agreement, Cultural Resources Treatment Plan and Monitoring Plan are being developed by Western and the NPS. After consultation with other federal and state agencies, Tribes and interested parties, a plan will be in place to mitigate potential effects.

3.10.1 Affected Environment

For the purposes of this analysis, the study area for cultural identification along the transmission lines is defined as a 200-foot-wide survey area centered between the LV-YT Nos. 1 and 2 transmission lines in Montana, a 150-foot-wide survey area centered between the LV-YT Nos. 1 and 2 transmission lines in Wyoming, and a 100-foot-radius around structures on the BA-LV transmission line. The identification study area also includes a 100-foot-wide corridor centered on access roads. For analysis of impacts any site within the proposed ROW is considered threatened. Pre-field Class I site file searches and literature reviews were completed for the project inventories. These identified sites and previous inventories within one mile on either side of the transmission lines and access roads. No Historic Properties were identified for which visual characteristics of the sites or their landscapes are considered elements that contribute to their significance.

Intensive ("Class III") cultural resource inventories were conducted by Alpine Archaeological Consultants, Inc. in 2009, 2008, 2007, 2006, and 2001 (Landt and Alexander 2010; Landt 2009; Cater 2001; Chandler and Cater 2001). The 2001 inventory of 263 tower locations and all access roads in the BA-LV project area identified 28 sites. The 2001 inventory of 14.9 linear miles along the LV-YT lines identified 10 sites. The 2006 to 2009 inventory of 36.9 linear miles of transmission line ROW and 55.2 linear miles of access roads identified 78 additional sites. Three of the 116 sites recorded are not located on portions of the current project, and are not included here. Of the 113 sites identified in the project area to date, 68 are officially eligible or have been recommended eligible for the National Register of Historic Places (NRHP); these 68 sites are Historic Properties and, therefore, require consideration herein. The remaining 45 sites are officially not eligible or have been recommended as not eligible for the NRHP.

3.10.2 Environmental Impacts and Mitigation Measures

3.10.2.1 Issues and Significance Criteria

Impacts to cultural resources that are caused directly or indirectly by project activities are considered only if they occur to a cultural resource that is determined eligible for or is listed on the NRHP. As discussed above, sites are evaluated for the NRHP in regard to their research value and tangible links to important persons or historical events. Disturbance to eligible or listed resources, referred to as Historic Properties, is an adverse effect, and should be avoided or the adverse effects mitigated.

Cultural Resources are considered nonrenewable resources; once impacted or destroyed a cultural resource is not recreated. New direct impacts to cultural resources from the undertaking are, therefore, considered adverse and permanent. Indirect, or secondary, impacts resulting from rebuilding an existing transmission line and access road system may result in adverse impacts of a temporary or permanent nature.

The importance of TCPs is usually assessed by talking with elders and other knowledgeable individuals of a cultural group and through historical documentation. Some traditional cultural properties may be important to an entire cultural group, whereas others may be important to an individual or family. Crow monitors were present during the field inventory on NPS and tribal lands to provide traditional interpretations of sites and to identify potential TCPs. Five potential TCPs were identified: 24CB4/24CB5, 24CB225, 24CB853, 24CB2065, and 24CB2155. Western has communicated with the Crow Tribe directly, and the Crow Tribe has not indicated that any TCPs in the area would be visually impacted by the Proposed Project.

The Bad Pass Trail (24CB853) is listed on the NRHP. Although not specified on the NRHP nomination form, the Bad Pass Trail is generally considered significant under Criterion A and as a TCP. The Bad Pass Trail is expressed as a series of cairns that generally follow a travel corridor used from early prehistoric times to the middle 1830s. The site is recognized as a constituent of several sites in the project area. Cairns on these sites are associated with the Trail and are specifically identified in this document for protection, as they are associated with a National Register site. These cairns will be identified under the number for the Historic Property on which they are located. References to the site number 24CB853 refer only to cairns located outside of other Historic Properties.

The Caroline Lockhart Ranch (24CB1085) is also listed on the NRHP. The site is located outside of the project footprint, but was evaluated for visual impacts (Section 3.12).

The 2001 BA-LV inventory focused on structures that were scheduled for replacement at that time and all access roads. Thirty-nine of the 312 BA-LV structures and the BA-LV ROW itself were not specifically inventoried in that study. However, the 100-foot-wide access road survey corridor covered all but 8.7 miles of the 39-mile-long, 75-foot-wide transmission line ROW. The access road survey corridor also included four structures. Western Standard Construction Project Practice CULT-1 dictates that those four structures (74-7, 75-1, 76-6, and 77-2), and any new structures within the 8.7 miles as well as alternative access roads be inventoried prior to construction. Any sites in those areas will not be included in this analysis, but Western Standard Practices CULT-1 CULT-2 and Project Specific Measure CULT-PS-1 would reduce any impacts to any site in that area to a negligible level.

3.10.2.2 Impacts of the Proposed Project

Sixty-eight sites encountered during the archaeological survey for the project are considered Historic Properties (Landt and Alexander 2010; Landt 2009; Cater 2001; Chandler and Cater 2001). Potential impacts to those 68 sites are evaluated in the following sections. Types of potential indirect and direct impacts to cultural resources are discussed below. Three types of direct impacts have been identified in association with this undertaking:

- Removal of existing transmission structures;
- Construction of new transmission structures; and,
- Use and maintenance of access roads.

Rebuilding and/or upgrading existing transmission lines can result in several types of ground disturbance, all of which have the potential to impact cultural resources. Regardless of new structure placement, the removal of aging, in-place transmission structures can cause impacts to cultural resources. These impacts would primarily be caused by vehicular traffic to and around the existing structure for removal, excavation and removal of the structure itself, and the gathering of materials to recontour the landscape. The transmission lines that would be dismantled were constructed between 1952 and 1966 by the BOR. At the time of construction, prior to the conception of laws that required consideration of cultural resources [i.e., NHPA, Archaeological Protection Act (ARPA)], adverse direct and indirect impacts to cultural resources occurred. Although the dismantling of these aged lines has the potential to cause additional impacts, in most cases impacts would be minimized by staying within the previously disturbed access routes and previously disturbed structure installation areas. By initiating Western's Project Specific Measure CULT-PS-1, Western has committed to having an archaeological monitor present while near cultural resources to ensure that potential impacts during dismantling would remain negligible. Cultural resources would be avoided or appropriate measures would be taken should unexpected discoveries be made (CULT-4).

Construction and installation of new transmission structures would also cause ground disturbance, and thus could impact important archaeological deposits and features. These impacts originate not only from excavation for structure construction, but from construction/excavation equipment or vehicles, disposal and/or dispersion of excavated earthen materials, and activities associated with stringing of conductor. Project impacts to archaeological deposits and features could be minimized by re-engineering structure placement off of Historic Properties (CULT-PS-1), use of rubber-tired vehicles, limiting access road improvements and vehicular access at sites, carefully planned disposal and/or dispersion of excavated earthen materials, and hand-carrying conductor across sites instead of dragging it. All sites on proposed transmission lines have the potential to be impacted by new structure placement, as specific structure locations have not been identified. All efforts would be made to avoid new structure placement inside of identified properties (CULT-PS-1). In addition, TCPs can be visually impacted by new structure placement. Western has communicated with the Crow Tribe directly, and the Crow Tribe has not indicated that any TCPs in the area would be visually impacted by the Proposed Project. However, direct impacts to historic properties from construction and installation of new transmission structures might include visual or auditory impacts. Because the Proposed Project entails replacement and/or upgrading of an existing system, impacts of these types would be considered temporary, and related directly to construction equipment.

As is the case with any existing transmission project, impacts to cultural resources from the use and maintenance of access roads must be addressed. Each time a road is used, or improved for maintenance activities, direct impacts may occur to cultural resources crossed by that road. Potential direct impacts to cultural resources resulting from periodic use of roads for maintenance activities would be the same for all alternatives, including the No Action Alternative. Direct impacts to cultural resources from maintenance activities would be avoided by limiting traffic to the existing or improved access roads and at structure sites. Indirect, or secondary, impacts resulting from increased access by the general public may also occur if increased access and visibility to resources results in looting and/or artifact collection. Reduction of indirect impacts due to increased public access can be achieved by limiting access road improvement and reclaiming or barricading access roads through sites when possible. Because the Proposed Project entails replacement and/or upgrading of an existing system and existing access roads, indirect impacts due to public access may increase, but probably only minimally because the routes already exist.

To address these direct impacts, Western has adopted construction, operation and maintenance practices that would avoid and minimize impacts to the environment to the extent practicable (see Section 2.1.8 and Table 2.1-3). Practice CULT-PS-1 assures attempts to have no ground disturbance within Historic Properties and ensures the monitoring of construction activities when within 100 feet of Historic Properties. Crow Tribal monitors would be required, in addition to archaeological monitors, on NPS and tribal lands. In addition, a Memorandum of Agreement, Cultural Resources Treatment Plan and Monitoring Plan are being developed by Western and the NPS. After consultation with other federal and state agencies, Tribes and interested parties a plan will be in place to mitigate potential effects.

In the following sections, impacts from dismantling the existing lines, new structure construction, and access roads use will be discussed.

Table 3.10-1 summarizes the potential impacts to the 68 sites within the project area that are officially eligible or have been recommended eligible for the NRHP. Western's Standard Construction Project Practices and Project Specific Mitigation Measures are detailed in the following sections. All mitigation practices will be finalized in a Memorandum of Agreement, Cultural Resources Treatment Plan and Monitoring Plan currently being developed by Western and the NPS.

Table 3.10-1 Potential Impacts to NRHP-Eligible Cultural Resources (Historic Properties)

Site Number	Transmission Line	Removal of Existing Structure(s)[1]	Dragging of Conductor[2]	Possible New Structure or Spur Road[3]	Existing Access Road[4]
24BH760	LV-YT	X	X, LYT1	X	X (fence road edge)
24BH840	LV-YT	X	X, LYT1&2	X	X (fence road edge)
24BH887	LV-YT				X
24BH3372	LV-YT				X
24BH3375	LV-YT				X⁺ (reduce road width)
24BH3484	LV-YT	X	X, LYT2	X	X
24BH3485	LV-YT			X	
24BH3486	LV-YT	X (avoid feature)	X, LYT2	X	
24BH3487	LV-YT	X		X	
24BH3488	LV-YT		X, LYT2	X	
24BH3490	LV-YT				X
24CB1	LV-YT	X	X, LYT1	X	X
24CB4/ 24CB5	LV-YT				X⁺ (reroute road-bridge)
24CB225©	LV-YT	X⁺ (special access)		X (none permitted)	X⁺ (cease use of all roads)
24CB807/ 24CB233	LV-YT	X⁺ (special access)	X, LYT1&2	X⁺ (none permitted)	X⁺ (cease use of all roads)
24CB816	LV-YT	X		X	X
24CB842/ 48BH13 ©	LV-YT	X (avoid feature)	X, LYT1	X⁺ (cannot span)	X
24CB853©	LV-YT	X (avoid features)	X	X	X
24CB904	LV-YT	X (avoid features)		X	X
24CB1918	LV-YT	X		X	X
24CB1934	LV-YT				X
24CB1940	LV-YT	X		X	
24CB1991	LV-YT			X	X (fence road edge)
24CB2050	LV-YT	X (avoid feature)	X, LYT1&2	X	X
24CB2051	LV-YT			X	
24CB2056	LV-YT			X	
24CB2057©	LV-YT			X	X⁺ (cease use of road)
24CB2059©	LV-YT				X (fence road edge)
24CB2060©	LV-YT				X⁺ (cease use of road recommended)
24CB2061©	LV-YT	X⁺ (special access)		X	X (fence road edge)
24CB2063	LV-YT	X	X, LYT1&2	X	X (fence road edge)

Site Number	Transmission Line	Removal of Existing Structure(s)[1]	Dragging of Conductor[2]	Possible New Structure or Spur Road[3]	Existing Access Road[4]
24CB2065	LV-YT		X, LYT2	X	X (fence road edge)
24CB2066	LV-YT	X+ (special access)	X, LYT1	X	X+ (cease use of roads)
24CB2067©	LV-YT	X+ (special access)	X, LYT1&2	X (none permitted)	X+ (cease use and reroute road)
24CB2069	LV-YT				X+ (cease use of road)
24CB2081	LV-YT	X+ (special access)	X, Pull site	X	
24CB2093	LV-YT				X+ (road should be reclaimed)
24CB2122	LV-YT	X+ (special access)	X	X	
24CB2154	LV-YT			X	X (silt fence road edge)
24CB2155	LV-YT				X
24CB2156©	LV-YT				X+ (reroute road and fence road edge)
24CB2158	LV-YT			X	X
24CB2159	LV-YT				X (fence road edge)
24CB2160	LV-YT				X (fence road edge)
24CB2161	LV-YT			X	
24CB2162	LV-YT			X	X (fence road edge)
24CB2163©	LV-YT	X (avoid feature)	X	X	
24CB2166©	LV-YT			X	
24CB2167©	LV-YT	X		X	
24CB2168	LV-YT		X, LYT2	X	X (fence road edge)
24CB2169	LV-YT	X (avoid feature)	X, LYT1&2	X	X (fence road edge)
24CB2193	LV-YT				X (fence road edge)
48BH1353	LV-YT			*	
48BH1572	LV-YT			*	
48BH1604	LV-YT			*	
48BH1605	LV-YT			*	
48BH1744	LV-YT			*	
48BH3757	LV-YT	X		X	X
48BH293	BA-LV	X (no maintenance)		X	X (no maintenance)
48BH295	BA-LV	X (no maintenance)		X	X (no maintenance)
48BH1514	BA-LV	X (no maintenance)	X	X	X (no maintenance)

Site Number	Transmission Line	Removal of Existing Structure(s)[1]	Dragging of Conductor[2]	Possible New Structure or Spur Road[3]	Existing Access Road[4]
48BH1524	BA-LV			X	X (no maintenance)
48BH1990	BA-LV			*	
48BH3063	BA-LV	X		X	X
48BH3066	BA-LV	X		X	X
48BH3067	BA-LV			X	X (no maintenance)
48BH3071	BA-LV	X (no maintenance)		X	X (no maintenance)
48BH3076	BA-LV				X (no maintenance)
Total		**31**	**20**	**52**	**49**

1 - With Western's Project Specific Measure CULT-PS-1 (attempt to have no ground disturbance within a site and/or monitor all ground disturbance within 100 feet of a site), potential direct, adverse impacts to the specific resource can be reduced to minor impact levels.
2 - If the conductor is hand-carried across the site, rather than dragged, potential direct, adverse impacts to the specific resource will be negligible. Specific transmission line is noted.
3 - An 'X' denotes that a portion of the site is within 40 ft of the existing line. Impacts from new structures will result in direct, adverse impacts[1]. Unless noted, the site could be spanned with a structure span of 700 to 800 feet.
4 - Unless noted with a '+', use within the existing road footprint will have no new or continuing impacts; no road expansion is permitted, but improvement and maintenance is possible with an archaeological monitor present[1] on all but those noted.
+ - Special conditions or complications exist with this site in relation to the proposed undertaking; these will be addressed in the text.
* - This site is an in-use feature (canal or railroad); it is assumed that no structures or roads will be planned within these sites.
None have been identified as being significant because of visual characteristics or the visual quality of their setting.
© denotes a site that contains a cairn associated with the Bad Pass Trail (24CB853/24BH3372).

Dismantling the Existing Transmission Line

Of the 68 Historic Properties in the project area, 31 have one or more existing transmission towers (and guy wires) within their boundaries (see Table 3.10-1). As discussed above, the removal of existing structures has the potential to adversely impact cultural resources. Many of these potential impacts would be avoided by implementing Western's Project Specific Mitigation Measure CULT-PS-1.

On 24 of the 31 sites, impacts to the important features and areas would be minimized with a cultural monitor present (CULT-PS-1) to flag specific archaeological features and areas for avoidance during construction activities. Given those parameters, impacts to those sites would be deemed negligible. The remaining seven sites would require special measures to limit adverse impacts (Table 3.10-2).

For the seven sites requiring special measures, there are no access roads to the structures requiring removal, and all sites have features requiring avoidance. Although the actual dismantling of the structures themselves would cause negligible adverse impacts to the sites, with Western's Project Specific Mitigation Measure CULT-PS-1, specific plans must be in place to avoid adverse impacts caused by access to the structures on these seven sites. If the avoidance measures in Table 3.10-2 are implemented, impacts would be reduced to a negligible level.

In addition to removing existing structures (and accessing those structures), dismantling of the existing transmission lines also involves removing the conductor line. Removal of conductor often involves dragging the line from pull locations. When removing the conductor in this manner, the line drags across the ground surface and causes impacts. In 20 cases, important cultural features on the surfaces of sites could be destroyed or disturbed by dragging the line (see Table 3.10-1). These impacts would be reduced to a negligible level by hand-carrying the downed conductor across the site with an archaeological monitor present.

Table 3.10-2 Sites where Special Access Issues Exist During Transmission Line Dismantling

Site	Number of Structures within Site	Access to the Structures	Avoidance Plan forAccess[1]
24CB225©	1	None exist (previously reclaimed); multiple features requiring avoidance	Use road west of the site (under LV-YT-1) to access the structure
24CB807	2*	None exist (previously reclaimed); multiple features requiring avoidance	Cultural monitor-directed, overland access by rubber-tired vehicles
24CB2061©	2	None exist; multiple features requiring avoidance	Cultural monitor-directed, overland access by rubber-tired vehicles
24CB2066	3	Existing northern east-west road lined with features	Cultural monitor-directed, overland access by rubber-tired vehicles
24CB2067©	1	None exist; multiple features requiring avoidance	Cultural monitor-directed, overland access by rubber-tired vehicles
24CB2081	0	No road exists to the pull site just off the site; features and deposits requiring avoidance	Cultural monitor-directed, overland access by rubber-tired vehicles
24CB2122	1	None exist; single feature requiring avoidance	Cultural monitor-directed, overland access

1 - If none are feasible and the structure cannot be removed without vehicular access, portions of this site would require mitigation of adverse impacts. Any such mitigation would require consultation by Western with the Bighorn Canyon NRA and the Crow Tribe.
* - In order to limit ground disturbance, it is recommended that the structures be cut off at ground level, rather than excavated.
© denotes a site that contains a cairn associated with the Bad Pass Trail (24CB853/24BH3372).

Construction of New Transmission Structures

Locations of new transmission structures, guy wires, and spur roads have not yet been identified. For the purposes of this analysis, any Historic Property within 100 feet of the existing transmission line is considered at risk. As discussed above, construction of transmission structures has the potential to adversely impact Historic Properties. In general, these potential impacts would be avoided by implementing Western's Project Specific Mitigation Measure CULT-PS-1. Spanning a site and hand-carrying the conductor would result in no adverse impacts to that Historic Property.

Of the 68 Historic Properties in the project area, 52 lie along the transmission lines and have the potential for new structures and spur roads to be constructed within their boundaries (see Table 3.10-1). Under CULT-PS-1, Western has committed to attempting to avoid placement of new structures within the boundaries of Historic Properties. When avoidance is not possible, a mitigation plan would be developed by Western in consultation with NPS (for sites in the Bighorn Canyon NRA) and the Crow Tribe. Based on an average structure span of 750 feet, all but two sites could be spanned with proper planning. One site (24CB807) would require a structure span of 1,050 feet to avoid impacts. The other site (48BH13/24CB842) cannot be spanned. In that case, structures would be planned to avoid important cultural features, and implementation of CULT-PS-1 would minimize impacts to a negligible level.

Western has communicated with the Crow Tribe directly, and the Crow Tribe has not indicated that any TCPs in the area would be visually impacted by the Proposed Project. Western will consult with the Crow Tribe once an alternative is selected and specific tower locations are identified.

Use and Maintenance of Access Roads

Forty-nine Historic Properties are crossed by project access roads. On 17 of these sites, use and maintenance within the existing road footprint would have negligible impacts if Western's Project Specific Measure CULT-PS-1 is implemented. On an additional 14 sites crossed by access roads, important cultural features lie along the edges of project access roads. Use and maintenance of portions of the roads in those areas would cause negligible adverse impacts to the site, but cultural features are in close enough proximity that inadvertent impacts by access road use and maintenance is of concern. These potential impacts would be avoided by implementing Western's Project Specific Measure CULT-PS-1 and fencing the edge of the access road. Access roads may be used, but not improved or maintained, on an additional seven sites.

Impacts to the remaining 11 sites require specific measures to limit impacts during the project. Ideally, the access roads within these 11 site boundaries should be removed from the maintenance plan and cease to be used as project access roads (see Table 3.10-1 sites marked X^+). Unfortunately, dropping access roads would limit access to many portions of the transmission line and is not an option in all places. Table 3.10-3 summarizes the measures to limit adverse impacts. In all of the cases, the measure would reduce or eliminate adverse impacts. If the measures are not implemented, adverse impacts would occur and would require mitigation after consultation between Western, the NPS (if on their land), and the Crow Tribe. As with the other sites crossed by project access roads, an archaeological monitor and tribal monitor (where appropriate) would be required during any activity within the site boundary (CULT-PS-1), in addition to the following site-specific recommendations.

Table 3.10-3 Recommended Measures to Limit Adverse Impacts to Sites from Access Roads.

Site	Current Access Description	Measure to Reduce Adverse Impacts to a Minor or Negligible Level[1]
24BH3375	A 50-foot-wide travel corridor (rather than a single road) that impacts cultural features; road is required to access numerous structures.	Narrow travel corridor to a single travel lane on the eastern side of the current corridor, outside the site area; a fence, or other protective measures should be put in place to stop vehicular traffic from further impacting the cultural features.
24CB4/ 24CB5	Road crosses an important cultural feature in a narrow crossing; road is required to access numerous structures.	Cease use of road or reroute the road around the feature; any reroute is likely to require a bridge.
24CB225©	Two partially reclaimed roads lined by more than 25 important cultural features; other access available.	Cease use of all roads within the site and use the road to the west of the site (under the transmission line) to access structures.
24CB807/ 24CB233	Three road segments impacting important cultural features; road is required to access numerous structures.	Cease use of and reclaim all roads within the site; block access point; construct new roads off Highway 37 to any new structures if needed.
24CB2057©	Long road segment impacting important cultural features; other access available.	Cease use of road segment; use access road from the south to access any new structure.
24CB2060©	Vague access route that has yet to impact any feature; other access available.	Clarify the access road and fence (or otherwise mark) edges of road to limit travel; could cease use of road and access structures from the south (along the transmission lines).
24CB2066	Northernmost east-west road impacts important cultural features; other access is available.	Cease use of east-west roads and use the road under the transmission line instead; fence road edge.
24CB2067©	Road impacting important cultural features; road is required to access numerous structures.	Reroute the road to the west, along the tree line.
24CB2069	Road in poor condition through area with important cultural features; other access is available.	Reroute the road around the feature and fence road edge.
24CB2093	Short (300 feet) unofficial cut-off road through three important features; other access available.	Cease use of road and fence access points to limit future use.
24CB2156©	Road impacts important cultural feature; road is required to access numerous structures.	Reroute the road around the feature and fence road edge.

1 - If none of the impact reduction measures are feasible and a structure cannot be removed or constructed without vehicular access, portions of this site may require mitigation of adverse impacts. Any such mitigation would require consultation by Western with NPS for sites in the Bighorn Canyon NRA and the Crow Tribe.
© denotes a site that contains a cairn associated with the Bad Pass Trail (24CB853/24BH3372).

3.10.2.3 Impacts of the Alternatives

Alternative A - LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

With respect to potential impacts on cultural resources, there would be very little differences between this alternative and the Proposed Project. Although this Alternative would have increased spans along some of its length, only 17 sites lie in that area and none require special measures to avoid.

3.10.2.4 Impacts of the No Action Alternative

The No Action Alternative would result in continued use of the transmission structures and access roads for maintenance. Natural processes would continue to affect cultural resources, including the transmission line itself. Western has committed to avoiding and minimizing impacts to cultural resources, regardless of alternative. Under the No Action Alternative cultural resources would be protected to the same degree as if the action alternatives were selected.

3.10.2.5 Mitigation Measures

Western's Standard Construction Project practices CULT-1, CULT-2, CULT-3, CULT-4 and Project Specific Mitigation Measure CULT-PS-1 (also shown on Table 2.1-3) would avoid or minimize impacts to cultural resources to a negligible adverse impact level at most Historic Properties. These mitigation measures are general guidelines that Western is committing to at this stage; when an alternative is selected and project engineering complete, specific treatment and impact mitigations plans will be created through consultation by Western with the Bighorn Canyon NRA and the Crow Tribe. These plans will be based on the information reported herein.

<u>Project Specific Measure CULT-PS-1.</u> Impacts to NRHP-eligible cultural sites caused by construction shall be minimized by planning. Whenever possible, project-related ground disturbing activities would be planned outside of the boundaries of Historic Properties. If project-related ground disturbance is planned within 100 feet of a site, an archaeological monitor would be present to ensure that the site is not impacted during construction and that unexpected discoveries are identified immediately and are properly protected, documented, and reported.

3.11 Land Use – Existing and Planned

Land use topics described in this section are related to land jurisdictions and ownership, existing and planned land uses and local land use plans and policies. This section also addresses Prime and Unique Farmlands in accordance with the Farmland Protection Policy Act. The Farmland Protection Policy Act provides provisions for the identification and conservation of prime farmland.

3.11.1 Affected Environment

The project study area for land use includes the proposed transmission line ROW, existing access roads, substation sites, construction areas and surrounding land uses within two miles of the project facilities. Impact issues include direct changes or disruptions to existing and planned land uses that may occur during the construction and operation of the Proposed Project, impacts to prime and unique farmlands, and temporary increases in noise levels that would result during project construction. Other land use related issues are discussed elsewhere in the EA, including Section 3.12 (Visual Resources) and Section 3.14 (Transportation).

3.11.1.1 Land Jurisdiction and Ownership

The project area includes parts of Big Horn County, Wyoming and Carbon and Big Horn Counties, Montana. Figure 2.1-1 shows the relationship of the Proposed Project to jurisdictions within the project area. For the LV-YT line, approximately 21 percent of the project area is in private ownership, 32 percent BIA (Crow Indian Reservation), 17 percent BLM, 26 percent NPS, 3 percent State lands, and 1 percent DOD. The only towns in the proximity of the project are Lovell in north-central Wyoming (within four miles of the Lovell Substation) and Fort Smith in the foothills of the Bighorn Mountains in south-central Montana (within one mile of the Yellowtail Substation). The first phase of the project is located primarily within the boundaries of Bighorn Canyon NRA. Phase II crosses Crow Indian Reservation, private, BLM, State, and DOD lands.

For the BA-LV line, approximately 2 percent of the project area is in private ownership, 87 percent BLM, 4 percent DOD, and 6 percent State lands. Several communities are in the vicinity of the transmission line including Lovell, Greybull, and Basin and further south Manderson and Worland, Wyoming. Table 3.11-1 shows the number of miles of transmission line located in all land jurisdictions by county.

Table 3.11-1 Ownership of Lands Crossed by the LV-YT and BA-LV Transmission Lines (miles)

Counties	Private	State	BIA	NPS	BLM	DOD	Total
LV-YT Transmission Line No. 1							
Big Horn, WY	4.70	0.79		1.04	7.81	0.61	14.95
Carbon, MT	5.09	0.75		10.07			15.91
Big Horn, MT			15.06	0.92			15.98
Total	**9.79**	**1.54**	**15.06**	**12.03**	**7.81**	**0.61**	**46.83**
LV-YT Transmission Line No. 2							
Big Horn, WY	4.69	0.74		1.14	7.77	0.61	14.95
Carbon, MT	5.08	0.75		10.07			15.90
Big Horn, MT			15.04	0.89			15.93
Total	**9.77**	**1.49**	**15.04**	**12.10**	**7.77**	**0.61**	**46.78**
BA-LV Transmission Line							
Big Horn, WY	0.96	2.30			33.70	1.64	38.6
Total	**0.96**	**2.30**			**33.70**	**1.64**	**38.6**

Land surrounding the Lovell Substation is owned by the United States Government and managed by the US Army and the Wyoming National Guard.

There are 18 private landowners adjacent to the LV-YT transmission line in Montana, and 6 in Wyoming. Along the BA-LV transmission line in Wyoming approximately 8 residences are located less than 0.5 miles of the line, with over 100 residences within 2 miles of the line.

3.11.1.2 Existing Land Uses

Major land uses in the project area consist of recreational land within Bighorn Canyon NRA, three Wilderness Study Areas (WSAs), a National Wild Horse Range, agricultural lands, one subdivision, historical properties and cultural sites, one industrial property, two communities, transportation systems, utility corridors for transmission lines, and substation facilities. The agricultural lands are primarily rangeland, a few ranches, and some irrigated cropland near Lovell and the Greybull River. Most of the BA-LV line crosses undeveloped land.

Table 3.11-2 shows the number of miles of land use by type, by county, along the transmission line corridor.

Table 3.11-2 Land Use along LV -YT and BA-LV Transmission Line ROW (miles)

Land Use	Big Horn, MT	Carbon, MT	Big Horn, WY	Total
LV-YT Transmission Line ROW				
Rangeland/Barren Land	15.95	15.91	11.30	43.15
Irrigated Farming			2.12	2.12
Industrial/Commercial			1.06	1.06
Riparian			0.19	0.19
Rural Community			0.26	0.26
LV-YT Total	15.95	15.91	14.94	46.81
BA-LV Transmission Line ROW				
Irrigated Farming			1.25	1.25
Rangeland/Barren Land			36.54	36.54
Industrial/Commercial			0.82	0.82
BA-LV Total			38.60	38.60

Landscape Character

Lovell-Yellowtail

In Big Horn County, Wyoming the primary landscape in the southern three-quarters of the county is rolling hills supporting grasslands and grassy shrublands. Agricultural lands generally occur along the Shoshone and Bighorn Rivers. Further north in Big Horn County, Wyoming and into the southern two-thirds of Carbon County, Montana are shallow rocky soils with sagebrush swales, juniper-pine communities, and badlands. Sensitive vegetative species are found in this region. The landscape in northern Carbon County and into Big Horn County, Montana is typically rolling hills and high plateaus supporting mixed grasslands and shrublands and intermittent wetlands and steep riparian areas. Scattered ranches are located throughout the project area.

Basin-Lovell

The dominant landscape is nearly level to rolling uplands supporting sparsely vegetated grasslands and shrublands. There are intermittent steep slopes and disturbed areas. There are a few areas of irrigated cropland along waterways which include the Greybull River and Dry Creek.

Communities and Developments

Lovell-Yellowtail

Communities within the project area include the town of Lovell in Big Horn County, Wyoming located approximately four miles northwest of the Lovell Substation, and the smaller community of Fort Smith in Big Horn County, Montana located within one mile of the Yellowtail Substation. The Proposed Project crosses roughly 0.5 miles of the Pryor Mountain Estates in Carbon County, Montana, where one residence is located within 0.25 mile of the Proposed Project. A developed land use, located just outside of Lovell along the ROW of the LV-YT transmission line, is American Colloid Company which has a bentonite clay operation adjacent to the transmission line ROW. No other developed commercial or industrial land uses are within the ROW of the transmission line.

Basin-Lovell

Several communities are located within the project area including Lovell, Greybull, and Basin, Wyoming. Manderson and Worland, Wyoming are just south of the project area. Based on a review of aerial photography (NAIP 2006), approximately eight residences are located within 0.5 miles of the transmission line. Other residences, as well as the Town of Basin, are within two miles of the line. Several operating bentonite mines are within the project area, some of which will be expanding in the vicinity of the transmission line. In addition, producing oil and gas wells are scattered throughout the project area. Otherwise, there is little developed land within the project area.

Travel Routes

Roads and all access roads to the transmission line ROW are discussed in Section 3.14 (Transportation) and summarized below.

Lovell-Yellowtail

No major interstates or highways are located in the proximity of the transmission lines. Wyoming State Route 37 provides access from Lovell to the Bighorn Canyon NRA and is the major transportation corridor in the proximity to the proposed rebuild project. The paved portion of this road ends approximately 15 miles north of the southern entrance to the Bighorn Canyon NRA at Barry's Landing Boat Ramp. In Montana the road is called the Bighorn Canyon Road. US Highway 310 and 14 and Montana State Route 313 are within two miles of the existing transmission lines. Other county roads close to the transmission lines include the BIA Route 192 (on the Crow Reservation), Big Horn County Roads 10, 12, and 211 (near Fort Smith, Montana on the Crow Reservation), and Big Horn County Road 12.5 (west of Lovell Substation in Wyoming).

A pipeline utility corridor and various four-wheel drive roads and trails are located in the project area. The pipeline corridor intersects the transmission line on the Crow Reservation in Section 30 of Township 6S Range 30E.

Basin Lovell

Routes along the BA-LV line include State Route 30, County Lane 39, and Greybull River Road. US Highways 310 and 20 are crossed several times by the BA-LV line.

Two pipelines intersect the BA-LV line in Section 30 of Township 52N Range 93W and Sections 15 and 23 in Township 52N Range 94W. One pipeline intersects the transmission line in Section 21 of Township 53N Range 94W.

No additional electrical transmission lines are located within the proximity of the LV-YT or BA-LV transmission lines.

Recreation

Lovell-Yellowtail

The area is sparsely populated, and recreational activity adjacent to the ROW is limited primarily to sightseeing, wildlife viewing, camping, and biking. Recreational uses in the Bighorn Canyon NRA focus on the Bighorn Canyon, Bighorn River, and Bighorn Lake where boating, fishing, hiking, wildlife viewing, and camping activities abound. Between 1967 and 2009, annual visitation to the Bighorn Canyon NRA averaged 298,500 per year. Located in south-central Montana and north-central Wyoming, it encompasses about 120,000 acres, including the 12,700-acre Bighorn Lake. Currently approximately 56,000 acres within the Bighorn Canyon NRA lying within the Crow Indian Reservation are closed to public use. Bighorn Lake was created by the Yellowtail Dam, which was constructed on the Bighorn River in 1965 as a part of the Missouri River Basin Project by the BOR.

The BLM's Pryor Mountain Wild Horse Range is located on the south slope of East Pryor Mountain overlooking the Bighorn Basin of Wyoming. Approximately 120 wild horses range from the Pryors' high meadows down through varying terrain to Crooked Creek Valley. Mustang viewing is one of the recreational opportunities in the Bighorn Canyon NRA.

Three WSAs occur within the project area, two of which are adjacent to the LV-YT transmission line. The Bighorn Tack-On and Pryor Mountain WSAs run north and south along the length of Phase I of the Proposed Project. The Pryor Mountain WSA is located immediately adjacent to the transmission line ROW from structures 13-1 to 13-6. No access roads are located within the WSA; access is limited to the WSA boundary along the ROW. A small corner of the Bighorn Tack-On WSA is in the transmission line ROW between structures 14-3 and 14-4 and runs adjacent to the ROW from structures 14-4 through 14-6. Several transmission line access roads are located within the WSA. The access roads within the Bighorn Tack-On WSA were existing roads prior to designation of the WSA. These roads have been used for access since the transmission lines were built. The segment of access road within the WSA between structures 14-3 and 14-4 does not require improvement. The access road closest to the ROW between structures 14-5 and 14-6 would require improvement. The Burnt Timber Canyon WSA is not close to the LV-YT transmission line ROW.

One environmentally sensitive site is located along the ROW between structures 13-7 and 14-9. There are no Areas of Critical Environmental Concern (ACECs) located within the project area. Table 3.11-2 shows land uses along the transmission line corridors.

Basin-Lovell

No designated recreation areas, WSAs, or ACECs are located within the BA-LV portion of the project area. The Historic Bridger Trail crosses through the project area near Greybull and Basin, Wyoming.

Grazing

No grazing occurs within the Bighorn Canyon NRA; however, cattle drives cross through the NRA in the spring and fall. Grazing is prevalent throughout the Crow Reservation. Two grazing allotments are located along the BA-LV line. Allotment 0057, South Basin, has one permittee with 3,123 Animal Unit Months (AUMs) and Allotment 00578, North Basin, has two permitees with 200 and 15 AUMs, respectively.

Farmlands

Prime farmlands are defined by NRCS (2010) as lands that have the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops with the minimum of fertilizer, fuel, pesticides, and labor, and without intolerable erosion. Unique farmlands are composed of land other than prime farmland that is used for producing specific high value food and fiber crops (NRCS 2010). According to the NRCS, based on soil type Big Horn County, Montana has one unit of prime farmland (if irrigated) and four units of Farmland of Statewide Importance (definition similar to prime farmland) within 500 feet of the project ROW and Carbon County, Montana has one unit of prime farmland (if irrigated) within 500 feet of the project ROW. These units occur in several areas along the transmission line route. As shown in Table 3.11-2, there is no irrigated agriculture in Big Horn or Carbon County, Montana along the project ROW and these designated farmlands are used primarily for grazing. Though the only irrigated agriculture in the project area occurs in Big Horn County, Wyoming (Table 3.11-2), no prime farmland or Farmland of Statewide Importance are designated within 500 feet of the project ROW in the county. .

Soil surveys show that most of the agricultural land crossed by the Proposed Project is not prime farmland or Farmland of Statewide Importance by the NRCS. Approximately 9.2 percent of land along the transmission line is considered potential prime farmland if irrigated and 3 percent of land along the route is considered Farmland of Statewide Importance. Table 3.11-3 shows acreage and mileage of potential prime farmland and Farmland of Statewide importance in the project area.

Table 3.11-3 Prime and Other Important Farmland (within 500 feet of ROW)

Map Unit Name	**Symbol**	**Farmland Classification**	**Miles of Type**	**Acres of Type**
Big Horn County, Wyoming (none)				
Carbon County, Montana				
Harvey Stoney loam	Hk	Prime farmland (if irrigated)	3.6	87.8
Big Horn County, Montana				
Cherry Silty Clay loam	Ce	Farmland of Statewide Importance	0.32	7.9
Peritsa Silt loam	Pd	Farmland of Statewide Importance	0.67	16.57
Rottulee Silt loam, gently undulating	Rt	Farmland of Statewide Importance	0.22	5.51
Rottulee Silt loam, undulating	Ru	Farmland of Statewide Importance	0.51	12.66
Regent Silty Clay loam	Rfa	Prime farmland (if irrigated)	0.71	17.45
Total Prime Farmland (if irrigated)			**4.31 (9.2% of entire line)**	**105.3 (9.2% of entire line)**
Total Farmland of Statewide Importance			**1.72 (3.7% of entire line)**	**42.64 (3.7% of entire line)**
Total LV-YT line			**46.8**	**1135.5**

Source: NRCS

3.11.1.3 Land Use Regulations

Land use plans and regulations for private lands in the project area are administered by counties and cities. Western's Proposed Project, due to its federal agency status (Supremacy Clause U.S. Constitution 1976), is exempt from local land use regulations, including the Big Horn County, Wyoming Land Use Plan, the Carbon County, Montana Land Use Plan, and the Big Horn County, Montana Subdivision Regulations. However, Western strives to meet the substantive requirements of local government standards and land use regulations whenever possible. Since no new ROW is required for the rebuild project, current existing easements are in effect. Easements would be obtained from the BLM on access routes which do not currently have easements. The Bighorn Canyon NRA, Strategic Plan, 2001-2005 (NPS 2000) describes the purpose and significance of the Bighorn Canyon NRA to include the following land use issues:

Park Purpose:

To provide for public outdoor recreation use and enjoyment of the Yellowtail Reservoir and lands adjacent thereto within the exterior boundary of the Bighorn Canyon NRA on NPS Lands.

- To preserve the scenic, scientific and historic features contributing to public enjoyment of such lands and waters
- To coordinate administration of the recreation area with the other purposes of the Yellowtail Reservoir project so that it will best provide for (1) public outdoor recreation

benefits, (2) conservation of scenic, scientific, historic, and other values contributing to public enjoyment and (3) management, utilization and disposal of renewable natural resources that promotes or is compatible with and does not significantly impair, public recreation and conservation of scenic, scientific, historic, or other values contributing to public enjoyment.

Park Significance:

- The Bighorn Canyon NRA has great scenic and recreational value within the 70 mile long, 12,700 acre Bighorn Lake;
- The Bighorn Canyon NRA exhibits history of over 10,000 years of continuous human habitation;
- The Bighorn Canyon NRA contributes to the preservation of Wild Horses on the Pryor Mountain Wild Horse Range of which one third is located within the Bighorn Canyon NRA as well as the preservation of a Bighorn Sheep herd which repatriated the area in the early 1970's;
- The Bighorn Canyon NRA contains the 19,000-acre Yellowtail Wildlife Habitat, which preserves one of the best examples of a Cottonwood Riparian area in the western United States.

Federal public lands in the project area are managed according to the Billings Area Resource Management Plan (RMP) 1984, Cody RMP 1990, and the Grass Creek RMP 1998 (BLM 1984, 1990, 1998). All of the RMPs provide that public lands be open to utility/transportation systems and that utility systems be located next to existing facilities whenever possible.

Currently, the BLM is in the process of updating its RMPs for the Cody Resource Area, the Billings Resource Area, and the Worland Resource Area. The Cody Field Office RMPs (Cody and Washakie RMPs) and the Worland Field Office RMP (Grass Creek RMP) will be combined as a revised Bighorn Basin RMP, which will manage lands in the Wyoming project study area (BLM 1998, 1990). The Bighorn Basin RMP is expected to be adopted in 2012. The Billings Field Office is also revising its current Billings Area RMP (BLM 1984). The revised Billings/Pompeys Pillar RMP for the Montana section of the rebuild project is expected to be adopted in 2011.

The current Cody and Billings RMP policies are in force for the BLM lands within the project area. Current Utility/Transportation policies (BLM 1984, 1990) are as follows:

- Designated utility and pipeline corridors and communication site windows include existing ROW concentration areas and 3 existing communication sites. These designated corridors and windows are the preferred location for future communication sites and utility and pipeline ROW’s;
- Most of the planning area is open for location of utility and transportation systems. Proposals will be addressed on an individual basis with emphasis on avoiding potential conflict areas;
- To protect scenic quality, placement of above ground facilities such as power lines will be avoided along major transportation routes;
- The areas within 2 miles of the Bighorn River and within 1 mile of the Greybull and Shoshone Rivers are avoidance areas for construction of above ground power lines;
- The Bighorn River HMP/RAMP is an avoidance area for all types of ROW;
- The black footed ferret essential habitat area is an avoidance area for road construction and above ground power lines;

- Areas within 2.5 miles of bald eagle nests and 0.75 miles of other special status raptor species nest sites are ROW avoidance areas for road construction;
- Peregrine falcon recovery habitat areas are avoidance areas for road construction and above ground power lines;
- Significant segments of historic trails are avoidance areas for all types of ROW, where feasible ROW will be placed across trail routes in existing ROW crossing areas;
- If restricted types of ROW are required in avoidance areas or when such areas cannot reasonably be avoided, the adverse effects of construction will be intensively mitigated in these areas.

Although the existing LV-YT transmission lines No. 1 and No. 2 and BA-LV line are not located in ROW concentration areas or utility corridors per the RMP, neither are they located in avoidance areas except near the Shoshone and Bighorn Rivers. The transmission line ROW predates the adoption of the RMP and establishment of avoidance areas. The ROW for the proposed rebuild project would be the same as the existing ROW.

Because the LV-YT and BA-LV transmission lines are an existing land use and easements for the lines are in effect or will be obtained, no other land use regulations would affect the rebuild of the transmission lines.

3.11.1.4 Planned Land Uses and Developments

Section 3.16.1 (Reasonably Foreseeable Development) describes the most recent submittals to the respective planning departments for upcoming projects near the transmission line. The most relevant projects are summarized in this section.

As of October 2010, no recent submittals for reasonably foreseeable projects had been submitted to any of the county planning departments in the vicinity of the Proposed Project. However, two bentonite mine expansions within the LV-YT and BA-LV project area have been approved by the BLM Cody Field Office. A third project is under review. The Wyo-Ben Inc. North Emblem bentonite expansion project is located immediately adjacent to the proposed BA-LV rebuild, approximately 10 miles southeast of Lovell. This project would disturb an additional 543.5 acres of land within an existing mining site. The Wyo.-Ben, Inc. Bend project is located approximately 10 miles northeast of Lovell and would disturb an additional 78.2 acres of land within an existing mining site. The third project under review is located 5 miles northeast of Greybull and would include 5 additional acres of disturbance. Bentonite mining is abundant within the project area and other Plans of Operations could be submitted to the BLM at any time.

Previous project submittals in the area include the Transpark Road Bighorn Canyon NRA which was proposed in 1974. Local Lovell residents are interested in reviving this project for economic reasons, but to date the Crow Tribe has not coordinated with these proponents. The proposed Transpark Road would cross through the Bighorn Canyon NRA from Lovell, Wyoming to Fort Smith, Montana. The road would complete a 50-mile route through the Bighorn Canyon NRA and the Crow Reservation. This project is highly speculative at this time since the Crow Tribe has not shown much interest in the project.

As of October 2010, plans for the $7 billion dollar coal-to-liquids plant on the Crow Reservation are still official; however, the economic downturn has affected the startup date for the project. The expected ground breaking for the coal mine is 2011 (Cameron 2010). Officials announced the "Many Stars Project" in August 2008. The Crow Tribe and Australian-American Energy Company plan to extract coal and build a coal to liquids plant that would process the coal into diesel and other fuels. The project would be located between 20 and 35 miles east of the existing transmission lines. The plant would use 10 billion tons of coal reserves, and construction would begin in 2012. It is expected to produce 50,000 barrels of fuel per day and provide over 4,000 jobs for the Crow people. The plant is expected to open in 2016 if economic conditions are conducive to development. On April 29, 2009 the final project agreements between the Crow Tribe and Australian-American Energy Company were signed.

The reservation also has oil and gas reserves and some land is currently drilled for gas production. Fifteen million acres have potential for oil, gas and coal development. Oil, gas, and coal projects are highly dependent on economic conditions in the US and the world. Currently, the timeframe for all oil, gas, and coal development is undetermined.

Other Crow Tribe developments include a hotel and restaurant associated with the Little Bighorn Casino in Crow Agency, Montana and a health and wellness center at the Little Bighorn College (Left Hand 2010; He Does It 2010). Additionally, the Two Rivers Trade Association has an 800-acre industrial site with a detention center up for lease and negotiations on a coal related industrial project in process (McDowell 2010).

The Pryor Mountain Estates in Montana is subdivided 30-acre parcels with approximately 12 owners (according to Certificate Survey No. 1023, Carbon County, MT). Currently one existing residence (lot #14) is located within the subdivision. The remaining lots are not likely to develop in the near future, however, the subdivision is approved and platted and therefore could be considered a reasonably foreseeable project. The Pryor Mountain Estates are located in Sections 6 and 7 of Township 8S Range 29E, in Carbon County, Montana.

3.11.2 Environmental Impacts and Mitigation Measures

3.11.2.1 Issues and Significance Criteria

Impacts to land use would be significant if the Proposed Project or action alternatives:

- resulted in the termination or unauthorized change in land uses;
- were inconsistent with adopted land use plans or regulations of local, state, or federal agencies;
- resulted in long-term measurable impacts to the region’s prime farmlands productivity; or caused long-term loss of economic viability of a farm or other business due to construction;
- directly impacted a designated wilderness area, wilderness study area, or a National Park System unit;
- diminished recreation amenities, the quality of recreational experiences, or access to recreational facilities on a long-term basis; or
- exceeded 50 dB at the edge of the ROW in proximity of a sensitive receptor land use (residence, business, etc..)

3.11.2.2 Impacts of the Proposed Project

Transmission System – Transmission Line Rebuild

Lovell-Yellowtail

Construction of the LV-YT transmission lines rebuild project would occur within Western’s existing ROW. No expansion of the ROW would take place and existing land uses would not change. Predominant land uses near the proposed transmission line rebuild include agricultural uses such as grazing and some cultivated lands. Other uses along the line include recreational, industrial, rural residential and open space. Approximately 20 percent of the land crossed is privately owned. The rebuild of the transmission lines would not affect the economic viability of any of the agricultural uses within the project area in the long term or change the land uses along the ROW. Short-term impacts could include soil erosion (either by wind or water), soil compaction, crop displacement, and the potential for contamination by release of regulated materials. Western Standard Construction Project Practices would reduce these potential impacts during construction activities (Table 2.1-3, GEN-1, GEN-2, GEN-4, SOLID WASTE-1, and VEG-1). Impacts resulting from soil disturbances along the ROW would range from negligible to moderate depending on the location. Impacts in agricultural areas are considered to be minor to moderate since revegetation would mimic, at least in part, annual seedbed preparation and planting activities (see Section 3.7 Soils).

The LV-YT transmission lines ROW crosses the American Colloid bentonite operation between structures 4-2 and 4-4. Western would replace the existing wood pole H-frame structures with glue-laminated self-supporting wood pole structures that would reduce interference with operations at the bentonite plant.

The Proposed Project would not disrupt access to public lands in the area. The lines would be rebuilt within the existing ROW, which currently crosses the Bighorn Canyon NRA and is located adjacent to the Bighorn Tack-On and Pryor Mountain WSAs. Boundaries for the WSAs were determined after the original LV-YT transmission lines were constructed. Some of the roads accessing structures are located in the Bighorn Tack-On WSA. The segment of access road within the WSA between structures 14-3 and 14-4 does not require improvement. The access road closest to the ROW between structures 14-5 and 14-6 would require improvement. Improvements to the roads would follow the mitigation plan agreed to in the interagency agreement between the NPS and Western. Mitigations for approved access roads would include specifying a maximum width, constructing water bars, and preparing and seeding roads. Some level of restoration would be required on all roads including those kept for maintenance and emergencies. This would limit visual impact, erosion susceptibility, discourage ATV use and limit access to cultural resources by collectors and looters.

Visual impacts of the Proposed Project would be similar to the current visual condition except for an increase of 10 feet in the height of the H-frame structures. The visual effect on the overall aesthetic recreational experience from construction activities would be negligible and short-term. Recreational conflicts which would result from the construction or operation of the Proposed Project would be minor and short-term.

Noise would not affect the few residences within proximity of the project ROW. The Pryor Mountain Estates subdivision would not be affected by noise. Western completed an analysis of audible noise for the LV-YT lines. A worst case scenario during heavy rain conditions showed that audible noise for the line slightly exceeded 18 dB at the edge of the ROW. This is well below the Montana standard which states that the line should not exceed 50 dB at the edge of the ROW.

A network of routes currently provides access to the 115-kV structures and ROW. Due to a lack of maintenance and use in recent years, the roads are often barely visible, or exhibit signs of soil erosion on steeper slopes. As part of the Proposed Project, existing access routes on the Bighorn Canyon NRA that are no longer needed would be reclaimed. Approximately, 12.6 acres of abandoned roads within the Bighorn Canyon NRA would eventually be reclaimed. This road reclamation is considered a direct, long-term, beneficial impact. All routes needed to provide access to the 115-kV structures and ROW would be upgraded and maintained. The proposed access road improvements would entail clearing vegetation and rocks, grading the access routes where required to provide safe passage for construction and maintenance equipment, and implementing erosion control measures. New spur roads to some structure sites may also be required. New roads could potentially attract all-terrain vehicles (ATVs) and other unauthorized vehicle use in these areas. These roads would be obscured or signed as closed if they intersect the main park roads.

Only short-term, minor impacts to various land uses such as residences, farmland, recreational activities, the Bighorn Canyon NRA, wilderness study areas, and travelers from project construction are expected. Short-term disruptions due to increased noise, dust, and visual effects of project construction and equipment operations may occur, particularly along portions of State Route 37 where tourist traffic occurs throughout the year. The existing transmission line corridor would provide access for removal and rebuilding of the line. One 1,500-foot access road would be built to avoid a sensitive resource (see Table 2.1-2).

No long-term, direct, adverse impacts from operation and maintenance of the transmission lines are expected. Because the lines would likely operate more efficiently, routine maintenance may occur less frequently, therefore providing beneficial impacts to existing land uses.

Basin-Lovell

Impacts from construction and operation of the BA-LV line rebuild would be similar to those discussed for the LV-YT lines with the following exceptions. No roads would be reclaimed along the BA-LV line. U.S. Highways 20 and 310 would have short-term, minor increases in traffic during construction. Travelers, businesses and residences within 0.5 miles of construction activities would experience short-term disruptions due to increased noise, dust, and visual effects of project construction and equipment operations. Adverse impacts to land uses in the BA-LV project area would be considered short term, direct and indirect, and negligible to minor.

Farmlands. Carbon and Big Horn County, Montana have some soil types that would be considered prime farmland if irrigated, but these areas are not cultivated and are used primarily for grazing. Big Horn County, Montana also has some soil types that represent Farmland of Statewide Importance, but again these areas are not cultivated and are generally used for grazing. Table 3.11-3 shows the acres of important farmlands within the project area. As shown in the table, prime farmland (if irrigated) within an identified 1,000 foot corridor represents 9.2 percent of the total LV-YT acreage, and Farmland of Statewide Importance represents 3.7 percent of the total acreage. There is no designated prime farmland or Farmland of Statewide Importance in Big Horn County, Wyoming.

Direct, adverse, short-term impacts to cultivated farmland from rebuilding the transmission lines could include some soil compaction, soil erosion (either by wind or water), crop displacement, and the potential for contamination by release of regulated materials. Western Standard Construction Project Practices would reduce these potential impacts during construction activities (GEN-1, GEN-2, GEN-3, GEN- 4, SOLID WASTE-1, WATER-4, and VEG-1 in Table 2.1-3).

Land Use Plans and Regulations. The Proposed Project, to the extent practicable, would address substantive requirements of land use regulations for Big Horn County, Wyoming and Carbon and Big Horn Counties, Montana. In general, existing utilities are exempt from most land use regulations in both Wyoming and Montana, and Western, as a federal agency would adopt substantive requirements when practicable but would not seek an authorization.

The ROW would not be expanded so current uses would remain the same. No new development would occur along the transmission line corridor. Authorizations would be obtained from the BLM for access to the ROW, where needed.

Planned Land Uses and Developments. Planned land uses identified in Section 3.16.1 (Reasonably Foreseeable Development) would not be directly impacted by the construction or operation of the proposed LV-YT transmission line rebuild since the lines would be built along the same ROW. However, expansion of the two bentonite mines in the proximity of the proposed rebuild of the BA-LV line may require coordination with the mining companies during construction. Many of the other projects discussed are highly speculative at this time and would not occur within the time frame of the construction of the rebuild project. The Proposed Project would be compatible with future land uses and no adverse land use impacts from construction or maintenance would be expected.

Proposed Yellowtail, Lovell, Basin, and Nahne Jensen Substation Modifications

Substation equipment at Yellowtail, Lovell, Basin and Nahne Jensen substations would be replaced as needed to match the rating of the rebuilt lines. The substation equipment to be replaced would include breakers; disconnect switches; instrument transformers; and associated buswork and jumpers. Substation work would occur within the existing facilities and would not require expansion of the substations. Substation work would be completed under Phase II of the project and would not have any adverse impacts on land use in the project area. However, short-term, direct, minor impacts from dust, noise, and construction equipment could occur during construction activities.

3.11.2.3 Impacts of the Alternatives

Alternative A - LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Impacts from Alternative A would be similar to the Proposed Project and no additional land uses would be impacted.

Similar to land use impacts for the Proposed Project, Alternative A would be considered to have minor to moderate adverse impacts to land disturbance for the long-term and short-term, minor, adverse impacts during construction. Alternatives A1 and A2 would reduce the number of acres impacted along the LV-YT lines in the short term as compared to the Proposed Project (See Table 2.1-2). Long-term disturbance would be slightly higher for Alternatives A1 and A2 compared to the Proposed Project due to the higher structure base area for the single-pole steel structures.

The increased span length of the single-pole steel structures would reduce the number of structures located within agricultural, industrial, and residential areas and require fewer access roads. Additionally, Alternative A would require less on-site operation and maintenance due to the improved efficiency of the line and the longer life of the single-pole steel structures relative to the wood pole H-frames. The lower number of structures and the decreased maintenance requirements would be considered beneficial impacts of Alternative A.

3.11.2.4 Impacts of the No Action Alternative

From a land use perspective, the No Action Alternative would have no additional impacts. However, maintenance of the existing lines may increase and increased maintenance activities along the ROW could affect soil conditions. However, no adverse land use impacts would be expected from the No Action Alternative.

3.11.2.5 Mitigation Measures

Implementation of Western Standard Construction Project Practices GEN-1, GEN-2, GEN-3, GEN-4, SOLID WASTE-1, WATER-4, and VEG-1 (Table 2.1-3) would minimize impacts to land uses to a minor level of significance. In addition the interagency agreement containing a restorative mitigation plan between Western and the NPS would be implemented to minimize the potential impacts caused by construction and access roads within the WSA. No additional mitigation measures would be required.

3.12 Visual Resources

3.12.1 Affected Environment

This section describes the visual quality and visual sensitivity of the project area, and applicable visual resource policies for lands managed by the BLM and NPS. Visual impacts to landscape scenery, sensitive viewing locations, and conformity with BLM and NPS visual goals and policies are discussed under Environmental Impacts and Mitigation Measures. The visual resources analysis is based on the BLM's Visual Resource Management System (VRM) (BLM 1986a, 2010a, 2010b). Key terms used in this section are described below.

Project Area. The visual resources project area includes landscapes and viewing locations that could be directly or indirectly affected by Western's proposed modifications to the existing 115-kV transmission lines, substations, and access roads. The project area is defined to include the geographic area where the Proposed Project modifications would occur and the surrounding landscapes where viewers may perceive the project construction and operation, given proper lighting and topographic conditions. The visual resources project area was defined to include landscapes and sensitive viewing locations within two miles of the Proposed Project improvements. Visual changes caused by removing the existing 115-kV structures and lines and replacing them with the proposed 10-foot taller 115-kV structures and larger conductors would primarily be perceived within 0.5 mile of the Proposed Project. Beyond the project area, the construction and operation to the Proposed Project would not be visually evident to viewers, given the diminishing effects of distance on perceived project scale and clarity.

Distance Zones. Distance zones are defined in the VRM system from a viewer's location (e.g. roads, trails, campgrounds). The visual resources project area encompasses lands within the BLM's *foreground-middleground* distance zone. The outer boundary of the distance zone is the point where the texture and form of individual plants are no longer apparent. Depending on climate and landscape conditions, the *foreground-middleground* distance zone may extend out 3 to 5 miles. For the purposes of this EA, the *foreground* distance zone is described for viewing areas within 0.5 mile of the Proposed Project upgrades. The *middleground* distance zone refers to viewing areas within 0.5 to 2.0 miles of the Proposed Project.

Visual Quality. Visual quality, also referred to as scenic quality, is a measure of the visual appeal of a landscape. Landscape attributes of landform, vegetation, color, water, adjacent scenery, scarcity and cultural modifications are considered in determining the overall visual quality of a landscape. Scenic quality inventories, typically prepared by BLM for public lands under their administration, are not available for the project area. Visual quality was estimated in the field for both public and private lands, and is described in this EA in terms of whether the visual characteristics of project area landscapes are *exceptional*, *representative,* or *common*. *Exceptional* visual quality is applied to landscapes that have features or settings rare or unique to those typically found in a given physiographic province; *representative* visual quality is typical of the physiographic province, and *common* visual quality is defined as landscapes lacking in visual diversity and features typically associated with the physiographic province.

Visual Sensitivity. Visual sensitivity is defined as the public's concern for landscape scenic quality. Visual sensitivity is described according to *high*, *medium,* and *low* sensitivity levels. Factors considered include type of users, amount of use, public interest, adjacent land uses, and special area designations. Within the project area, visual sensitivity is primarily associated with the Bighorn Canyon NRA; federal, state and local roads, communities and rural residential areas, and lands with special designations (e.g., WSAs). Cultural and historic resources, such as TCPs may also be potentially sensitive to visual changes. Visual impacts to these types of resources are discussed in Section 3.10 (Cultural Resources).

Key Observation Points (KOPs). KOPs are sensitive viewpoints selected for impact analyses and contrast ratings. KOPs are identified based on critical and representative viewpoints from sensitive viewing areas including roads, residential communities and special designated areas. Five KOPs have been selected for this EA and include four within the Bighorn Canyon NRA and one along Highway 310.

3.12.1.1 Visual Quality

Landscape Character

The project area encompasses parts of the Great Plains (Missouri Plateau) physiographic province in northwestern Wyoming and southern Montana (Fenneman 1916). Overall elevations in the project area range from less than 4,000 feet to over 7,000 feet above mean sea level. In addition to the elevation range, variations in precipitation, landforms, and land uses influence the landscape character of the project area.

The natural landscape is primarily comprised of portions of the Bighorn and Pryor Mountains, the Bighorn River and Canyon, Yellowtail Reservoir, Bighorn Lake, Shoshone River and rural agricultural valleys and communities. Vegetation cover includes over 750 species. In the southern part of the project area where precipitation is very low, vegetation cover is sparse, consisting of low-lying desert plants and sagebrush communities. Further to the north, Rocky Mountain shrub lands, mountain mahogany and Utah juniper are dominant at higher elevations. North-facing slopes also support Douglas-fir and ponderosa pine.

The Bighorn Canyon is a unique and scenic feature in the project area. The scenic qualities and recreational opportunities afforded by the Bighorn River and steep winding canyon are major attractions of Bighorn Canyon NRA. The Yellowtail Reservoir and Bighorn Lake also afford scenic and recreational opportunities.

Cultural influences in the landscape are most evident in the southern and northern extents of the project area. Open agricultural and ranching areas dominate the landscape character near Fort Smith, Lovell, and Basin and along irrigated river valleys. Industrial, commercial, and residential land uses are sparse and dispersed along roadways and within local communities. Energy developments primarily consist of facilities associated with the Yellowtail Dam and Reservoir. The Yellowtail Dam and Reservoir are part of a BOR multipurpose development providing irrigation water, flood control, and power generation. Facilities consist of Yellowtail Dam and Reservoir, Yellowtail Power Plant at the toe of the dam, Yellowtail Afterbay Dam a short distance downstream, and related structures, and Bighorn Lake on the Bighorn River. Western’s existing Yellowtail Substation, 115-kV transmission lines, and other transmission and utility lines connect to the BOR facility.

Visual Quality Levels

Within the project area, exceptional visual quality is principally associated with portions of Bighorn Canyon NRA. The deep canyon walls of the Bighorn River combined with the multi-colored soils and outcroppings that flank the steep slopes of the surrounding uplifts create a unique and scenic viewing opportunity within the Bighorn Canyon NRA. The canyon was formed by a combination of accelerated stream erosion and gradual regional uplift. The canyon itself is characterized by narrow and confined sheer walls as high as 1,000 feet, with similar deep side canyons. The visual quality of the Bighorn Canyon NRA is further enhanced by the Bighorn Tack-On and Pryor Mountain WSAs. In the northern extent of the project area, the water features and surrounding scenery of the Bighorn Lake and Yellowtail Reservoir provide exceptional visual quality within the region. In the southern portion of the project area, Sheep Mountain is an exceptional landscape due to its geologic landform significance.

Representative visual quality describes landscapes exhibiting natural and cultural visual attributes typically seen in the region. The majority of the project area falls within the representative visual quality level, and is associated with the towns of Lovell, Fort Smith, and Basin, the surrounding agricultural/ranching and high desert landscapes, and portions of the Pryor and Bighorn Mountains. Water features of representative scenic quality include Lovell Lakes and portions of the Shoshone, Greybull and Bighorn Rivers.

Common visual quality applies to landscapes that are regionally lacking in visual qualities typically associated with a physiographic region, or have been highly modified from their natural setting. Common visual quality is primarily found in the flat open desert landscapes of the southern project area. The Lovell Substation is located on flat desert terrain, surrounded by low-lying hills to the east and the Lovell Lake to the west. Much of the BA-LV transmission line crosses flat to rolling desert terrain with sparse low-lying vegetation, and tan soils. Further south are the Nahne Jensen and Basin Substations, which are also situated in similar settings. Primary land uses close to the Proposed Project in common scenic quality landscapes are the existing 115-kV transmission lines, existing Lovell and Basin Substations other utilities (e.g., distribution lines and other 115-kV lines), and established transportation systems (roads and railroad).

Figures 3.12-1and 3.12-2 are photographs of typical landscape settings and visual quality levels in the project area.

Exceptional Visual Quality - Bighorn Canyon

Exceptional Visual Quality - Yellowtail Reservoir

Project Area Visual Quality

Figure 3.12-1 Exceptional Visual Quality, Bighorn Canyon, Yellowtail Reservoir

Representative Visual Quality - Fort Smith, Montana

Common Visual Quality - Lovell Substation

Project Area Visual Quality

Figure 3.12-2 Representative and Common Visual Quality

3.12.1.2 Visual Sensitivity

Major viewer groups within the project area include visitors and persons engaging in activities within the Bighorn Canyon NRA and WSAs; residents; and travelers using federal, state and local roads. Visual sensitivity is described below according to the various viewer groups in the project area.

Bighorn Canyon NRA and Designated Natural Areas (WSAs)

Developed recreation areas within the project area are concentrated in Bighorn Canyon NRA and near the Yellowtail Reservoir.

Between 1967 and 2009, annual visitation to the Bighorn Canyon NRA averaged 298,500. Bighorn Canyon NRA recreational activities are primarily associated with the Bighorn River, with the majority of developed recreation sites and activities along or near the river and canyon. Opportunities include boating, fishing, camping and sightseeing. See Section 3.11(Land Use) for further discussion of recreational opportunities and sites within the Bighorn Canyon NRA. The LV-YT No. 1 and 2 transmission lines are not visible from the river or canyon floor due to the steep canyon walls. Consequently, while the visual sensitivity of viewers located along the river and canyon areas are considered potentially *high*, viewing opportunities to the Proposed Project upgrades would not occur.

High visual sensitivity is associated with viewers traveling to and within the Bighorn Canyon NRA along Wyoming State Route (SR) 37 and Bighorn Canyon Road. Major access to the river canyon, side canyons, and hiking trails is via these roads. Wyoming SR 37 provides access to the Bighorn Canyon NRA from US 14 and parallels the existing 115-kV lines for over a mile. Within the Bighorn Canyon NRA, the road remains SR 37 in Wyoming, and becomes the Bighorn Canyon Road in Montana. The road crosses under the existing 115-kV transmission lines four times and is within foreground viewing distances of the existing transmission lines for 12.3 miles. Visual sensitivity is assessed as *high*, due to the number of Bighorn Canyon NRA visitors using the road to access the recreation area, the types of scenic viewing opportunities afforded visitors, and the high duration of views along the roads.

The NRHP listed Caroline Lockhart Ranch (24CB1085) located within the Bighorn Canyon NRA also has a visual sensitivity assessed as high, due to the historic nature of the ranch and the importance of the property as an historic tour for park visitors. The skyline 350 meters east of the main ranch house is currently dominated by conductor wires spanning the Davis Creek Drainage from the existing LV-YT transmission line.

A number of hiking trails are accessible from the Bighorn Canyon Road. The Sykes Mountain Trail, the State Line Trail, Ranger Delight Trail, Sullivan’s Knob Trail, Lower Layout Creek Trail, Hillsboro Trail, and the Lockhart Ranch Trail are accessed from the Bighorn Canyon Road. These Bighorn Canyon NRA hiking trails are within the foreground-middleground viewing distance zone of the Proposed Project. The visual sensitivity of the hiking trails is assessed as *medium*, as most trails receive a low volume of use, and most views to the project area would be within one mile of the trailhead.

Other designated natural areas are the Bighorn Tack-On and Pryor Mountain WSAs. Portions of both of the WSAs are within the foreground-middleground viewing distances zone. Visual sensitivity is assessed as *medium*, due to the dispersed low volume of recreational use that occurs in these WSAs, and the viewing distances (within 0.5 mile) to the Proposed Project.

Residential Areas and Communities

Residential areas and communities within the project area and vicinity include the towns of Fort Smith, Montana, and Lovell, Greybull, and Basin, Wyoming. Dispersed rural residences are also scattered near these communities and along roads.

Between Yellowtail and Lovell Substations, the town of Lovell, population 2,281, is over two miles to the west; and the community of Fort Smith, population 122, is approximately one mile to the northeast. A campground and a community park are located west of Fort Smith. These developments are within one mile of the Proposed Project, and have partial visibility to the existing 115-kV lines. The visual sensitivity for these communities is considered low for Lovell and medium for Fort Smith. The Pryor Mountain Estates Subdivision is located within the foreground distance zone of the Proposed Project and has one residential home. The visual sensitivity is considered medium for the residential home located within the Pryor Mountain Estates Subdivision. The residence was built after the transmission line was installed.

Between the Lovell and Basin Substations, the town of Greybull, population 1,774, lies approximately four miles to the east of the Proposed Project near the junction of US Highways 14 and 16; and the town of Basin, population 1,238, is situated approximately two miles east of the Proposed Project, along US Highway 16/20. These communities are considered to have *low to medium* visual sensitivity to the Proposed Project. Mitigating visual influences include intervening buildings, topography and/or landscaping; as well as the distances (over 1 mile) from the Proposed Project upgrades.

Travel Routes

Major US and state travel routes within the project vicinity include: US Highways 310, 14, 16 and 20, Wyoming SR 37, and Montana SR 313. County roads are inclusive of the Bighorn Canyon Road, BIA Route 192, Bighorn County Road 12.5 in Wyoming, and Bighorn County Roads 10 and 12 in Montana. Wyoming SR 37 and the Bighorn Canyon Road are discussed above with the Bighorn Canyon NRA.

US Highway 14 crosses the Proposed Project area east of the town of Lovell; and Wyoming SR 310 passes south of the town of Lovell, generally paralleling the BA-LV 115-kV transmission lines within the foreground-middleground distance zone. The visual sensitivities of the state and US highways are considered *medium to high* based on traffic amounts and regional use. Other roads within the foreground-middleground distance zone of the Proposed Project are County Road 12.5, Montana SR 313, and Big Horn County Roads 10 and 12. Visual sensitivities for these roads are *low* due to relatively low traffic volumes and predominantly local use.

3.12.1.3 Visual Resource Goals and Policies

The BLM and NPS manage public lands within the project area, and have adopted plans and policies that address visual resources as well as other land management and resource issues.

National Park Service

The Bighorn Canyon NRA Strategic Plan, 2001 - 2005 (NPS 2000), describes the purpose and significance of Bighorn Canyon NRA as including the following visual issues:

Park Purpose:

- To preserve the scenic, scientific and historic features contributing to public enjoyment of Bighorn Canyon NRA lands and waters

Park Significance:

- The outstanding scenic and recreational values of the 70 mile long, 12,700 acre Bighorn Lake

Bureau of Land Management

The BLM is in the process of preparing the Bighorn Basin RMP, which will update and replace three existing BLM RMPs for the Cody and Worland Field Offices (see Section 3.11 Land Use). Information considered in this EA is based on available VRM data. The current RMPs identify VRM classes for public lands in the project area. The VRM program recognizes four classes to reflect the relative importance or value of retaining existing visual qualities of public land landscapes:

- Class I – The objective of this class is to preserve the existing character of the landscape. The class provides for natural ecological changes. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II – The objective of this class is to retain the existing character of the landscape. The level of visual change should be low. Management activities may be seen, but should not attract the attention of the casual observer.
- Class III – The objective of this class is 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.
- Class IV – The objective of this class is to provide for management activities that require major modification to the existing character of the landscape. The level of change to the characteristic landscape can be high.

There are no public lands within the project area that are classified by the BLM as VRM Class I landscapes. Class II landscapes are associated with Sheep Mountain, east of the BA-LV transmission line. All other BLM-administered public lands in the project area are designated as VRM Class III or Class IV landscapes (Bye-Jeck 2008). A map of BLM's VRM classes is on file with Western's office.

3.12.2 Environmental Impacts and Mitigation Measures

3.12.2.1 Issues and Significance Criteria

A significant impact on visual resources would result if any of the following were to occur from the construction or operation of the proposed project:

- Substantial degradation of the scenic quality of an Exceptional landscape.
- Substantial visual changes to landscapes that are seen by sensitive viewers, such as community enhancement areas (community gateways, roadside parks, viewpoints, and historic markers) or locations with special scenic, historic, recreational, cultural, archaeological, or natural qualities that have been recognized as such through legislation or other official declaration.
- Unresolved conflict with visual policies or standards identified by a federal land management agency (e.g., BLM, NPS).

Key visual issues for the Proposed Project are:

- Does the Proposed Project have the potential to substantially degrade the scenic quality of the Bighorn Canyon NRA or other VRM Class I or II landscapes (e.g., WSAs)?
- Does the Proposed Project have the potential to cause substantial visual changes that would be viewed from designated scenic areas (e.g., Bighorn Canyon NRA)?
- Will the Proposed Project comply with the visual policies and standards identified by the BLM and NPS for lands in the project area?

Visual impacts have been assessed by evaluating the changes in line, form, color and texture of the Proposed Project and action alternatives when compared to the existing visual environment. Visual changes in these elements were assessed from the Bighorn Canyon NRA, WSAs and other potentially sensitive viewing locations, including roadways, recreation areas and residential land uses. Visual changes have been evaluated according to the BLM's Visual Resource Management Contrast Rating criteria (BLM 1986b) for weak, moderate or strong contrasts:

- *Weak* – The element contrast can be seen but does not attract attention.
- *Moderate* – The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- *Strong* – The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Computer-generated visual simulations were prepared for five key observation points (KOPs) and used as an analysis tool for evaluating the degree of visual contrasts the Proposed Project and action alternatives would create from sensitive viewing locations. Four KOPs are within the Bighorn Canyon NRA and specifically address the types of visual changes that would occur from the LV-YT 115-kV transmission line improvements to the Bighorn Canyon NRA along the Bighorn Canyon Road/SR 37 and nearby WSAs. The fifth KOP is along Highway 310 between Lovell and Greybull, Wyoming and addresses visual changes from the BA-LV line upgrades to local residents and highway travelers. The simulations are accurate and photorealistic depictions of the Proposed Project, and are based on Western's technical information on structure locations and designs. Contrast ratings were documented using the BLM's contrast rating forms, and are on file at Western's offices. Contrast ratings are based on the simulations and reflect the relative differences in visual effects between the existing environment, which includes the 115-kV transmission system, and the future environment with the proposed upgraded 115-kV structures and larger conductors.

Visual impacts are described according to whether the effects are long-term or short-term, and adverse or beneficial. Adverse effects are qualified according to whether the effects would be *Substantial, Moderate, Minor,* or *Negligible*. These terms are defined for visual resources as:

Substantial Adverse Impacts would result if/where long-term, **strong visual contrasts** would be created by project changes in line, form, color, or texture. Substantial adverse impacts would occur if/where the increased contrasts of the project would dominate visual quality, be seen by a high to moderate number of sensitive viewers, and would affect landscapes with exceptional or representative visual quality.

Moderate Adverse Impacts would result if/where **moderate visual contrasts** would be created by project changes in line, form, color, or texture. Moderate adverse impacts would occur if/where the increased contrasts of the project would be visually evident, seen by sensitive viewers, and affect landscapes with exceptional or representative visual quality.

Minor Adverse Impacts would result if/where **weak visual contrasts** would be created by project changes in line, form, color, or texture. Minor adverse impacts would occur if/where the visual changes caused by the project would be visible, but difficult to discern due to viewing distance, the presence of other similar features, or where the project would be seen by few sensitive viewers. Minor adverse impacts may apply to landscapes with exceptional, representative or common visual quality. Minor adverse impacts typically apply to viewing locations where the changes in line, form, color, or texture would be difficult to see due to intervening distance or screening.

Negligible Adverse Impacts would result if/where the project changes in line, form, color, or texture may not be noticeable due to the viewing distance and/or other visual elements that are similar to, or reduce the visibility of, the project.

3.12.2.2 Impacts of the Proposed Project

The visual impacts of the Proposed Project to landscape scenic quality and viewers would be long-term and primarily occur from removing the existing 115-kV H-frame and three-pole structures, and replacing them with new 115-kV structures of similar design. Other upgrades or improvements considered in the visual impact analysis are increases to the conductor size and access road modifications. Access road modifications would entail improvements to existing access roads, construction of new spur roads to structure sites, and the decommissioning and reclamation of existing roads in the Bighorn Canyon NRA, where access routes would not be used in the future. Construction-related impacts would be short-term and result from the presence of construction equipment and crews. All short-term visual impacts are considered adverse and *Minor* in degree, due to the temporary nature of these effects. Long-term visual impacts are described below by project phase and element.

Long-Term Impacts to Landscape Visual Quality

Lovell-Yellowtail Transmission Line

115-kV Transmission Line Structures, Hardware and Lines. The proposed project for the LV-YT transmission line segment entails replacing two sets of parallel 115-kV structures with larger 115-kV structures of similar H-frame and three-pole design. The structures would be placed in approximately the same location as the existing 115-kV structures. Figure 2.1-2 is a schematic comparison of the design and scale of the existing and proposed 115-kV H-frame structures. On average, the new 115-kV structures would be 10 feet taller than the 115-kV structures they would replace. The upgraded 115-kV H-frame structure poles would have an average height of 70 feet, compared to 60 feet for the existing 115-kV structures. The base width of the upgraded 115-kV structures would be 12 feet, similar to the existing 115-kV poles structures. The majority of the upgraded 115-kV H-frame and three-pole structures would be of similar wood construction and hardware as the existing structures that would be removed. In limited and specific locations, the 115-kV structures would be replaced with self-supporting steel or laminated three-pole structures. Figure 2.1-2 through 2.1-5 show the various structure designs that would be used for the Proposed Project.

The proposed 115-kV insulators and hardware would be porcelain or glass, similar to the materials and colors of the existing 115-kV hardware. The upgraded 115-kV conductor wires would be non-specular for Phase I and approximately 1.1 inches in diameter, compared to the existing 115-kV conductors, which range in diameter between 0.72 inch and 0.85 inch. The LV-YT transmission lines cross or are adjacent to landscapes ranging in scenic quality from Exceptional to Common.

Visual impacts to landscape scenic quality, resulting from the above described changes to the 115-kV structures, hardware, and conductors would range from *Moderate* to *Negligible*. *Moderate* impacts would occur where the Proposed Project would result in moderate visual contrasts in the NRA if new structure designs – three-pole or steel structures – are installed in landscapes of representative scenic quality. If these new structures are used in certain locations, due to topography or soil conditions, the double-circuit steel poles would create moderate contrasts in line, form, color and texture where the steel structures would replace the existing 115-kV H-frame structures. Overall, if installed the steel poles would introduce a taller, and more industrial utility design feature, compared to the existing 115-kV structures. The visual contrasts of the steel poles would be partially offset, however, by the reduction in the overall number of structures, when compared to the existing ROW setting. On balance, the changes in visual contrasts for form and mass would be *moderate*, while color, line and texture changes would be *weak to none*, depending on viewing distance.

Minor visual quality impacts would occur over the vast majority of the LV-YT No. 1 and 2 upgrades, since the existing H-frame structures would be largely replaced with similar H-frame structures and hardware in representative scenic quality settings. The proposed 115-kV upgrade would also result in *Minor* impacts to landscape visual quality where three-pole structures would be used to replace structures of a similar design in representative scenic quality landscapes. Although increased contrasts with the existing terrain, vegetation, and cultural influences would occur, the individual changes in line, form, color, and texture would be weak when compared to the existing setting with the 115-kV transmission, which would be replaced.

Negligible impacts to scenic quality would occur near the Lovell Substation, where the transmission line would cause weak contrasts in landscapes of common scenic quality.

Transmission Access Routes. A network of routes currently provides access to the 115-kV structures and ROW. Due to a lack of maintenance and use in recent years, the roads are often barely visible, or exhibit signs of soil erosion on steeper slopes. As part of the Proposed Project, Western proposes to reclaim existing access routes on the Bighorn Canyon NRA that are no longer needed, and upgrade and maintain all routes needed to provide access to the upgraded 115-kV structures and ROW. The proposed access road improvements would entail clearing vegetation and rocks, grading the 14-foot-wide access routes where required to provide safe passage for construction and maintenance equipment, and implementing erosion control measures. New spur roads to some structure sites may also be required.

Visual quality impacts associated with access route improvements would depend on site terrain and vegetation and soil conditions. Long-term *Moderate* to *Minor* impacts to landscape visual quality would occur where moderate to weak contrasts in line, form, color and texture result from vegetation and soil disturbances. Contributing factors include slope degree and aspect, vegetation type, patterns and density and the amount of grading and vegetation removal necessary to improve the roads to Western's standards. Along the LV-YT transmission line, visual contrasts from access road improvements would be weak where existing roads would be improved through areas characterized by flat to rolling terrain and low density vegetation cover. Moderate contrasts would occur in areas with steeper terrain and vegetation cover, where new spur roads are constructed. Visual effects from the reclamation of obsolete access routes would be beneficial.

Basin-Lovell Transmission Line

115-kV Transmission Line Structures, Hardware and Lines. The visual characteristics of the proposed upgraded 115-kV structures, hardware and conductors would be very similar as described above for the LV-YT segment of the Proposed Project. Along this section of transmission line, one set of 115-kV structures and conductors would be replaced with slightly taller structures (i.e., 10 feet taller on average) and larger conductors through landscapes assessed as common or representative scenic quality. All structures would be wood H-frame or three pole, as described above. Consequently, visual impacts to landscape scenic quality would be *Minor*, as visual contrasts resulting from the replacement of the existing structures, hardware and conductors would be weak.

Transmission Access Routes. Landscape character changes from access route improvements on the BA-LV line would be *Minor*. The upgraded 115-kV transmission line would primarily cross common visual quality landscapes, characterized as flat to slightly rolling desert terrain, with low-density shrub and grass vegetation cover. Compared to the existing setting, access road improvements would create weak visual contrasts in color and texture elements.

Substation Upgrades

The visual character of the new or modified substation equipment would be very similar to the existing substations (See Figure 3.12-3). Visual quality at the substation sites is common to representative. Since all new facilities would be within the existing substation sites and similar in line, form, color and texture to the existing equipment, visual contrasts would be weak, and impacts to existing landscape scenic quality would be *Negligible*.

Long-Term Impacts to Viewers

Lovell-Yellowtail Transmission Line

The upgraded LV-YT No. 1 and No. 2 transmission line structures and lines would be visible from the Bighorn Canyon NRA, the BLM's Pryor Mountain and Bighorn Tack-On WSAs, US Highways 14 and 310, Wyoming SR 37, Montana SR 313, BIA Route 192, and County Roads 10, 12, and 12.5. KOPs 1, 2, 3 and 4 were identified to assess the degree of visual impacts that would occur from the LV-YT transmission lines to sensitive viewers within the Bighorn Canyon NRA (see Figure 3.12-4 for KOP locations).

Bighorn Canyon NRA

Portions of the proposed 115-kV lines, structures, and access routes would be visible from established viewing locations within the Bighorn Canyon NRA. Photographs of the existing 115-kV transmission lines and computer generated visual simulations of the Proposed Project changes are shown in Figures 3.12-5, 3.12-6, 3.12-7 and 3.12-8. All four of these KOPs are along the Bighorn Canyon Road, within Bighorn Canyon NRA.

Figure 3.12-3 Yellowtail Substation

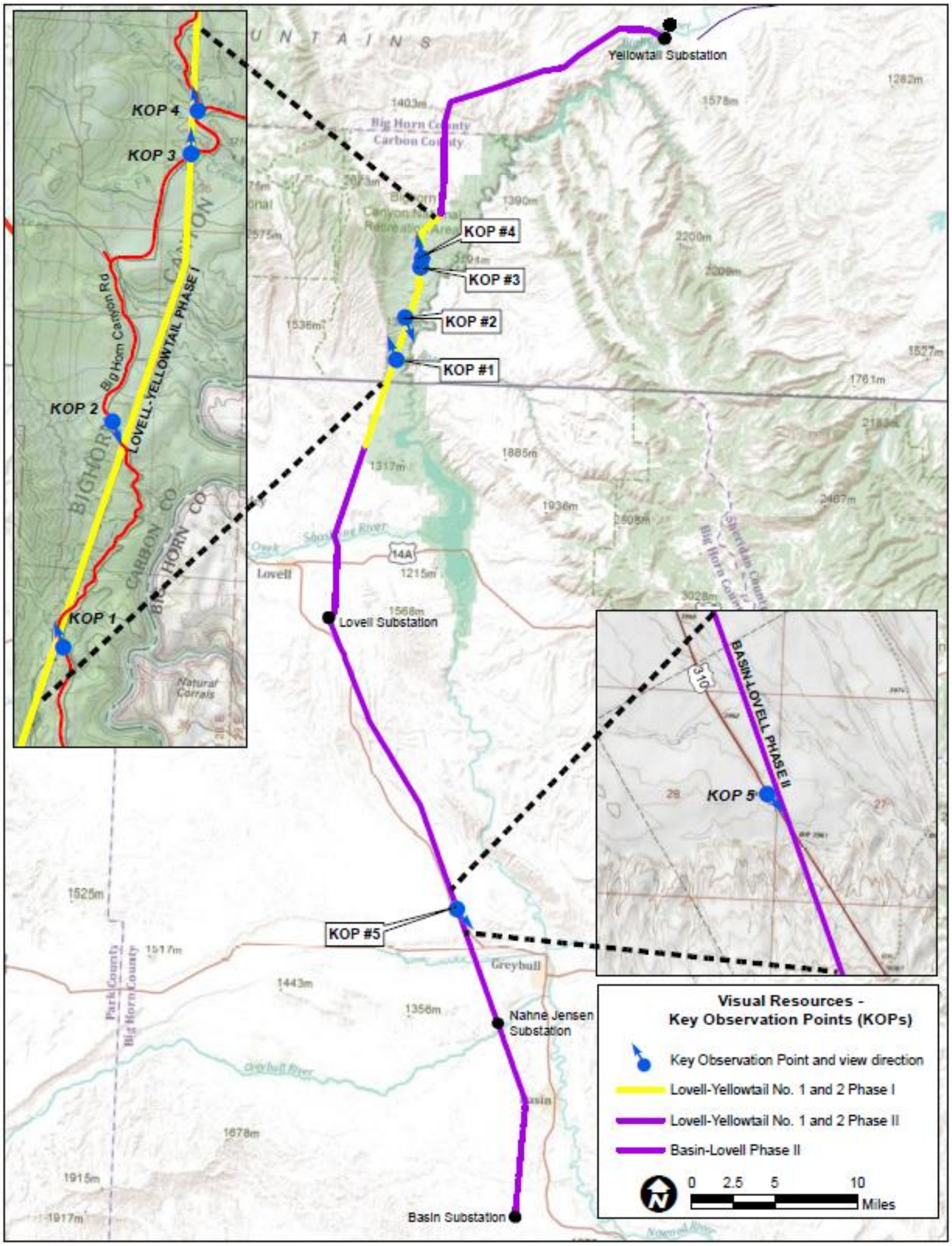

Figure 3.12-4 Key Observation Points Evaluated for the Bighorn Canyon NRA

Existing View to LV-YT 115-kV from KOP 1 - Bighorn National Recreation Area

Photosimulation of Proposed LV-YT 115-kV Rebuild Project from KOP 1 - Bighorn National Recreation Area

Figure 3.12-5

Figure 3.12-5 Photo Simulation of LV-YT 115-kV Rebuild Project from KOP 1

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Existing View to LV-YT 115-kV from KOP 2 - Bighorn National Recreation Area

Photosimulation of Proposed LV-YT 115-kV Rebuild Project from KOP 2 - Bighorn National Recreation Area

Figure 3.12-6

Figure 3.12-6 Photo Simulation of LV-YT 115-kV Rebuild Project from KOP 2

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Existing View to LV-YT 115-kV from KOP 3 - Bighorn National Recreation Area

Photosimulation of Proposed LV-YT 115-kV Rebuild Project from KOP 3 - Bighorn National Recreation Area

Figure 3.12-7

Figure 3.12-7 Photo Simulation of LV-YT 115-kV Rebuild Project from KOP 3

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Existing View to LV-YT 115-kV from KOP 4 - Bighorn National Recreation Area

Photosimulation of Proposed LV-YT 115-kV Rebuild Project from KOP 4 - Bighorn National Recreation Area

Figure 3.12-8

Figure 3.12-8 Photo Simulation of LV-YT 115-kV Rebuild Project from KOP 4

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115-kV Transmission Line Structures, Hardware and Lines. The Proposed Project would be located within the Bighorn Canyon NRA for approximately 12.3 miles. The landscapes that would be directly affected are representative visual quality; and are characterized by moderate to steep slopes, sparse mottled vegetation patterns, and exposed grey, tan, and/or red slopes and escarpments.

The existing 115-kV transmission lines are highly visible to visitors to the NRA that are traveling along Bighorn Canyon Road/SR 37 and somewhat visible to visitors taking the historic ranch tour at the Caroline Lockhart Ranch near structures 24-6 and 24-7. The Proposed Project would have a similar degree of high visibility to visitors both during construction and operation of the Proposed Project upgrades (see Figures 3.12-5 through 3.12-8).

The impacts of the Proposed Project upgrades were measured against the existing setting with the existing 115-kV transmission lines. Compared to the existing views along Bighorn Canyon Road and at the NRHP listed Caroline Lockhart Ranch with the existing 115 kV transmission lines, the increased visual contrasts in line and form, created by the upgraded 115-kV structures and larger conductors would be weak in most instances where similar structure designs are installed. The similarity in the structure designs, scale, and materials would substantially mitigate potential visual effects. While some visual changes would be evident within 0.5 mile where the project upgrades are openly visible, system upgrades would be difficult to discern at greater viewing distances. Conductors for the 115-kV transmission lines would also be non-specular for Phase I, thus reducing or eliminating the potential for line glare and reflectivity during most lighting conditions in the NPS. Changes in color and texture would create weak to no visual contrasts since the proposed 115-kV structures would be made of similar wood materials; and hardware and insulator materials would also be similar neutral earth tones. Figures 3.12-5 through 3.12-8 show the degree of visual contrasts that would occur from foreground distance zones along the Bighorn Canyon Road.

Moderate visual impacts could occur if the steel pole structures were installed in visible locations within 0.5 mile of the Bighorn Canyon Road, due to the increased height and scale of these structure designs. *Moderate* visual impacts are not expected, however, since this structure design would only be used near the Montana border and is not likely to be seen from the road.

Visual impacts to visitors to the NRA hiking trails, informal NRA recreation areas, and the Bighorn Tack-On and Pryor Mountain WSAs would be the same or similar to those described above for the Bighorn Canyon Road. Long-term visual impacts within 0.5 mile would be *Minor* compared to the on-going impacts of the existing 115-kV lines. Visual impacts beyond 0.5 mile would range from *Negligible* to *Minor* depending on visibility conditions.

Improved and Reclaimed Access Routes on the Bighorn Canyon NRA. Access road improvements would entail grading where required to each structure within the Bighorn Canyon NRA. The road improvements would result in increased visual contrasts in color, line and texture elements. The degree of these contrasts would vary, and depend on soil type, color, density, as well as the type of vegetation cover disturbed. Vegetation cover is generally sparse to moderate within the Bighorn Canyon NRA due to the high desert, low precipitation conditions. Exposed soils typically support scattered juniper, shrub, or grass vegetation, thus creating a mottled texture of soil and vegetation colors and patterns. Cut slopes along the existing highway have already created visual contrasts from soil and vegetation disturbances. In addition, the existing access routes to the 115-kV lines have caused some color and texture contrasts, which have diminished over time due to lack of use or maintenance. When viewed within the context of these existing roads, the proposed access road improvements would create increased contrasts ranging from none to moderate, depending on the amount and type of vegetation disturbances and viewing angle.

The angle of view and viewing distance to access road improvements would affect how visible the road improvements would be from specific viewing locations. In general, visual contrasts would be most evident where removal of vegetation and grading creates increased line elements visible on steep slopes, and for long viewing distances.

In summary, long-term visual impacts to the Bighorn Canyon NRA resulting from the upgraded 115-kV structures, conductors, and access road improvements would range from *Moderate* adverse impacts to beneficial impacts, depending on type of structure, viewing distance, angle of view and degree of vegetation disturbances seen. Reclamation of obsolete access roads would be beneficial long-term to the visual quality of the Bighorn Canyon NRA. Long-term visual impacts would be most evident from SR 37, the Bighorn Canyon Road, and hiking trails located within foreground viewing distances.

The Proposed Project would not be visible from the Bighorn River Canyon and associated recreational river and camping sites. Consequently, there would be no identifiable visual impacts to the canyon and recreational uses along the river canyon.

Public Roads and Highways – US Highways 310 and US 14, Montana SR 313, BIA Route 192, and County Roads 10, 12, and 12.5

The LV-YT transmission line upgrades would be visible from portions of US Highways 310, US 14, Montana SR 313, BIA Route 192, Big Horn County Montana Roads 10 and 12, and Bighorn County Wyoming Road 12.5.

Wyoming SR 37 is discussed above with the Bighorn Canyon NRA. With respect to other roads, the Proposed Project would result in Minor long-term visual impacts to roadside views. As described in Section 3.12.1 above, these roads primarily serve local traffic. Travelers currently view the 115-kV structures and lines, which would be removed and replaced with the slightly larger 115-kV structures and lines. Visual impacts from the increased size of the 115-kV structures and conductors, as well as access road improvements would be difficult to discern beyond 0.5 miles away. Exposed soils along widened roads would either be similar in visual character to other unpaved roads in agricultural or rural areas, or would create weak contrasts in soil and vegetation cover in natural, arid areas.

Residential Communities and Dispersed Residences – Lovell and Fort Smith

Minor to *Negligible* long-term visual impacts would result to the towns of Lovell and Fort Smith. The visual changes brought about by the replacement of the 115-kV structures and lines would be difficult to perceive at this viewing distance. Some dispersed residences located east of Lovell and one rural residence in Pryor Mountain Estates located north of the Bighorn Canyon NRA may incur *Minor* visual impacts. *Minor* impacts may occur where foreground views to the Proposed Project result in weak visual contrasts in form and line elements. Most impacts to rural residential homes would be *Minor* to *Negligible*, since intervening distances and screening conditions (i.e., viewing angle, intervening structures, or landscaping) would reduce visual contrasts to the project in most instances.

From the town of Fort Smith, long-term visual impacts from the Proposed Project would be *Minor*. Less than five structures are expected to be partially visible from the western edge of town if looking towards the elevated Yellowtail Substation site. At present, several transmission lines are visible in this direction, although topography blocks any views to the substation itself. Viewed within the existing energy facility setting, the long-term visual contrasts of replacing the 115-kV structures and lines with the proposed 115-kV structures and lines would be very *weak*, and impacts to area residents would be *Minor*.

Basin-Lovell Transmission Line

The upgraded BA-LV 115-kV structures and conductors would be visible from portions of Highway 310 between the Lovell Substation and the highway's intersection with Highway 14, north of Greybull. Distant views to the project would also occur along portions of Highway 16/20, between Greybull and Basin. KOP 5 was evaluated to document the visual impacts to viewers that would result from the BA-LV upgrade (see Figure 3.12-9).

Public Roads and Highways - US Highways 310, and 14/16/20

Major US and state travel routes within two miles of the BA-LV project area include: US Highways 310 and 14/16/20.

The BA-LV transmission line parallels US Highway 310 for more than 20 miles, at distances ranging from 0.0 to 1.8 miles away. Along this stretch of the highway, foreground views to the existing transmission line structures, hardware and conductors are possible and openly skylined against the desert landscape where the line is located within 0.5 mile of the road for approximately 10 miles. More distant views to the transmission line are to the east, where the Bighorn Mountains and Sheep Mountain provide background screening of the transmission facility. US Highway 310 provides a geologic interpretative site for Sheep Mountain, which is a 'textbook' example of an anticline fold. From this roadside interpretive site, the existing transmission line is barely visible at the base of Sheep Mountain, approximately 1.5 miles away.

Improvements to the BA-LV transmission line would be most noticeable where the upgraded transmission line would be within 0.5 mile of the highway and where long views to multiple transmission structures and conductors would occur. Figure 3.12-9 shows the existing setting and simulation of the Proposed Project improvements from KOP 5, along US 310, north of Greybull. Similar to the existing line, the upgraded BA-LV transmission line would be visible and skylined in many instances. Compared to the existing conditions, however, the changes in the visual contrasts from the proposed 115-kV upgrades would be weak for line, form, color and texture for all project components including the transmission structures, conductors and access routes. Visual impacts to Highway 310 views would consequently be *Minor.*

Visual contrasts would be similarly weak and impacts *Minor* to *Negligible* from portions of US Highway 14/16/20. Viewing distances from these roads to the Proposed Project would be more than 0.5 mile away.

Existing View of BA-LV 115-kV from KOP-5

Figure 3.12-9 Photo Simulation of BA-LV 115-kV Rebuild Project from KOP 5

Residential Communities – Basin, Wyoming

From the town of Basin, the existing 115-kV transmission line is visible from the western edge of town where the structures are skylined on a hillside. Residential homes and the community golf course would have similar views to the Proposed Project upgraded transmission line. Visual impacts would be adverse and *Minor* in degree. The intervening distance (more than 1 mile away) and the minor changes to the 115-kV structures and conductors would result in very weak contrasts from the town of Basin.

Conformance with Federal Visual Resource Policies and Objectives

The conformity of the Proposed Project with BLM's VRM objectives is discussed below by project segment. Conformity with the NPS's Bighorn Canyon NRA Strategic Plan, 2001 - 2005 (NPS 2000) is discussed under the LV-YT transmission line segment.

Lovell-Yellowtail Transmission Line

NPS-Administered Lands

The LV-YT transmission line upgrade would affect public lands administered by the NPS in accordance with the Bighorn Canyon NRA Strategic Plan, 2001 - 2005 (NPS 2000). The purpose of the plan includes the following: *"To preserve the scenic, scientific and historic features contributing to public enjoyment of Bighorn Canyon NRA lands and waters."* As described previously, long-term visual impacts to the Bighorn Canyon NRA would range from *Moderate* adverse impacts to beneficial impacts, depending on type of structure, viewing distance, angle of view and degree of vegetation disturbances. The vast majority of impacts would be *Minor*, with *Moderate* impacts only occurring in specific locations where different structure designs (i.e., steel poles or three-pole structures) might be used; or if access road improvements result in moderate contrast levels due to slope and vegetation conditions. Mitigating these potential adverse effects are the reclamation of obsolete access roads and the potential reduction of ground disturbances if single steel poles would replace two sets of H-frame structures (see Alternative A). Considering both the adverse and beneficial effects to the NRA's visual quality and sensitive viewers, the Proposed Project is assessed as consistent with meeting the NPS's plan purposes and objectives for Bighorn Canyon NRA.

BLM-Administered Lands

The proposed LV-YT transmission line crosses BLM lands that are managed for VRM Class III objectives.

VRM Class III Lands. The Proposed Project upgrades would create weak contrasts in line, form, color and texture when compared to the existing settings. These contrasts would be long-term and are allowable within the BLM's Class III VRM classes. Visual contrasts on BLM Class III lands, resulting from improvements to access routes would be weak. While some desert shrub and grass vegetation may be removed for access road improvements, visual changes would be minimal in this sparsely vegetated desert landscape. These contrasts would be long-term, and consistent with types of changes allowable under the BLM's Class III VRM standard.

Basin-Lovell Transmission Line

BLM-Administered Lands

The BA-LV transmission line crosses public lands managed by BLM as VRM Class II, III and IV landscapes.

VRM Class II Lands. The BA-LV transmission line crosses the western edge of VRM Class II landscapes, west of Sheep Mountain. In total, the existing transmission line is adjacent to the boundary of public lands with this designation for approximately 1.1 miles. The degree of visual change allowed under the VRM Class II designation is low. Changes to the characteristic landscape may be seen, but should not attract attention.

The BA-LV transmission line would result in weak visual contrasts in line and form, with the most evident change being the approximate 10 feet increase in height of the structures. The proposed structures for the upgraded transmission line would be very similar in design, materials, and hardware as the existing transmission line. Consequently, the Proposed Project is consistent with the BLM's VRM Class II objectives.

VRM Class III and IV Lands. The BA-LV transmission line crosses VRM Class III landscapes for 32.7 miles, and VRM Class IV landscapes for 13.6 miles. The Proposed Project upgrades would result in weak visual contrasts and, consequently, would be consistent with the degree of visual changes allowed under these BLM VRM objectives.

3.12.2.3 Impacts of the Alternatives

Alternative A – LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Alternative A1

The visual impacts of Alternative A1 would be the same as described previously for the LV-YT Proposed Project for: a) impacts to landscape visual quality; b) impacts to sensitive viewers including visitors to the Bighorn Canyon NRA, c) impacts to travelers and residents living along US Highways 310, 14, 16 and 20, Wyoming SR 37, the Bighorn Canyon Road, and Bighorn County Road 12.5 in Wyoming, and d) impacts to residents near and in the community of Lovell. The conformity of the project with the NPS's plan and the BLM's VRM standards would also remain the same as the Proposed Project.

Alternative A1 would result in a similar degree, although slightly different, visual impacts to travelers and residents living along or near Bighorn County Roads 10 and 12 in Montana, BIA Route 192, and near the community of Fort Smith in Montana. From these viewing locations, Alternative A1 would entail the removal of the two sets of wood H-frame structures, hardware and lines, and the replacement of these lines with one set of steel pole structures and conductors. The new steel poles would be approximately 40 to 45 percent taller (on average 105 feet in height, compared to the 60 foot height of the existing structures); however, the mass of the existing utility corridor would be reduced with the removal of two sets of H-frame structures. On balance, the changes in visual contrasts for mass and form would be moderate, while color, line and texture contrasts would be weak to none, depending on viewing distance. Impacts to travelers on these roads, as well as rural residential areas near the community of Fort Smith are assessed as *Minor* to *Negligible* due to the reduction in the number of structures, intervening distance and the presence of other similar utility developments near Yellowtail Dam.

Alternative A2

For the area north of the Lovell Substation, Alternative A2 would result in the same impacts as described for the Proposed Project and Alternative A1. Visual impacts to travelers along US Highways 310 (south of Lovell Substation) and 14, Bighorn County Road 12.5, and to rural residential areas near the community of Lovell are assessed as *Minor* to *Negligible*. Although the proposed steel structures would be substantially taller and of a different material, the visual changes would be offset by the reduction in the number of structures.

3.12.2.4 Impacts of the No Action Alternative

The No Action Alternative would result in no identifiable short-term changes in the visual environment. The existing 115-kV structures and lines would continue to operate, and long-term visual effects from these lines would remain unchanged. Over time, the existing 115-kV structures would require replacements, however, which would result in similar direct impacts to landscapes as described for the Proposed Project.

Long-term, the No Action Alternative would result in increasing visual effects from soil erosion along access routes that are in need of erosion control measures or reclamation. These landscape impacts would be adverse and avoidable with the Proposed Project.

3.12.2.5 Mitigation Measures

Western has incorporated a number of committed measures into the project description which would reduce visual contrasts to the landscape and to sensitive viewers to the extent practical. Adopted measures providing visual and scenic quality protections include: GEN-5, GEN-6, EROSION-2, VEG-2, and SOLID WASTE-2. In addition to these measures, the following project specific measure is included to further ensure visual impacts are minimized:

Project Specific Measure VISUAL-PS-1. In order to minimize visual impacts conductors will be non-specular for Phase I of the project.

3.13 Socioeconomics and Environmental Justice

3.13.1 Affected Environment

This section addresses historical and present socioeconomic conditions in the three counties (Big Horn County, WY, Carbon and Big Horn Counties, MT) that would be affected by the Proposed Project. The project area includes regional and local community settings. Topics reviewed include employment and income, population, housing, and public services. Tables 3.13-1 through 3.13-4 summarize baseline conditions within the three-county area. The urban communities indirectly affected by the transmission line rebuild are Lovell, Greybull, and Basin in Big Horn County, Wyoming and Fort Smith in Big Horn County, Montana. This section of the EA also addresses issues related to Environmental Justice, as required under Executive Order 12898.

3.13.1.1 Demographics

Employment and Income

The project area has a diverse economic base, with the greatest percentages of total employment occurring in services, government, and mining. Important industries include bentonite mining, farming, ranching, sugar beet and bean processing, and tourism (U.S. Dept. of Commerce 2010a).

Employment and unemployment for 2010 in each of the counties within the project area is shown in Table 3.13-1. Big Horn County, Wyoming had an estimated unemployment rate of 8.7 percent in 2010, Carbon County 5.6, and Big Horn County, Montana 11.5 percent. Billings, Montana is the closest major regional employment and trade center for the region. The unemployment rate in Billings (Yellowstone County) was 5.5 percent in 2010. These unemployment rates are considerably higher than in 2007, before the economic recession of 2008 began. Unemployment rates have doubled throughout the study area since 2007. The total labor force for the four-county area, including the labor market in Billings, is estimated at over 95,000. The labor force has declined since 2007, likely due to out-migration from the area caused by current economic conditions.

Table 3.13-1 Labor Force Summary 2010

County	Labor Force	Employed	Unemployed	% Unemployment
Big Horn County, WY	4,980	4,549	431	8.7
Carbon County, MT	5,151	4,862	289	5.6
Big Horn County, MT	5,389	4,767	622	11.5
Yellowstone County, MT	80,358	75,931	4,427	5.5

Source: U.S Dept of Labor 2010b; MT Dept of Labor and Industry 2010

The employment by industrial sector for the year 2008 is shown in the Table 3.13-2. The construction sector represented 3.9 percent of total employment (18,911), with 1,311 employed in the construction sector within the three counties. Yellowstone County had an additional 7,724 employed in the construction industry, which represented approximately 7.4 percent of total employment.

Median and mean hourly wages for electrical power line installers and repairers in the Billings, Montana labor market are $28.70 and $29.73 per hour, respectively. The mean annual salary is $61,830 (U.S. Dept. of Labor 2010a).

Average annual wage and salary earnings in the affected counties were $33,129 in Big Horn County, Wyoming, $25,871 in Carbon County, Montana and $33,554 in Big Horn County, Montana in March, 2010. (U.S. Dept. of Commerce 2010b)

Table 3.13-2 Full Time and Part-time Employment by Industrial Sector - North American Industry Classification System (NAICS)

	Big Horn County, WY	%	Carbon County, MT	%	Big Horn County, MT	%
Farm	765	11.1%	674	12.0%	733	11.3%
Forestry and Fisheries	D		103	1.8	131	2.0
Mining	789	11.5	101	1.8	580	9.0
Construction	542	7.9	602	10.8	167	3.8
Manufacturing.	270	3.9	125	2.2	39	<1
T.C.P.U.[1]	333	4.9	166	3.0	228	3.5
Wholesale Trade	177	2.6	96	1.7	72	1.1
Retail Trade	D		541	9.7	452	7.0
F.I.R.E[2].	364	5.3	593	10.6	195	3.0
Services	1266	18.4	1846+	33.0+	976+D	15.1+
Government	1541	22.4	614	11.0	2382	37.0
Total ALL Employment	**6870**	**100.0**	**5599**	**100.0**	**6442**	**100.0**

Source: U.S. Dept of Commerce 2010a
[1] Transportation, Communication, Public Utilities
[2] Finance, Insurance, Real Estate
D= Non-Disclosure

Population

Population and population trends for the project area are shown on Table 3.13-3. Population in Big Horn County, Wyoming has increased by 9.1 percent between 1990 and 2008, 20.3 percent in Carbon County, Montana, and 13.2 percent in Big Horn County, Montana. Population in Wyoming as a whole has increased by 17.5 percent compared to Montana’s growth rate of 21.0 percent during the same time period. The project area has a very sparse population. Populations in both Lovell (2,325) and Greybull (1,774) have declined in the past 10 years, while the Basin (1,290) population has increased by 3.5 percent.

Table 3.13-3 Population Growth in the Project Area

	1990	2000	2008	% Increase 1990-2008
State of Wyoming	453,690	493,985	532,981	17.5
Big Horn County, WY	10,487	11,413	11,441	9.1
State of Montana	800,204	903,329	968,035	21.0
Carbon County, MT	8,077	9,563	9,718	20.3
Big Horn County, MT	11,313	12,662	12,809	13.2

Source: U.S. Dept. of Commerce 2010b; US Census Bureau 2010

The race composition of the project area is composed primarily of White and Native American ethnic backgrounds. The Big Horn County, Wyoming and Carbon County, Montana populations are over 96 percent White, with some Hispanic population represented. The Big Horn County, Montana population is over 60 percent American Indian since both the Crow Indian Reservation and the Cheyenne Reservation are located in Big Horn County (U.S. Census Bureau 2010).

Housing

The LV-YT No. 1 and No. 2 transmission lines are located near the town of Lovell at its southern end, and the town of Fort Smith at its northern end. The remainder of the transmission line is located in remote areas that have no temporary housing accommodations. There are limited temporary accommodations in both Lovell and Fort Smith. However, there are other towns within commuting distance of the transmission line project that could provide temporary short-term housing. Lovell has four motels with a total of 99 units, and Fort Smith has two motels with a total of 24 units. In addition, there are public and private campgrounds throughout the area that provide campground facilities. There are 174 camp sites available at campgrounds in and around Lovell and the Bighorn Canyon NRA and 15 RV sites in Fort Smith.

The BA-LV transmission line is located in close proximity to a number of towns that could provide temporary housing including Lovell, Greybull (8 motels - 100 rooms and 2 campgrounds), Basin (5 rooms), and Worland (6 motels - 183 rooms, 1 RV park and campground).

In addition to temporary housing, there is adequate permanent housing within commuting distance of the route throughout the project area. It is expected that unless the construction contractor is from out of state, transmission line workers could travel to and from their permanent residences on a weekly or daily basis.

3.13.1.2 Public Services

Public services throughout the project area are provided by various private and public entities, including counties, municipalities, special districts and private interests. Because of the minimal level of population impacts expected during the construction phase of the project, only public facilities which might potentially be impacted by accidents of transmission line construction will be covered in this section.

Emergency Services- Law Enforcement and Hospital

Emergency services provided in Big Horn County, Wyoming, and Carbon and Big Horn Counties, Montana, include fire, sheriff and police, ambulance, and hospital services.

Lovell-Yellowtail

Law enforcement services are provided by the County Sheriff Departments and the Lovell Police Department. The Big Horn County, Wyoming Sheriff is dispatched from Basin, Wyoming. Emergency services in Big Horn County include a volunteer fire department, Search and Rescue, and Citizen’s Emergency Response Team (CERT). Big Horn County, Montana has a sheriff’s department located in

Hardin and a volunteer fire department with 23 volunteers. Since much of the project area is remote, response times from any of the service providers to an emergency would be considerable.

Big Horn County Memorial Hospital serves Hardin and the surrounding area with 25 beds and a wide array of services including emergency, orthopedic, surgery, cardiac care, and geriatric services. Bighorn County Ambulance Service in Hardin provides emergency services.

Lovell is served by the North Big Horn Hospital with 15 beds and an ambulance service, as well as a nursing home with 94 rooms. The Lovell area has three doctors and one dentist.

Rocky Mountain Power and Montana Dakota Utilities provide electricity and gas services to the region.

Basin-Lovell

Basin, Greybull, and Worland (Washakie County) are the communities located within proximity of the BA-LV transmission line.

In addition to the services listed above for Big Horn County, Wyoming, the towns of Basin and Greybull each have a police force, ambulance, and volunteer fire department. The Basin ambulance can transport patients outside the area. The South Big Horn County Hospital is located between Basin and Greybull, which are approximately eight miles apart. The hospital has a seven-bed critical access facility, 24-hour emergency room, medical clinic, and nursing home.

The town of Worland is slightly south of the project area, but provides additional services within the vicinity of the project including motels, police, fire, ambulance, and hospital. The Washakie Medical Center provides full service health care and nursing services with 143 full-and part-time employees.

PacifiCorp, Rocky Mountain Power, Big Horn REA and Wyoming Gas provide electricity and gas to the region.

3.13.1.3 Environmental Justice

Under Executive Order 12898 (Federal Register 1994), federal agencies are required to identify and address disproportionately high or adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. A specific consideration of equity and fairness in resource decision-making is encompassed in the issue of environmental justice. As required by law and Title VI, all federal actions will consider potentially disproportionate negative impacts on minority or low-income communities. Minimal minority populations would be affected within the Proposed Project area.

Income levels throughout the project area are diverse. The most recent estimate of median household income was in 2008, and shows a range of $44,304 in Big Horn County, Wyoming, $47,802 in Carbon County, Montana and $37,798 in Big Horn County, Montana compared to the Wyoming and Montana state median incomes of $54,935 and $43,948 (U.S. Census Bureau 2010). The lower figures in Bighorn County, Wyoming and Big Horn County, Montana show that the economy in the project area is not as productive as the state as a whole in income generation. This is reflective of the components of agriculture and tourism in the local economies, which are typically lower income generators for individuals. The higher income in Carbon County, Montana is reflective of the oil and gas development in the area.

The most recent poverty status statistics are from 2008 Census Bureau data. These data showed poverty status for 11.4 percent (1,320) of the population in Big Horn County, Wyoming, 11.3 percent (1,102) in

Carbon County, Montana, and 24.5 percent (3,189) in Big Horn County, Montana (U.S. Census Bureau 2010). The Crow Indian Reservation is located in Big Horn County, Montana which raises the poverty rate in this county. Otherwise the poverty rate throughout the project area is comparable or lower than the Montana poverty rate. Since the economic base of the project area includes agriculture and tourism, low income areas are dispersed within the project area. People within the poverty status may reside along the route, but not in disproportionate numbers.

Table 3.13-4 highlights demographic statistics for identifying potential areas of concern.

Table 3.13-4 2009 Census Community Statistics for Environmental Justice Analysis

Population	Wyoming	Big Horn	Montana	Carbon	Big Horn
Total Population	544,270	11,581	974,989	9,756	13,015
Percent Below Poverty[1]	9.5	11.4	14.1	11.3	24.5
Percent White	93.5	96.1	90.3	97.5	35.0
Percent Black	1.4	0.2	0.7	0.3	1.0
Percent American Indian	2.6	0.9	6.4	0.9	60.0
Percent Asian	0.8	1.7	0.7	0.3	1.0
Percent Native Hawaiian or Pacific Islander	0.1	0.1	0.1		
Percent Other Race	1.5	1.0	1.8	0.9	3.0
Percent Hispanic Origin	8.1	8.5	3.1	2.4	5.6

Source: U.S. Census Bureau 2010

[1] 2008

3.13.2 Environmental Impacts and Mitigation Measures

3.13.2.1 Issues and Significance Criteria

Impacts to socioeconomics would be significant if:

- Minority or low-income populations are disproportionately affected by the transmission line rebuild.

3.13.2.2 Impacts of the Proposed Project

Proposed Lovell to Yellowtail and Basin to Lovell 115-kV Transmission Line Rebuild

Construction. Phase I of the LV-YT transmission line No. 1 (15 miles) and No. 2 (15 miles) rebuild project, within Bighorn Canyon NRA would begin in the fall of 2011 and be in service by 2013. Phase II construction of the LV-YT transmission line No. 1 (32 miles) and No. 2 (32 Miles) rebuild outside the Bighorn Canyon NRA and BA-LV line (39 miles) would begin in 2013 and should be in service by 2015.

The workforce would average five to six people per crew with two crews working 10-hour days (Trujillo 2008). It is expected that the workforce would be mostly local if a local contractor is hired and 60 percent to 70 percent non-local if an out-of-state contractor is hired. Work conducted on the Crow Reservation would require a Tribal Employment Rights Office (TERO) permit to meet requirements of the TERO Workforce Protection Act Ordinance revised and adopted in April 2009. Employment opportunities would exist for local tribal members on the Crow Reservation.

Construction workers would likely stay in RV campers or short-term rental units in different locations along the route. If local, some workers would commute to and from their permanent residence on a daily basis, if within one hour of the show-up area.

Four to eight staging areas of five acres each would be designated for the entire line. For Phase I of the rebuild project, two staging areas would be expected. Three to four stages would be expected for Phase II. The approved contractor would negotiate the location of the staging areas, which are typically on private land and would not affect transportation or use of public lands.

Median and mean hourly wage for electrical power line installers and repairers in the Billings, Montana labor market are $28.70 and $29.73 per hour, respectively (U.S. Dept. of Labor 2010a). Other construction wage rates for the skilled and unskilled construction workers range from $18.03 to $19.02 per hour in Montana (U.S. Dept. of Labor 2010a). A portion of this income would be spent in the local area of the transmission line construction for goods and services. This would have a beneficial short-term indirect impact on local businesses such as restaurants, service stations, and miscellaneous retail stores. In addition to local expenditures near the transmission line route, workers would also be contributing to their local economy in the form of local expenditures for goods, services, housing, insurance, entertainment, and food. These impacts would be considered beneficial and minor based on the short-term construction period, and the limited number of construction workers on the project.

A portion of the project cost would be spent in the local area on diesel fuel, fuel oil, and miscellaneous supplies and repairs (Trujillo 2008). This would be considered a positive short-term indirect impact to the local economy. Private land owners would be reimbursed for any crop losses from construction activities. It is likely that some of the workforce would come from the Billings area, depending upon where the contract is awarded.

Based on information provided in Section 3.13.1.1, temporary accommodations provided in the project area are more than adequate for the estimated 10 to 12 short-term employees.

Emergency services, including fire, police, ambulance, and hospital services would not be impacted by increases in population or employment during the construction phase of the Proposed Project. The only impacts that would affect the provision of emergency services within the project area would be a construction accident or possibly traffic impedance for short periods of time. Basic medical and emergency services, which may be required if an accident occurs, are available throughout the project area as described in Section 3.13.1.2.

Due to the minimal number of construction workforce (10 to 12 maximum for all crews), it is not expected that there would be adverse impacts on the local area population, employment, housing, or infrastructure.

It is Western’s policy that payment would be made on full value for crop damages or other property damage during construction or maintenance until the property was restored to productivity.

Maintenance. The maintenance phase of the project would have little or no impact on population, employment, housing, or local infrastructure. The same number of operations workers would maintain the rebuilt line as maintains the current line. Maintenance activity could actually be less, considering the improved reliability of the rebuilt line. Reduced maintenance costs and fewer outages would economically benefit both the provider and customers.

Environmental Justice

Neither low income nor minority populations would be disproportionately impacted by the Proposed Project. As described in Section 3.13.1.3, the economic base of the area is predominately mining, agriculture, and tourism. Segments of the population are lower income, particularly on the Crow Indian Reservation, due in part to a typically lower income generated in the agricultural sector. However, families within the defined poverty status represent between 11 and 24.5 percent (in 2008) of the population. The highest level of poverty occurs on the Crow Indian Reservation in Bighorn County, Montana (24.5 percent). As the project would be located in a remote area, no poverty status population would be affected by the rebuild project. No new areas would be impacted by the Proposed Project or substation modifications.

The Proposed Project and substation modifications would not have a disproportionately high or adverse effect on minority or low-income populations, or affect the property values of minority or low-income populations. No substantial, adverse, long-term impact to low-income or minority populations would occur.

3.13.2.3 Impacts of the Alternative

Alternative A - LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Impacts would be similar to those described for the proposed LV-YT and BA-LV Transmission Line Rebuild.

3.13.2.4 Impacts of the No Action Alternative

The No Action Alternative would preclude employment for an estimated construction workforce of 10 to 12 for the proposed transmission line rebuild. Income generated in the form of direct wages to employees and direct expenditures by the transmission line contractor and Western would not be filtered into the local economies adjacent to the route. However, maintenance workers would actively maintain the lines, and maintenance expenditures in the area would occur and could increase over time as structures deteriorate and require increased maintenance.

3.13.2.5 Mitigation Measures

No Project Specific Mitigation Measures are recommended.

3.14 Transportation

3.14.1 Affected Environment

The project area for transportation and communications include the regional and local roads that may be used to access the project ROW and substation sites. The transportation system in the project area is predominantly automobile oriented, relying almost exclusively on public roads and highways. Surface transportation in the area is provided by a network of primary, secondary, and local roads.

The project area is located in a remote area of north-central Wyoming and south-central Montana. Only a portion of the immediate project area for the LV-YT segment is served by a paved road, while the BA-LV segment is relatively easily accessible from major US Highways. Access roads to the project area include one interstate highway (I-90); US Highways 14, 14A, 16, 20, and 310 in Wyoming; Wyoming State Routes 30 and 37; Montana State Routes 313 and 418; BIA Route 192; Big Horn County Wyoming County Roads 9.5, 11.5, 12.5, 13, 13.5,and 24.5, County Lane 39, Greybull River Road, Elk-Lovell Canal Road, and Main Street; Big Horn County Montana County Roads 10, 12, and 211, Pryor-St Xavier Highway, Muddy Creek Road, Indian Road, Fort Smith Avenue, and First Street; and in Carbon County, Montana, Dry Head Creek Road.

Most of the local and secondary roads are gravel, dirt, or four-wheel drive. Many of the access routes in the LV-YT project area are decent two-track routes that are not considered all weather. Between the end of the paved State Route 37 (Bighorn Canyon Road) in the Bighorn Canyon NRA, and Yellowtail Dam, only light duty and ranch roads provide access to the ROW. Otherwise, undesignated roads and Western's ROW provide the only access to the line. The northern portion of the line is a more rugged two- track route all the way to the Yellowtail Dam. From the Lovell Substation to within 0.5 to 1 mile of the Crow Indian Reservation the unpaved portion of the road is improved gravel with culverts and crossings (Bighorn Canyon Road).

Other county, local, and ranch roads providing access to the LV-YT transmission line are not regularly maintained but generally are in fair to good condition, depending on the season and weather. The two-track access roads are not heavily used and are not maintained often. Ranchers, agency personnel and some hunters, fishermen, and other dispersed recreationists utilize these roads.

Roads accessing the BA-LV line are generally well-maintained gravel roads. Some sections of the existing line ROW are not easily accessible due to drainage crossings. The primary Interstates, U.S. Highways, and State Routes are hard surface and well maintained.

3.14.2 Environmental Impacts and Mitigation Measures

3.14.2.1 Issues and Significance Criteria

Impacts to transportation would be significant if:

- Use of public highways and roads was restricted, resulting in adverse impacts to emergency response capability or economic hardships to local businesses;
- Construction, operation or maintenance caused access impedance to cultivated farmland.

3.14.2.2 Impacts of the Proposed Project

Transmission System – LV-YT and BA-LV Transmission Line Rebuild

Impacts to transportation would be associated with construction-related traffic on the major and local transportation systems within the project area. Large truck traffic and traffic associated with employees traveling to and from the job site on a daily basis would potentially impact the transportation systems within the area.

For the Proposed Project, five to eight staging areas would be located along the transmission line route (Korhonen 2010). Construction materials would be stored at the temporary staging areas, with material hauled to the staging areas using existing access roads. Generally the contractor would negotiate staging areas with a private landowner. At this time the staging areas are not known, however, it is assumed that they would be located on private land easily accessible from the transportation route, and would not impact public access routes.

During the construction of Phase I, Western estimates that two construction crews, of five to six persons would complete construction along the ROW. Sequential activities for project construction would entail site clearing and grading, material hauling, pole excavation and replacement, conductor stringing and tensioning, pole disposal/cleanup, and road restoration.

The two construction crews would travel to and from the respective show-up area (where the job trailer is located) each morning and evening. The show-up area is not the same as the staging area. Based on the number of workers per crew, the peak construction workforce would be a maximum of 12 vehicles. Some workers would carpool to and from the show-up area from where they are residing, reducing the number of vehicles on the roadways. Crews would work a 10-hour day (from sun-up to sun-down). On average the construction crews could complete 10 to 12 structures per day. However, the 2 crews would be working on different components of the line (demolition, hauling, setting, or stringing), and therefore progress along the route would range widely, from 4 to 8 miles per month (Korhonen 2010).

The routes that would be affected from transportation of materials and workers for the project would potentially include the highways and routes described in Section 3.14.1, with Wyoming State Route 37 the primary access route for the southern portions of the LV-YT transmission line, and various Montana routes (313 and 418), BIA route 192, and other county roads the primary access for the northern portion of the LV-YT line.

For Phase I the sole access would be from the south, along Wyoming State Route 37 through the Bighorn Canyon NRA and the gravel continuation of this route. One new access route would be constructed within the Bighorn Canyon NRA. Spur roads could be constructed to access certain structures. Approximately 12.6 acres of abandoned roads in the NRA would be reclaimed after construction. The reclamation of abandoned roads would be considered a long-term, direct, beneficial impact to the project area.

Access roads would cross drainages twelve times during Phase I of construction on the LV-YT line. Culverts currently exist at eight of these crossings, and three additional culverts would be installed: two at locations within the Bighorn Canyon NRA (an unnamed tributary to Crooked Creek, and Layout Creek), and one located within private property in the Crooked Creek Drainage. There is one unimproved crossing of a tributary to North Fork Trail Creek where there is no defined channel. There would be 3.46 miles (12.6 acres) of reclaimed redundant access roads within the NRA boundary and 0.28 miles (1.03 acres) of new access road constructed during Phase I (see Section 3.5).

The transmission lines in Phase II would be accessed from the south and north, depending upon the segment of line being constructed using the routes described above for the LV-YT line. For the BA-LV segment of Phase II, US Hwy 20 and US Hwy 310 would be the major primary access routes.

Access roads would cross drainages fourteen times during Phase II of construction of the LV-YT line. Five of these drainages are crossed via culverts, and one is crossed by a bridge. Installation of culverts is planned at three locations within private property. One rock crossing is planned at a tributary to Grapevine Creek within the Crow Reservation. The remaining four crossings are located along BIA Road 129 and would remain unimproved crossings.

Access roads would cross a total of 91 ephemeral drainages during Phase II of construction of the BA-LV line. There are a total of 15 culverts located within access roads along this segment crossing 11 drainages. There are 80 unimproved crossings of ephemeral drainage.

Access and ROW roads for the BA-LV line would need to be improved at nine crossings as shown in Section 3.5 (Water). There would be six culvert installations along the line; one culvert crossing at South Elk Creek, three culvert crossings on tributaries to Bighorn River, and two culvert crossings on tributaries to Sand Draw. Rock crossings would be constructed at Elk Creek and at a ditch located immediately south of the Greybull River (between structures 56-7 and 56-8).

Traffic impacts related to truck transportation of materials and supplies would be sporadic throughout the demolition and construction periods. Structures would be removed and stockpiled along the route, then removed from the area during demolition. New structures would be stockpiled at staging areas and brought to the construction site either assembled or partially assembled. Typical equipment used in the dismantling and construction of the transmission lines would include the following: pick-up trucks, blade, tractor trailer, hydrocrane, flat bed truck, tractor with auger, bobcat backhoe, crane (50 to 100-ton capacity), reel trailer, tensioner, puller, digger, winch truck, bucket truck, and hydroseeder. Generally, a maximum of four trucks would be at a particular site location at any one time, considering the sequential manner in which demolition and construction would occur.

Only minor traffic delays or interference with the project area highway system would result from project construction. Transmission line removal and construction techniques should not require even temporary closure of main highways. Users of smaller gravel access routes or local collector streets may experience some minor delays. Western would work closely with state and county road departments, so that crossings are posted and detours provided where necessary (TRANSPORTATION -2).

The highways providing access to the transmission line ROWs have adequate capacity to handle both construction worker traffic and truck traffic associated with demolition and construction of the rebuilt line. It is expected that only minor short-term impacts would occur to the transportation or communication systems within the project area due to the short duration of the construction activity. However, potential impacts may occur on dirt roads from transport during wet weather conditions. Western Standard Construction Project Practices GEN- 1 and GEN-4 (Table 2.1-3) would be implemented to minimize these impacts. No emergency access would be impeded or permanent changes to the transportation or utility systems would occur. Western Standard Construction Project Practice TRANSPORTATION - 2 (Table 2.1-3) would be implemented to reduce the impacts to transportation.

Operation and maintenance of the line would likely require fewer trips with the rebuild due to the improved efficiency of the line. Transportation impacts would be reduced with the Proposed Project. Direct impacts to the transportation system and traffic along the access routes to the transmission line rebuild would not be considered adverse. The impacts would be short-term and negligible.

Yellowtail, Lovell, and Basin Substation Modifications

All modifications to the Yellowtail, Lovell, and Basin Substations would occur within the existing substation footprint. All substations are easily accessed. No adverse transportation impacts would be expected, and construction impacts would be short-term and negligible. Access to the sites would be from Montana Route 313 (Yellowtail), US Highway 310 and County Rd 12.5 (Lovell), US Highway 20 and a secondary county road (Basin). These roadways have adequate capacity for workers, materials, and equipment. Impacts to the transportation system and traffic conditions would be short-term and negligible.

3.14.2.3 Impacts of the Alternatives

Alternative A - LV-YT 115-kV Wood Pole H-Frame and Double-Circuit Single-Pole Steel Structure Variations

Impacts would be similar to those described for the Proposed Project for the LV-YT portion of the line. However, the impact on these routes would be greater considering the larger equipment required to build the transmission line with 115-kV double-circuit single-pole steel structures. Additional maintenance or improvements on these access routes may be required during the construction period due to heavier use than expected for the Proposed Project. These improvements would be the responsibility of Western or Western's contractor. Some minor traffic delays may occur along Wyoming State Route 37, Montana State Routes 313 and 418, BIA Route 192, and on local and county routes throughout the LV-YT project area during the construction period.

Improved and unimproved drainages crossed by construction vehicles and equipment may require additional fill and increased maintenance in order to ensure travelable conditions during adverse weather. Transportation impacts would be direct, adverse, and minor to moderate for the short-term construction periods.

3.14.2.4 Impacts of the No Action Alternative

The existing transportation system would remain the same in the region with the No Action Alternative. Over time, more frequent maintenance activities would be required for the 115-kV transmission line. Negligible impacts to traffic or transportation systems would occur, however.

3.14.2.5 Mitigation Measures

Western Standard Construction Project Practices GEN-1, GEN-4, TRANSPORTATION-1 and TRANSPORTATION-2 (Table 2.1-3) would avoid or minimize impacts to transportation resources to a negligible adverse impact level throughout the project area. No additional transportation mitigation measures are recommended.

3.15 Public Health, Safety, and Noise

This section discusses the existing environment related to human health, safety, and noise within the project area. Health and human safety issues were reviewed to identify potential impacts related to electrical shock hazards and electric and magnetic field (EMF) exposure and noise impacts.

EMF. Current flows can pose a safety hazard from electrical shock that would occur due to contact with live electrical conductors or transmission lines. The existing electrical shock hazards in the project area include the transmission line itself and the local electrical distribution lines that run to existing farms and residences.

Long-term exposure to EMFs induced from electrical currents and voltages have been postulated to affect human health and have been the subject of a number of scientific studies. Induced EMFs may be present in the vicinity of any live electrical conductor, transmission line, or end-use electrical equipment or appliance. Existing EMF exposure sources would be found near local electrical lines that run to existing farms and residences; around existing electrical equipment and appliances at these farms and residences; and near the LV-YT and BA-LV 115- kV transmission lines and project substations.

Corona is a luminous discharge from the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors. Corona is of concern for the potential to contribute to power loss, radio and television interference, audible noise (60 cycle hum), and photochemical reactions. Corona can occur on the conductors, insulators, and hardware of an energized high-voltage transmission line. Corona on conductors occurs at locations where the field has been enhanced by protrusions, such as nicks, dust, insect, or drops of water. During fair weather, the number of these sources is small, and the corona effect is insignificant. However, during wet weather, the number of these sources increases and corona effects are much greater (DOE 2005).

The Electric Power Research Institute (EPRI) reports that “Corona and arcing activity may occur at numerous points in overhead transmission substation, and distribution power systems. This activity may result in audio noise or radio interference complaints or indicate a defective component that may be close to failure. If the offending component can be located, it can be replaced.” (EPRI 2001).

Audible Noise. Corona-generated audible noise from transmission lines is generally characterized as a cracking or hissing noise. This noise is most noticeable during wet weather conditions. Audible noise from transmission lines is often lost in the background noise at locations beyond the edge of the ROW.

MDEQ has an Administrative Rule of Montana 17.20.1607(2) (a) (i) which states, "(2) The department must condition its approval of a facility on the following standards: (a) for electric transmission facilities, that average annual noise levels, as expressed by an A-weighted day-night scale (L_{DN}) will not exceed: (i)50 decibels at the edge of the right-of-way in residential and subdivided areas unless the affected landowner waives this condition;"

Noise will not affect the few residences within proximity of the project ROW. The Pryor Mountain Estates subdivision will not be affected by noise. Western completed an analysis of audible noise for the LV-YT lines. A worst case scenario during heavy rain conditions showed that audible noise for the line slightly exceeded 18 dB at the edge of the ROW. This is well below the Montana standard which states that the line should not exceed 50 dB at the edge of the ROW.

3.15.1 Affected Environment

Affected land uses for potential public health and safety issues related to the Proposed Project include areas where people live, work or otherwise frequent regularly and for extended periods of time. These places include residential dwellings, schools or health care facilities.

3.15.1.1 Nearby Residences and Businesses

The project study area can be characterized as rural in nature, and is generally used for agriculture. Residences in the area are few and widely scattered. Table 3.15-1 shows residences and businesses within 0.5 miles of the transmission lines as identified by GIS aerial reconnaissance.

Table 3.15-1 Residences and Businesses within 0.5 miles of the LV-YT and BA-YT Transmission Lines

	LV-YT Line	**Distance from Transmission Line (miles)**	**BA-LV Line**	**Distance from Transmission Line (miles)**
Residences	1	0.25	8	< 0.5
Commercial Properties	1	< 0.5	2	< 0.5

These residences and businesses have been in proximity to the existing transmission lines since the lines were built in the 1950's.

3.15.1.2 Schools and Health Care Facilities

A review of maps and information from several databases did not identify any public schools or health care facilities within 1.5 miles of the Proposed Project.

3.15.2 Environmental Impacts and Mitigation Measures

3.15.2.1 Issues and Significance Criteria

Issues related to public health and safety include the project's potential to create electrical shock hazards and to create possible health effects due to EMF exposure.

The Proposed Project or action alternatives would have significant impacts on public health and safety if:

- Risks of electrical shock or health effects from EMFs increased measurably beyond existing risks and could not be mitigated.

3.15.2.2 Impacts of the Proposed Project

The Proposed Project would create potential electrical shock hazards near electrical transmission wires and connections associated with the transmission lines. These potential hazards are the same as for the existing transmission lines and facilities. These potential impacts would be mitigated by controlling access by unauthorized individuals and would represent an insignificant impact to human health and safety.

All facilities are built to current National Electrical Safety Code (NESC) standards and access to the electrical facilities (substations) is restricted. Safety signs warning of the imminent danger from electrical shock within the facility bounds would be affixed to the perimeter fence exterior.

All of Western's transmission lines are designed and constructed in accordance with NESC standards to minimize shock hazard. Construction of the Proposed Project would comply with all NESC standards to ensure that the Project meets safety and electrical hazard standards. This would include standard grounding practices to minimize the possibility of nuisance shocks caused by induced currents from stationary objects such as parallel wire fences.

The transmission line will meet all of the state of Montana standards and Wyoming's guidelines for Transmission Lines pertaining to Electric Fields on and to the edge of the ROW.

Montana's standards state the electric field at the edge of the right-of-way will not exceed one kV per meter measured one meter above the ground in residential or subdivided areas unless the affected landowner waives this condition, and that the electric field at road crossings under the facility will not exceed seven kV per meter measured one meter above the ground. The electric field for the LV-YT and BA-LV transmission lines is 0.69kV/m at the edge of the ROW measured one meter above the ground. At no point along the ROW is the line ever close to a value of 7kV/m, so the Montana standards for electric fields are also met at road crossings.

Potential health effects of extremely low frequency (ELF) EMFs near electrical devices and power lines have been the subject of public concern and of ongoing research and study. A 1999 report by the National Institute of Environmental Health Sciences (NIEHS) concluded the scientific evidence is weak that suggests ELF-EMF exposures pose any health risk (NIEHS 2002). Some association between exposure of human populations and cancer risk was found through epidemiological studies; however, that association was not corroborated by experimental data. The NIEHS researchers stated that "the interaction of humans with ELF-EMF is complicated and will undoubtedly continue to be an area of public concern." They recommend continued emphasis on educating the public and the regulated community on means of reducing exposures. The potential for EMF exposure from the transmission lines is greatly diminished since the Proposed Project is located in a rural, undeveloped area with mostly significant buffer distances to the nearest residences. Exposures to EMFs in the immediate vicinity of transmission equipment would be limited by controlling access to those facilities (see Appendix H). For these reasons, direct, indirect, and cumulative impacts are not expected to be significant.

3.15.2.3 Impacts of the Alternatives

Impacts of Alternatives A1 and A2 are considered identical to the impacts of the Proposed Project and the No Action Alternative.

3.15.2.4 Impacts of the No Action Alternative

Impacts of the No Action Alternative are considered identical to the impacts of the Proposed Project and the action alternatives.

3.15.2.5 Mitigation Measures

Potential adverse impacts to human health and safety would be avoided by implementing Western Standard Construction Project Practices EMF-1 and EMF-2 (Table 2.1-3). No Project Specific Mitigation Measures are proposed.

3.16 Cumulative Impacts

Cumulative impacts are those additive or interactive impacts that would occur due to the Proposed Project or action alternatives in relation to other past, present, and reasonable foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions.

3.16.1 Reasonably Foreseeable Development

As of October 2010, no recent submittals for reasonably foreseeable projects had been submitted to any of the county planning departments in the vicinity of the Transmission Line Rebuild Project. However, two bentonite mine expansions within the LV-YT and BA-LV project area have been approved by the BLM Cody Field Office. A third project is under review. The Wyo-Ben Inc. North Emblem bentonite expansion project is located immediately adjacent to the proposed BA-LV rebuild, approximately 10 miles southeast of Lovell. This project would disturb an additional 543.5 acres of land within an existing mining site. The Wyo.-Ben, Inc. Bend project is located approximately 10 miles northeast of Lovell and would disturb an additional 78.2 acres of land within an existing mining site. The third project under review is located 5 miles northeast of Greybull and would include 5 additional acres of disturbance. Bentonite mining is abundant within the project area and other Plans of Operations could be submitted to the BLM at any time.

The American Colloid Company operates a bentonite plant two miles outside of Lovell adjacent to the LV-YT ROW.

Previous project submittals in the area include the Transpark Road Bighorn Canyon NRA which was proposed in 1974. Local Lovell residents are interested in reviving this project for economic reasons, but to date the Crow Tribe has not coordinated with these proponents. The proposed Transpark Road would cross through the Bighorn Canyon NRA from Lovell, Wyoming to Fort Smith, Montana. The road would complete a 50-mile route through the Bighorn Canyon NRA and the Crow Reservation. This project is highly speculative at this time since the Crow Tribe has not shown much interest in the project.

As of October 2010, plans for the $7 billion dollar coal-to-liquids plant on the Crow Reservation are still official; however, the economic downturn has affected the startup date for the project. The expected ground breaking for the coal mine is 2011 (Cameron 2010). Officials announced the "Many Stars Project" in August 2008. The Crow Tribe and Australian-American Energy Company plan to extract coal and build a coal to liquids plant that would process the coal into diesel and other fuels. The project would be located between 20 and 35 miles east of the existing transmission lines. The plant would use 10 billion tons of coal reserves, and construction would begin in 2012. It is expected to produce 50,000 barrels of fuel per day and provide over 4,000 jobs for the Crow people. The plant is expected to open in 2016 if economic conditions are conducive to development. On April 29, 2009 the final project agreements between the Crow Tribe and Australian-American Energy Company were signed.

The reservation also has oil and gas reserves and some land is currently drilled for gas production. Fifteen million acres have potential for oil, gas and coal development. Oil, gas, and coal projects are highly dependent on economic conditions in the US and the world. Currently, the timeframe for all oil, gas, and coal development is undetermined.

Other Crow Tribe developments include a hotel and restaurant associated with the Little Bighorn Casino in Crow Agency, Montana and a health and wellness center at the Little Bighorn College (Left Hand 2010; He Does It 2010). Additionally, the Two Rivers Trade Association has an 800-acre industrial site with a detention center up for lease and negotiations on a coal related industrial project in process (McDowell 2010).

The Pryor Mountain Estates in Montana is subdivided 30-acre parcels with approximately 12 owners (according to Certificate Survey No. 1023, Carbon County, MT). Currently one existing residence (lot #14) is located within the subdivision. The remaining lots are not likely to develop in the near future, however, the subdivision is approved and platted and therefore could be considered a reasonably foreseeable project. The Pryor Mountain Estates are located in Sections 6 and 7 of Township 8S Range 29E, in Carbon County, Montana.

3.16.2 Cumulative Environmental Impacts for Resource Topic

Climate and Air Quality

Because of the nature of the Proposed Project, potential air quality impacts would be minor, localized, temporary, and short-term. Therefore, there would be little likelihood of cumulative impacts occurring with other sources of air pollution. Should cumulative impacts occur, neither the Proposed Project, action alternatives, or the No Action Alternative would cause or contribute to a violation of any applicable standards. Because the Proposed Project would not affect local climatic conditions there would be no cumulative impacts on climate.

Geology and Paleontology

Geology: Cumulative impacts to geology are not expected if measures for construction described in Sections 2.1.7 and 2.1.8 were followed during construction and maintenance of the new transmission line.

Paleontology: Cumulative impacts to paleontological resources would not be expected. However, fossil resources of scientific importance are rare, and predicting exactly where they may occur is difficult. Although it is unlikely that they would be encountered during the Proposed Project, the action alternatives, or other reasonably foreseeable projects, fossils could be encountered and impacted. Loss a scientifically significant fossil would be an adverse impact. If several are lost, this would be a substantial cumulative impact. However, the likelihood of cumulative impacts would be lessened if Western's Standard Construction Project Practices are implemented including Project Specific Measure PALEO-PS-1.

Cumulative beneficial consequences, including the recovery of scientifically significant fossils, could occur anywhere in the project area. The fossils would need to be properly recovered, catalogued into the collections of a museum repository and made available for study and scientific evaluation. An additional positive benefit would be increased access for professional, permitted paleontologists and geologists.

Water Resources and Floodplains

Surface Water: The proposed rebuild project would not directly impact surface water and thus no direct cumulative impacts would occur. The project would cause a small incremental increase in the potential for indirect, short-term surface water impacts such as stream sedimentation and possible pollution from spills, over and above existing impacts from agricultural activities. Because the overall short-term disturbance area is small and because Western would use best management practices to avoid surface water pollution, indirect, cumulative impacts to surface waters would be minor to moderate and of short duration.

Floodplains: Waters of the U.S. (WUS) are protected under the Clean Water Act, and many floodplains are defined as WUS. The rebuild projects and each reasonably foreseeable project described above would comply with Clean Water Act regulations to protect these areas; therefore, cumulative impacts to floodplains and wetlands would be minor and of short duration. Maintenance activities would not impact floodplains or wetlands and would not cause additional adverse cumulative impacts.

Ground Water: The proposed rebuild projects are not expected to adversely impact ground water resources. Any dewatering from construction would be mitigated locally and cumulative ground water impacts are expected to be negligible and of short duration.

Wetlands

The Proposed Project would result in relatively minor direct and indirect impacts to wetlands as described in Section 3.5.2.2. Direct impacts would include short-term increases in sedimentation at stream crossings, short-term compaction of wetland vegetation from construction traffic, and a few relatively minor (less than 0.1 acre per drainage) fill impacts to wetlands and other WUS. Indirect impacts would result from an incremental increase in the risk of sedimentation and pollutant spills into wetlands and WUS. Because of this, the relatively short-term nature of construction activities (3 years), and Western's use of best management practices to avoid indirect sediment and accidental spill release into wetlands and WUS, direct, indirect, and cumulative impacts to wetlands and WUS would be minor and of short duration.

It is unknown if any of the foreseeable projects discussed under Section 3.16.1 would impact wetlands or WUS. Any impacts to jurisdictional wetlands or WUS over 0.10 for a given project would be regulated by the USACE under Section 404 of the Clean Water Act, and USACE mitigation requirements would keep long-term cumulative losses of jurisdictional wetlands and WUS to a minimum.

Upland Vegetation

Foreseeable projects include a housing development, industrial park/detention facility, and three bentonite mine expansions. Other foreseeable developments include a coal mine and liquid fuel processing plant, as well as a casino, located on the Crow Indian Reservation. In relation to these foreseeable projects there would not be a substantial cumulative loss of vegetation communities from Western's Proposed Project since these impacts would be minor to moderate and short-term to long-term, ceasing once construction is complete and revegetation is successful. Cumulative vegetation community loss associated with structures would be long-term, but minor.

Soils

Foreseeable projects include a housing development, industrial park/detention facility, and three bentonite mine expansions. Other foreseeable developments include a coal mine and liquid fuel processing plant, as well as a casino, located on the Crow Indian Reservation. These projects would result in a loss of soil productivity from construction and operation. Impacts to soils from Western's Proposed Project would be minor to moderate and short- to long-term returning pre-disturbance soil productivity to all but approximately 0.2 acres associated with structure footings.

Wildlife

The Proposed Project would not result in a long-term decrease in economically or ecologically important wildlife populations, or result in a population trend for any species that would require its listing as federal threatened or endangered. There would be no violation of statutes or regulations pertaining to wildlife, as long as Project Specific Mitigation Measure WILDLIFE-PS-1 is implemented (see Section 3.8.2.4). There would not be a substantial loss of wildlife habitat or interference with movement of any native, resident or migratory wildlife species for more than two reproductive seasons. Therefore, most cumulative impacts to wildlife resulting from project implementation would be relatively minor and short-term, ceasing once construction is complete. Cumulative habitat loss associated with structures would be long-term, but similar to existing conditions and relatively minor. The risk of avian collisions with powerlines and structures would be long-term, but also relatively minor based on existing conditions.

All of the foreseeable projects discussed under Section 3.16.1 would result in long-term and additional cumulative loss of wildlife habitat and impacts of human disturbance extending beyond the actual direct land disturbance boundaries. In addition, road and energy development projects would have the potential to result in long-term habitat fragmentation and disruption of wildlife movement patterns.

Threatened, Endangered, and Other Special Status Species

The Proposed Project would not result in impacts to federal threatened, endangered, or proposed species as indicated in Section 3.9.2.2. There may be a small number of minor short-term and long-term impacts to sensitive species, or species of concern, plant habitats, but it is unlikely that these impacts would jeopardize the continuing viability of these species or result in a trend toward a listing as federal threatened or endangered. Few habitats of sensitive wildlife species would be affected by direct disturbance. Short-term and localized displacement of sensitive wildlife species within the analysis area would not have any indirect adverse effects on local populations, if they exist, and would not result in a trend towards federal listing or cause a loss of population viability for any of these species. Because of this, the relatively short-term nature of construction activities (3 years), and Western’s use of best management practices to minimize habitat disturbance and revegetate temporary disturbance areas, direct and indirect cumulative impacts to BLM sensitive and other state species of concern would be minor and of short duration. Implementation of Project Specific Mitigation Measure T&ESSS-PS-1 would preclude any impacts to nesting burrowing owls or ferruginous hawks.

All of the foreseeable projects discussed under Section 3.16.1 would result in long-term and additional cumulative loss of wildlife and plant species of concern habitat and impacts of human disturbance on sensitive wildlife species extending beyond the actual direct land disturbance boundaries. In addition, road and energy development projects have the potential to result in long-term habitat fragmentation and disruption of sensitive wildlife movement patterns. Whether or not foreseeable projects could affect the viability of populations of sensitive species is unknown. Future potential cumulative impacts to federal threatened, endangered, and proposed species are unknown, but they would be regulated under the Endangered Species Act.

Cultural Resources

Cumulative impacts to cultural resources directly related to this project would be minor since the Proposed Project is within an existing utility right-of-way. Most of the potential impacts discussed in Section 3.10 did, in fact, occur at the time of initial construction and will continue to occur regardless of which alternative is selected. Any impact to cultural resources and TCPS are substantial and noticeable, long term impacts, but all action alternatives of the current proposed project would make only a minor contribution to those cumulative impacts. Use of the existing utility corridors would result in few, if any, new sites with each intervening project. Cumulative impacts would be minimized through implementation of measures to protect historic resources, prehistoric resources, and sites important to Native American heritage. CULT-PS-1 ensures that, regardless of alternative, cultural resources will be avoided or mitigated and CULT-4 ensures that inadvertent discoveries will be treated appropriately.

Land Use – Existing and Planned

The Proposed Project would make a minor contribution to cumulative land use impacts resulting from the reasonably foreseeable future projects discussed in 3.16.1. Future actions that could impact the land use character of the region to the greatest degree are the Transpark Road Bighorn Canyon NRA, and the Many Stars Project coal to liquids plant, as well as future coal mining from the Crow Reservation reserves and bentonite mining within the LV-YT and BA-LV transmission line project area. Most of these projects, except the bentonite mining, are speculative, and would be beyond the construction period of this project and likely well into the future. The Proposed Project would not alter the current land use conditions adjacent to the Pryor Mountain Estates, however future development within the subdivision would change the land use character from predominately rural to rural residential. The Proposed Project or action alternatives would not change the land use character of the area, as the Proposed Project and action alternatives consist of replacing and modifying existing transmission lines within established utility corridors.

The project would provide a reliable source of power that would allow future development to occur, and the availability of adequate power supplies could contribute to growth and development in the region. Most development in rural Big Horn County, Wyoming and Carbon and Big Horn County, Montana would be agricultural, tourism, or resource based. Because of the vast amount of public and private agricultural, rangeland, and tourist based activities in the project area, land use activities and characteristics are unlikely to change significantly. The Proposed Project or action alternatives would not directly cause or contribute to long-term cumulative impacts to land uses, but would improve landscape characteristics with the improvement of approximately 12.6 acres of abandoned roads within the Bighorn Canyon NRA.

Visual Resources

The cumulative visual impacts of the Proposed Project with other reasonably foreseeable developments and actions consist of minor impact contributions to the conversion of regional natural landscapes for energy, transportation and residential developments. Cumulative visual impacts could result along the LV-YT lines if the Transpark Road or the Many Stars Project coal to liquids plant were constructed. If the Transpark Road was constructed, the Proposed Project would be more visible from currently inaccessible areas of the Bighorn Canyon NRA and the Crow Indian Reservation. Potential coal developments on the Crow Indian Reservation could have cumulative impacts by reducing air quality and visibility of the proposed 115-kV lines within the Bighorn Canyon NRA and from nearby WSAs. The Proposed Project would also result in minor contributions to cumulative visual impacts to the project area due to the close proximity of the transmission line to recently approved or pending bentonite mine expansion and haul road projects. These facilities would be within the foreground-middleground distance zone of Highway 310, and would be viewed in conjunction with the proposed transmission line improvements. The Proposed Project’s contribution towards cumulative effects is minor, however, given the weak changes the project would cause compared to these larger regional projects.

Socioeconomics and Community Resources (including Environmental Justice)

The Proposed Project or action alternatives would make a minor and short-term contribution to potential cumulative socioeconomic impacts relative to construction and operation of the other reasonably foreseeable projects discussed in Section 3.16.1. Build-out of these projects could contribute to changes in local population, employment, housing, public services and facilities, the economy, and the transportation network. Many of these projects would affect the overall socioeconomic environment of the project area, primarily in the areas of increased population and employment, increased demand for scarce temporary and permanent housing, increased income in the project area, and increased revenues generated. Specific projects that would most affect the socioeconomic character of the project area are the Transpark Road Bighorn Canyon NRA, the Many Stars Project coal to liquids plant, and future coal mining on the Crow Reservation. These projects, if developed to full build-out, could spur substantial growth in the area.

It is difficult to identify the secondary growth effects and induced growth in commercial and residential activity related to development of a new coal to liquids plant, coal development, or the effect on tourism in the area from the Transpark Road. Demand for employment could reduce the unemployment rate in the area, the economy would be stimulated, personal income area-wide would increase due to increased employment, direct expenditures from development activity, indirect expenditures from the employed workforce to the local area businesses, and revenues to local and state government coffers would increase from increased property, income, and sales taxes. In addition to these positive impacts, the potential influx of new people could put extra pressure on a housing market within the study area. Certain projects could affect the provision of services by the local governments. However, all of these projects are speculative and unlikely to develop in a timely manner.

The LV-YT and BA-LV Transmission Line Rebuild Project would have a very minor contribution to these cumulative socioeconomic changes since project-related effects would be short-term and occur primarily during project construction in the next 2 to 3 years. The project would not necessarily generate additional interest in developing residential, commercial or industrial projects in the area due to increased electrical reliability.

Transportation

During construction, the Proposed Project would result in short-term and minor impacts to local transportation along some local roads. Impacts to transportation would result from the intermittent presence of construction crews, vehicles, and the associated increase in traffic. The Proposed Project contribution to cumulative impacts is considered short-term and negligible. Over the long-term, the Proposed Project would not change traffic-related activity throughout the project area.

3.17 Intentional Destructive Acts

Transmission line projects and other installed infrastructure such as the LV-YT and BA-LV Transmission Line Rebuild Project may be the subject of intentional destructive acts ranging from vandalism and theft to sabotage and acts of terrorism intended to disable a line or project. The former, more minor type of act is far more likely for such projects in general and particularly for those like the Proposed Project, which are in relatively remote areas and serve relatively small populations. Intentional sabotage or terrorist acts would not be expected to target these electrical facilities, where a loss of service would not have substantial regional impacts.

Theft is most likely to involve substation and switchyard equipment that contains salvageable metal (e.g., copper and aluminum) when metal prices are high. Vandalism, on the other hand, is more likely to take place in relatively remote areas, and perhaps more likely to involve acts of opportunity (e.g., shooting out transmission line insulators, shooting at the blades on a wind generator) than premeditated acts.

With respect to the Proposed Project, certain project facilities, such as the substations, would be protected from theft and vandalism by fencing and alarm systems. The presence of high voltage would also discourage theft and vandalism. The relatively remote location of the Proposed Project would tend to reduce vandalism on the whole, because of the small number of people who would be expected to encounter the line. However, this same remoteness might encourage a rare act of opportunistic vandalism. Such occurrences would be infrequent and would be vigorously investigated and prosecuted to discourage further acts. Vigorous prosecution of thieves and monitoring of metal recycling operations might deter the theft of equipment. Similarly, the prosecution of vandals who have damaged or destroyed project equipment might discourage vandalism.

The effects of intentional destructive acts could be wide ranging or more localized, depending on the nature and location of the acts and the size of the project, and would be similar to outages caused by natural phenomena such as storms and ice buildup. If a transmission line was out of service, residences could lose lighting, heating, or air conditioning. Electrical appliances would be nonfunctional until electrical service was restored. In such cases, perishable food could spoil, and residents would be inconvenienced and could experience discomfort during cold or hot weather. However, some residents may already have backup generators and alternate means of cooking and heating. Also, if the residences would be supplied with electricity from two or more sources, there may be no noticeable interruption or only minor, temporary interruptions if the alternate sources were not impacted.

Effects on commercial and industrial electricity users would similarly include loss of lighting and ventilation, but could also include the shutting down of office equipment, computers, cash registers, elevators, heavy machinery, food preparation equipment, and refrigeration. Some commercial operations could be forced to shut down temporarily from a loss of power, or concerns about safety. Municipalities could be affected by the shutting down of traffic signals, while city offices could have to close temporarily. Police and fire services could be affected if communication systems shut down. City services, such as sewer and water systems, could be affected by extended outages. Loss of electrical service at hospitals would be of special concern as it could be life threatening. Such effects might be mitigated at hospitals and for other critical uses through the use of temporary backup power (e.g., from a diesel or gas-powered generator).

In addition to the effects from loss of service, destructive acts could cause environmental effects from damage to the facilities. Two such possible effects would be fire ignition, should conductors be brought down, and oil spills from equipment (e.g., mineral oil in transformers) in the substations, should that equipment be damaged or breached. Fires would be fought in the same manner as those caused by an electrical storm. Any spills would be treated by removing and properly disposing of contaminated soil and replacing it with clean soil.

4.0 List of Preparers

Climate and Air Quality

Asoian Associates

Mark J. Asoian

Education:	B.S., Meteorology, Lowell Technological Institute
Project Responsibility:	Climate and Air Quality
Experience:	30 years experience in air quality permitting, impact assessment, emissions inventory development, and NEPA compliance services.

Geology and Paleontology

Erathem-Vanir Geological, PLLC

Gustav F. Winterfeld, Ph.D.
Principal Scientist

Education:	B.S., Biology, Cornell University M.S., Geology, University of Wyoming Ph.D., Geology, University of Wyoming
Project Responsibility:	Geology and Paleontology
Experience:	30 years experience in geology and paleontology of the western U.S. Areas of expertise include geology, paleontology, sedimentation, stratigraphy-biostratigraphy, and paleontological resource assessment and mitigation planning and implementation. Dr. Winterfeld has directed and performed literature and record review and conducted field surveys and analyzed environmental impacts to fossil and geological resources of mines, pipelines, dam sites, flood control projects, gravel pits, housing developments, transmission lines, and well pads. He has recommended and implemented mitigation and resource recovery programs for paleontological resources for clients including private companies and federal (BLM, BOR, FERC, DOE, USDA-USFS), state (CA, NV, UT, WY), and local governmental agencies. Dr. Winterfeld has prepared geology and paleontology sections for numerous EIS and EA reports. He is a Registered Geologist with the states of WY and UT and currently holds statewide paleontological collecting permits for BLM lands in CO, NV, MT, UT, and WY.

Thomas M. Bown, Ph.D.
Associate Scientist

Education:	B.S., Geology, Iowa State University Ph.D., Geology, University of Wyoming
Project Responsibility:	Geology and Paleontology
Experience:	40 years of geologic and paleontologic field experience in the western U.S. Regional Paleontologist for the USGS in Denver for 18 years. Dr. Bown has led or participated in more than 80 major geologic and paleontologic expeditions and has published over 200 peer-reviewed scientific papers in the field of mammalian vertebrate paleontology and geology. He has prepared geology and paleontology sections for numerous EA and EIS reports for projects in MT, WY, NE, KS, CO, UT, and CA. Clients have included private industry and federal (BLM, NPS, USFS, BIA) and state (WY, CO, UT, NE) governmental agencies.

Water Resources and Floodplains

JNS, Inc.

Janet N. Shangraw, PH

Education:	B.S., Watershed Science/Hydrology, Colorado State University
Project Responsibility:	Water Resources and Floodplains/Assistant Project Manager
Experience:	Professional Hydrologist – American Institute of Hydrology; 28 years experience in surface water hydrology; NEPA experience as an interdisciplinary team member and project manager on EIS and EA documents for utility projects, timber sales, timber restoration projects, and mining projects.

Wetlands, Wildlife, and Threatened, Endangered, and Other Special Status Species

Cedar Creek Associates, Inc.

T. Michael Phelan, CWB

Education:	B.A., Zoology, University of California at Los Angeles Post Graduate Studies, Ecology, San Diego State University
Project Responsibility:	Wetlands, Wildlife, and Special Status Species
Experience:	President of Cedar Creek Associates, Inc.; Certified Wildlife Biologist - The Wildlife Society; 34 years experience in environmental consulting, field analysis, impact assessment, and mitigation planning in the biological sciences including project management and technical contribution to numerous NEPA compliance EIS and EA documents for a variety of energy development, mining, and other industrial development projects.

Upland Vegetation and Soils

Cedar Creek Associates, Inc.

Stephen G. Long

Education:	M.S., Forestry, Colorado State University B.S., Wildlife Biology, Colorado State University
Project Responsibility:	Upland Vegetation, Soils, and Threatened, Endangered, and Other Special Status Plant Species
Experience:	33 years experience in single and multi-discipline studies, permitting, and EA and EIS projects.

Cultural Resources

Alpine Archaeological Consultants, Inc

Kimberly L. Redman, RPA

Education:	M.A., Archaeology, Washington State University
Project Responsibility:	Cultural Resources
Experience:	Registered Professional Archaeologist; 11 years experience authoring cultural resource sections of EIS and EA documents. Two years as NEPA coordinator for the Salt River Pima-Maricopa Indian Community for all activities on trust land or funded through other federal undertakings.

Land Use – Existing and Planned, Socioeconomics and Environmental Justice, Transportation, and Public Health and Safety

Kathol & Company

Jennifer Kathol

Education:	B.S., Natural Resource Economics, Colorado State University
Project Responsibility:	Land Use, Socioeconomics, Transportation, and Public Health. EA Project Manager responsible for coordination of consultant resource specialists and EA document preparation.
Experience:	President of Kathol & Company; 30 years NEPA experience completing and managing projects and Human Resources sections of EIS, EA, EIR, and international environmental documents.

Visual Resources

View Point West

Christine Keller

Education	M.A., Geography, Conservation of Environmental Quality, California State University at San Diego B.A., Sociology, University of Maryland
Project Responsibility:	Visual Resources Task Leader/Author
Experience:	35 years experience, NEPA compliance and visual assessments.

Tony Kovacic

Education:	A.A., Computer Science, Coleman College, San Diego, California
Project Responsibility:	Computer-Generated Visual Simulations and Technical Writing and Editing
Experience:	25 years experience, NEPA compliance, computer simulations, and modeling.

Technical Editing

Georgia A. Doyle

Education:	M.S. Hydrology/Hydrogeology, University of Nevada, Reno B.S. Hydrology and Water Resources, University of Arizona
Project Responsibility:	Technical Editing
Experience:	20 years experience researching, writing and editing scientific publications; preparation of EIS and EA documents.

Desktop Publishing and Word Processing

Ron L. Arrigo

Education:	B.S., Computer Science, University of Nebraska B.A., Psychology, University of Nebraska
Project Responsibility:	Desktop Publishing, Graphics Integration
Experience:	6 years experience desktop publishing, editing, layout, and design.

5.0 Consultation and Coordination

Geology and Paleontology

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Wetlands

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Appendix A - Proposed LV-YT and BA-LV Transmission Line Rebuild Location Map Exhibits

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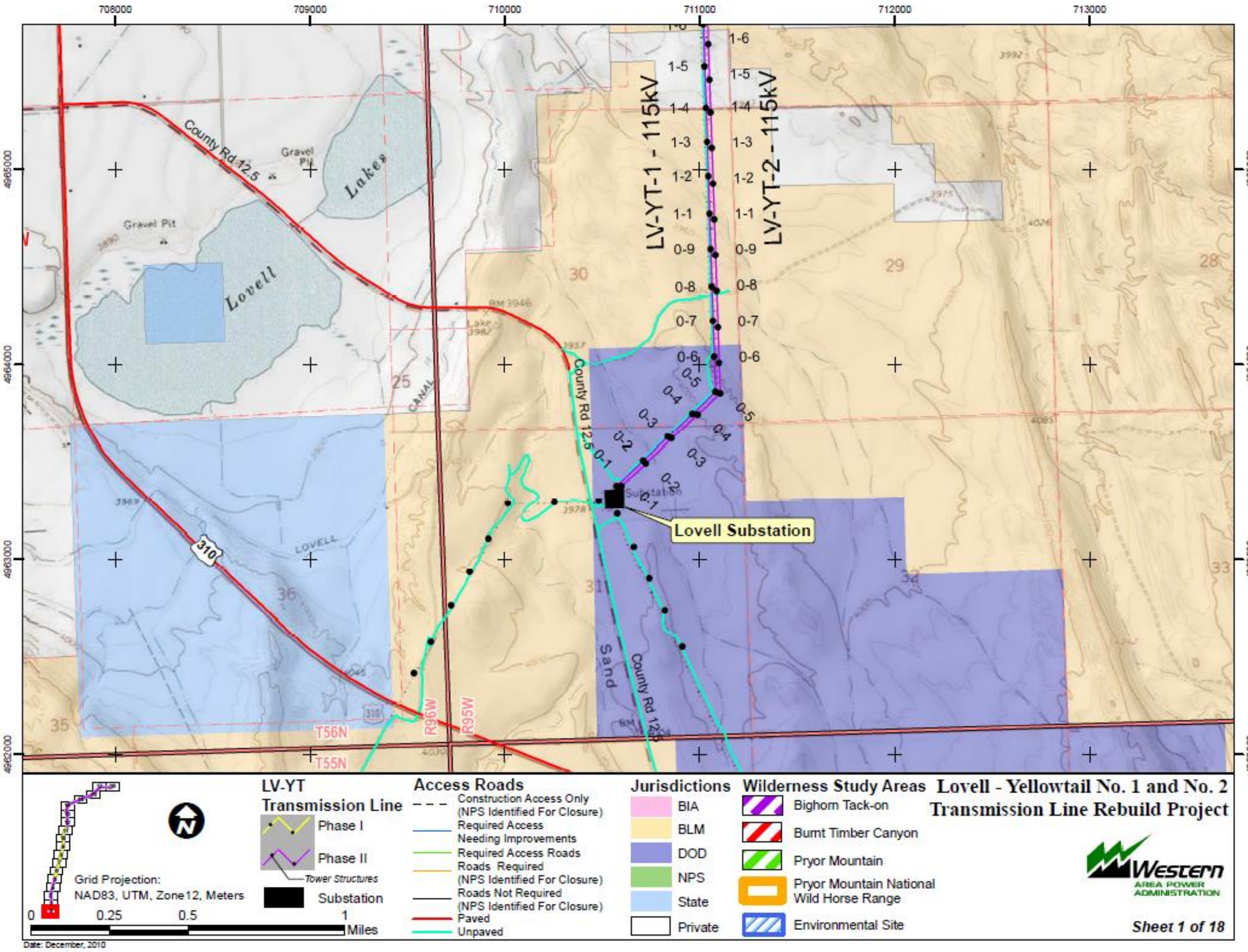


Figure A- 1 Lovell-Yellowtail Map 1 of 18

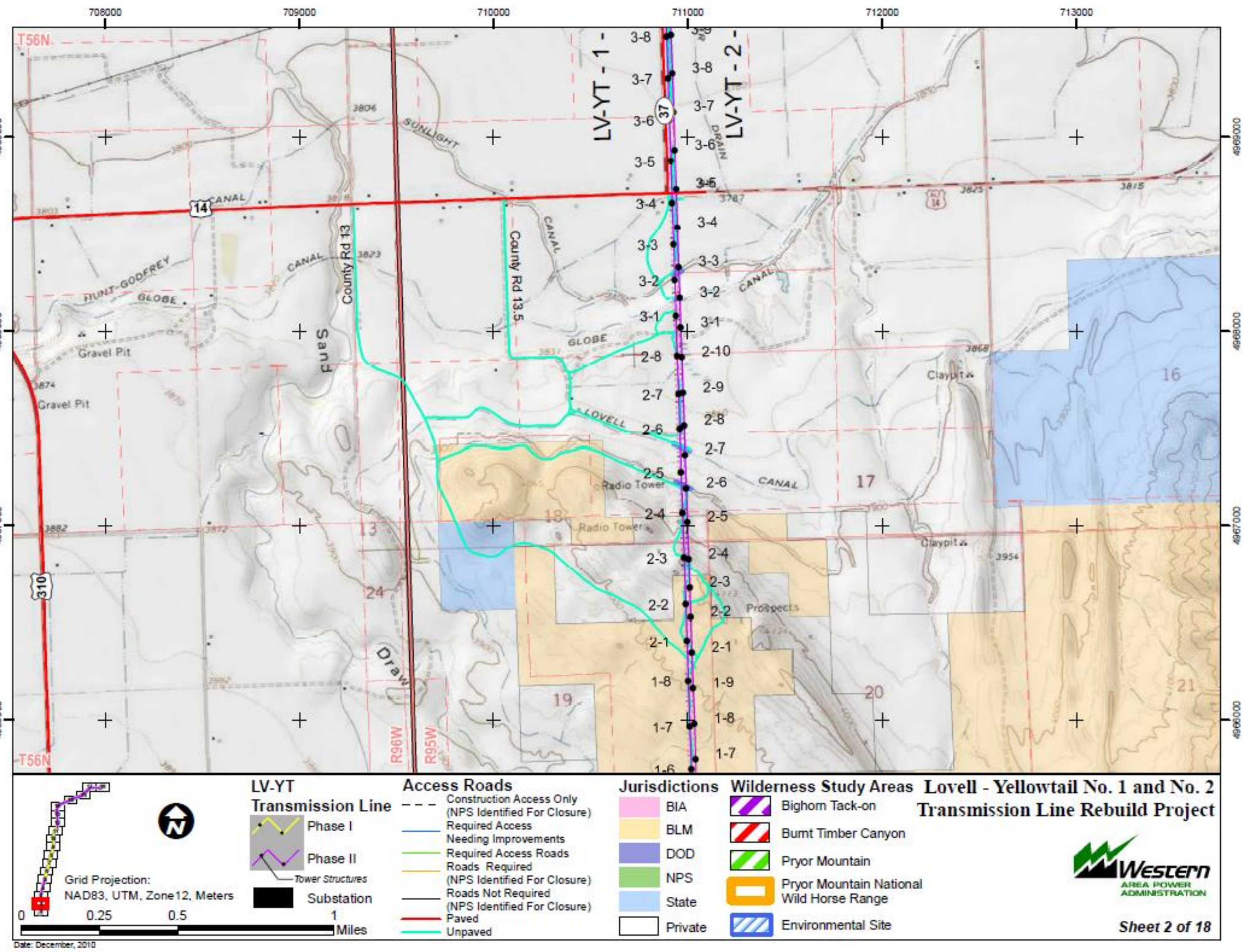


Figure A- 2 Lovell-Yellowtail Map 2 of 18

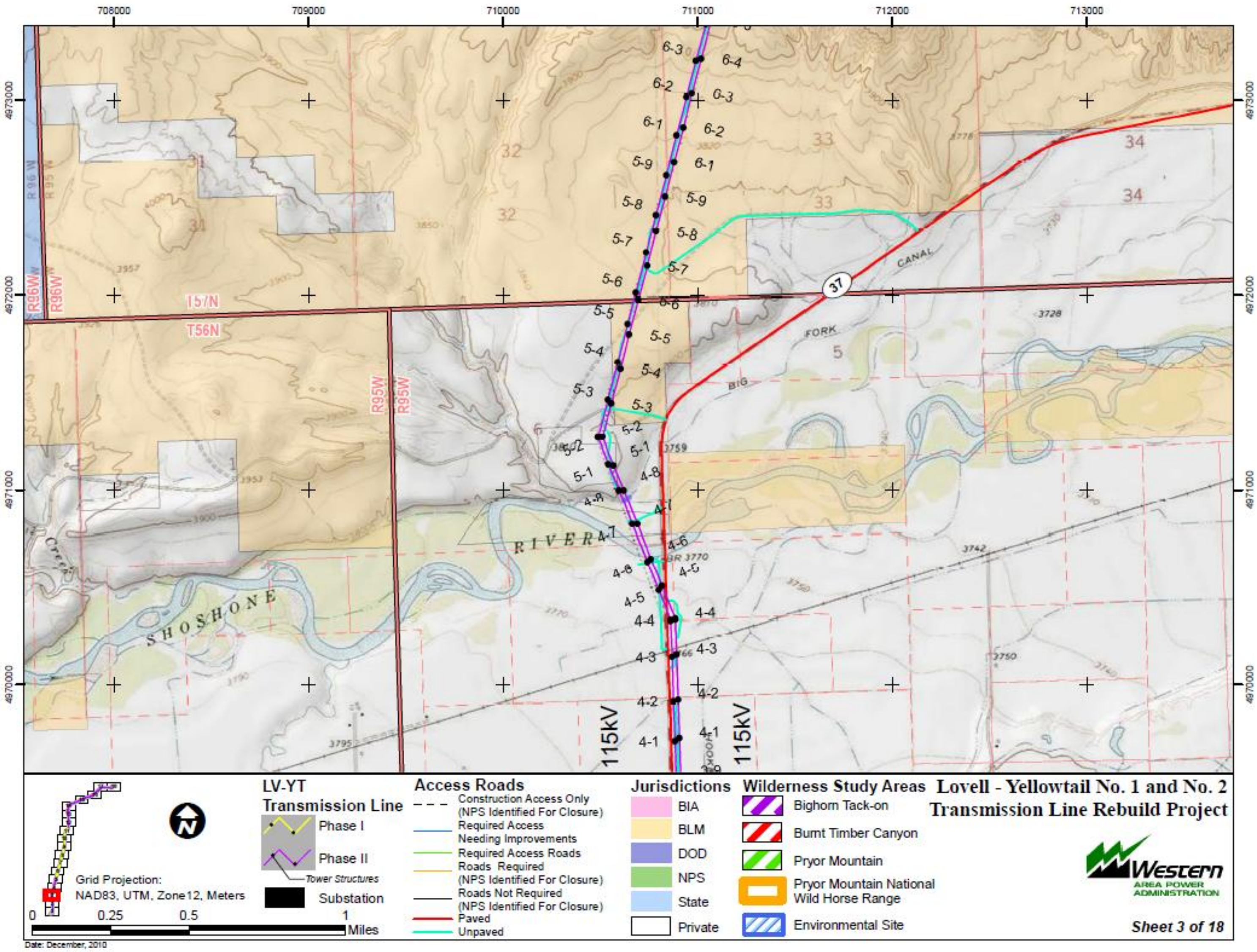


Figure A- 3 Lovell-Yellowtail Map 3 of 18

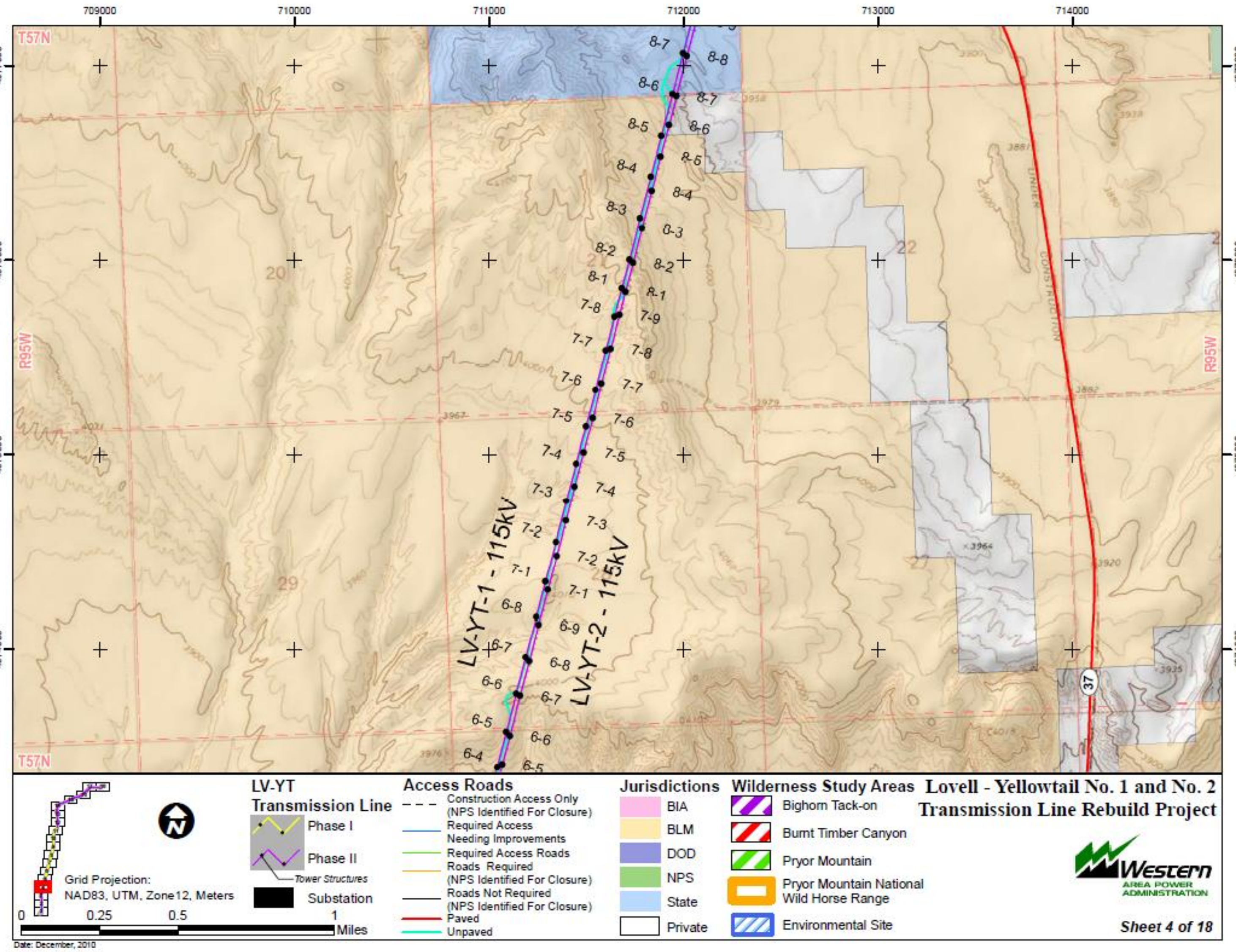


Figure A- 4 Lovell-Yellowtail Map 4 of 18

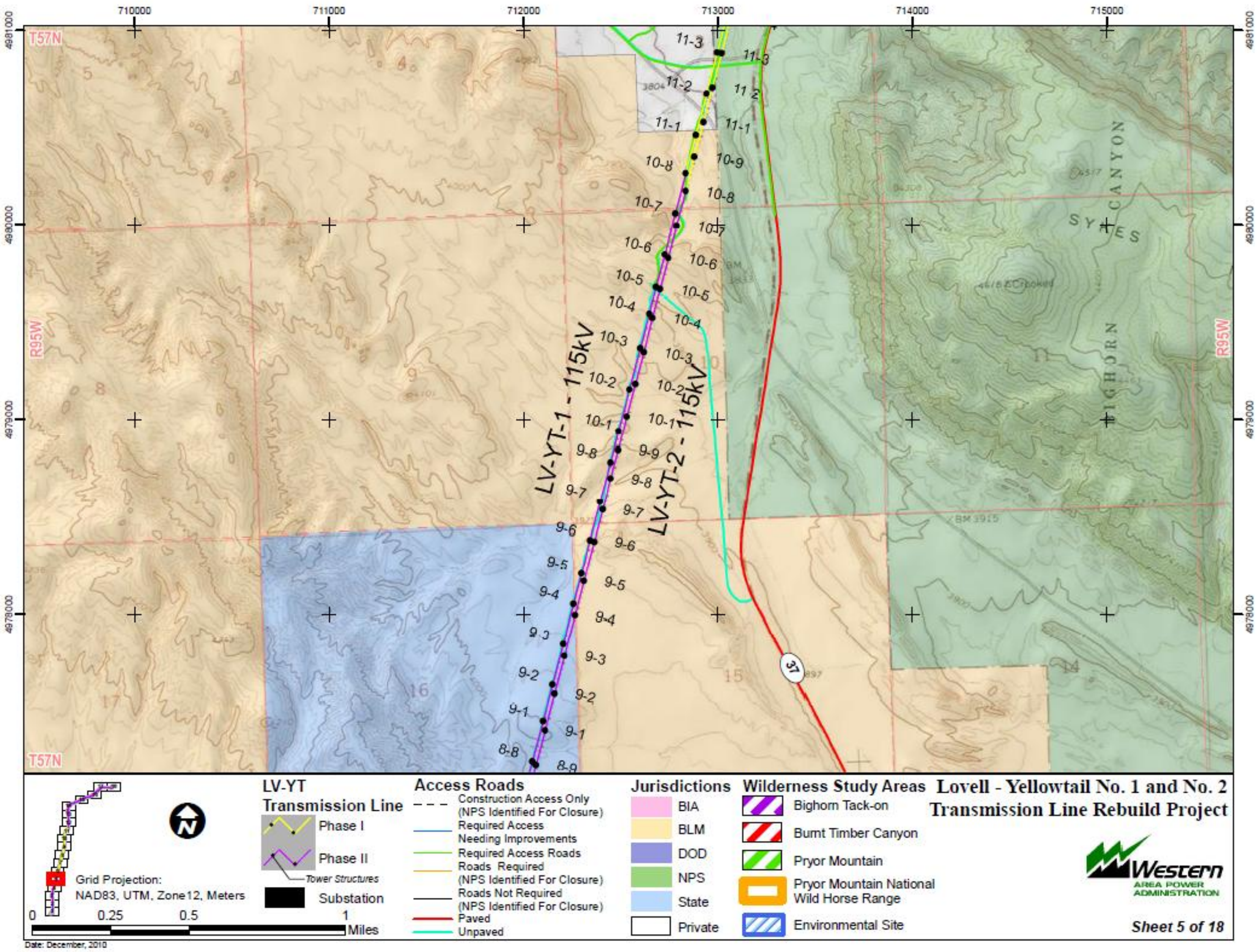


Figure A- 5 Lovell-Yellowtail Map 5 of 18

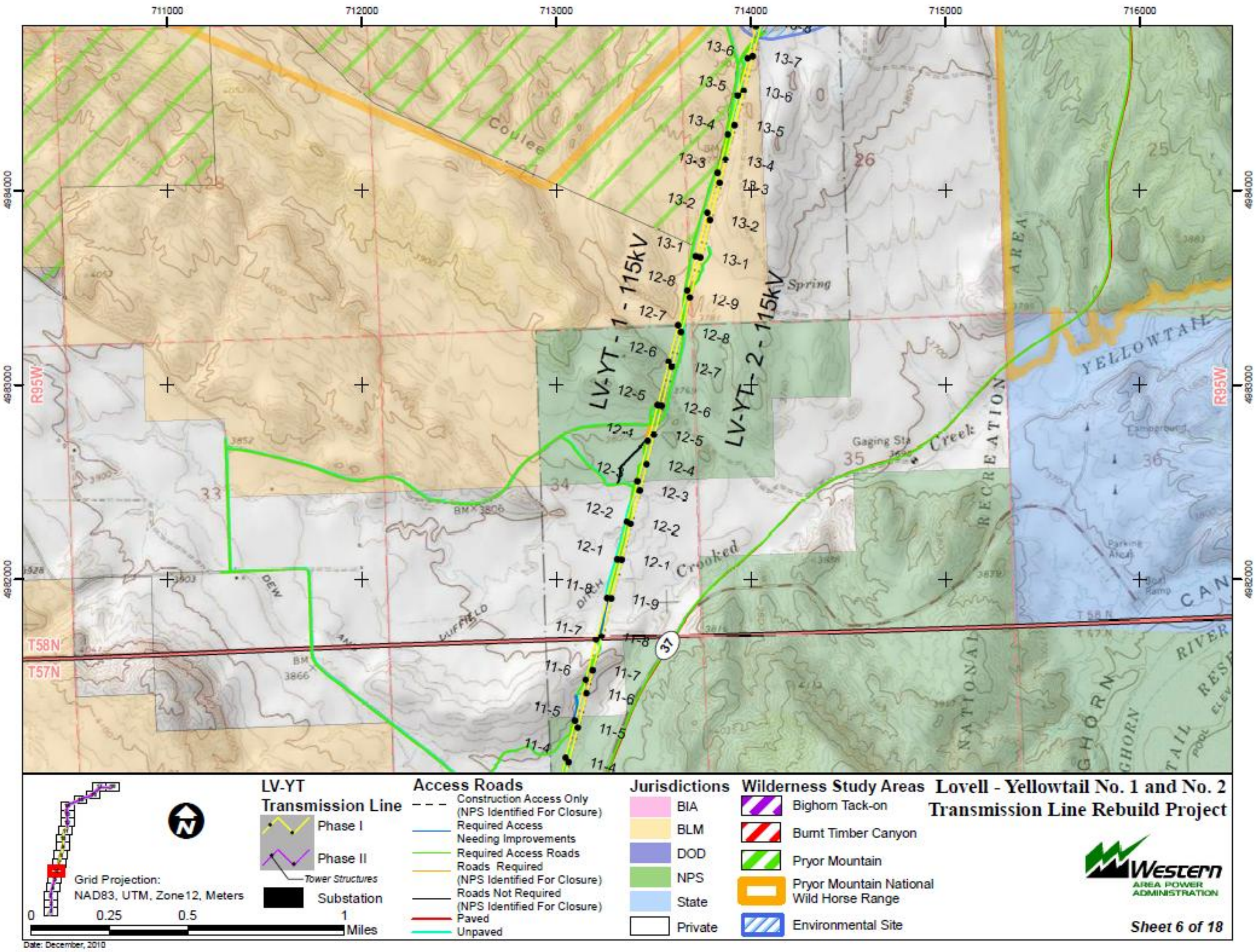


Figure A- 6 Lovell-Yellowtail Map 6 of 18

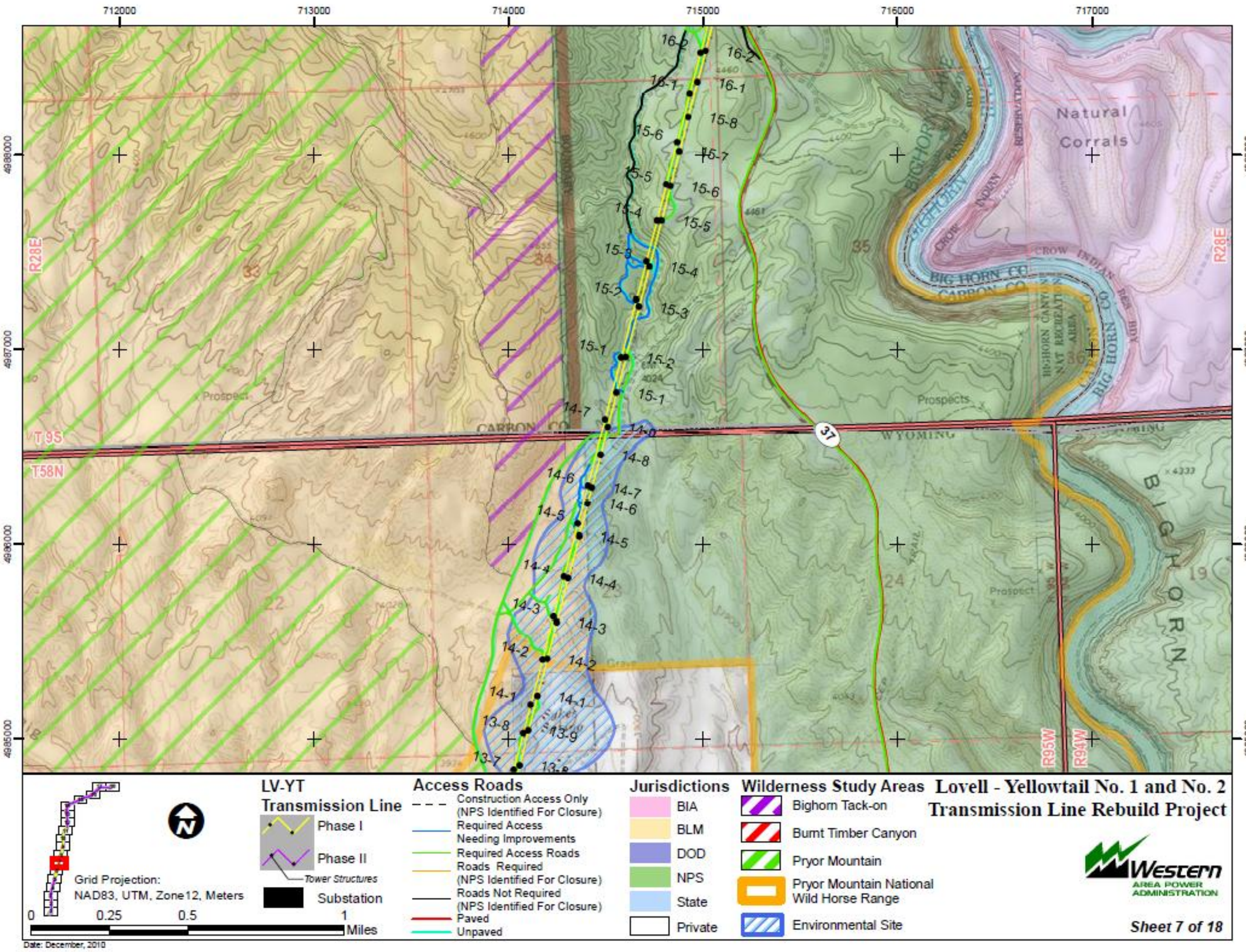


Figure A- 7 Lovell-Yellowtail Map 7 of 18

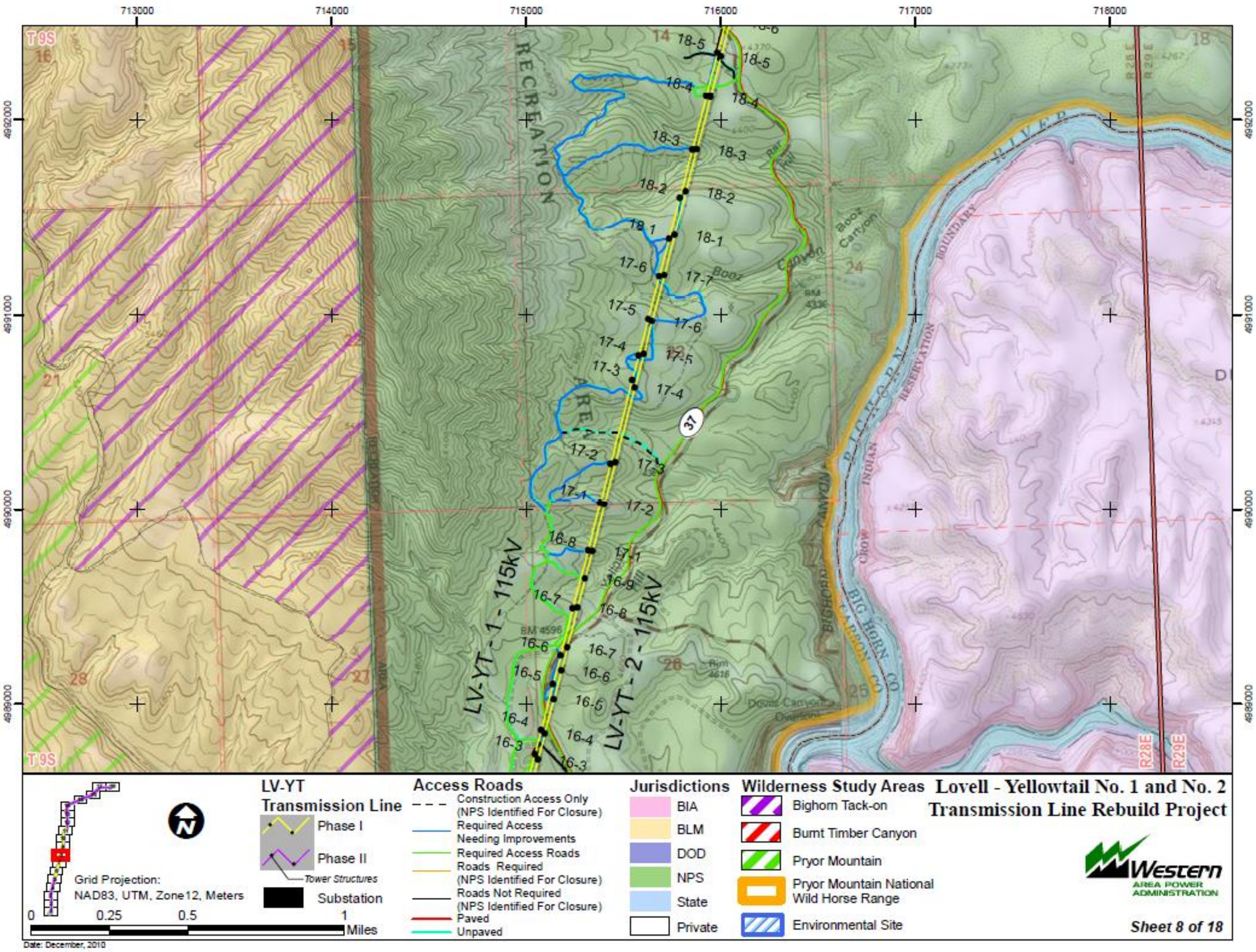


Figure A- 8 Lovell-Yellowtail Map 8 of 18

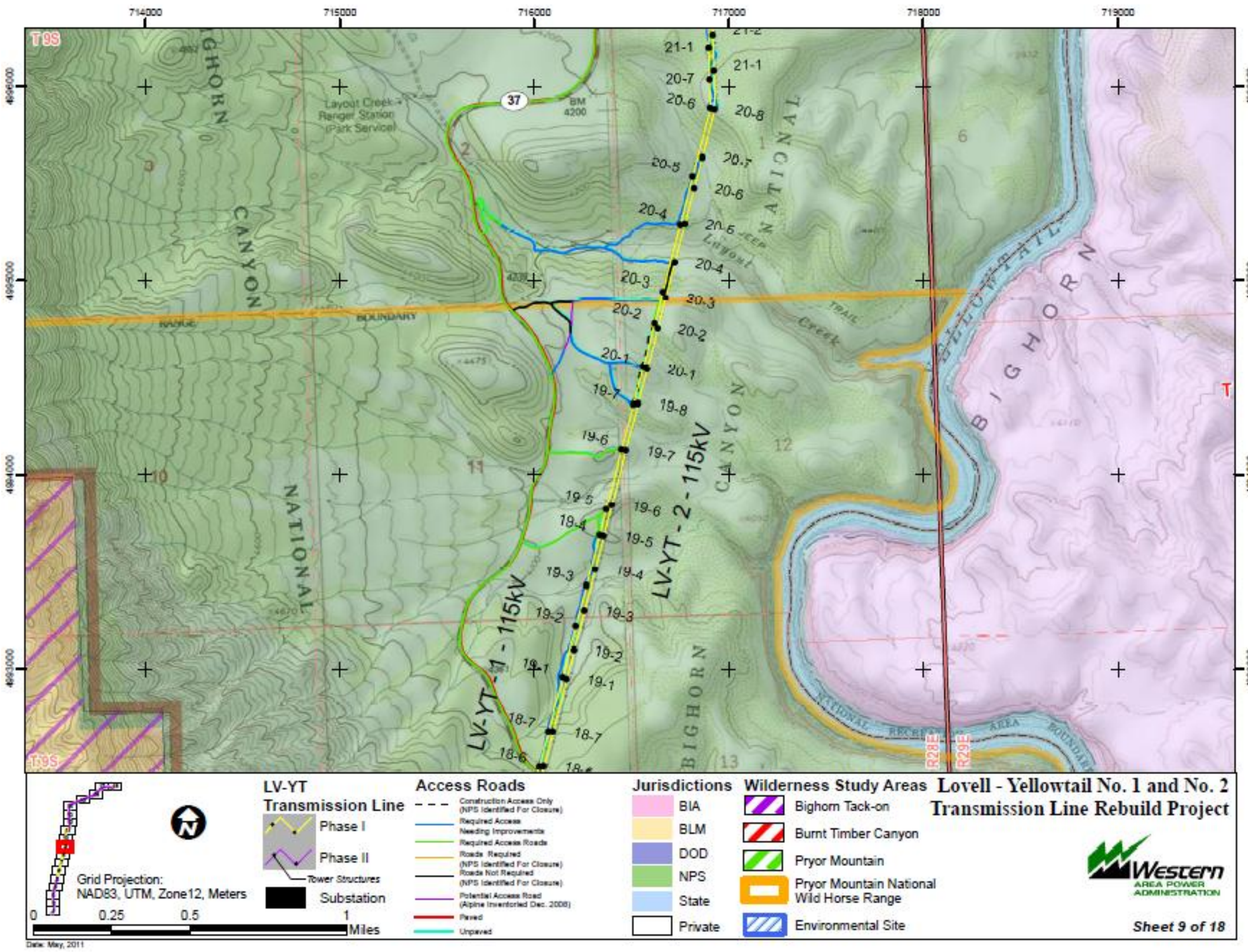


Figure A- 9 Lovell-Yellowtail Map 9 of 18

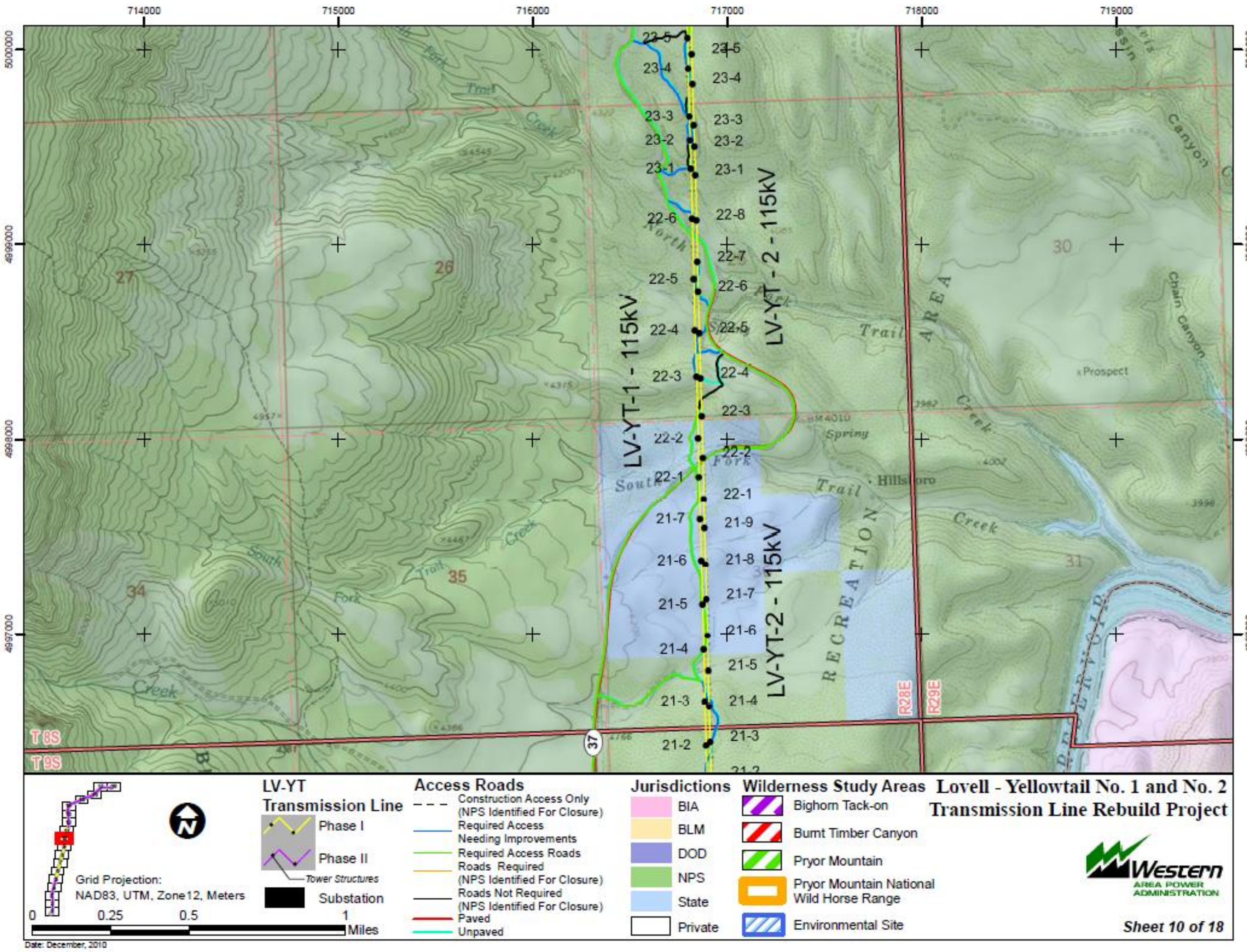


Figure A- 10 Lovell-Yellowtail Map 10 of 18

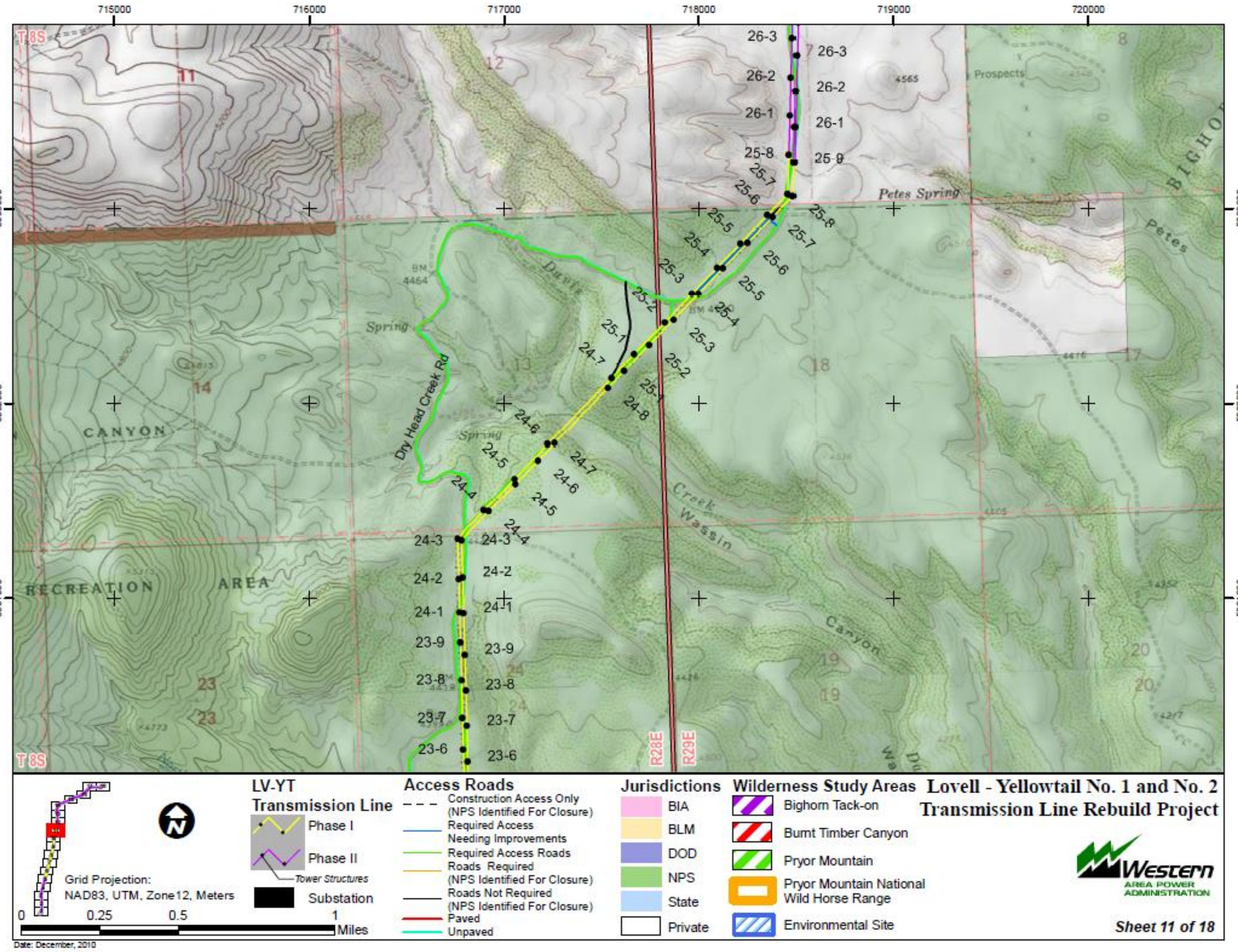


Figure A- 11 Lovell-Yellowtail Map 11 of 18

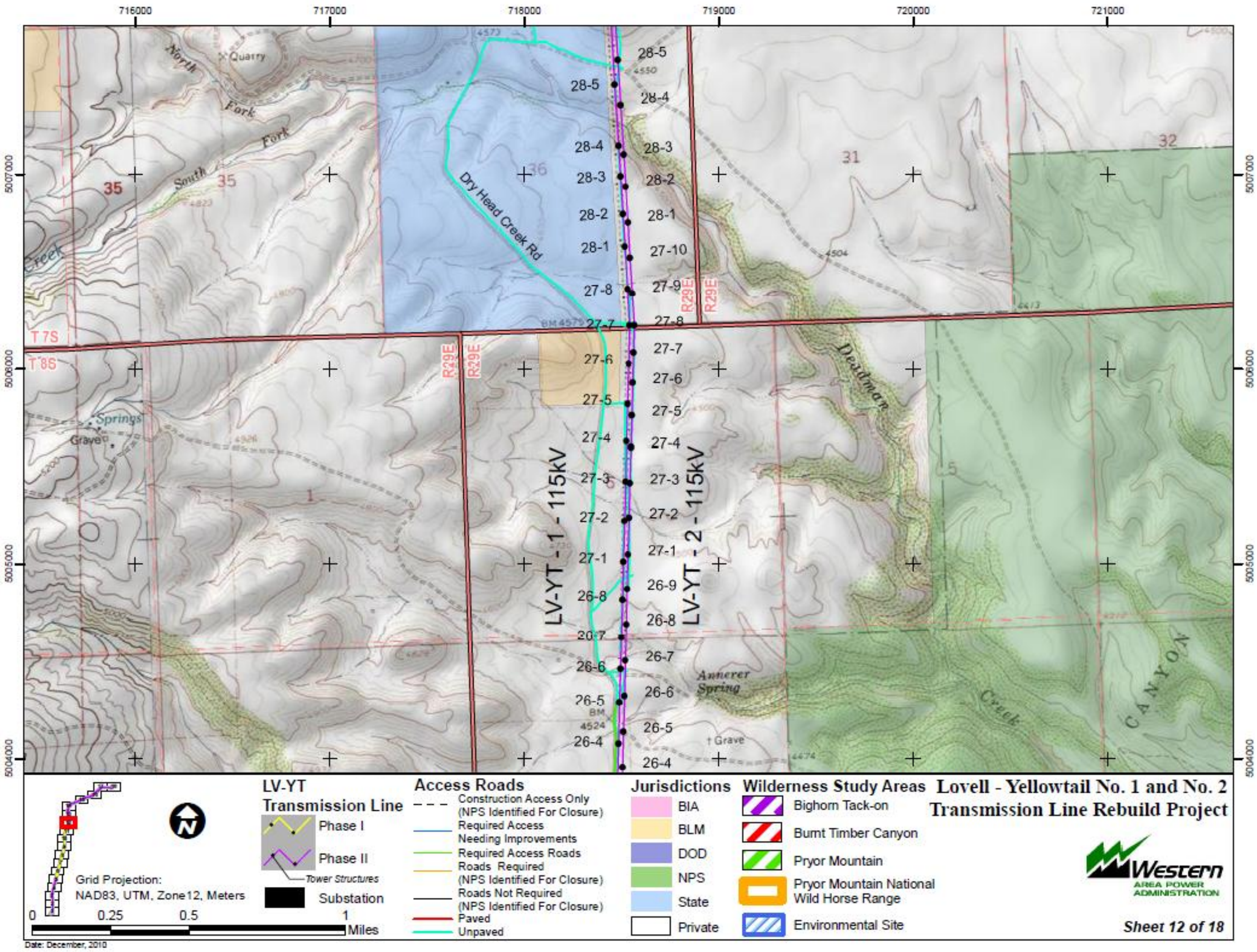


Figure A- 12 Lovell-Yellowtail Map 12 of 18

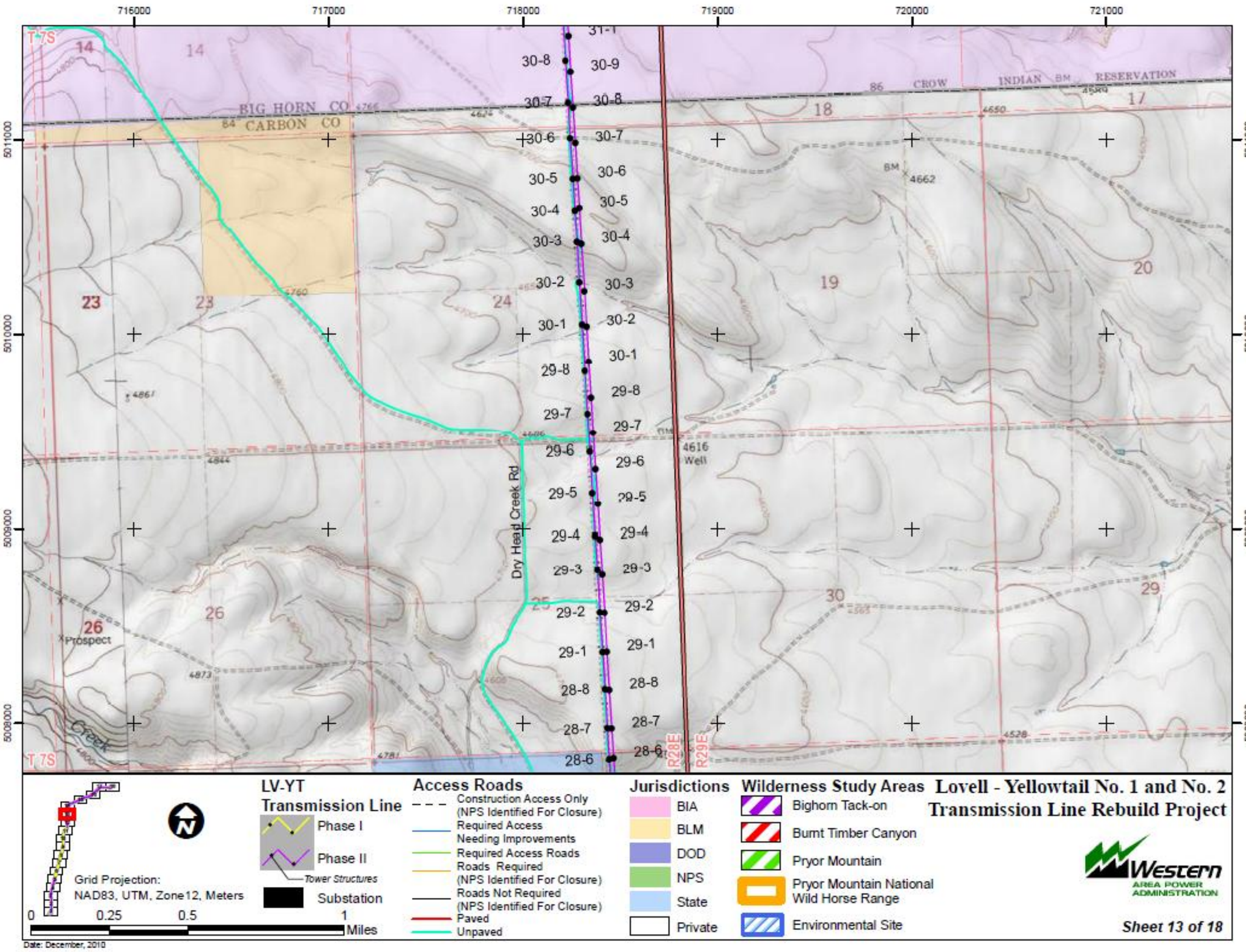


Figure A- 13 Lovell-Yellowtail Map 13 of 18

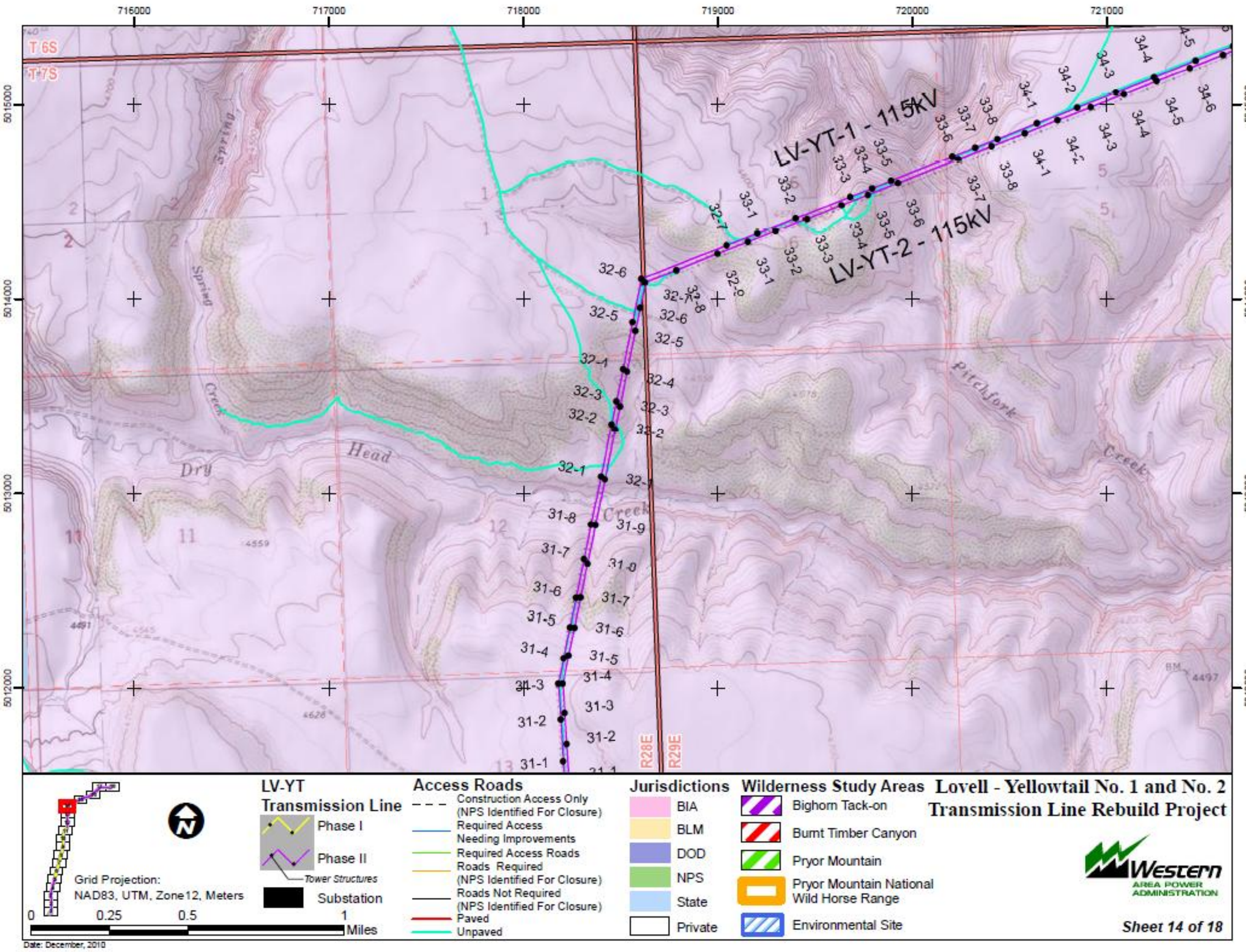


Figure A- 14 Lovell-Yellowtail Map 14 of 18

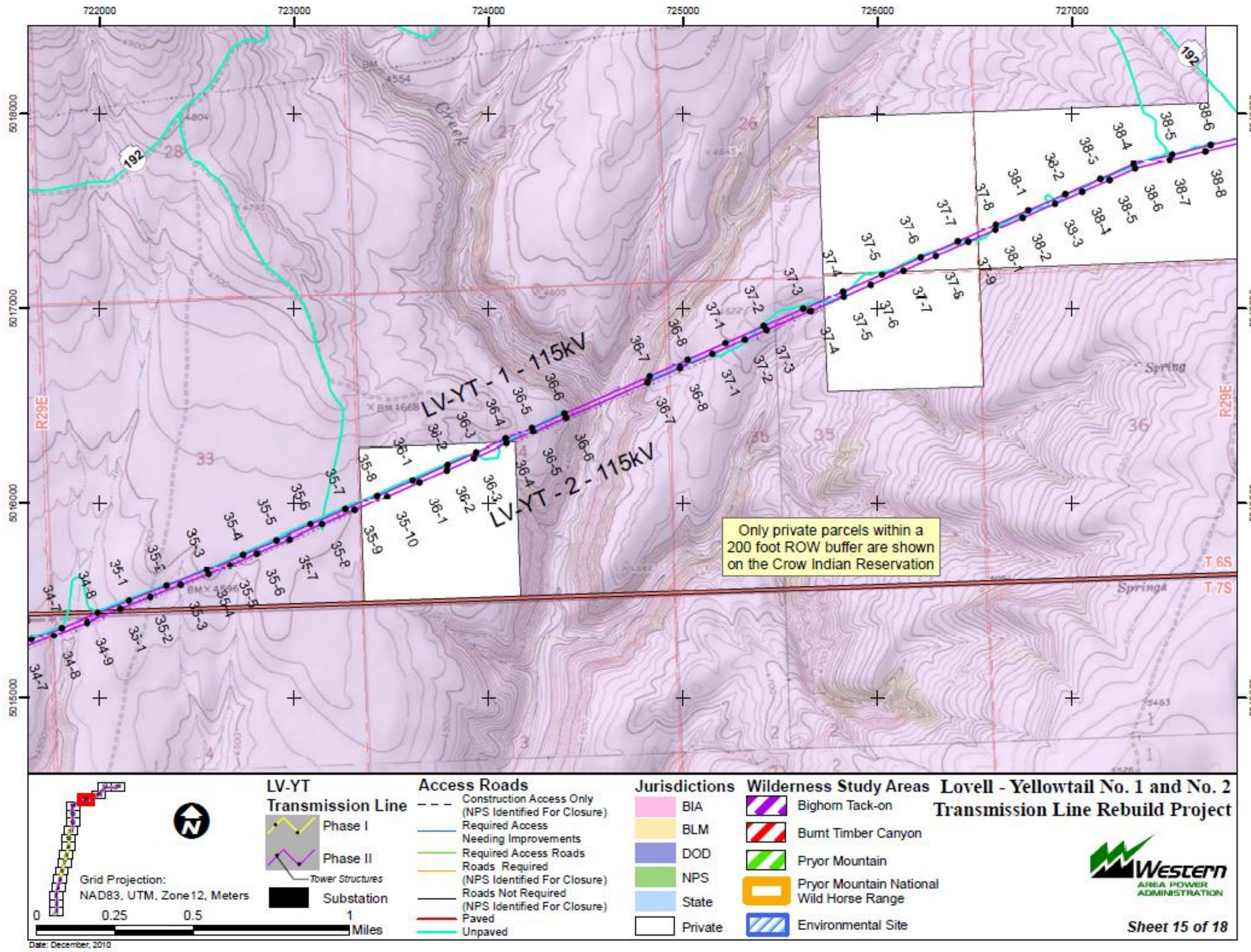


Figure A- 15 Lovell-Yellowtail Map 15 of 18

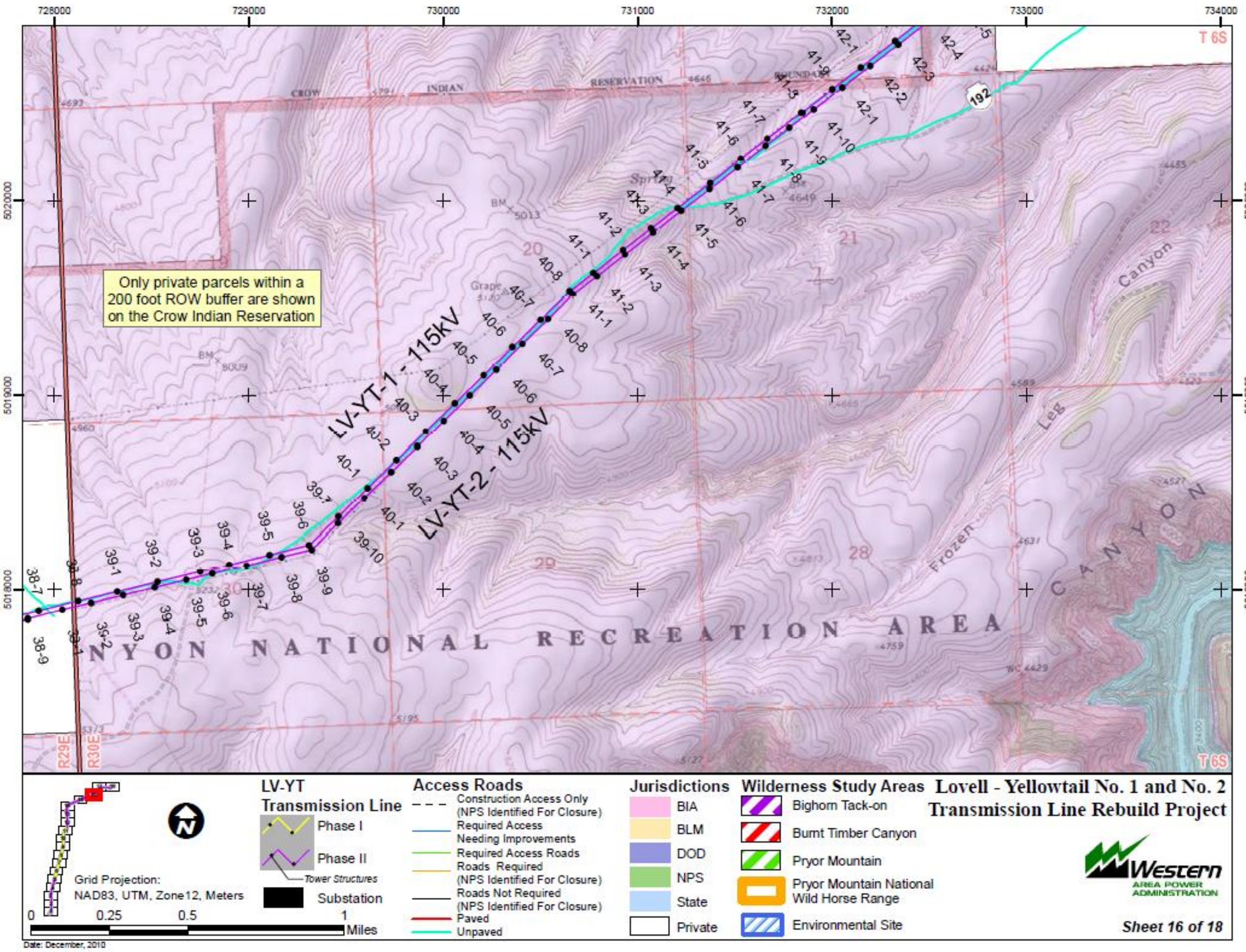


Figure A- 16 Lovell-Yellowtail Map 16 of 18

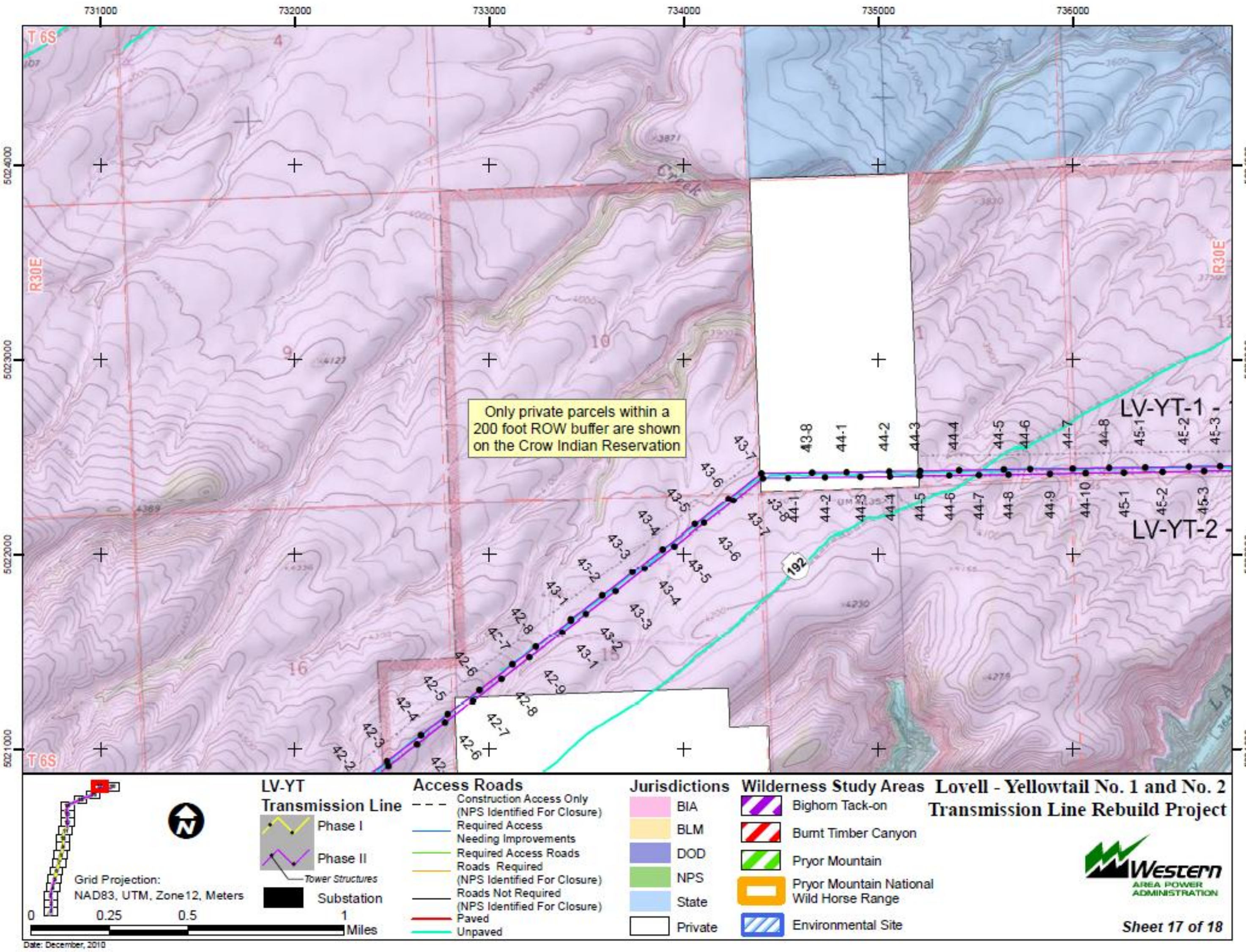


Figure A- 17 Lovell-Yellowtail Map 17 of 18

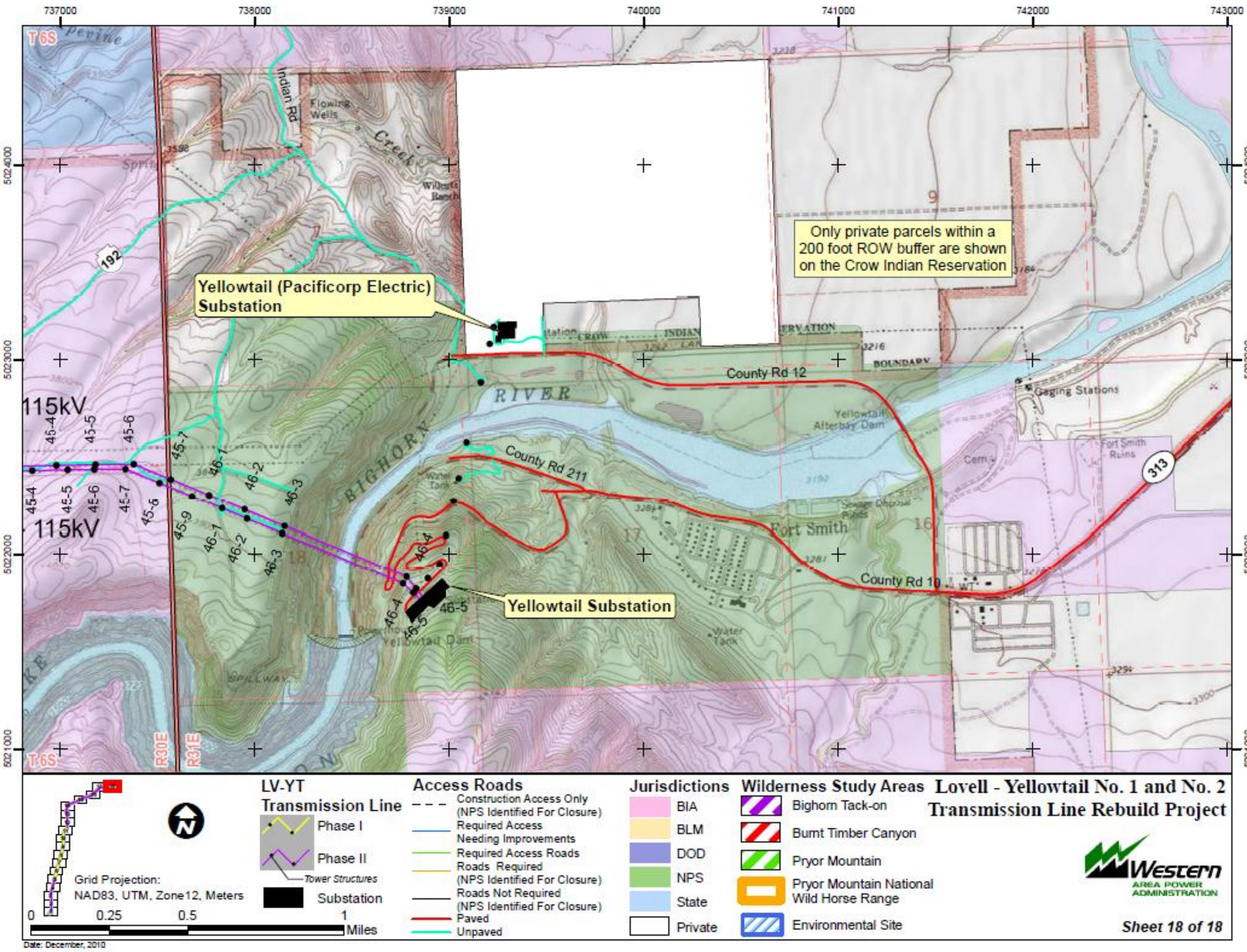


Figure A- 18 Lovell-Yellowtail Map 18 of 18

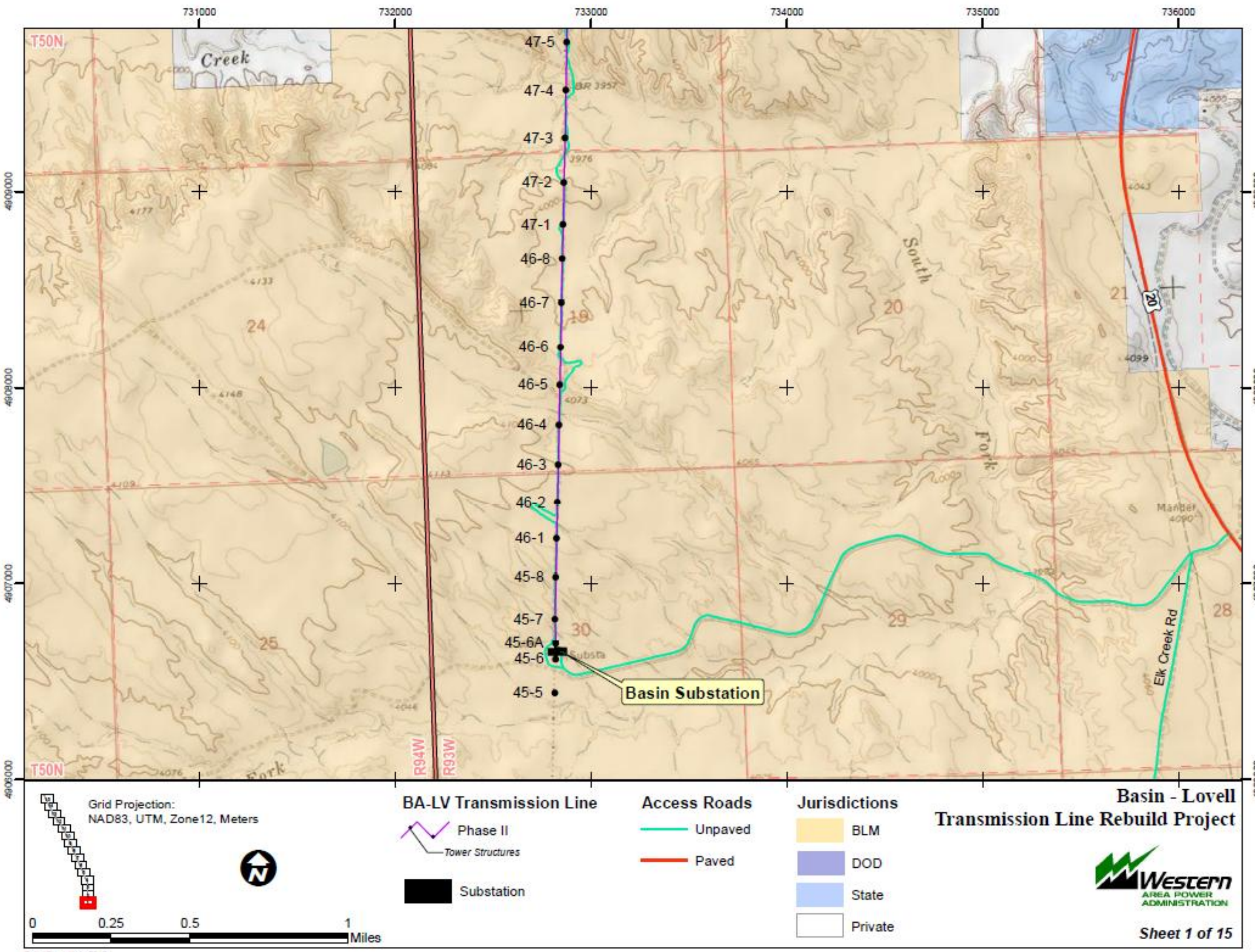


Figure A- 19 Basin-Lovell Map 1 of 15

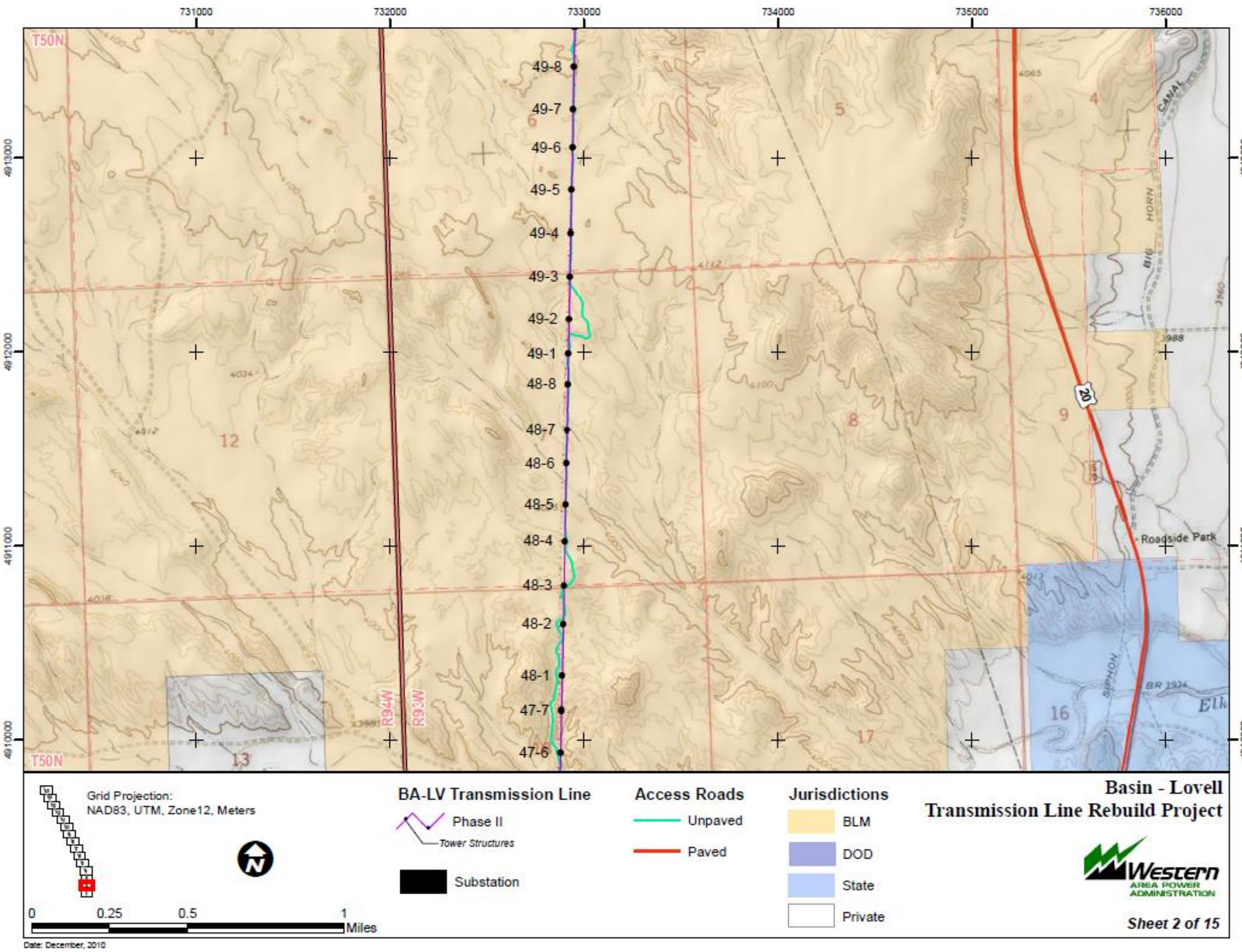
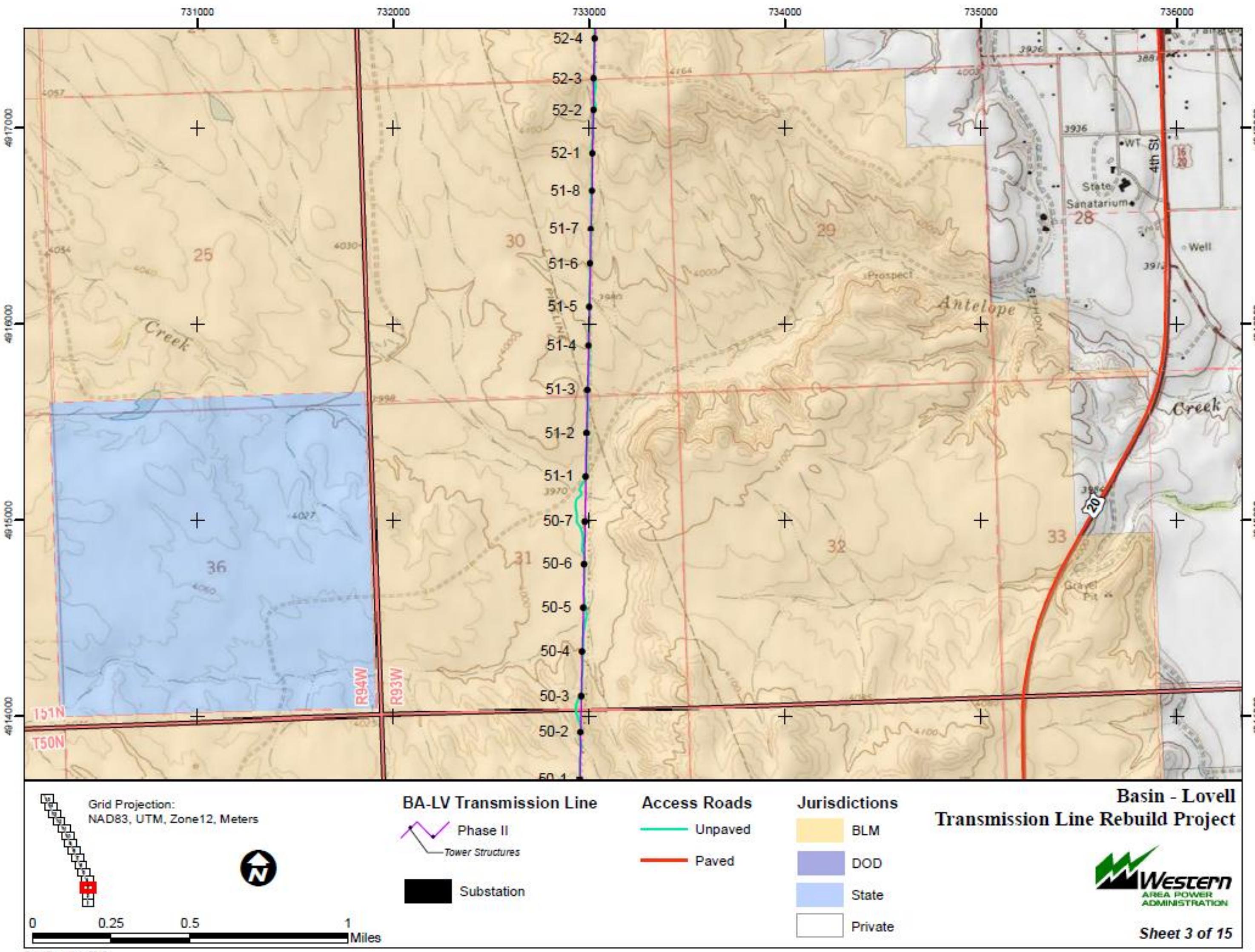


Figure A- 20 Basin-Lovell Map 2 of 15



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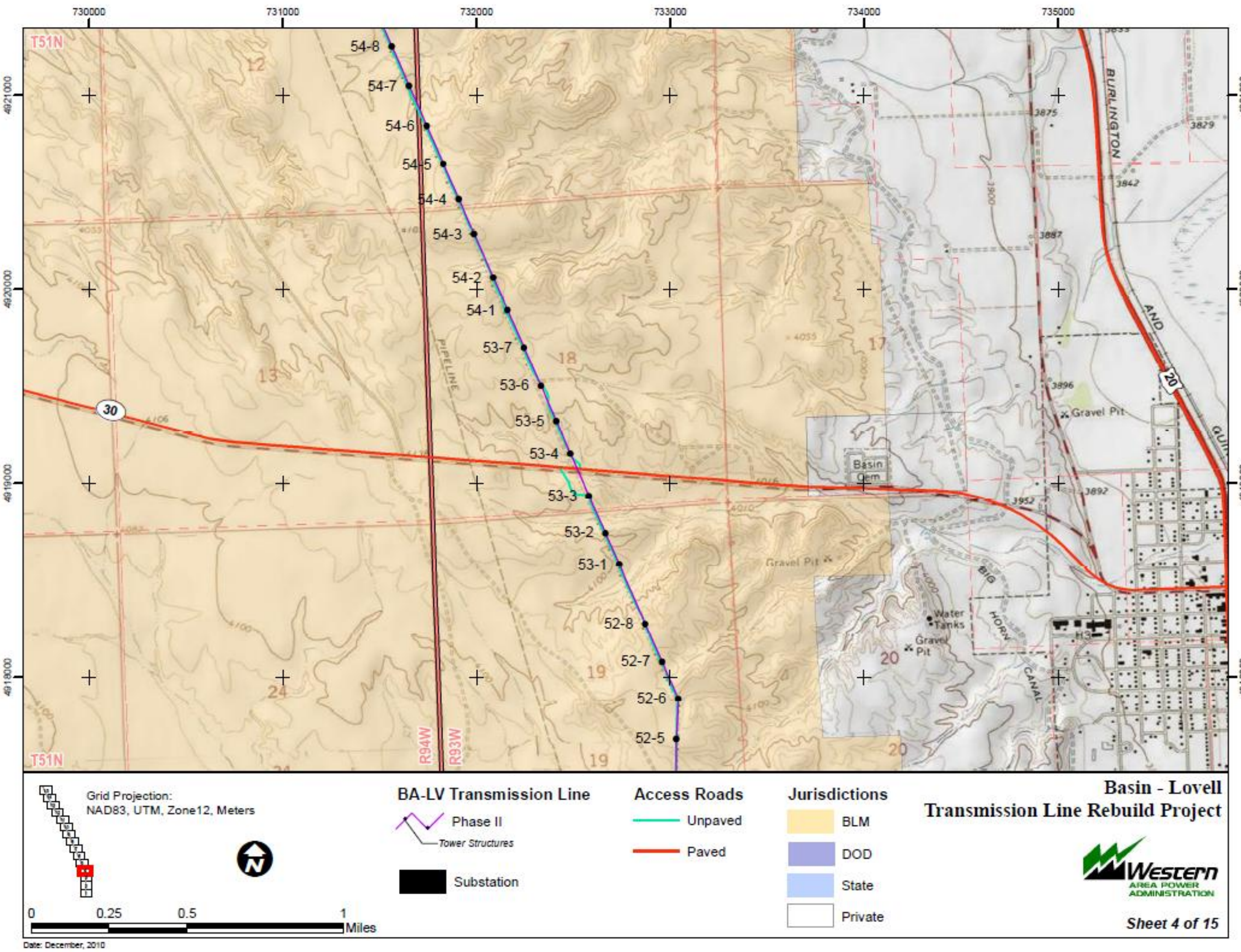

Figure A- 22 Basin-Lovell Map 4 of 15

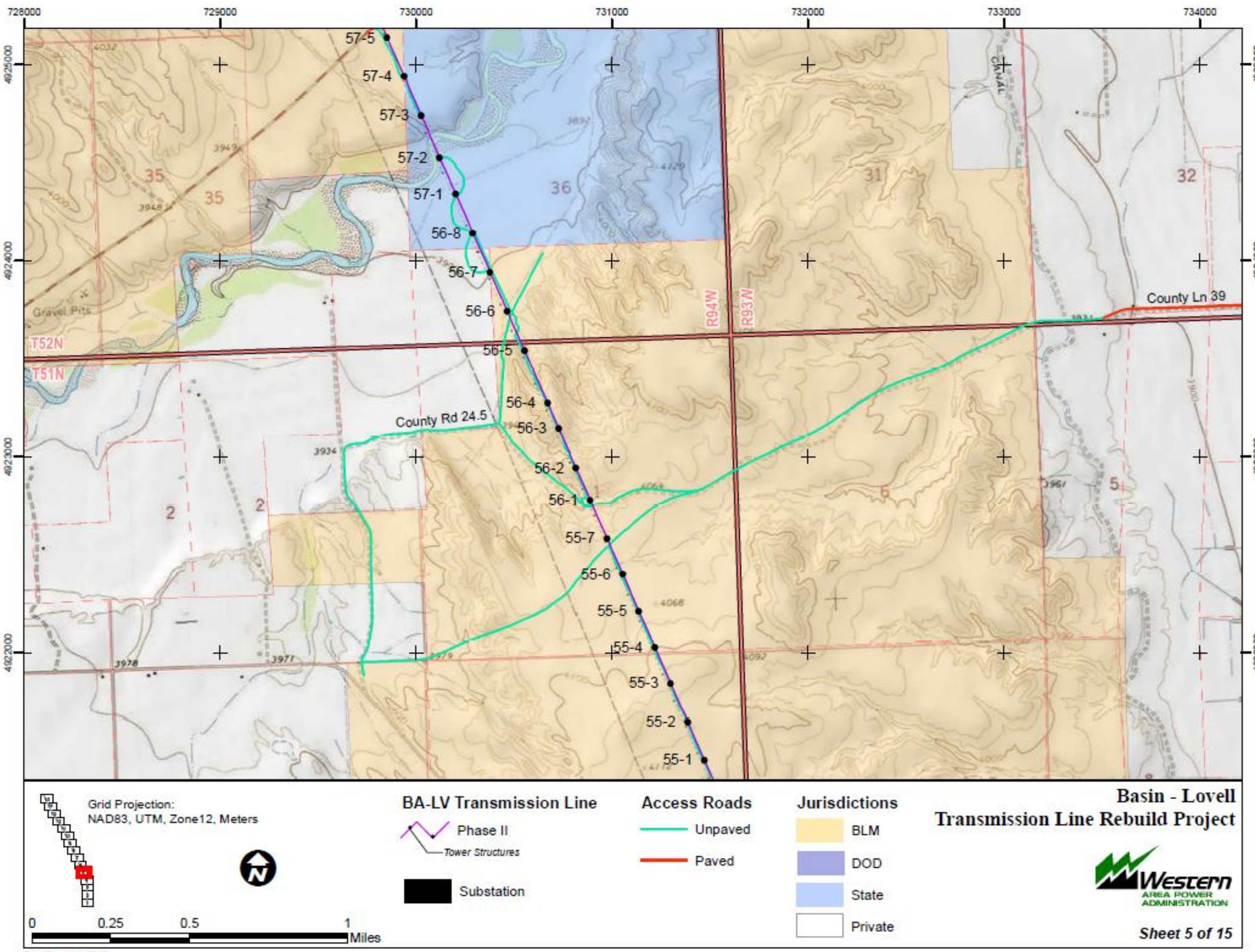

Figure A- 23 Basin-Lovell Map 5 of 15

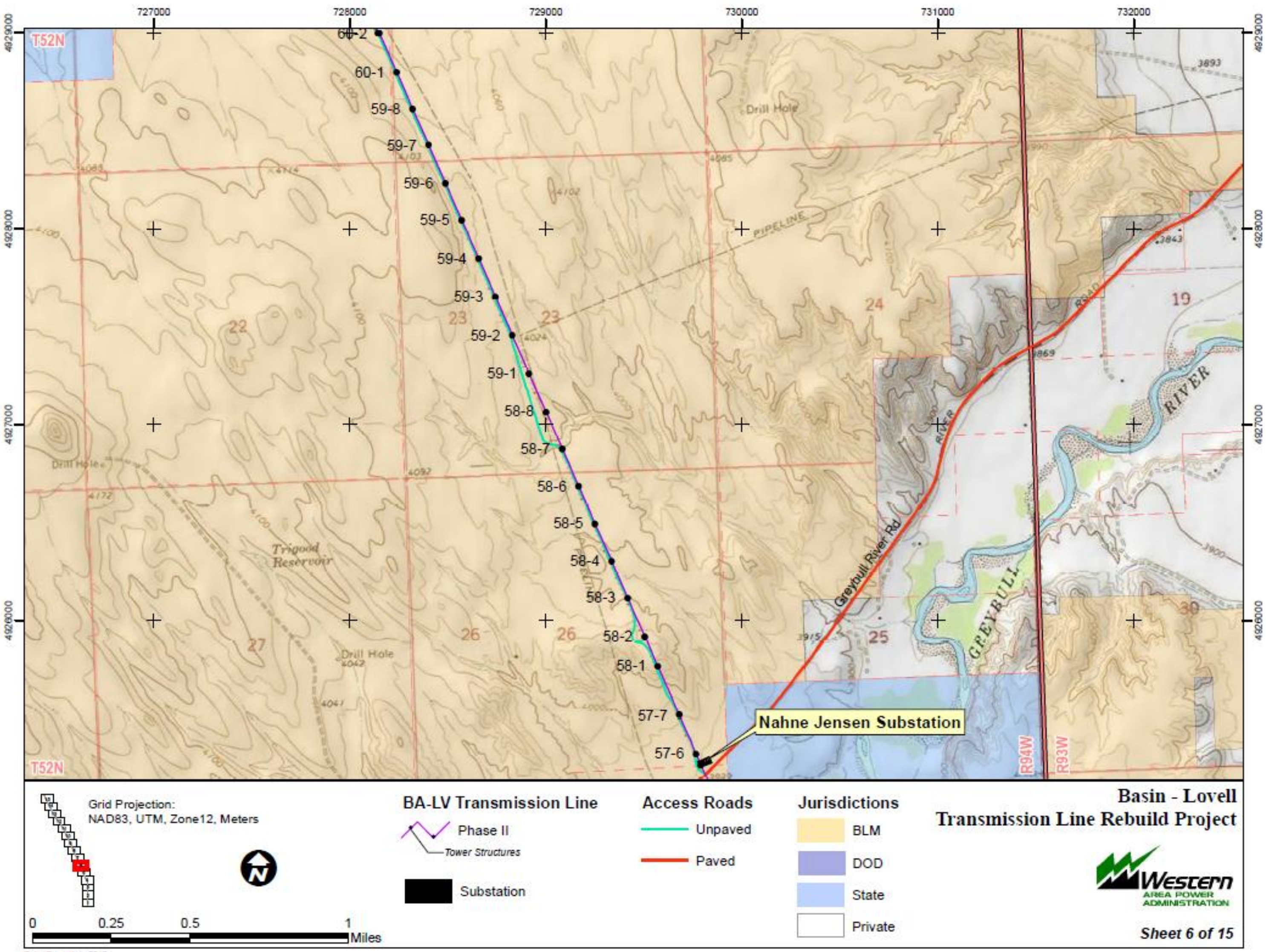

Figure A- 24 Basin-Lovell Map 6 of 15

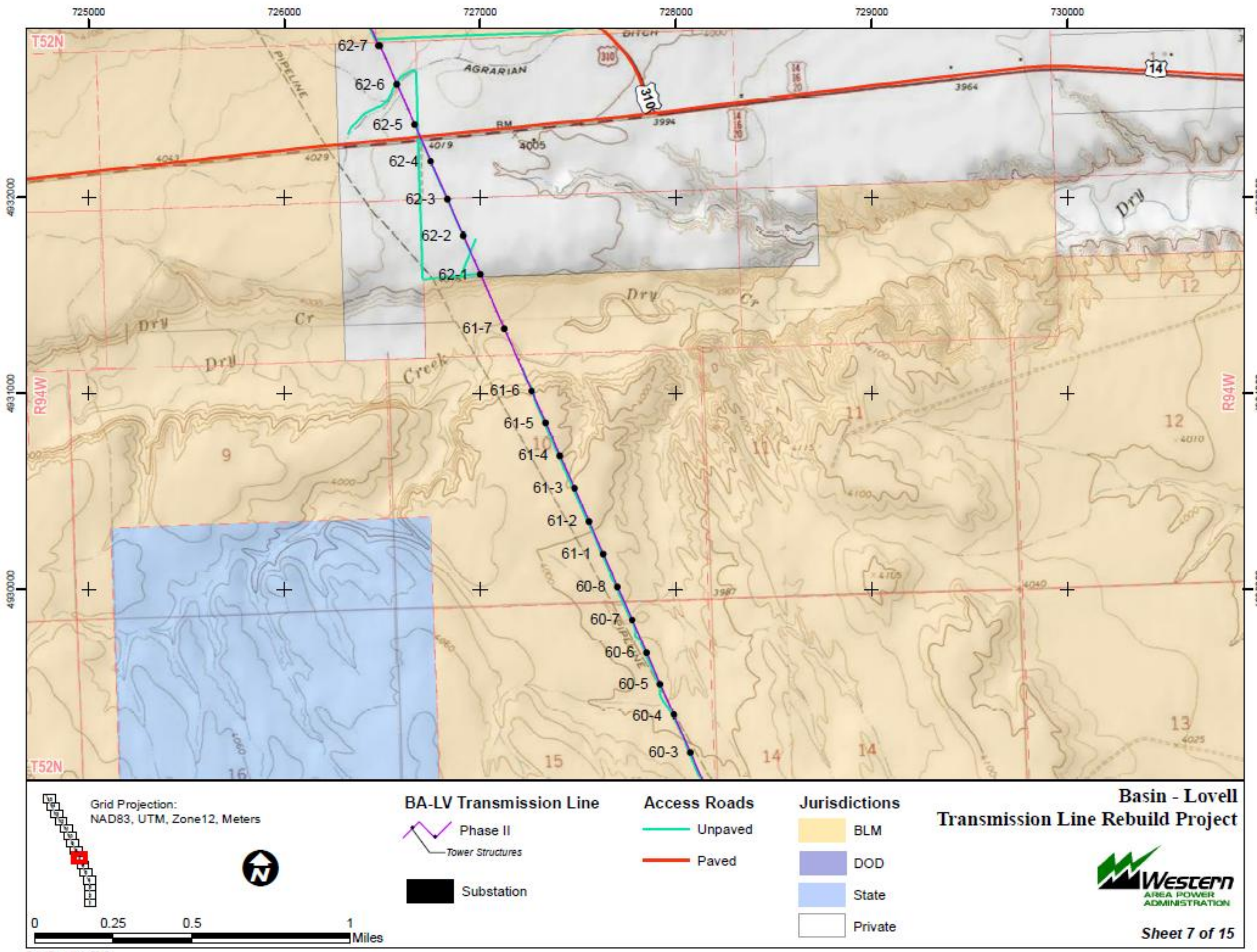

Figure A- 25 Basin-Lovell Map 7 of 15

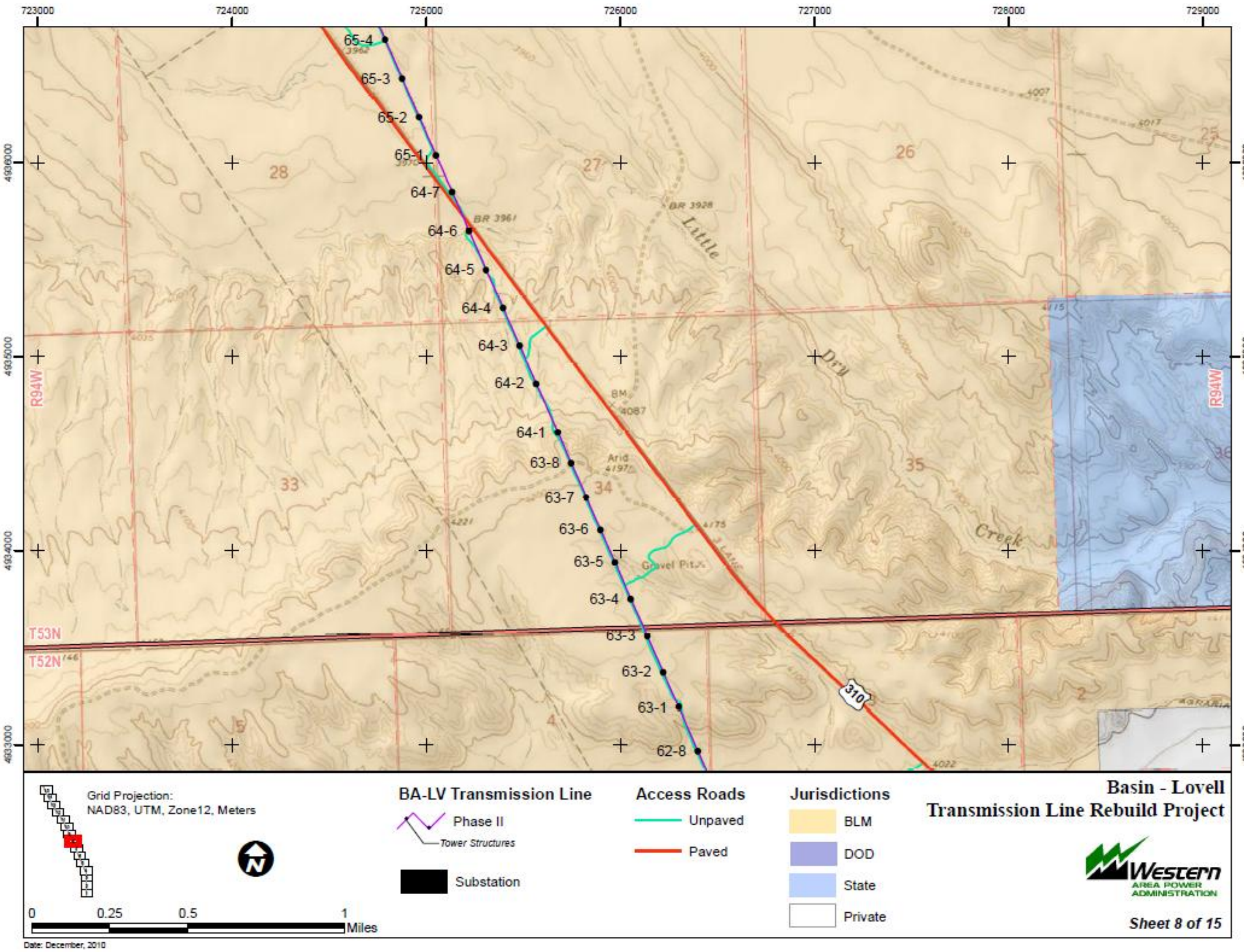

Figure A- 26 Basin-Lovell Map 8 of 15

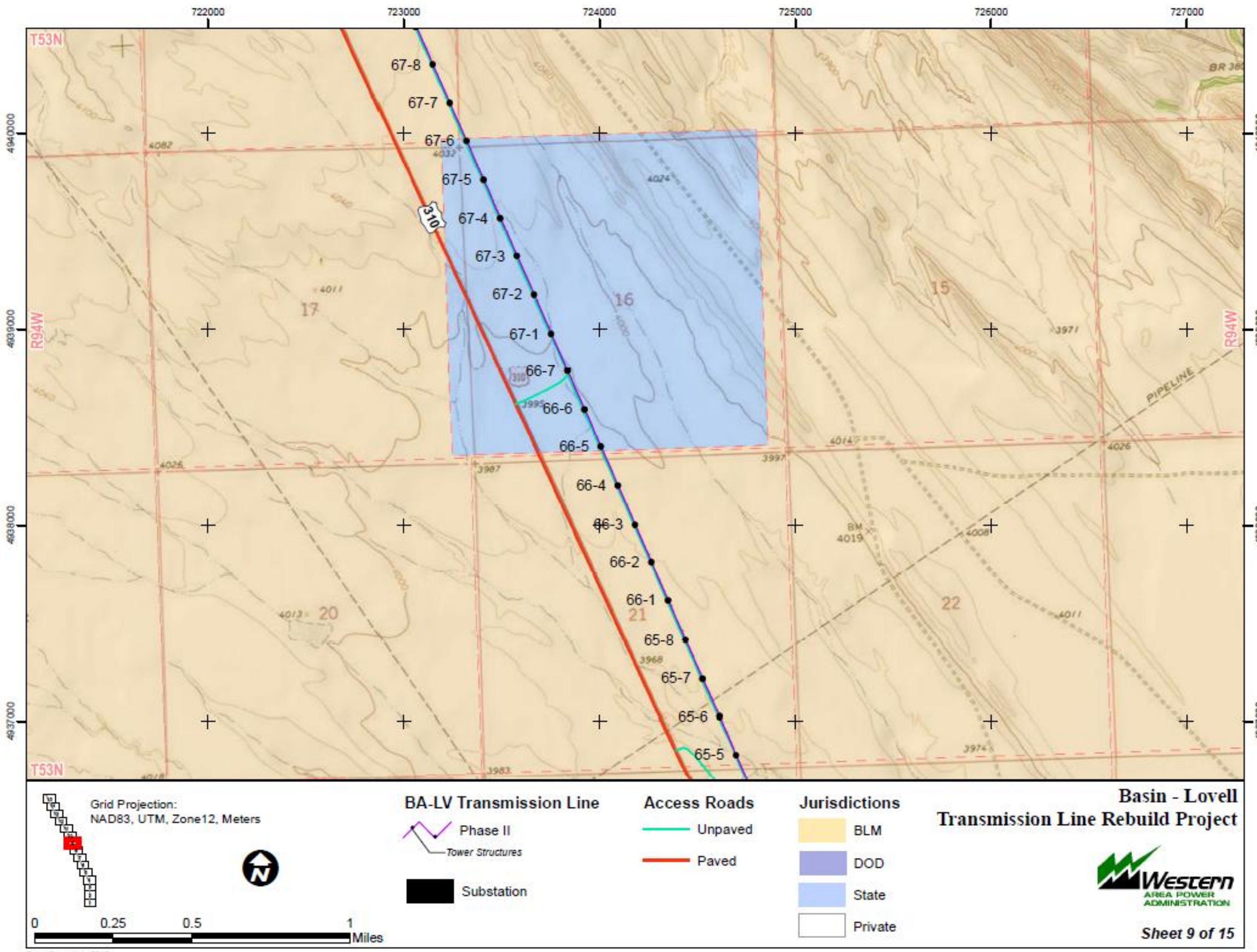

Figure A- 27 Basin-Lovell Map 9 of 15

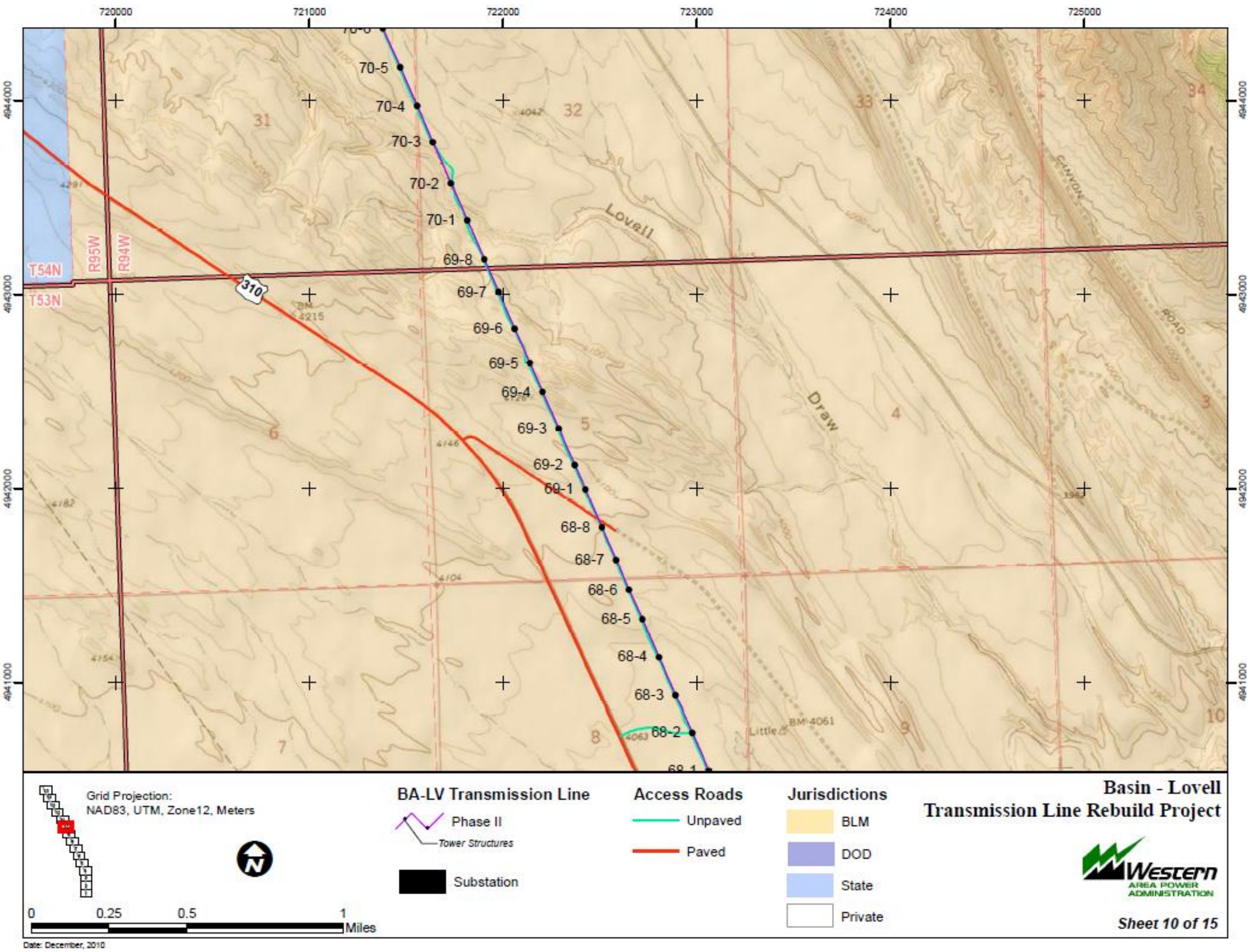

Figure A- 28 Basin-Lovell Map 10 of 15

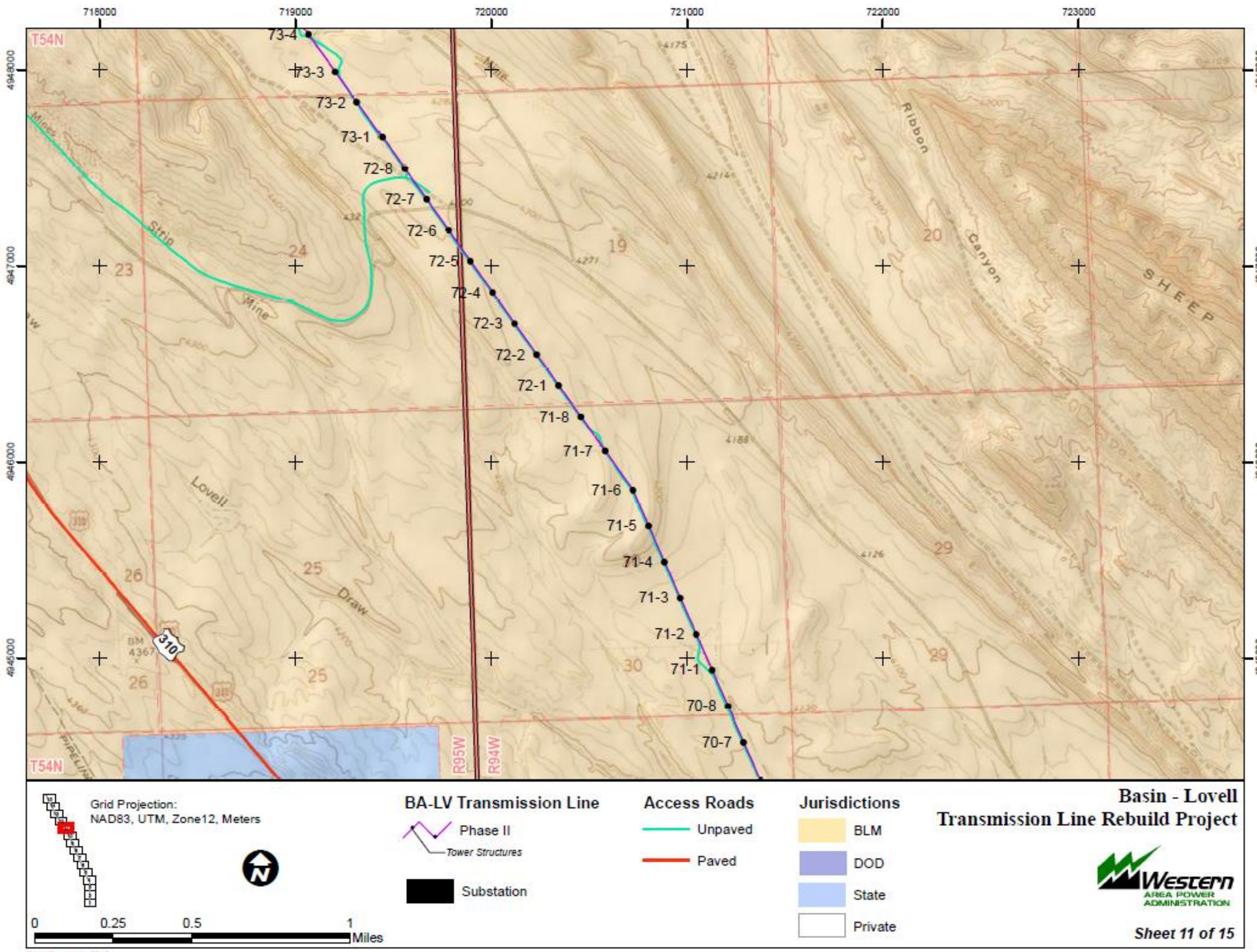

Figure A- 29 Basin-Lovell Map 11 of 15

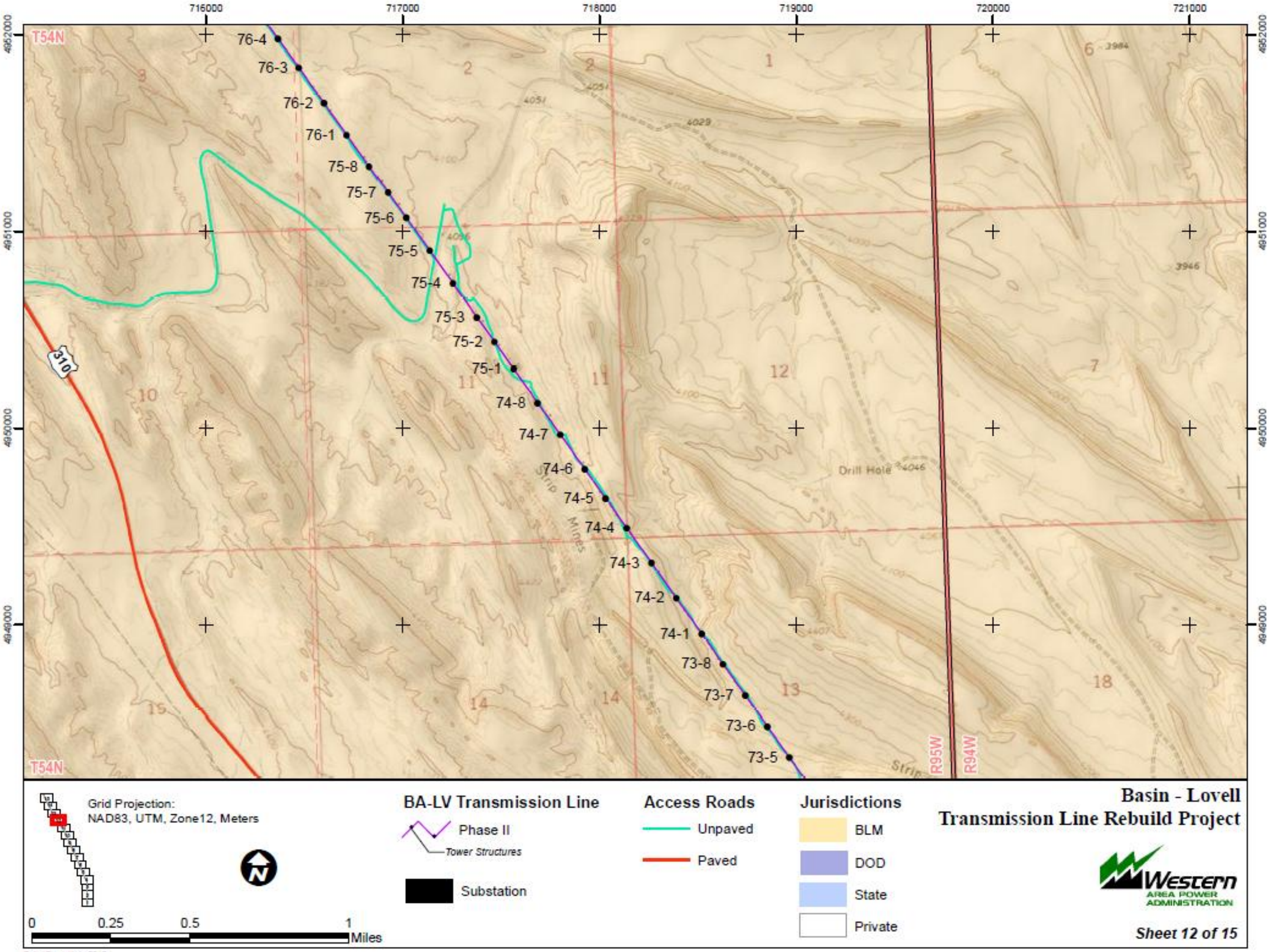

Figure A- 30 Basin-Lovell Map 12 of 15

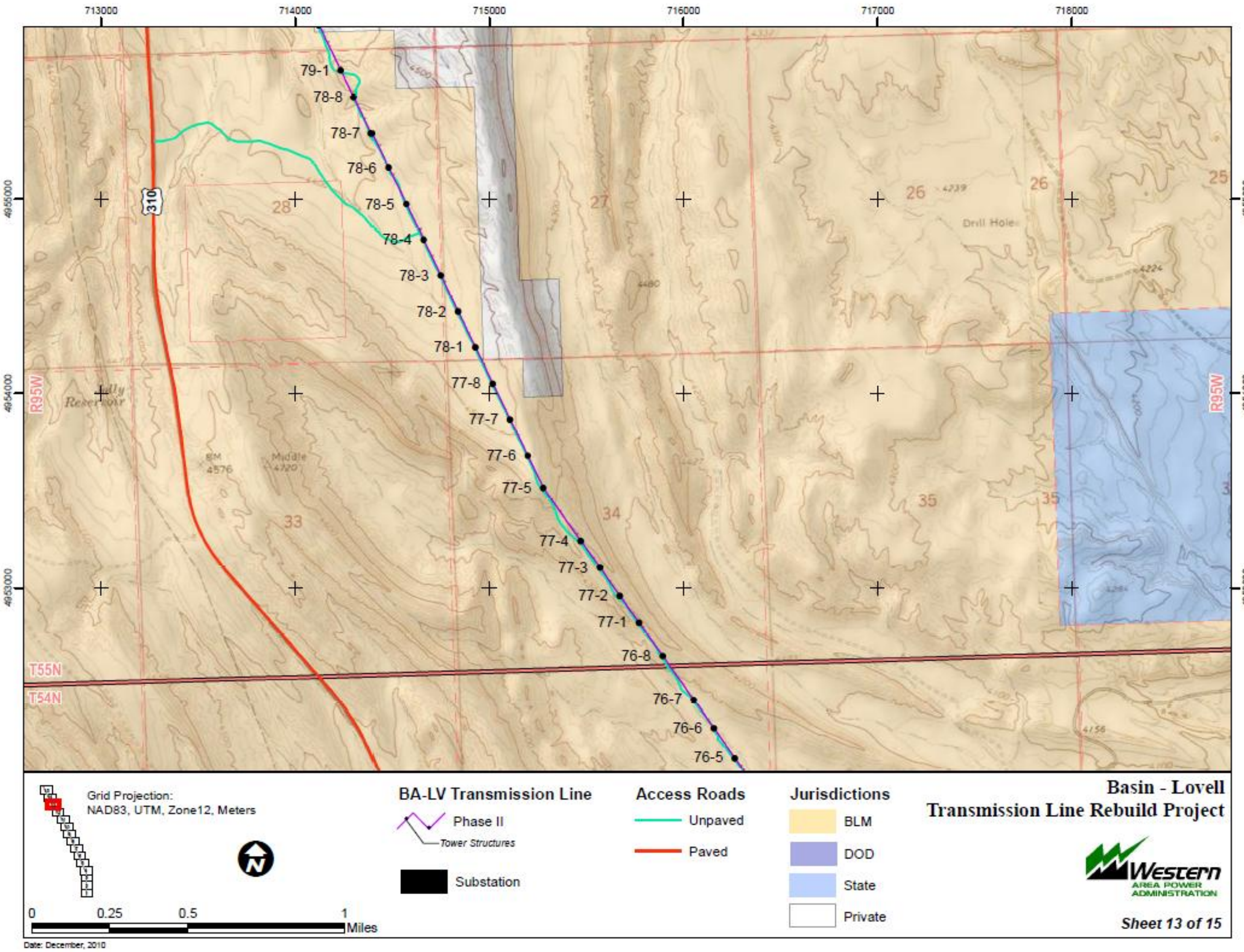

Figure A- 31 Basin-Lovell Map 13 of 15

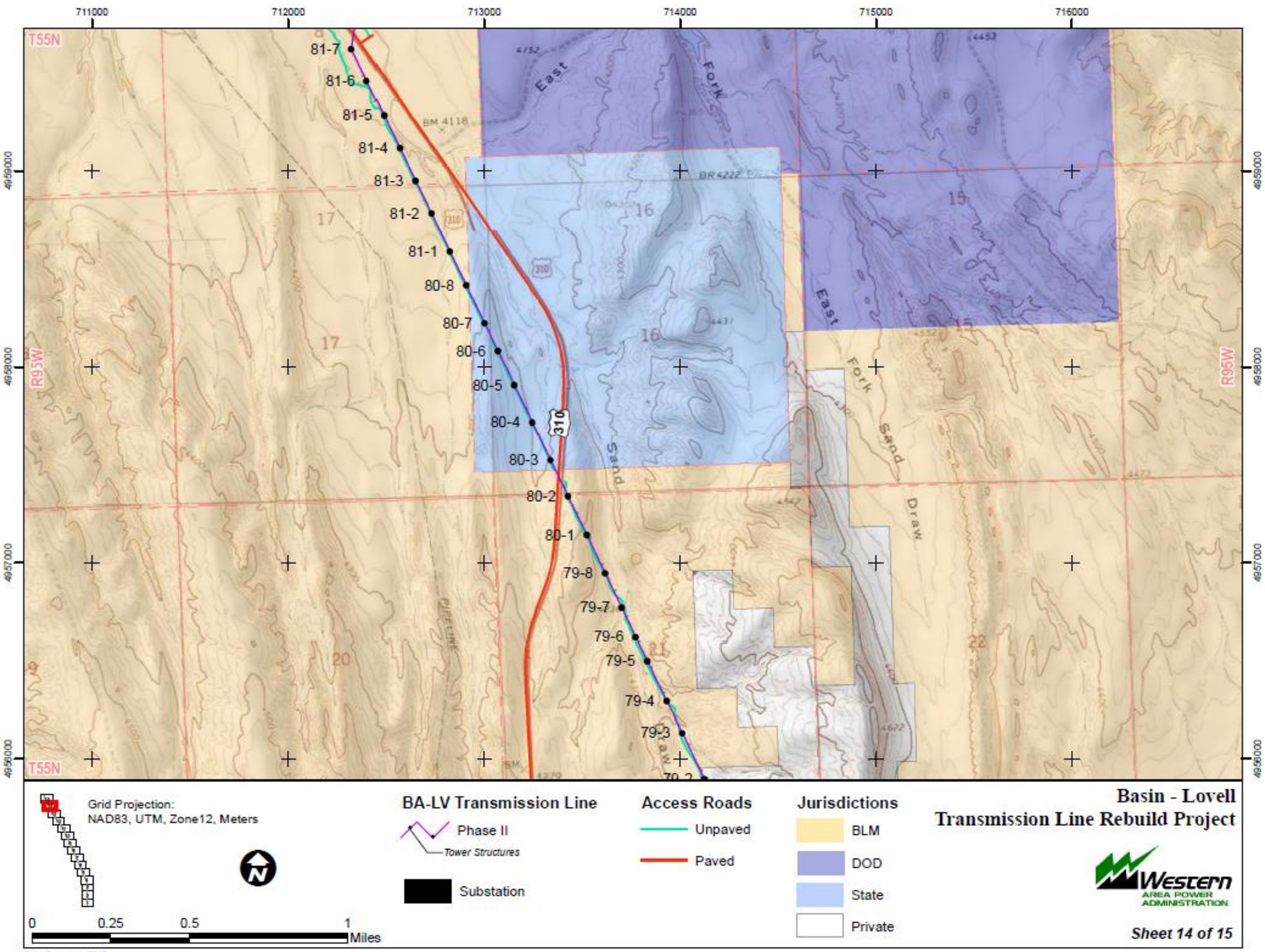

Figure A- 32 Basin-Lovell Map 14 of 15

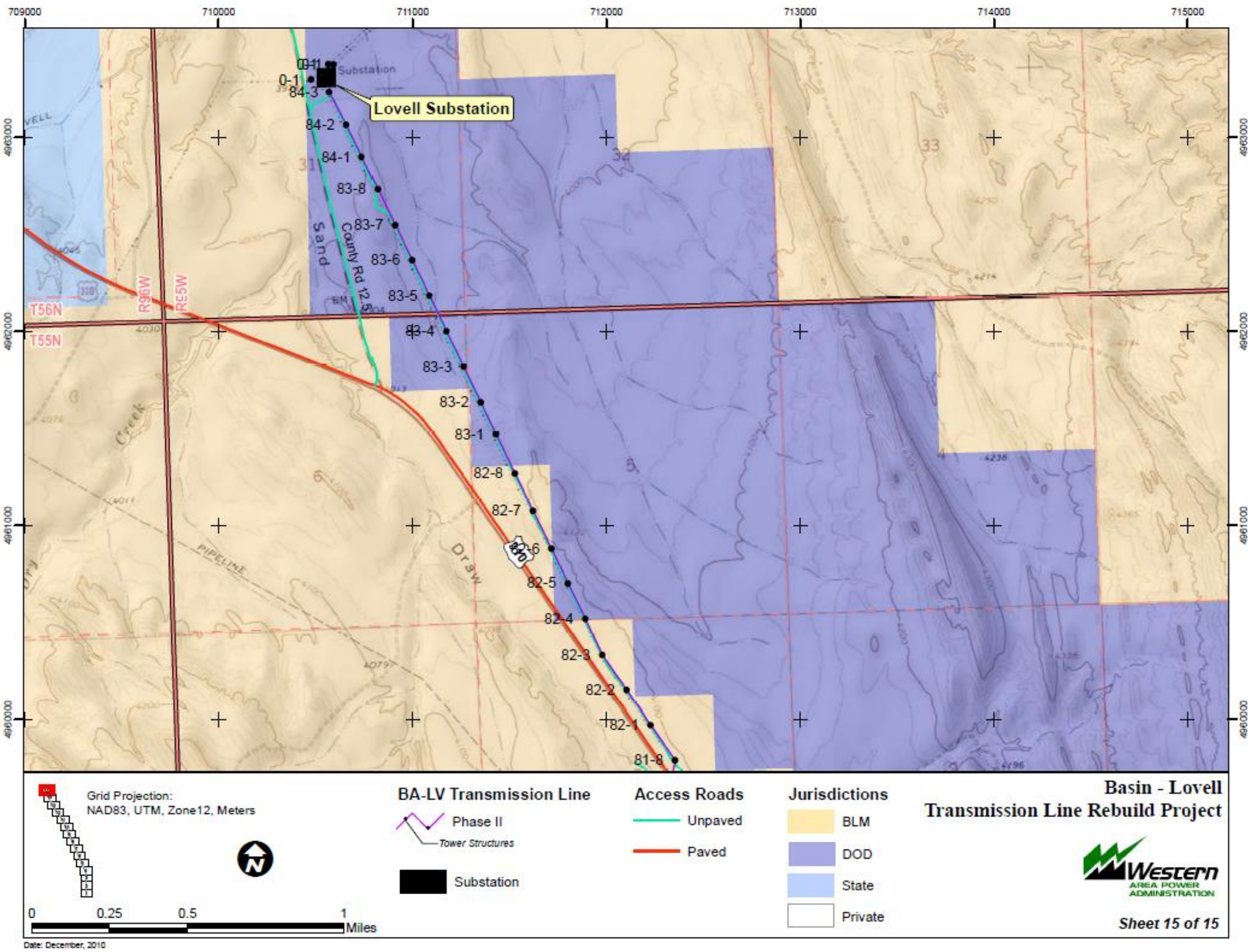

Figure A- 33 Basin-Lovell Map 15 of 15

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Appendix B -Interagency Consultation

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National Park Service
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Ms. Chris Turk
NPS-IMDE-CEQ
Regional Environmental Quality coordinator
12795 W. Alameda Pkwy
Denver, CO 80225

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Cheyenne, WY 82002

State Historic Preservation Office
1410 Eighth Ave.
Helena, MT 59620

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Lovell, WY 82431

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Commissioner for Big Horn County
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Lovell, WY 82431

Mr. James Waller
Bighorn County
GIS/County Planner
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Basin, WY 82410

Mr. William Duncan
Commissioner for Big Horn County

P.O. Box 31
Basin, Wyoming 82410

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Commissioner for Big Horn County
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Commissioner for Carbon County
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Red Lodge, MT 59068

Mr. David Davidson
Commissioner for Carbon County
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Red Lodge, MT 59068

Mr. John Prinkki
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Red Lodge, MT 59068

Mr. Chad Fenner
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Hardin, MT 59034-1905

John Doyle
Commissioner for Big Horn County
121 W. 3rd Street, P.O. Box 908
Hardin, MT 59034-1905

Mr. John Pretty on Top
Commissioner for Big Horn County
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Hardin, MT 59034-1905

Mr. Bart Grant Administrator
Town of Lovell
336 Nevada Ave.
Lovell, WY 82431

Tribal Government

Mr. Cedric Black Eagle
Chairman Crow Tribal Council
Baacheeitche Avenue
P.O. Box 159
Crow Agency, MT 59022

Appendix C – Correspondence from USFWS, WY Game and Fish, MT Fish Wildlife and Parks, and Other Agencies

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Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

MAY 0 4 2011

Mr. Jim Waller
Big Horn County
GIS Coordinator/County Planner
P.O. Box 29
Basin, WY 82410

SUBJECT: LOVELL TO YELLOWTAIL AND BASIN TO LOVELL TRANSMISSIN LINE REBUILD PROJECT, BIG HORN COUNTY, WYOMING

Dear Mr. Waller:

Western Area Power Administration (Western) has recently completed the review of peak flow and culvert sizing for new culvert installations needed on access roads as part of the Lovell-Yellowtail (LV-YT) and Basin-Lovell (BA-LV) Transmission Line Rebuild. You requested this information during the teleconference with Western on February 15, 2011. For your convenience, we have enclosed maps that will be included in the pending Environmental Assessment. The order of these enclosures is based on the order in which they are discussed in this letter and not by the number shown in the figure titles.

Ten potential culvert crossing sites were analyzed. Only two of these sites (stream crossings between tower structures 75-4 to 75-5 on the BA-LV line and 11-4 to 11-5 on the LV-YT lines) are located within Special Flood Hazard Zones. Peak flow at each of the ten crossing sites was calculated for a 100-year, 24-hour rainfall event using the Win-TR-55 Small Watershed Hydrology model.

Culvert sizes based on results from peak flows generated by the TR-55 model were calculated using FlowMaster (Hydraulic Analysis for Open Channels, Pipes, Weirs, and Orifices) software.

Table 1, calculation of 100-year, 24-hour recurrence interval flow and required CMP or Concrete Culvert Sizes summarizes the findings of these two analyses. There are two locations (between structures 75-4 to 75-5 and 81-5 to 81-6 each on the BA-LV line) that will be evaluated further in the field to determine if a concrete box culvert would be better suited for those locations. Sizing for both options is included in Table 1.

A project overview map is included that shows the access roads, rights-of-way, and location of the proposed transmission line rebuild. More detailed maps showing the location of pole structures within Special Hazard Zones for both the BA-LV and LV-YT portions of the projects are also included.

Please let us know if you have any questions. You can contact me at (970) 461-7267.

Sincerely,

Michael Korhonen
Project Manager

Enclosures:
BA-LV-YT Project Maps (compressed pdf file)

cc:
Ms. Janet N. Shangraw
JNS, Inc.
5280 South Zinnia Court
Littleton, CO 80127

MAR 2 9 2011

Mr. Jim Waller
Big Horn County
GIS Coordinator/County Planner
P.O. Box 29
Basin, WY 82410

Dear Mr. Waller:

Thank you for participating in the teleconference with Western Area Power Administration (Western) on February 15, 2011. We discussed our proposal to upgrade structures and the conductor on the Lovell to Yellowtail transmission line and the Lovell to Basin transmission line. We arranged the teleconference to get additional information and clarification on the Big Horn County Special Flood Hazard Zones in response to your letter of November 17, 2010. The teleconference was useful and informative for Western.

Western will provide you with information on hydrology and sizing for new culvert installations. In addition to culverts proposed for mapped flood zones, we will provide information for the Sand Draw crossing, unless we propose to use a low water crossing in that area. We will provide this information to you well before construction begins. This will ensure if the information is sufficient and that we can provide additional information, if needed.

We will e-mail a link to the environmental assessment once it is available. Again, we appreciate your assistance. If you have questions, or require additional information on the project, please call me at (970) 461-7267.

Sincerely,

Mike Korhonen

Michael Korhonen
Project Manager

cc:
Ms. Janet N. Shangraw
JNS, Inc.
5280 South Zinnia Court
Littleton, CO 80127

bcc:
J. Hartman, A7400, Lakewood, CO

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RECEIVED
BY JGW DATE 23 NOV 2010

Big Horn County
Mapping and Planning

P.O. Box 29
Basin, Wyoming 82410
Phone: 307-568-2424
e-mail: planner@bighorncountywy.gov
website: www.bighorncountywy.gov

November 17, 2010

Mr. Jim Hartman
Environmental Manager
Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539

RE: Basin to Lovell Transmission Line Rebuild Project Big Horn County, Wyoming

Mr. Hartman,

Big Horn County Planning Office received the information for the Basin to Lovell 115-kV Transmission Line rebuild project. However, it appears there were some maps not included in the package that maybe relative to the project; though the areas are described in Table 2 (Access Road Actions along the ROW for the Basin to Lovell Transmission Line Project).

Big Horn County, Wyoming has permit authority on developments located within Special Flood Hazard Zones.

As indicated in the information, there are six official mapped floodplain crossings involving electrical structures and/or access roads. Some of these crossings have one or more structures located within the mapped Special Flood Hazard Zone. From the information provided there are two access road crossings within the mapped Special Flood Hazard Zones and seven access road crossings under un-mapped areas. One of the access road crossings is a 3 foot x 20 foot culvert or 40 foot low water crossing with fill material.

Section 5.0 of the Big Horn County Flood Damage Prevention Regulation covers the provisions for flood hazard reduction. All development located within the Special Flood Hazard Zones must have technical evaluations demonstrating that the encroachments proposed will not result in any increase in flood levels during the occurrence of the base flood discharge. The flood regulations are available on the following web site: http://www.bighorncountywy.gov/dep-land-planning-building-development.htm

At minimum, six individual Development Applications and supporting documentation must be submitted for review and approval for each mapped crossing. All submittals must include all information related to the floodplain development. A blank development application has been included with this letter. Development applications are also located on the County's website under the Land Planning Department-Building & Development page.

Keep our office informed on the project, and be advised permitting is required prior development.

Sincerely,

Jim Waller

Jim Waller
Big Horn County
GIS Coordinator/County Planner

Cc Kim Johnson, State of Wyoming NFIP Coordinator

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Wind River/Bighorn Basin District
Worland Field Office
P.O. Box 119
Worland, Wyoming 82401-0119

TAKE PRIDE IN AMERICA

In Reply Refer To:
WYW-0231833
2800 (WYR01)

JUN 0 2 2010

Mr. Jim Hartman
Environmental Manager
Western Area Power Administration
Rocky Mountain Region
5555 East Crossroads Boulevard
Loveland, CO 80538-8986

Dear Mr. Hartman:

On May 19, 2010, BLM received your notification with upgrades for the Basin-Lovell Transmission Line Rebuild Project for right-of-way WYW-0231833.

Authorization for maintenance except when construction is proposed outside the existing right-of-way is involved does not require further approval. Any relocation, additional construction, or use that is not in accord with the approved grant, shall not be initiated without prior written approval of the authorized officer.

If a temporary construction area is needed for the right-of-way, you may submit a right-of-way application for consideration by this office (Application for Transportation and Utility Systems and Facilities on Federal Lands (SF-299) is enclosed).

If you have any questions, please contact Carol Sheaff or Connie Craft, at the above address or telephone (307) 347-5100.

Sincerely,

Don Krump

Don Krump
Assistant Field Manager
Minerals and Lands

Enclosure

cc: Mr. Rodney Jones (w/ enclosure)
Western Area Power Administration
Rocky Mountain Region
5555 East Crossroads Boulevard
Loveland, CO 80538-8986

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006
Phone: (307) 777-4600 Fax: (307) 777-4610
Web site: http://gf.state.wy.us

June 3, 2010

WER 11795
Department of Energy
Western Area Power Administration
Proposed Change in the Scope of the
Lovell-Yellowtail No. 1 and No. 2
Transmission Line Rebuild Project
Big Horn County

Rodney Jones
Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539-3003

Dear Mr. Jones:

The staff of the Wyoming Game and Fish Department has reviewed the proposed change in the scope of the Lovell-Yellowtail No. 1 and No. 2 Transmission Line Rebuild Project in Big Horn County. We offer the following comments.

Terrestrial Considerations:

We recommend no surface occupancy within ¼-mile of the perimeter of occupied sage-grouse leks and that surface disturbing activities within 2-miles of occupied leks not occur from March 15 through June 30. Additionally, we recommend that new transmission line structures include raptor perch deterrents and that markers be placed on power lines at all river/stream crossings to make them more visible to birds that utilize stream corridors. Weed control measures should be implemented for any ground disturbance. If reclamation or seeding efforts are required we suggest using endemic native plant species.

Aquatic Considerations:

We have no aquatic concerns pertaining to this project. However, we recommend that best management practices be used to control erosion and prevent sediment from reaching nearby waterways.

Headquarters: 5400 Bishop Boulevard, Cheyenne, WY 82006-0001
Fax: (307) 777-4610 Web Site: http://gf.state.wy.us

Mr. Rodney Jones
June 3, 2010
Page 2 - WER 11795

Thank you for the opportunity to comment. If you have additional questions, please contact Tom Easterly, Cody Region Wildlife Biologist, at 307-765-2742.

Sincerely,

for John Emmerich
Deputy Director

JE: MF: gfb

cc: USFWS
Tim Woolley, Cody Region
Tom Easterly, Cody Region
Steve Yekel, Cody Region

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
BILLINGS REGULATORY OFFICE
POST OFFICE BOX 2256
BILLINGS MT 59103

RECEIVED
BY JGH DATE 6FEB09

Please reply to attention of:

February 4, 2009

Billings Regulatory Office
Phone (406) 657-5910
Fax (406) 657-5911

RE: **Lovell to Yellowtail No.1 and No.2 Transmission Lines Rebuild**
Corps File No. NWO-2009-00109-MTB

Department of Energy
Attention: Mr. Jim Hartman
Post Office Box 3700
Loveland, Colorado 80539-3003

Dear Mr. Hartman:

Reference is made to your request for comments regarding rebuilding the above referenced transmission lines. Work will occur in Carbon and Big Horn Counties, Montana.

Under the authority of Section 404 of the Clean Water Act, Department of the Army permits are required for the discharge of fill material into waters of the United States. Waters of the United States include the area below the ordinary high water mark of stream channels and lakes or ponds connected to the tributary system, and wetlands adjacent to these waters.

Based on the information provided and a map review, the project area does contain jurisdictional waters. However, most impacts to waters of the U.S. can be avoided by locating support structures away from streams and adjacent wetlands. For authorization under our Nationwide Permit Program, please follow the guidance and conditions of the enclosed Fact Sheet Nationwide Permit 12 and enclosed Regional Conditions. Some additional special conditions are likely to be required, such as crossing streams during periods of low flow or no flow. If you directionally bore under waters of the U.S. and wetlands, no permit will be required. Additional permit authorization may be required for temporary road crossings and work pads.

When final design has been completed, please submit plans and a joint application to this office, along with project drawings and photographs of the proposed sites. Please also include a delineation of aquatic resources, including wetlands that may be affected by this project. If you need assistance identifying waters of the U.S. and wetlands, a list of wetlands consultants can be downloaded from https://www.nwo.usace.army.mil/html/od-rmt/consultants.htm. The application can be downloaded from http://www.nwo.usace.army.mil/html/od-rmt/applications.html, or one can be mailed to you upon request. When the application is complete, a determination will be made as to whether or not authorization will be granted.

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If you have any questions, please call me at the Billings office at (406) 657-5910, and reference File No. NWO-2009-00109-MTB.

Sincerely,

Shannon Johnson

Shannon Johnson
Regulatory Project Manager

Enclosures:

Fact Sheet for Nationwide Permit 12
2007 Nationwide Permit Regional Conditions for the State of Montana

Montana Fish, Wildlife & Parks

2300 Lake Elmo Drive
Billings, MT 59105
February 4, 2009

Rodney Jones, Environmental Specialist
Western Area Power Administration
P. O. Box 3700
Loveland, CO 80539

Dear Mr. Jones:

I am writing on behalf of Montana Fish, Wildlife, and Parks to comment on the proposal to rebuild and upgrade the transmission lines between Lovell, Wyoming, and Yellowtail No. 1 and No. 2 in Montana. We appreciate the opportunity to comment.

One comment from our Fisheries Division is that extra precaution needs to be used when work is done in the upper end of Hoodoo Creek, as it supports a genetically pure population of Yellowstone cutthroat trout.

Personnel in our Wildlife Division have three comments:

1. Care needs to be taken along the entire route that appropriate procedures and guidelines are followed regarding line spacing and insulators to prevent the electrocution of raptors.

2. If osprey nests are encountered in removal of old poles and lines, the U. S. Fish and Wildlife Service should be contacted because removal would be dependent on the time of year.

3. Where the lines cross the afterbay on the Bighorn River in Montana, just below Yellowtail Dam, we strongly recommend that some modifications be added, both over the river and for some distance on both sides of it, to make the lines more visible to birds to reduce the likelihood of birds flying into the lines. This area of the river gets considerable use by birds. There already are a number of lines on the west side of the afterbay, but the lines over water would be the biggest threat to birds. Many species of waterfowl use this area, with the most common being mallards, common goldeneyes, and Canada geese. Other species of ducks found there include lesser scaup, northern pintail, American wigeon, and common merganser. Both tundra swans and trumpeter swans are occasionally found in the area. Several common nongame species would also be vulnerable to collisions with the lines, including bald eagles, which are attracted to the area by food

sources in the form of fish and waterfowl. Other nongame species common in the area and vulnerable to collisions include osprey, great blue heron, double-crested cormorant, American white pelican, and several species of grebes and hawks. Enclosed are two articles on birds striking wires that may be of interest.

Thank you for considering these comments.

Sincerely,

Gary Hammond

Gary Hammond,
Regional Supervisor

Encl.

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4610

Web site: http://gf.state.wy.us

January 23, 2009

WER 11795
Department of Energy
Western Area Power Administration
Proposed Floodplain Action for the
Lovell to Yellowtail No. 1 and No. 2
Transmission Lines Rebuild
Big Horn County

Rodney Jones
Environmental Specialist
Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539-3003

Dear Mr. Jones:

The staff of the Wyoming Game and Fish Department has reviewed the proposed Floodplain Action for the Lovell to Yellowtail No. 1 and No. 2 Transmission Lines Rebuild in Big Horn County. We offer the following comments.

Terrestrial Considerations:

In addition to our comments submitted on the June 20, 2008, we recommend placing markers on power lines at all river/stream crossings to make them more visible to birds that utilize stream corridors.

Aquatic Considerations:

We have no aquatic concerns pertaining to this project. However, we recommend that best management practices be used to control erosion and prevent sediment from reaching nearby waterways.

Headquarters: 5400 Bishop Boulevard, Cheyenne, WY 82006-0001
Fax: (307) 777-4610 Web Site: http://gf.state.wy.us

Mr. Rodney Jones
January 23, 2009
Page 2 - WER 11795

Thank you for the opportunity to comment.

Sincerely,

for JOHN EMMERICH
DEPUTY DIRECTOR

JE: MF

cc: USFWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
MONTANA FIELD OFFICE
585 SHEPARD WAY
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

File: M09 DOE (I)

December 17, 2008

T. Michael Phelan, Principal
Cedar Creek Associates, Inc
916 Willshire Ave.
Fort Collins, Colorado 80521

Dear Mr. Phelan:

This is in response to your letter dated October 16, 2008 requesting information from the U.S. Fish and Wildlife Service (Service) on federally listed threatened and endangered species that may occur in the vicinity of the proposed Western Area Power Administration's Lovell, Wyoming to Yellowtail, Montana Transmission Line Rebuild Project. In Montana, the project would occur in Carbon and Big Horn Counties. Your request was received by Fax on December 8, 2008.

Considering the location of the proposed action, the Service does not anticipate the occurrence of any federally listed threatened, endangered, candidate or proposed species. There may be state species of concern in the vicinity of the project and we recommend contacting the Montana Department of Fish, Wildlife and Parks at 1420 East Sixth Ave., P.O. Box 200701, Helena, MT 59620-0701, 406-444-2535 or the Montana Natural Heritage Program, 1515 East 6th Avenue, Box 201800, Helena, MT 59620-1800, 406-444-5354.

If wetlands are impacted by this proposal, Corps of Engineers Section 404 permits may be required. The Service suggests any proposed or future project be designed to avoid and minimize impacts to wetland areas, stream channels and surrounding vegetation to the greatest extent possible. Direct, indirect and cumulative impacts, along with future activities required to maintain these improvements, should be analyzed.

The Service appreciates your efforts to incorporate fish and wildlife resource concerns, including threatened and endangered species, into your project planning. If you have questions or comments related to this issue, please contact Katrina Dixon at 406-449-5225 extension 222.

Sincerely,

R. Mark Wilson
R. Mark Wilson
Field Supervisor

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4610

Web site: http://gf.state.wy.us

June 20, 2008

WER 11795
Department of Energy
Western Area Power Administration
Environmental Assessment
Proposal to Rebuild the Lovell to Yellowtail No. 1
and No. 2 Transmission Lines
Big Horn County

Rodney Jones
Environmental Specialist
Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539-3003

Dear Mr. Jones:

The staff of the Wyoming Game and Fish Department has reviewed the Environmental Assessment Proposal to Rebuild the Lovell to Yellowtail No. 1 and No. 2 Transmission Lines in Big Horn County. We offer the following comments.

Terrestrial Considerations:

We recommend that new transmission line structures include raptor perch deterrents. Construction activity should be avoided within ¼-mile of sage-grouse leks from March 1 through May 15. We also recommend that weed control measures be implemented for any ground disturbance. If reclamation or seeding efforts are required we suggest using endemic native plant species.

Aquatic Considerations:

We have no aquatic concerns pertaining to this project. However, we recommend that best management practices be used to control erosion and prevent sediment from reaching nearby waterways.

Headquarters: 5400 Bishop Boulevard, Cheyenne, WY 82006-0001
Fax: (307) 777-4610 Web Site: http://gf.state.wy.us

Mr. Rodney Jones
June 20, 2008
Page 2 - WER 11795

Thank you for the opportunity to comment.

Sincerely,

Scott Gamo

for JOHN EMMERICH
DEPUTY DIRECTOR

JE:VS:gfb

cc: USFWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

In Reply Refer To:
ES-61411/W.35/WY08SL0197

JUN 13 2008

Mr. Rodney Jones
Environmental Specialist
Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539

Dear Mr. Jones:

Thank you for your letter, dated May 22, 2008 and received in our office on May 28, regarding the preparation of an environmental assessment (EA) for the Lovell to Yellowtail No. 1 and No. 2 Transmission Lines Rebuild Project (Project), located in Big Horn County, Wyoming and Carbon and Big Horn Counties, Montana. The Project will include replacing approximately 47 miles of two existing110 kilovolt (kV) lines that run parallel to each other and upgrading them to 230 kV. The rebuilt transmission lines will be similar to, but larger than, the existing wood pole H-frame structures. You requested comments on the proposed Project and an indication of preference for a hard copy or compact disc of the EA. Our office prefers receiving a compact disc.

In response to your request, our office reviewed the information you provided pursuant to the Endangered Species Act (Act) of 1973 as amended, (16 U.S.C. 1531 *et seq.*), Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703, and the Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956, as amended, 70 Stat. 1119, 16 U.S.C. 742a-742j. Based on the location of the project, my staff has determined that no threatened or endangered species are likely to occur in the Wyoming portion of the Project area; however, there are other trust resources of concern.

Migratory Birds

The MBTA, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations and does not require intent to be proven. Section 703 of the MBTA states, "Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to ... take, capture, kill, attempt to take, capture, or kill, or possess ... any migratory bird, any part, nest, or eggs of any such bird..." The BGEPA, prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing.

Work that could lead to the take of a migratory bird including an eagle, their young, eggs, or nests (for example, if you are going to construct new power lines in the vicinity of a nest), should be coordinated with our office before any actions are taken. Removal or destruction of such nests, or causing abandonment of a nest could constitute violation of one or both of the above statutes. Removal of any active migratory bird nest or nest tree is prohibited. For golden eagles, inactive nest permits are limited to activities involving resource extraction or human health and safety. Mitigation, as determined by the local Service field office, may be required for loss of these nests. No permits will be issued for an active nest of any migratory bird species, unless removal of an active nest is necessary for reasons of human health and safety. Therefore, if nesting migratory birds are present on, or near the project area, timing is a significant consideration and needs to be addressed in project planning.

If nest manipulation is proposed for this project, the project proponent should contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued for this project. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur.

Bald eagle
On July 9, 2007, the Service published a Federal Register notice (72 FR 37346) announcing that the bald eagle (*Haliaeetus leucocephalus*) would be removed from the list of threatened and endangered species under the Act on August 8, 2007. However, the protections provided to the bald eagle under the BGEPA and the MBTA will remain in place. The term "disturb" under the BGEPA has recently been defined as: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (72 FR 31332)."

To assist with the delisting transition, the Service has developed National Bald Eagle Management Guidelines to advise land managers when and under what circumstances the protective provisions of the MBTA and BGEPA may apply to their activities. These guidelines are available on our web page at http://www.fws.gov/migratorybirds/baldeagle.htm. In western states with more open habitats additional conservation recommendations may also apply. Please note, our office in collaboration with the Wyoming Game and Fish Department, will be developing additional guidelines to adequately address the unique conditions of our state. We will issue a notice when the guidelines specific to Wyoming are completed. Additionally, the Service has proposed a permit structure under the BGEPA that is similar to the permit structure that exists under the Act for unavoidable impacts. However, this structure is currently undergoing public comment and is not yet in place. Please contact our office if you have any questions regarding this permit structure or the delisting decision. You should also contact our office if you require technical assistance regarding any planned or ongoing activities related to the requirements of the MBTA, BGEPA, or the National Bald Eagle Management Guidelines.

Mountain plover
The Service has withdrawn the proposal to list the mountain plover (*Charadrius montanus*) and we will no longer be reviewing project impacts to this species under the Act. We do, however,

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encourage Western Area Power Administration to continue providing protection for this species as it remains protected under the MBTA. Measures to protect the mountain plover from further decline may include (1) avoidance of suitable habitat during the plover nesting season (April 10 through July 10), (2) prohibition of ground disturbing activities in prairie dog towns, and (3) prohibition of any permanent above ground structures that may provide perches for avian predators or deter plovers from using preferred habitat. Suitable habitat for nesting mountain plovers includes grasslands, mixed grassland areas and short-grass prairie, shrub-steppe, plains, alkali flats, agricultural lands, cultivated lands, sod farms, and prairie dog towns.

General Comments

In 2005, The Service in partnership with the Avian Power Line Interaction Committee (APLIC) released voluntary Avian Protection Plan (APP) guidelines designed to help electrical utilities protect and conserve migratory birds. Electrocutions are a significant threat to eagles, hawks and owls, which are protected under the Migratory Bird Treaty Act. Collision with power lines is a problem for many more migratory birds. Bird electrocutions can cause power outages, fires and result in increased operations costs and inconvenience for the utility company and their customers. The APP guidelines, which reference the latest industry standards for preventing avian power line interactions allows electric utilities to tailor a voluntary APP to meet the specific needs of their infrastructure. We encourage Western Area Power Administration to use these guidelines, which can be found at http://migratorybirds.fws.gov/ to develop an APP that meets their specific utility needs.

Power lines should be built, at a minimum, to standards identified in the *Suggested Practices for Raptor Protection on Power Lines--The State of the Art in 2006* (Edison Electric Institute and the Raptor Research Foundation 2006) to minimize electrocution potential. The Service has the following more specific recommendations that reaffirm and compliment those presented in the Practices. Western Area Power Administration should ensure that these additional standards, to minimize raptor mortalities associated with utility transmission lines, be incorporated into the stipulations for all project actions. It should be noted that these measures vary in their effectiveness to minimize mortality, and may be modified as they are tested in the field and laboratory. Local habitat conditions should be considered in their use. The following represents areas where raptor protection measures should be applied when designing/constructing new distribution lines or modifying existing facilities:

For new distribution lines and facilities

1. Distribution lines should be buried where feasible.

2. Raptor-safe structures (e.g., with increased conductor-conductor spacing) are to be used that address adequate spacing for raptors (i.e., minimum of 60 inches for bald eagles).

3. Equipment installations (e.g., overhead service transformers, capacitors, reclosers, etc.) should be made raptor safe (e.g., by insulating the bushing conductor terminations and by using covered jumper conductors).

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4. Jumper conductor installations (e.g. corner, tap structures, etc.) should be made raptor safe by using covered jumpers or providing adequate separation.

5. Arrestor and cutout covers should be employed when necessary.

6. Lines should avoid high avian use areas such as wetlands, prairie dog towns, and grouse leks.

For modification of existing facilities

1. We suggest identifying and rectifying problem structures that include dead ends, tap or junction poles, transformers, reclosers and capacitor banks or other structures with less than 60 inches between conductors or a conductor and ground.

2. Exposed jumpers should be covered.

3. Any pole top ground wires should be capped.

4. Insulating links of suitable length should be installed in such guy wire installations so as to maintain a sixty-inch clearance between energized conductors and guy wires.

5. On transformers, install insulated bushing covers, covered jumpers, and cutout covers and arrestor covers, if necessary.

6. When raptor mortalities occur on existing lines and structures, raptor protection measures should be applied (e.g., modify for raptor-safe construction, install safe perches or perching deterrents, nesting platforms or nest deterrent devices, etc.)

7. In areas where midspan collisions are a problem, install line-marking devices that have been proven effective. All transmission lines that span streams and rivers, should maintain proper spacing and have markers installed.

Wetlands/Riparian Areas

Your Project location map showed that the Shoshone River will be crossed with reconstructed power lines. Riparian or streamside areas are a valuable natural resource and impacts to these areas should be avoided whenever possible. Riparian areas are the single most productive wildlife habitat type in North America. They support a greater variety of wildlife than any other habitat. Riparian vegetation plays an important role in protecting streams, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian areas should be avoided. Any potential, unavoidable encroachment into these areas should be further avoided and minimized. Unavoidable impacts to streams should be assessed in terms of their functions and values, linear feet and vegetation type lost, potential effects on wildlife, and potential effects on bank stability and water quality. Measures to

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compensate for unavoidable losses of riparian areas should be developed and implemented as part of the project.

Plans for mitigating unavoidable impacts to wetland and riparian areas should include mitigation goals and objectives, methodologies, time frames for implementation, success criteria, and monitoring to determine if the mitigation is successful. The mitigation plan should also include a contingency plan to be implemented should the mitigation not be successful. In addition, wetland restoration, creation, enhancement, and/or preservation does not compensate for loss of stream habitat; streams and wetlands have different functions and provide different habitat values for fish and wildlife resources.

Best Management Practices (BMPs) should be implemented within the project area wherever possible. BMPs include, but are not limited to, the following: installation of sediment and erosion control devices (e.g., silt fences, hay bales, temporary sediment control basins, erosion control matting); adequate and continued maintenance of sediment and erosion control devices to insure their effectiveness; minimization of the construction disturbance area to further avoid streams, wetlands, and riparian areas; location of equipment staging, fueling, and maintenance areas outside of wetlands, streams, riparian areas, and floodplains; and re-seeding and re-planting of riparian vegetation native to Wyoming in order to stabilize shorelines and streambanks.

Thank you for your efforts to ensure the conservation of threatened, endangered, and other species in Wyoming. If you have further questions regarding this letter, please contact Ann Belleman at the letterhead address or phone (307) 772-2374 ext. 232.

Sincerely,

Scott Hicks

Brian T. Kelly
Field Supervisor
Wyoming Field Office

cc: WGFD, Non-game Coordinator, Lander, WY (B. Oakleaf)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (V. Stelter)

Reference:

Edison Electric Institute and the Raptor Research Foundation. 2006. Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 2006. Washington, D.C.

Rodney – this email provides information on the DEQ decision criteria for transmission lines pursuant to State law. For the proposed rebuild of the Lovell –Yellowtail No.1 and No. 2 lines, DEQ will need to determine whether the proposed rebuild complies with substantive standards of the Montana Major Facility Siting Act. We will use information presented in the Western EA, together with any additional information we need to develop, to develop a set of department conclusions that support a department determination. Text at the bottom of this email lists the findings necessary to make this determination, pursuant to 75-20-301, Montana Code Annotated (MCA).

For the Lovell – Yellowtail rebuild project, we expect most information in the EA will be sufficient to support department conclusions. As we review the preliminary draft document, we will highlight where information may not be sufficient.

We want to call your attention to one decision criterion found at 75-20-301(1)(h), MCA, stating "that the use of public lands for location of the facility was evaluated and public lands were selected whenever their use is as economically practicable as the use of private lands." To apply this decision criterion to the Lovell-Yellowtail project, Western should develop information that compares length and cost of routing the lines on private land adjoining the east side of Section 36, T7S, R28E with length and cost of routing the lines within and on the east edge of Section 36, T7S, R28E. We anticipate that length of these two options would be comparable, but that it may be necessary to add two angles at increased cost, to site the lines within Section 36 (between Structures 27-7 and 28-6 on Line No.1 and Structures 27-8 and 28-6 on Line No.2).

We also note that public lands (State land) are crossed by the existing lines in Section 36, T8S, R28E, and within the National Recreation Area.

The following link to the MFSA homepage provides an example of the department conclusions and determination for the Havre-Rainbow transmission line rebuild, another Western project:
http://deq.mt.gov/MFS/index.asp
Please contact me at your earliest convenience with any questions.

Nancy Johnson
Major Facility Siting Program
Montana Department of Environmental Quality
PH 406-444-6797
najohnson@mt.gov

75-20-301. Decision of department -- findings necessary for certification. (1) Within 30 days after issuance of the report pursuant to 75-20-216 for facilities defined in 75-20-104(8)(a) and (8)(b), the department shall approve a facility as proposed or as modified or an alternative to a proposed facility if the department finds and determines:

(a) the basis of the need for the facility;

(b) the nature of the probable environmental impact;

(c) that the facility minimizes adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives;

(d) in the case of an electric, gas, or liquid transmission line or aqueduct:

(i) what part, if any, of the line or aqueduct will be located underground;

(ii) that the facility is consistent with regional plans for expansion of the appropriate grid of the utility systems serving the state and interconnected utility systems; and

(iii) that the facility will serve the interests of utility system economy and reliability;

(e) that the location of the facility as proposed conforms to applicable state and local laws and regulations, except that the department may refuse to apply any local law or regulation if it finds that, as applied to the proposed facility, the law or regulation is unreasonably restrictive in view of the existing technology, of factors of cost or economics, or of the needs of consumers, whether located inside or outside the directly affected government subdivisions;

(f) that the facility will serve the public interest, convenience, and necessity;

(g) that the department or board has issued any necessary air or water quality decision, opinion, order, certification, or permit as required by 75-20-216(3); and

(h) that the use of public lands for location of the facility was evaluated and public lands were selected whenever their use is as economically practicable as the use of private lands.

(2) In determining that the facility will serve the public interest, convenience, and necessity under subsection (1)(f), the department shall consider:

(a) the items listed in subsections (1)(a) and (1)(b);

(b) the benefits to the applicant and the state resulting from the proposed facility;

(c) the effects of the economic activity resulting from the proposed facility;

(d) the effects of the proposed facility on the public health, welfare, and safety;

(e) any other factors that it considers relevant.

Source: http://data.opi.state.mt.us/bills/mca/75/20/75-20-301.htm:

Appendix D – Mitigation Measures for Geological Units underlying the LV-YT and BA-LV Transmission Line Rebuild Project and Potential Fossil Yield Classification

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Table D- 1 Mitigation Measures for Geological Units underlying the LV-YT and BA-LV Transmission Line Rebuild Project

Geologic Deposit	Geologic Age	Type of Deposit/ Environment of Deposition	Potential Fossil Yield Class* (5=highest)	Known Fossil Resources	Scientifically Significant Fossils known from corridor or within a few miles	Mitigation
Basin-Lovell						
alluvial sediments (including alluvium, and colluvium)	Holocene	Unconsolidated silts, sands of valleys and plains. Terrestrial-fluvial.	1	None	No	None
eolian sediments	Holocene (less than 2,000 ybp)	Unconsolidated active and dormant sands dunes, sands and silts. Terrestrial-eolian	1	None	No	None
Willwood Fm	early Eocene	Varicolored sandstone, mudstone, shales. Terrestrial, fluvial, floodplain.	5	Vertebrates (fish, amphibians, reptiles, birds, mammals) , invertebrates, plants and trace fossils	Yes	Monitor
Fort Union Fm	Paleocene	Drab mudstones, sandstone, and conglomerates. Terrestrial, fluvial, floodplain, paludal.	3a/3b	Vertebrates (fish, amphibians, reptiles, birds, mammals), invertebrates, plants, trace fossils, trackways	No	General measures
Lance Fm	Latest Cretaceous	Drab colored mudstones, sandstones and coals. Terrestrial fluvial/floodplain, swamp.	5	Vertebrates (fish, amphibians, reptiles (including dinosaurs), birds, mammals) , invertebrates, plants, trace fossils	Yes	Monitor
Meeteetse Fm	Late Cretaceous	Alternating thin beds of sandstone, siltstone, shale and carbonaceous shale and coal. Lagoonal, coastal swamp, fluvial.	3a/ 3b	Vertebrates (fish, amphibians, reptiles (including dinosaurs), birds, mammals) , invertebrates, plants	No	General measures
Mesaverde Fm	Late Cretaceous	Massive sandstone, thin sandstones, sandy shales, and coal. Marine/terrestrial.	3a /3b	Vertebrates (fish, amphibians, terrestrial and marine reptiles, including dinosaurs, mammals), invertebrates,	No	General measures

Geologic Deposit	Geologic Age	Type of Deposit/ Environment of Deposition	Potential Fossil Yield Class* (5=highest)	Known Fossil Resources	Scientifically Significant Fossils known from corridor or within a few miles	Mitigation
				plants, trace fossils		
Cody Shale	Late Cretaceous	Dark shales, bentontites, and buff sandstones and siltstone. Marine.	3a/3b	Vertebrates (fish, marine reptiles), invertebrates, trace fossils	No	General measures
Frontier Fm	Late Cretaceous	Dark shales, buff sandstones and siltstones, lignites, bentonites, and conglomerate. Marine to terrestrial.	3a/ 3b	Vertebrates (fish, marine reptiles mammals), invertebrates, plants, trace fossils	No	General measures
Mowry Fm	Late Cretaceous	Dark gray, silica-rich and bentonitic shale, with abundant fish scales, weathers silver-gray. Marine.	3a/3b	Vertebrates (fish, marine reptiles), invertebrates, trace fossils	No	General measures
Muddy Ss	Late Cretaceous	White to gray siltstone, sandstone and dark shale, minor amount of conglomerate. Marine, tidal, estuarine, fluvial.	3a/ 3b	Vertebrates (fish), invertebrates, plants, trace fossils	No	General measures
Thermopolis Sh (incl. Shell Creek Sh)	Early Cretaceous	Dark, black soft shale with thin bentonite stringers. Marine.	3a/3b	Vertebrates (fish, marine reptiles), invertebrates	No	General measures
Lovell- Yellowtail						
Cody Shale	Late Cretaceous	as for Basin- Lovell Section	3a/3b	Vertebrates (fish, marine reptiles), invertebrates, trace fossils	No	General measures
Shell Creek, Muddy, Thermopolis Fm	Early Cretaceous	Formations lumped see under formation in Basin-Lovell section	3a/3b	Vertebrates (fish, marine reptiles), invertebrates, trace fossils	No	General measures
Sykes Mountain Formation	Early Cretaceous		5		Yes	Monitor
Cloverly	Early	Varicolored shales, mudstones	5	Vertebrates (amphibians,	Yes	Monitor

Geologic Deposit	Geologic Age	Type of Deposit/ Environment of Deposition	Potential Fossil Yield Class* (5=highest)	Known Fossil Resources	Scientifically Significant Fossils known from corridor or within a few miles	Mitigation
Fm	Cretaceous	sandstones and conglomerate. Terrestrial, floodplain, playa, lake.		reptiles (including dinosaurs), mammals, invertebrates, plants, trace fossils		
Morrison Fm	Jurassic	Olive-green siltstones, mudstones interbedded with white to buff or yellow green massive and cross bedded sandstone. Terrestrial, fluvial, floodplain.	5	Vertebrates (fish, amphibians, reptiles (including dinosaurs),birds, mammals invertebrates, plants, trace fossils	Yes	Monitor
Sundance Fm	Middle to late Jurassic	Greenish-gray glauconitic sandstone and shale overlying a middle fossiliferous limestone and basal fine grained non-glauconitic sandstone. Marine to nonmarine.	3a/3b	Vertebrates (marine reptiles), invertebrates, plants, trace fossils including vertebrate tracks	No	General measures
Gypsum Springs Fm	Middle to late Jurassic	Interbedded red claystone, gypsum, anhydrite, gray cherty limestone and dolomite. Massive white gypsum with red gypsiferous claystone at base. Restricted marine, sabka.	3a/3b	Vertebrate trace fossils (tracks)	No	General measures
Chugwater Fm	Triassic	Red siltstone and shale, red sandstone a thin laminated limestone and thin gypsum interbedded with shale near the base. Thin limestone, the Alcova limestone in upper middle section. Marine to terrestrial.	3a/3b	Vertebrate (amphibian and primitive dinosaurs) and trace fossils (tracks)	No	General measures
Phosphoria Fm	Permian	Primarily gray cherty dolomite with some phosphatic gray shale. Marine.	3a/3b	Invertebrate and trace fossils	No	General measures
Tensleep Formation	Pennsylvanian	White to gray medium to fine grained massive sandstone	3a/3b	Invertebrates and trace fossils	No	General measures

Geologic Deposit	**Geologic Age**	**Type of Deposit/ Environment of Deposition**	**Potential Fossil Yield Class* (5=highest)**	**Known Fossil Resources**	**Scientifically Significant Fossils known from corridor or within a few miles**	**Mitigation**
		interbedded with thin limestone and dolomite. Sandstone characterized by large trough crossbeds. Marine, terrestrial, eolian.				
Amsden Fm	Pennsylvanian	Light gray to cream cherty dolomite interbedded with red shale underlain by mostly red shale with brown crossbedded sandstone (Darwin Sandstone).	3a/3b	Invertebrates and trace fossils	No	General measures
Madison Limestone	Mississippian	Massive, gray to buff and lavender limestone that is locally dolomitic				

*See below for description of Potential Fossil Yield Classification system.

Potential Fossil Yield Classification

In 2007, the BLM office in Washington DC directed BLM Field Offices to begin classifying geological deposits with respect to paleontological resources by using the Potential Fossil Yield Classification (PFYC). The PFYC, which replaces the Paleontology Condition classification previously used, is a tool developed by the Paleontology Center of Excellence and the Region 2 Initiative, whereby geological units are classified according to the probability of yielding paleontological resources of concern to land managers.

The classes are described as follows:

Class 1: These geologic units include rocks of igneous and metamorphic (tuffs are excluded from this category) origin representing heavily disturbed preservational environments that are not likely to contain recognizable fossil remains. They may also include sediments of mass movement or glacial origin. Fossils of any kind are not known to occur in Class 1 units except in the rarest of circumstances. The land manager's concern for paleoresources on Class 1 areas is negligible. Ground-disturbing activities will not require mitigation except in rare circumstances.

Class 2: These geologic units are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils. Vertebrate fossils may occur in these units but are very rare. These units may also include rocks older than the Devonian or younger than 10,000 years old, are of deep marine or aeolian origin, or have been diagenetically altered. The land manager's concern for paleoresources on Class 2 areas is low. Ground-disturbing activities are not likely to require mitigation.

Class 3: These geologic units are likely to contain fossiliferous sedimentary fossil content that varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential. These fossils are often marine in origin with sporadic known occurrences of vertebrate fossils: vertebrate fossils and scientifically significant invertebrate or plant fossils known to occur intermittently; predictability known to be low; or poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

Class 3a – **Moderate Potential.** Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for hobby collecting. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.

Class 3b – **Unknown Potential.** Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this Class may eventually be placed in another Class when sufficient survey and research is performed. The unknown potential of the units in this Class should be carefully considered when developing any mitigation or management actions.

The land manager's concern for paleoresources on Class 3 areas may extend across the entire range of management. Ground-disturbing activities will require sufficient mitigation to determine whether significant paleoresources occur in the area of a proposed action. Mitigation beyond initial findings will range from no further mitigation necessary to full and continuous monitoring of significant localities during the action.

Class 4: These geologic units are similar to Class 5 units (see below) but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation. These units may have significant soil/vegetative cover; or include areas where outcrops are not likely to be impacted. They may also include areas of exposed outcrop that are smaller than two contiguous acres; have outcrops that form cliffs of sufficient height and slope that they are, for the most part, out of reach by normal means; or have other characteristics that lower the vulnerability of both known and unidentified fossil sites. The land manager’s concern for paleoresources on Class 4 areas tends toward management and away from unregulated access. Proposed ground-disturbing activities require assessment to determine whether significant paleoresources occur in the area of a proposed action and whether the action will impact the paleoresources. Mitigation beyond initial findings will range from no further mitigation necessary to full and continuous monitoring of significant localities during the action. This classification will often not be applied until after on-the-ground assessments are made.

Class 5: This class includes highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils and/or scientifically significant non-vertebrate fossils, and that are at risk of natural degradation and/or human-caused adverse impacts. Class 5 geological units are known to yield vertebrate fossils and/or scientifically significant non-vertebrate fossils consistently, predictably, and/or abundantly. They are exposed with little or no soil/vegetative cover; include outcrop areas that are extensive, with discontinuous areas larger than two contiguous acres, or outcrops that erode readily and may form badlands that have easy access to extensive outcrops in remote areas; and may have other characteristics that increase the sensitivity of both known and unidentified fossil sites. The land manager’s highest concern for paleoresources focuses on Class 5 areas. These areas are likely to be poached. Mitigation of ground-disturbing activities is required and may be intense. Areas of special interest and concern should be designated and intensely managed.

Appendix E – FEMA 100-year Flood Zones and Notice of Proposed Floodplain and Wetland Action and Request for Comments

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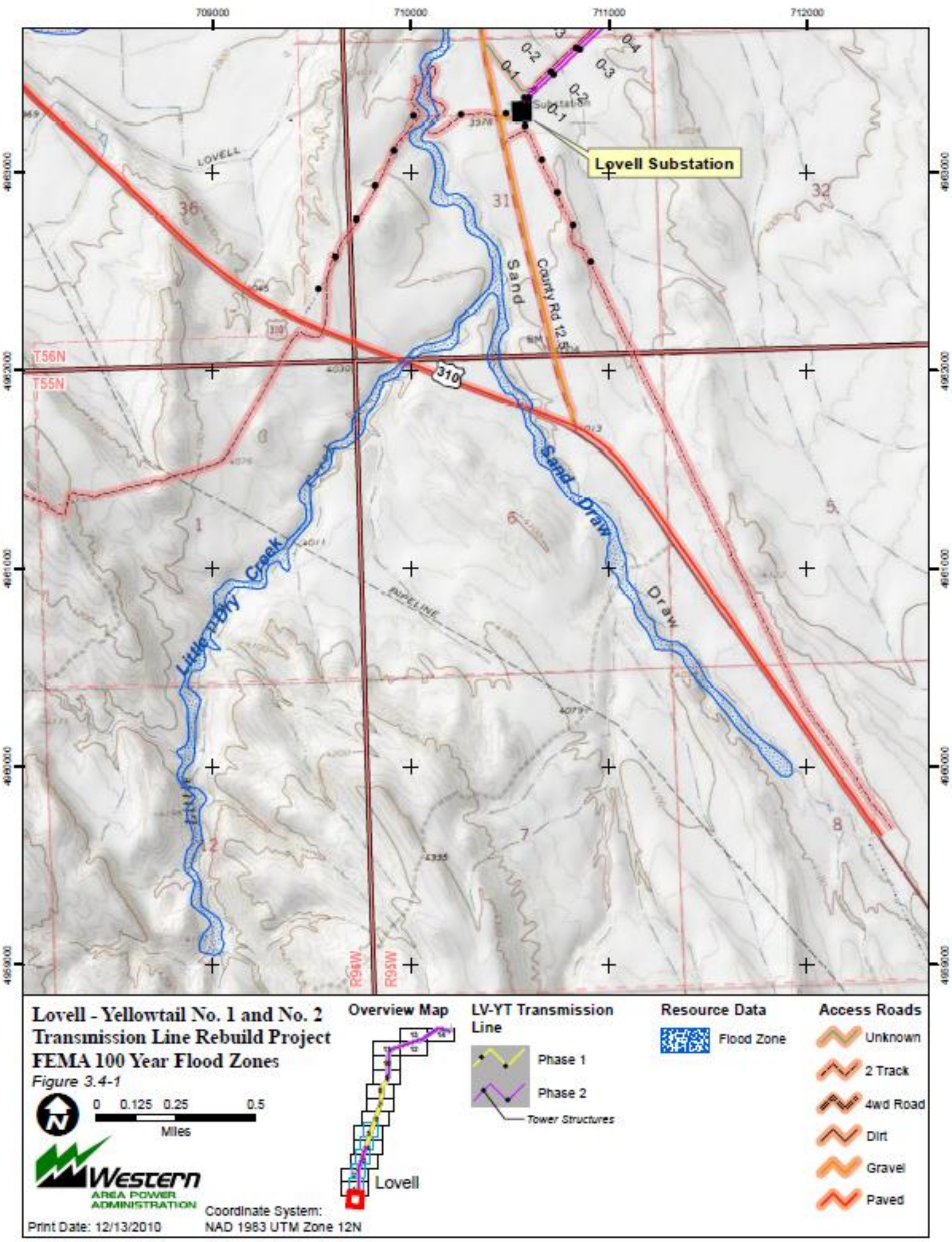

Figure E - 1 FEMA 100 Year Flood Zones

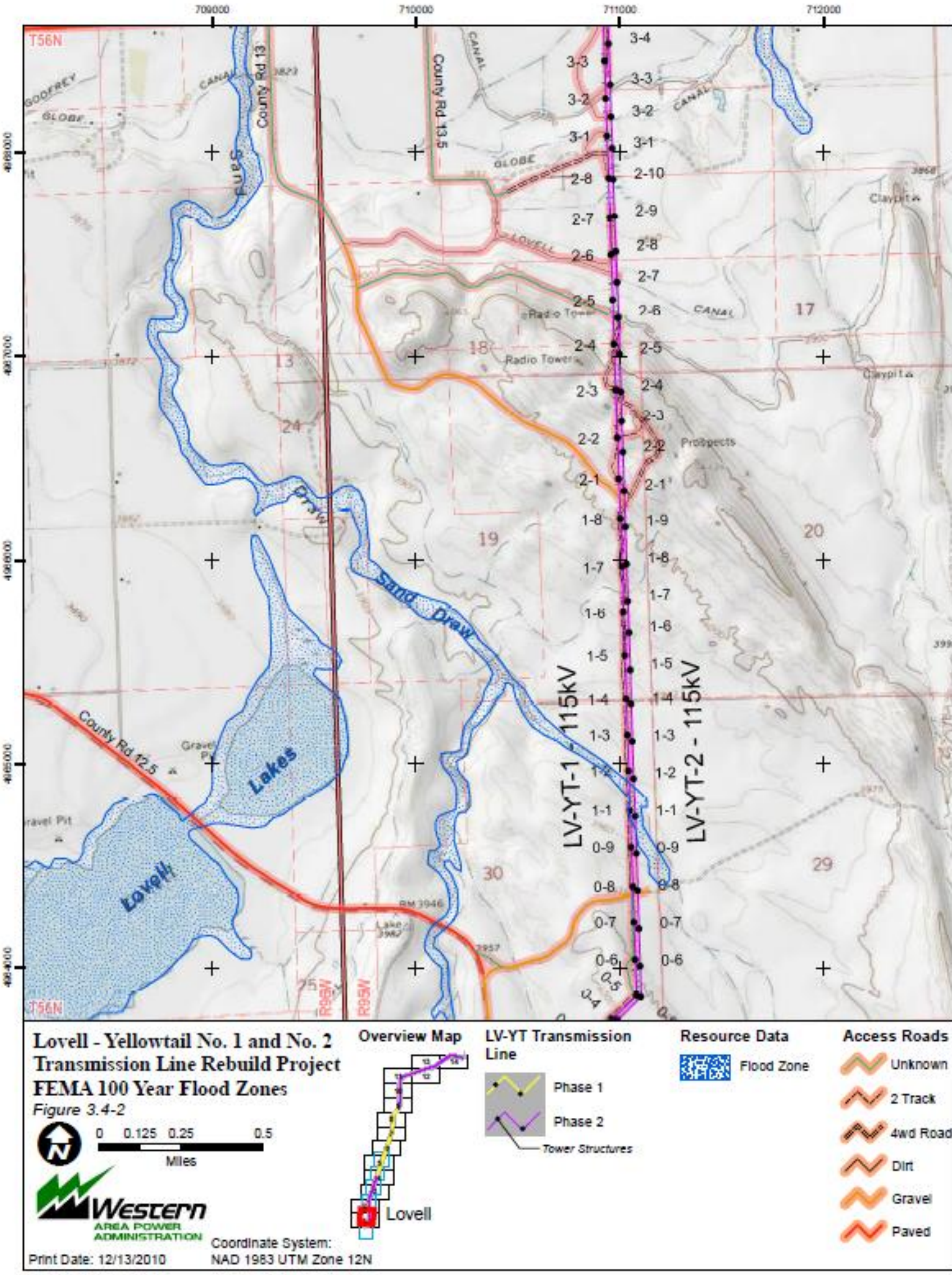

Figure E - 2 FEMA 100 Year Flood Zones

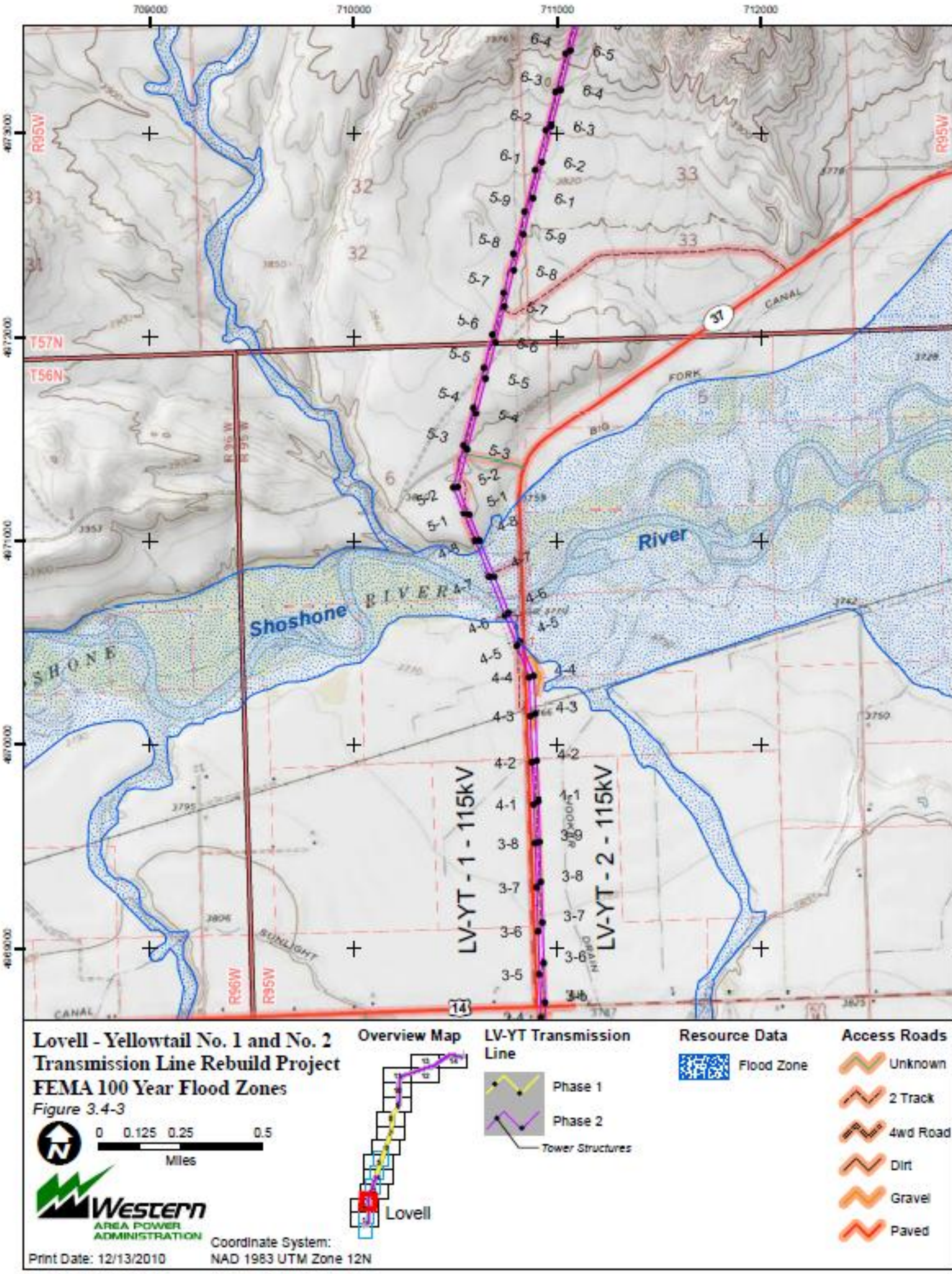

Figure E - 3 FEMA 100 Year Flood Zones

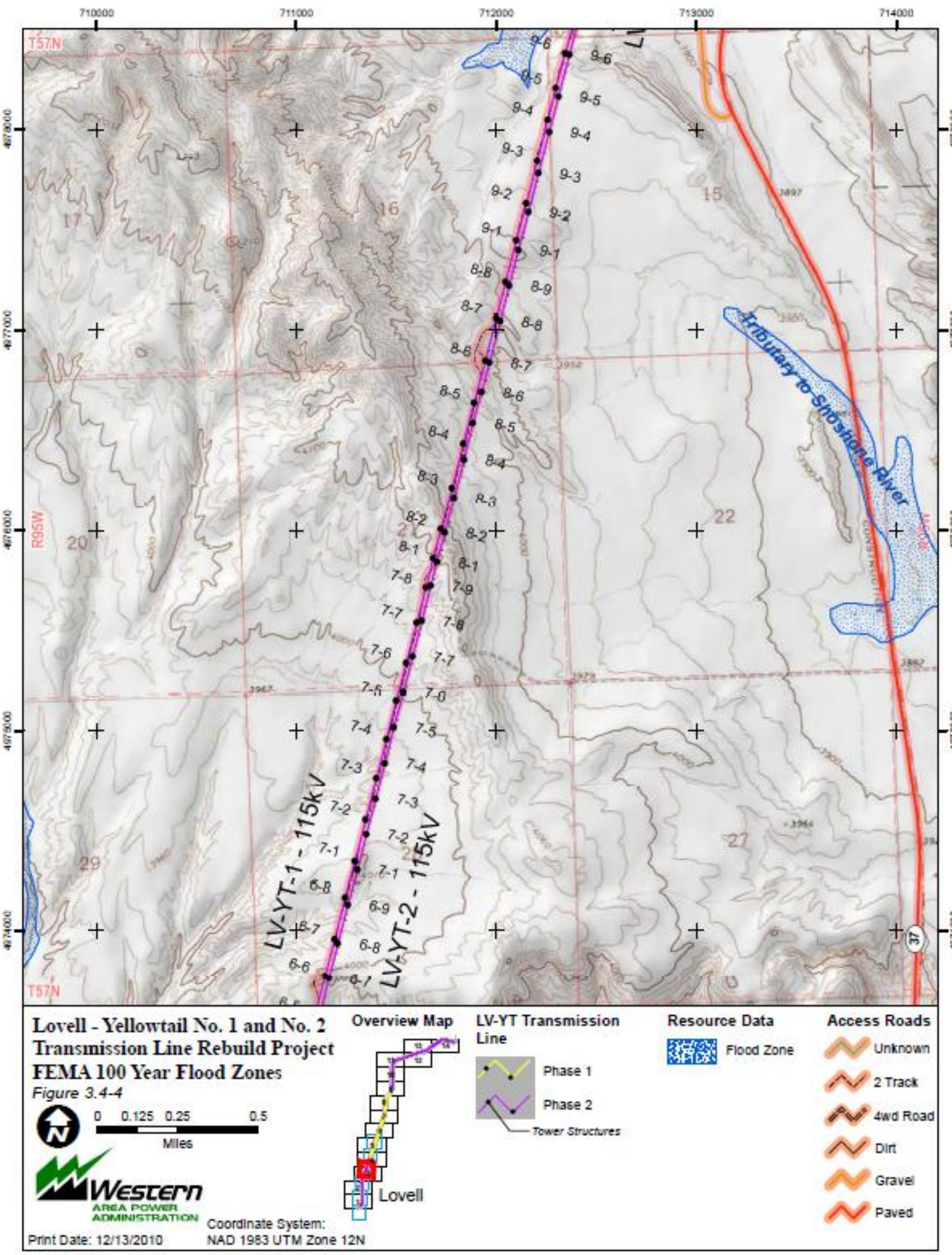

Figure E - 4 FEMA 100 Year Flood Zones

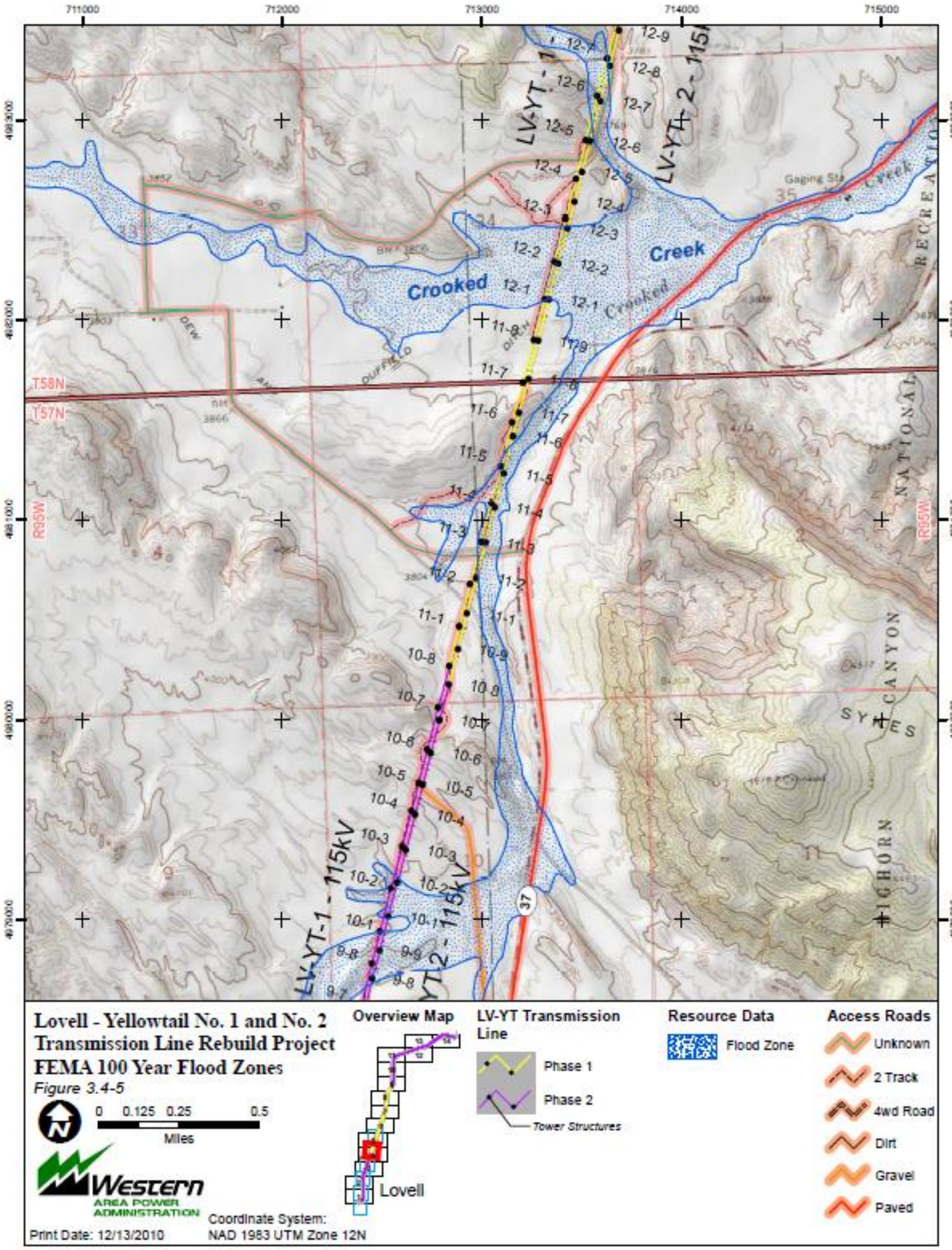

Figure E - 5 FEMA 100 Year Flood Zones

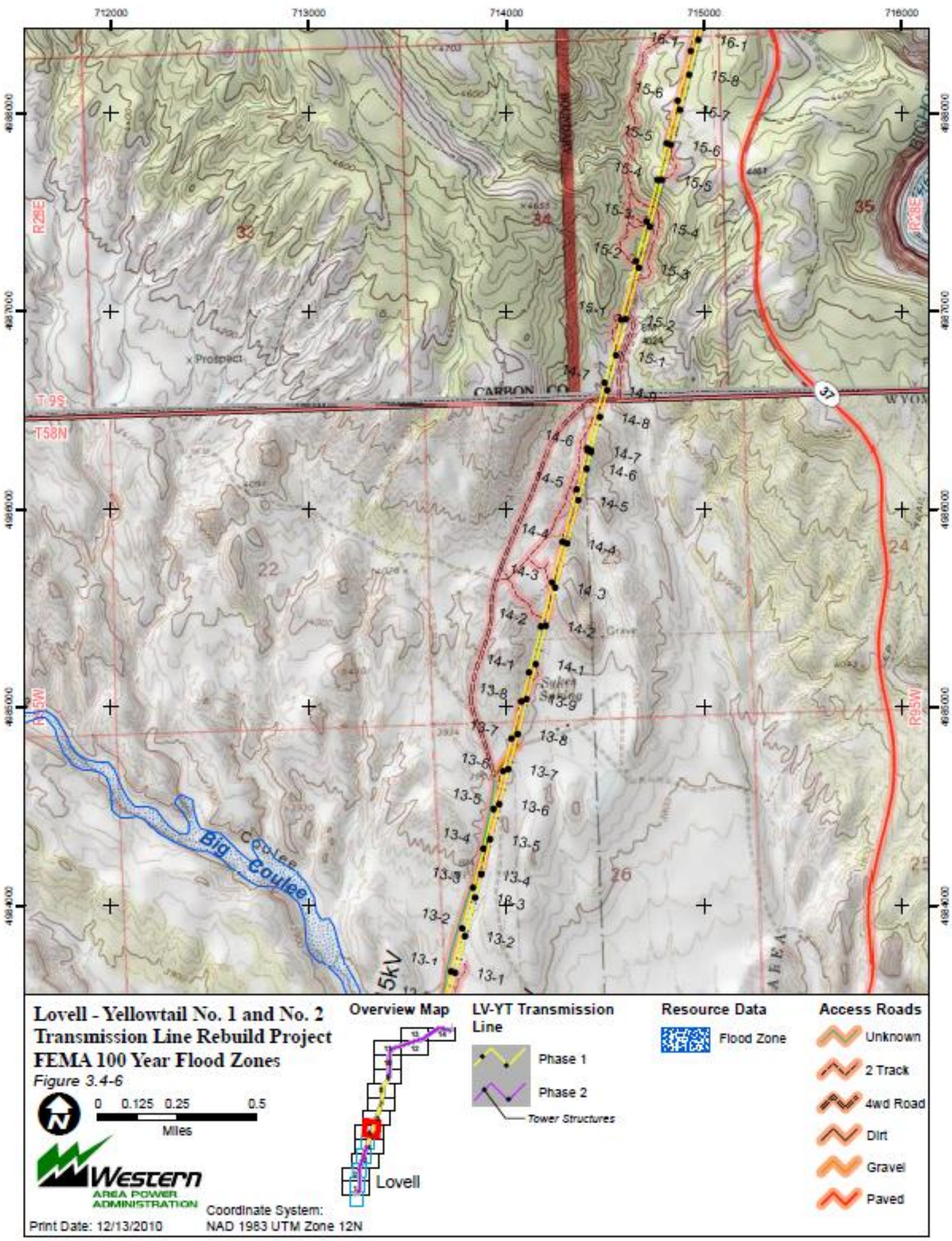

Figure E - 6 FEMA 100 Year Flood Zones

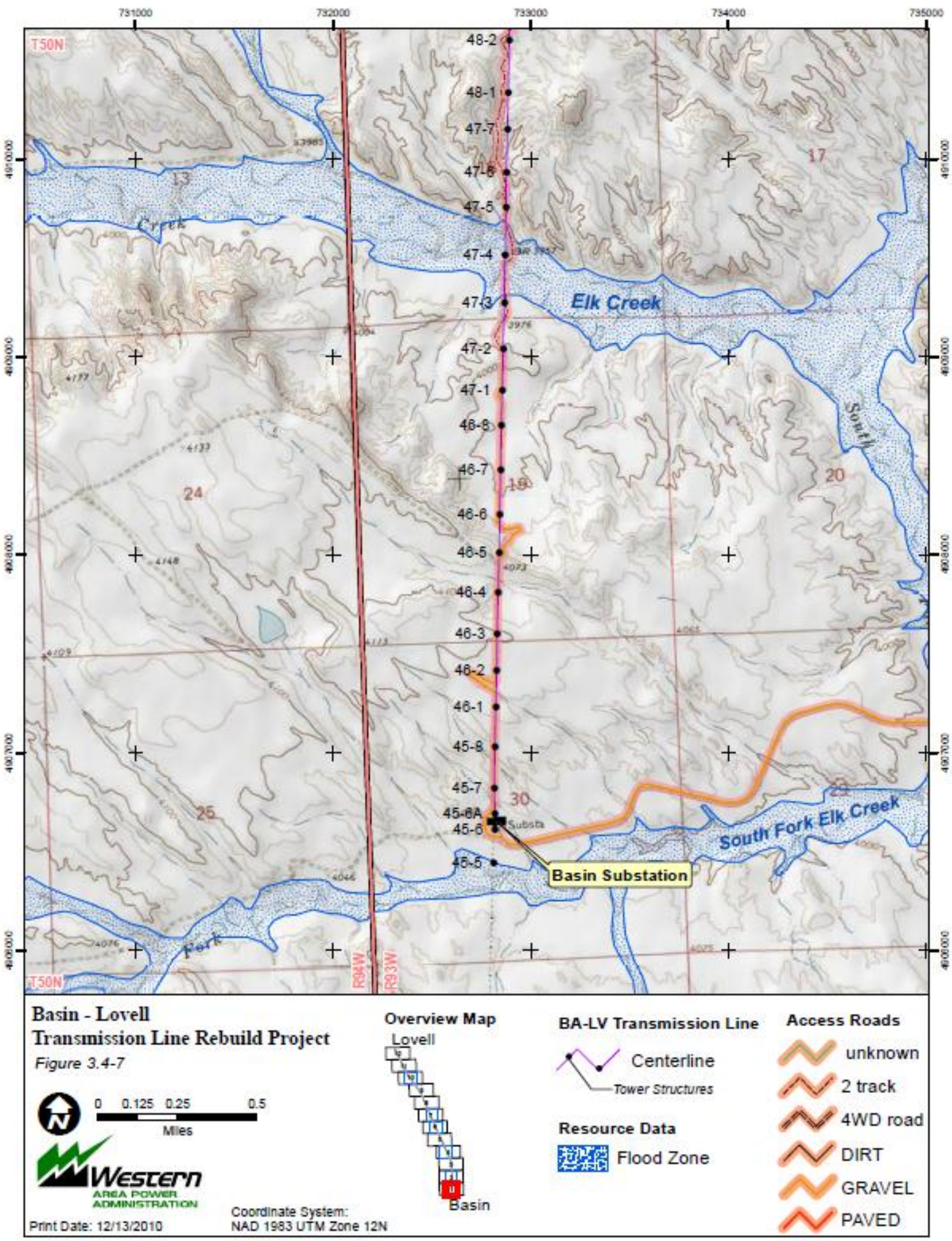

Figure E - 7 FEMA 100 Year Flood Zones

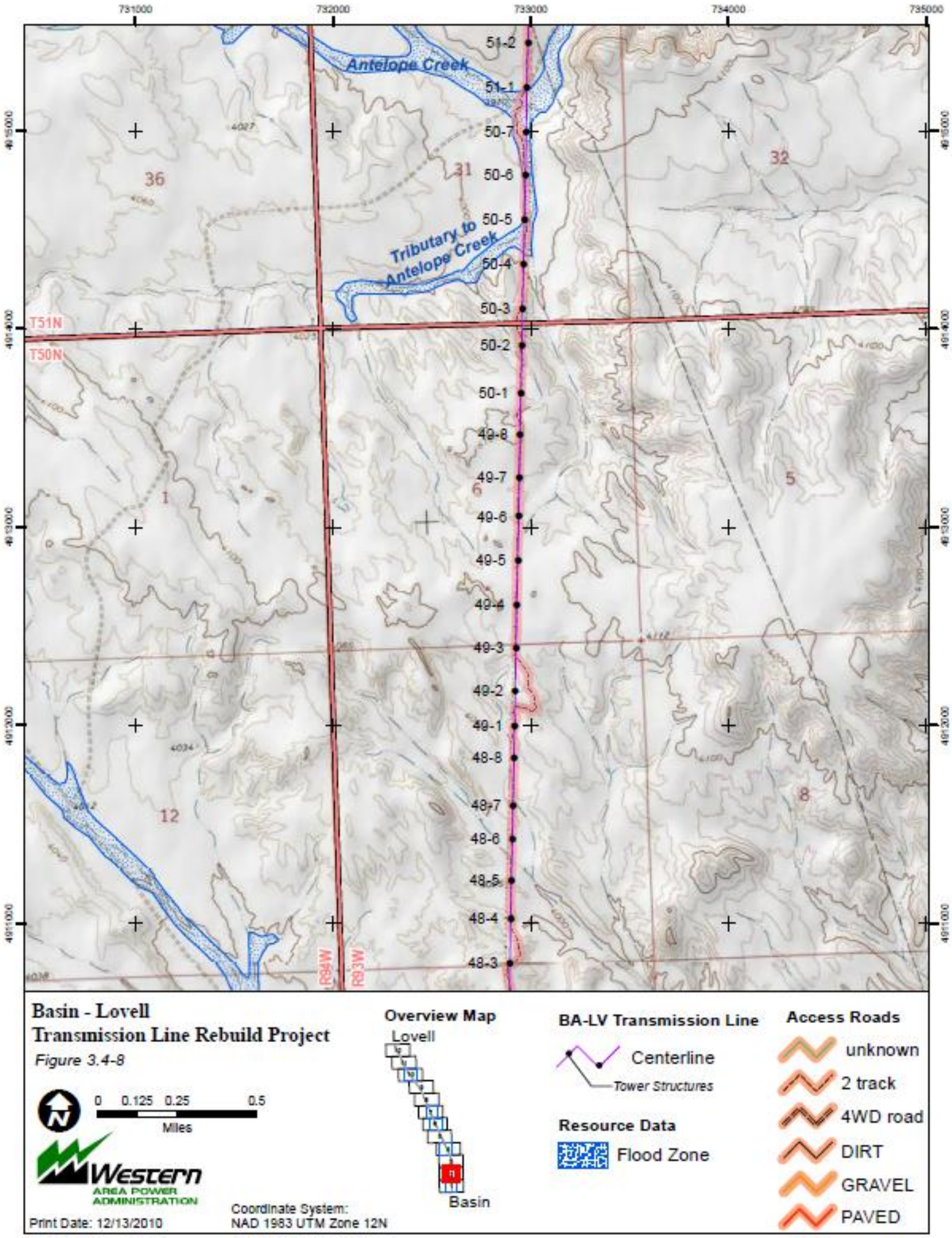

Figure E - 8 FEMA 100 Year Flood Zones

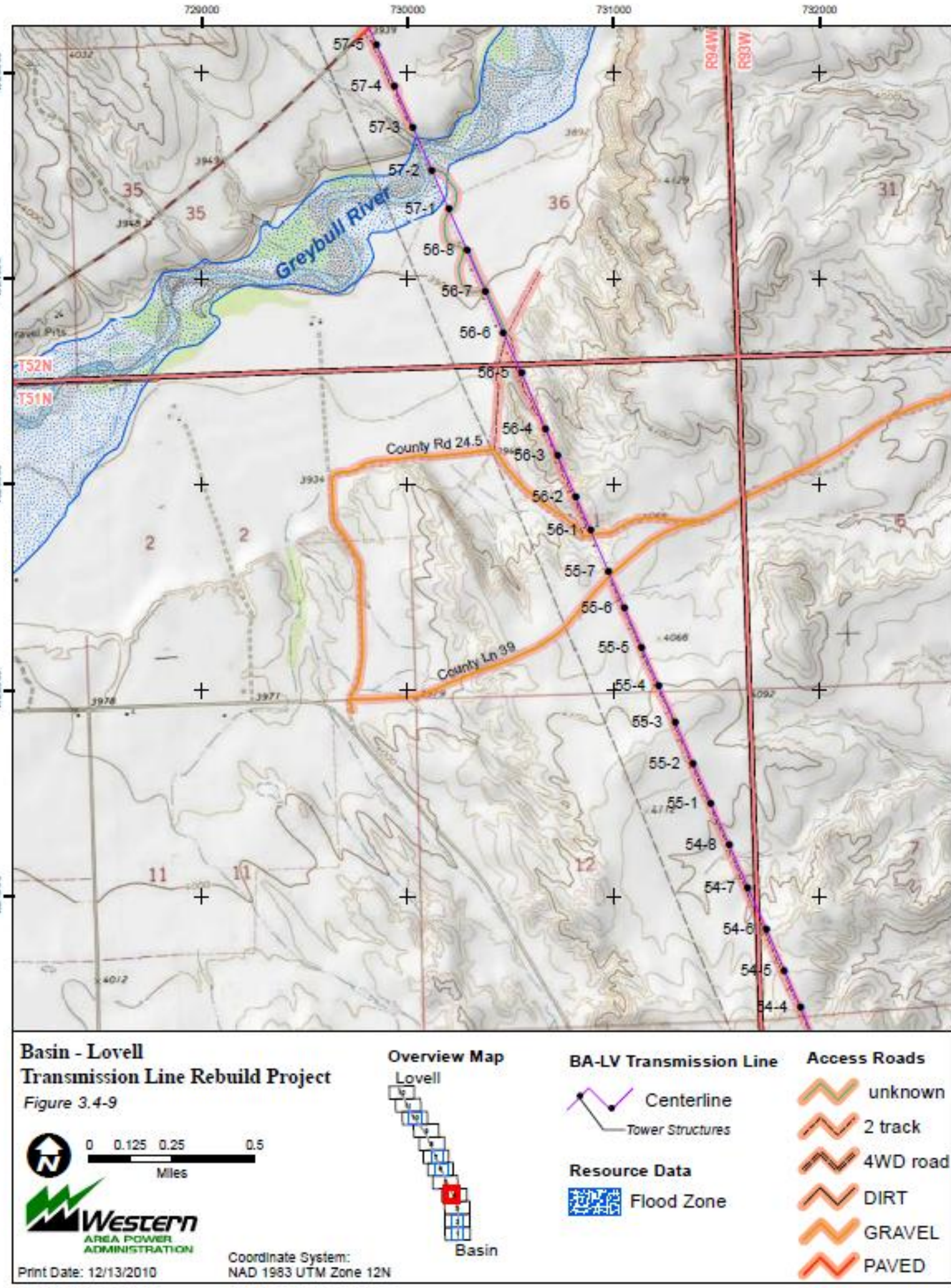

Figure E - 9 FEMA 100 Year Flood Zones

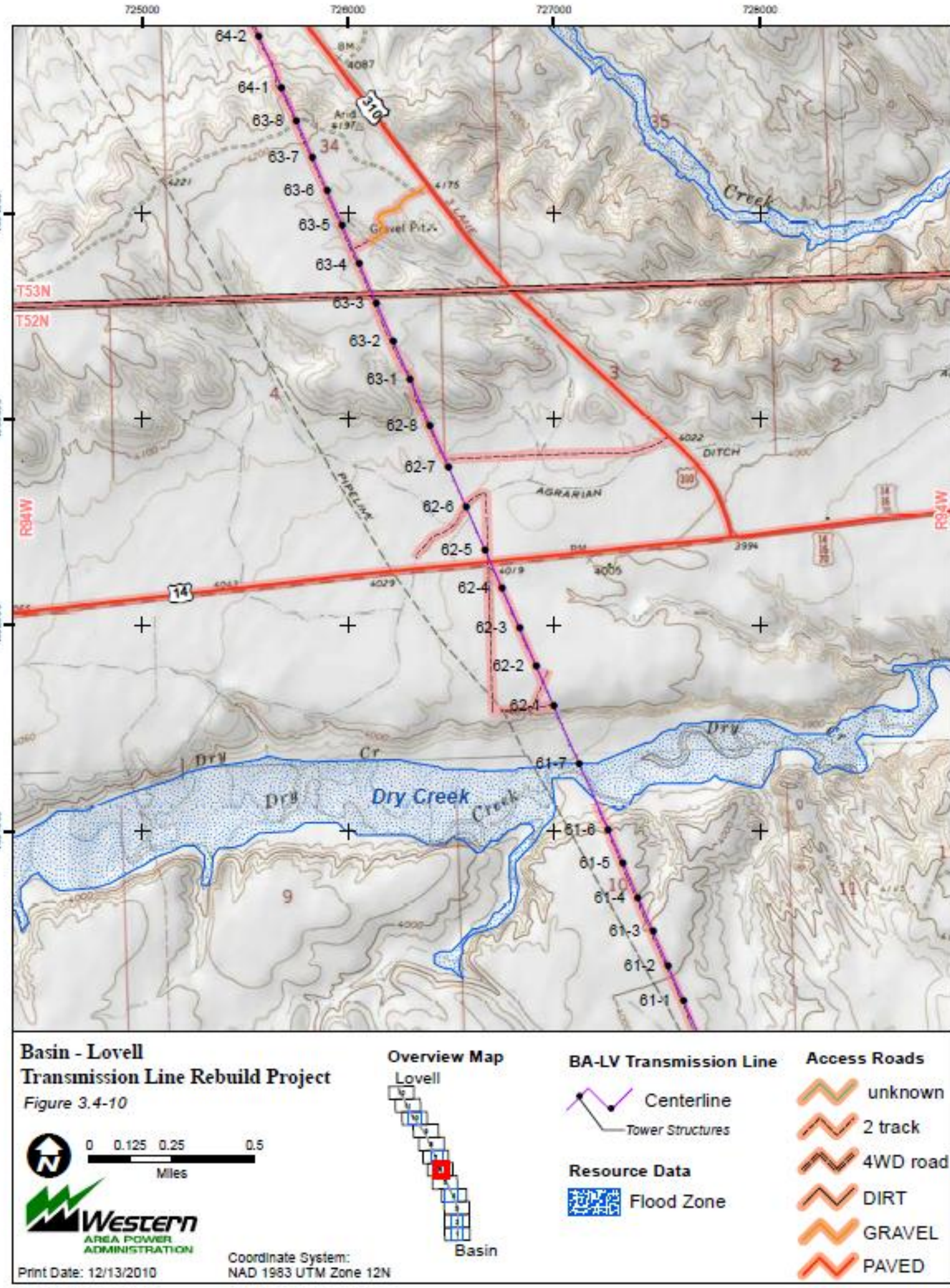

Figure E - 10 FEMA 100 Year Flood Zones

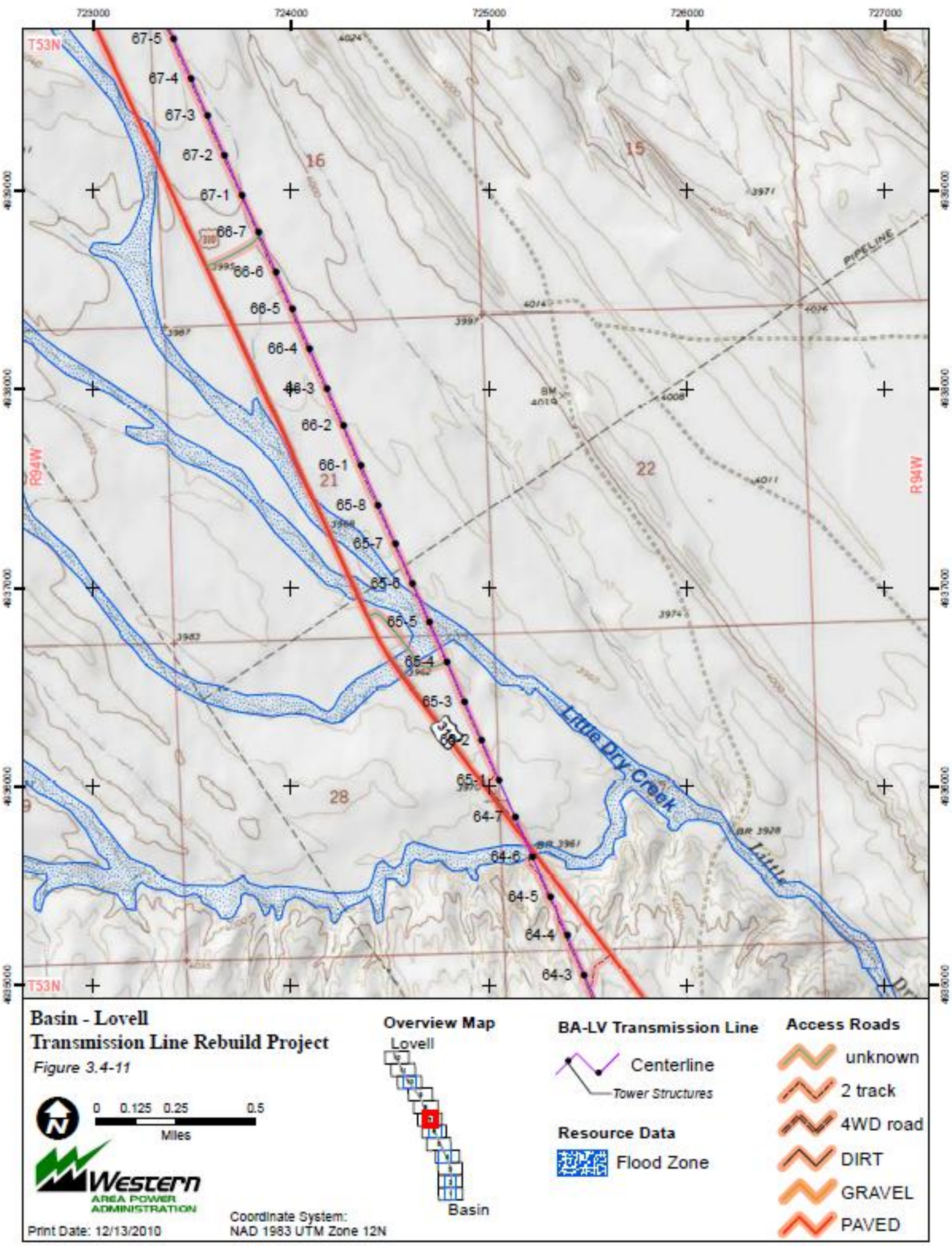

Figure E - 11 FEMA 100 Year Flood Zones

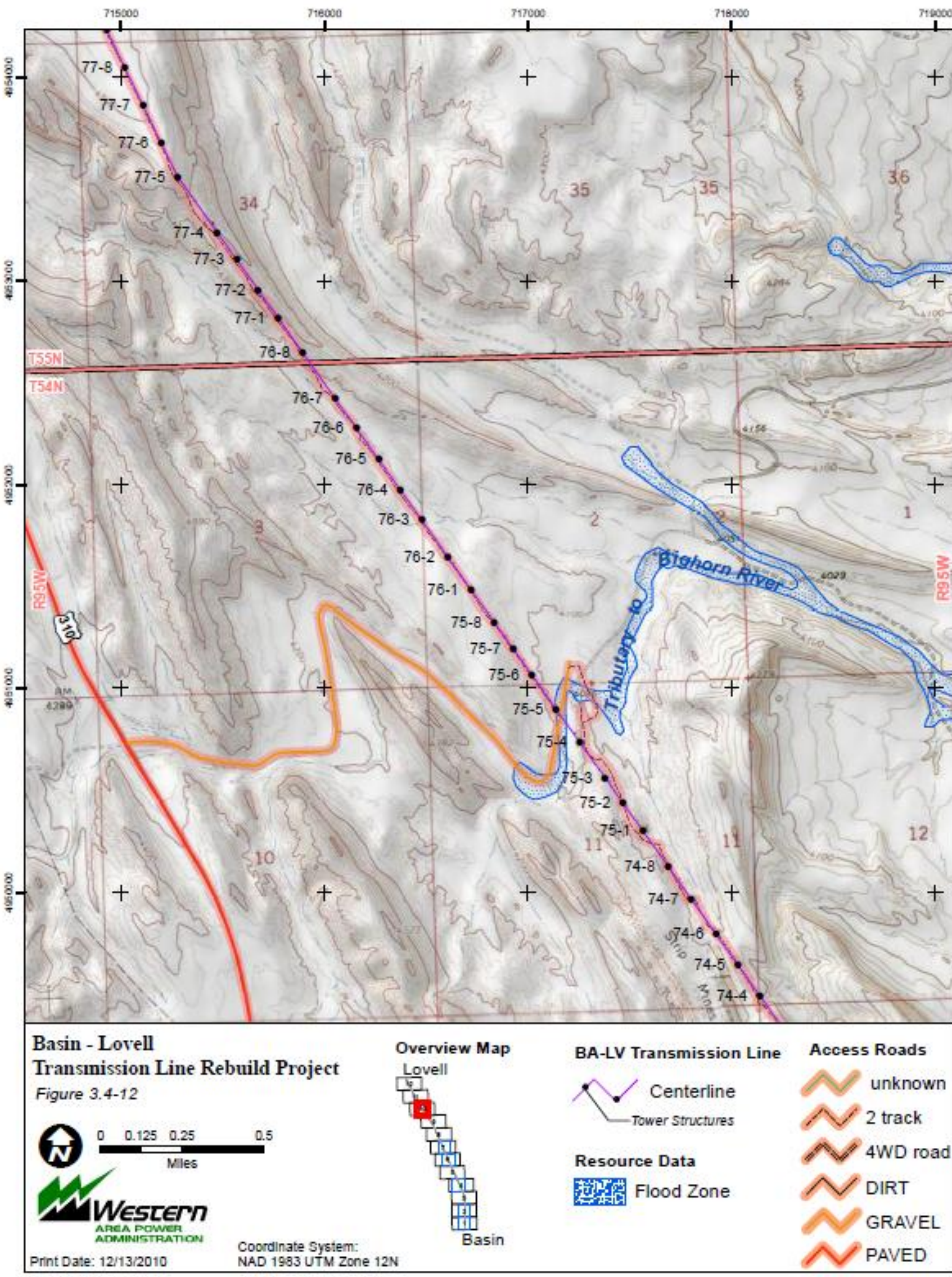

Figure E - 12 FEMA 100 Year Flood Zones

Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

OCT 28 2010

Notice of Proposed Floodplain and Wetland Actions and Request for Comments
Basin to Lovell Transmission Line Rebuild Project
Big Horn County, Wyoming

The Western Area Power Administration (Western) proposes to rebuild the existing Basin to Lovell 115-kV Transmission Line in Big Horn County, Wyoming (Figure 1). The transmission line crosses six designated Zone A floodplains along a 39-mile length from the Basin Substation to the Lovell Substation. This Notice informs you of the proposal and invites your comments by November 30, 2010. This notification is provided to you in accordance with the Department of Energy regulations at 10 CFR Part 1021 and 1022, Compliance with Floodplain and Wetland Environmental Review Requirements. Western will incorporate an assessment of floodplains and wetlands in the environmental assessment being prepared for the project.

Project Description
Western is proposing to rebuild the existing Basin to Lovell 115-kV Transmission Line between the Basin Substation, located off of US Highway 20 in Township 50 N, Range 93 W, Section 30 in Big Horn County, Wyoming; and the Lovell Substation, located off of County Road 12.5 in Township 56 N, Range 95W, Section 30 in Big Horn County, Wyoming.

The Basin to Lovell rebuild is part of Western's proposal to rebuild and upgrade two existing transmission lines between the Lovell Substation and Yellowtail Substation near Yellowtail Dam in Montana. The primary purpose for completing the Transmission Line Rebuild Project is to ensure reliable and economic service to its customers. To do this Western proposes to:

- Replace the aged transmission lines. The age and condition of the existing transmission lines require ever increasing maintenance to ensure transmission line reliability. Worker safety during maintenance activities is also a growing concern for these aging lines.

- Upgrade the ratings of the lines by using larger diameter conductors. This would eliminate existing operational constraints. The present ratings of the lines constrain Western's ability to transmit power generated at the Yellowtail Hydroelectric Power Plant to the south on Western's transmission system. These transmission constraints cause Western significant additional operating costs.

The Basin to Lovell transmission line was constructed by the U.S. Bureau of Reclamation in 1952 as part of the Lovell-Thermopolis 115 kV transmission line. The original wood H-Frame structures with aluminum conductor steel reinforced (ACSR) conductors have exceeded their expected service life. Western's proposed project entails replacing the original transmission line structures and conductors. The new structures will be a wood H-Frame type and will have the same size footprint as the existing structures. The original ASCR conductors will be replaced with 795 Kcmil aluminum conductor steel supported (ACSS) conductors. Western is proposing to install approximately 325 115-kV wood H-frame structures along the 39 mile BA-LV transmission line corridor, from the Basin Substation to the Lovell Substation. As part of the proposed project, Western would also remove the existing 115-kV structures and conductors.

Floodplain and Wetland Actions

The Basin to Lovell Transmission Line crosses Zone A designated floodplains (Federal Emergency Management Agency, Flood Hazard Boundary Maps) at six locations. The line spans the identifiable channels of these floodplains, but some structures are located in the approximate 100-year floodplain, as shown in figures 2 through 7. The number of existing structures within each floodplain for the Basin-Lovell transmission line and the approximate distance across the floodplain are shown in Table 1.

Replacement structures will be located in proximity to existing structures and will span identifiable channels, as they do now. Western's action in the floodplains would include removal of existing structures, removal of existing conductors, auguring holes for replacement structures, installing replacement structures, and installing new conductors, and installing overhead ground wires (for lightning protection).

Table 1

Potential Floodplain Involvement for the Basin to Lovell Transmission Line Rebuild Project

Drainage Name	T	R	Sec	Quarter section Quarter section	Structure Numbers within flood hazard zone	Number of Structures within flood hazard zones	Approx. Distance across flood hazard zone (feet)
Elk Creek	50 N	93 W	18	SE SW	47-4	1	1214
Tributary to Antelope Creek	51 N	93 W	31	E 1/2	50-5 - 50-7	3	2610
Greybull River	52 N	94 W	36	SW NW	57-2	1	1058
Dry Creek	52 N	94 W	10	NE NW	61-7	1	596
Tributary to Little Dry Creek	53 N	94 W	21	SE SE	65-5	1	1076
Tributary to Bighorn River	54 N	95 W	11	NE NW		0	285

The right-of-way access road crosses nine jurisdictional drainages or wetlands where minor road improvements are required to maintain safe vehicle access across these features. The names and locations of these features as well as the action required are provided in Table 2. Road crossing improvements will consist primarily of the placement of culverts and stabilizing fill or rock fill to create stable low water crossings.

Expected Floodplain and Wetland Impacts

Western expects that there will be no significant impacts to the floodplains from this proposal. Western complies with the applicable requirements of U.S. Army Corps of Engineers section 404 requirements, under Nationwide Permit 12 for utilities. The project would not require dredging and fill operations or the construction of roads or access that change the existing contours of floodplains.

The transmission line does not impede the natural action and function of the floodplains. Western constructs their transmission lines in accordance with applicable standards and good engineering practice. Structures have existed in these floodplains since 1952 and have not been damaged by floods, so potential for the new structures to be damaged by floods is not expected. There would be no expected adverse impact on the transmission line from the expected level of flooding in these floodplain areas.

Access road crossing improvements will not result in significant impacts to wetlands or other Waters of the U.S (WUS). The minor amounts of fill required at each drainage crossing would be less than 0.1 acre and would comply with the applicable requirements of U.S. Army Corps of Engineers section 404 requirements, under Nationwide Permit 12 for utilities.

Table 2.
Access Road Actions Along the ROW for the Basin to Lovell Transmission Line Project

Drainage Name	T	R	Sec	Quarter Section Quarter Section	Struc-ture Nos.	Type	Wet-lands?	WUS?	Problem	Action Required
Tributary to South Fork Elk Creek	50 N	93 W	19	NE NW	46-1 to 46-2	Ephemeral	no	yes	drainage cut across road	3' x 25' culvert requiring ~ 60 square feet of fill in WUS
Elk Creek	50 N	93 W	18	SW SE	47-4 to 47-5	Ephemeral	no	yes	drainage cut across access road	Low water crossing requiring lay back of steep banks above average high water line and ~600 square feet of rock and gravel fill in WUS
Ditch	52 N	94 W	36	SE SW	56-7 to 56-8	Connected by wetlands to Greybull River	yes	yes	ditch cut and wetlands across road	low water crossing requiring ~400 square feet of rock and gravel fill in WUS and wetlands
na – (above the average high water line of the Greybull River)	52 N	94 W	36	NW SW	56-8 to 57-1	Wetland connection between ditch and Greybull River	yes	yes	wetlands between ditch and river; soft, unstable ground	Unstable/soft surface requiring placement of Geomat and ~2800 square feet of road base
Tributary to Bighorn River	54 N	95 W	12	SW SW	74-3 to 74-4	Ephemeral	no	yes	drainage cut across road	2' x 22' culvert with wing on west side requiring 55 square feet of fill
Tributary to Bighorn River	54 N	95 W	11	NE NW	75-4 to 75-5	Ephemeral	no	yes	drainage cut across road	3' x 20' culvert or 40' low water crossing requiring 200 square feet of fill
Tributary to Bighorn River	54 N	95 W	2	SW NW	76-2 to 76-3	Ephemeral	no	yes	drainage cut across road	3' x 18' culvert requiring 80 square feet of fill
Tributary to Sand Draw	55 N	95 W	28	NE NE	78-7 to 78-8	Ephemeral	no	yes	drainage headcutting into road	2' x 16' culvert requiring 45 square feet of fill
Tributary to Sand Draw	55 N	96 W	8	NW NE	81-5 to 81-6	Ephemeral	no	yes	drainage cut across road	3' x 22' culvert requiring 80 square feet of fill

Request for Comments

You are invited to provide your comments on this proposed floodplain action by November 30, 2010. Comments may be mailed, e-mailed or faxed to the contact below:

Mr. Jim Hartman
Environmental Manger
Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539
Facsimile: 970-461-7213
E-mail: hartman@wapa.gov

Lovell-Basin Transmission Line
Floodplains and Wetlands Notice Mailing List October 2010.

Mr. Jim Waller
GIS Coordinator/County Planner
GIS and Planning Office
Bighorn County
P.O. Box 29
417 Murphy Street
Basin, WY 82410

Mr. Joe Moore, Director
Wyoming Office of Homeland Security
Herschler Bldg. 1st Floor East
122 W. 25th Street
Cheyenne, Wyoming 82002

Ms. Bonnie Heddin
Floodplain Management Specialist
Federal Emergency Management Agency
Denver Federal Center
Building 710, Box 25267
Denver, CO 80225-0267

Mr. Matthew Bidoleau
Program Manager
U.S. Army corps of Engineers
Wyoming Regulatory Office
2232 Dell Range Blvd, Suite 210
Cheyenne, Wyoming 82009

Mr. John Corra, Director
Wyoming Department of Environmental Quality
122 West 25th Street
Herschler Building, 4th Floor-West
Cheyenne, Wyoming 82002

Ms. Karla Bird
Field Manager
Worland Field Office, Bureau of Land Management
101 South 23rd
P.O. Box 119
Worland, WY 82401-0119

Ms. Lynne Boomgaarden
Wyoming State Lands Office
122 West 25th Street
Cheyenne, WY 82002

Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

JAN 0 9 2009

Notice of Proposed Floodplain Action and Request for Comments
Lovell to Yellowtail No. 1 and No. 2 Transmission Lines Rebuild
Big Horn County, Wyoming; and Carbon and Big Horn Counties, Montana

The Western Area Power Administration (Western), a power marketing administration within the U.S. Department of Energy, proposes to rebuild the existing Lovell to Yellowtail No. 1 and No. 2 115-kilovolt (kV) transmission lines in Big Horn County, Wyoming; and, Carbon and Big Horn Counties, Montana (Figure 1). The transmission lines cross seven designated Zone A floodplains identified from Federal Emergency Management Agency (FEMA), Flood Hazard Boundary Maps along a 15-mile section between Western's Lovell Substation and the Montana border. The total length for each transmission line is approximately 47 miles between Lovell Substation and Yellowtail Substation. There is no flood hazard boundary mapping available for the sections of transmission lines located in Montana. However, the transmission lines will be located along the same alignment as the existing lines which cross floodplains that are not delineated by FEMA. This Notice informs you of the proposal and invites your comments. This notification is provided to you in accordance with the U.S. Department of Energy regulations at 10 CFR Part 1021 and 1022, Compliance with Floodplain and Wetland Environmental Review Requirements.

Project Description

Western is proposing to rebuild and upgrade the existing Lovell-Yellowtail No.1 and No.2 115-kV transmission lines to operate at 230 kV. The transmission lines connect the Lovell Substation, located off of County Road 12.5 in Township 56 N, Range 95W, Section 30 in Big Horn County, Wyoming and, the Yellowtail Substation, located near the Yellowtail Dam in Township 6 S, Range 29 E, Section 18, in Big Horn County, Montana. The Lovell-Yellowtail No. 1 and No. 2 lines were constructed by the Bureau of Reclamation in 1956 and 1966 respectively. The lines were built using wood H-frame style construction. They are approximately 47 miles in length, and parallel each other the entire distance. Most of the original transmission line structures are still in place and are deteriorating. Due to the deterioration of the existing structures, and the possible future need to upgrade these lines to be capable of operating at 230 kV, Western is proposing to rebuild the transmission lines. The rebuilt transmission lines will be similar in design to the existing wood pole H-Frame transmission line structures, only slightly larger. Single pole steel structures may be used at some turning structure locations. Western would install approximately 658 230-kV H-frame structures along the 47-mile Lovell-Yellowtail No. 1 and No. 2 transmission line corridor. As part of the proposed project, Western would also remove the existing 115-kV structures and conductors.

Floodplain Action

The Lovell-Yellowtail No. 1 and No. 2 transmission lines cross seven Zone A designated floodplains in Wyoming. The transmission lines span the identifiable channels of these floodplains, but some structures are located in the approximate 100-year floodplain, as shown in Figures 2 through 6.

Although there is no available FEMA mapping in the Montana portion of the project area, the transmission lines will span all identifiable channels. Some of the structures may be located within floodplain zones. Structures that may cross undesignated floodplains along the larger, perennial drainages located in the Montana portion of the project area are shown in Table 1 (refer to Figures 7-12, 14, 15, 17).

Table 1
Potential Floodplain Involvement for the Lovell to Yellowtail No. 1 and No. 2 Transmission Lines Rebuild Project in the Montana Portion of the Project Area
(Perennial Drainages)

Drainage Crossing	Between Structure Numbers (Line numbers from Line No. 1 - west side)	T	R	S	1/4 of	1/4
Layout Creek	20-3 - 20-4	9S	28E	1	SW	SW
Davis Creek	24-6 - 24-7	8S	28E	18	NW	SE
Deadman Creek	28-4 - 28-5	7S	28E	36	SE	NE
Dry Head Creek	31-8 - 32-1	7S	28E	12	SE	NE
Pitchfork Creek	33-5 - 33-6	7S	29E	6	SE	NE
Hoodoo Creek	36-6 - 36-7	6S	29E	34	SE	NE
Tributary to Grapevine Creek	42-8 - 43-1	6S	30E	15	SE	NW
Bighorn River	46-3 - 46-4	6S	29E	18	NW	SE

Note: Floodplains may also be present along some ephemeral drainages crossed by the transmission lines in the Montana portion including: tributaries to Crooked Creek, Bighorn River, Booz Canyon, Layout Creek, South Fork Trail Creek, North Fork Trail Creek, Petes Canyon, Deadman Creek, Davis Creek, Templeton Creek, Dry Head Creek, Pitchfork Creek and Grapevine Creek.

Replacement structures will be located in proximity to existing structures and will span identifiable channels, as they do now. Western's action in the floodplains would include removing the existing conductors and structures, auguring holes for replacement structures, installing replacement structures, installing new conductors, and installing overhead ground wires (for lightning protection and communication purposes).

Request for Comments

Send comments to Mr. Rodney Jones, Environmental Specialist, Western Area Power Administration, P.O. Box 3700, Loveland, CO 80539, or to Mr. Jones' email address: rjones@wapa.gov. Comments should be sent within 30 days of the date stamped on this notice.

Jim Hartman
Environmental Manager

Enclosures

Note: Associated Transmission Line Rebuild Maps are shown in Appendix A. Project Overview Location is found in Figure 2.1-1.

Appendix F - Proposed Seed Mixtures for Reclamation and Analysis of Soil Revegetation Constraints and List of Noxious Weeds

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Seed Mixture Formulation Notes

1.) The seed mixtures proposed below are subject to landowner/land management agency modification and approval.

2.) All disturbed farmlands and pastures would be seeded to species selected by the landowner.

3.) The seeding rates shown are for broadcast (including hydroseeding) methods. Where drill-seeding methods are used, the seeding rates shown would be reduced by one-half.

4.) All species selected for seeding are native to Montana and Wyoming.

5.) Forb and shrub species are not included in the proposed mixtures. All seeded areas will be subject to weed control activities, as necessary, which may include spraying for broad-leaved species to the detriment of seeded forbs and shrubs. It is also assumed that, given the typically small disturbed areas involved, both forb and shrub species would readily invade most disturbed areas from immediately adjacent undisturbed plant communities.

6.) All road disturbances to be reclaimed would be seeded to the seed mixture appropriate for the adjacent poles that exhibit the same pre-disturbance vegetation type.

7.) All pole reverences are for the existing west transmission line.

8.) The surface of broadcast seeded areas would be raked or otherwise scarified to cover the seed following seeding. Where shallow, high coarse fragment soil conditions occur along with cushion plant communities, scarification may be dispensed with if this technique would cause additional disruption to the existing cushion plant community over and above that caused by construction.

9.) Seed mixture 4BW can be used to revegetate any vegetated wetland disturbance in the three counties of interest.

10.) The mixture appropriate for seeding Badlands/Disturbed Lands/Mined Lands in Big Horn County, Wyoming will depend upon soil texture and the presence or absence of high salt/sodium levels as evidenced by the plant species present and visible surficial soil characteristics. Either mixture 1CM or 2BWwill be appropriate.

11.) References used to develop these mixtures include:

Bromley, C. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Cassity Bromley, Natural Resources Program Manager. U. S. Department of the Interior. Bighorn Canyon NRA. August 11.

Gullion, R. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Ray Gullion, District Conservationist. U. S. Department of Agriculture. Natural Resources Conservation Service (USDA-NRCS). December 16.

Habets, B. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Bonda Habets, Range Conservationist. USDA-NRCS. December 15.

Hansen, M. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Michael Hanson. Soil Scientist. USDA-NRCS. December 8.

Ogle, D. and L. St. John. 2009. Plants for Saline to Sodic Soil Conditions. TN Plant Materials No. 9A. USDA-NRCS. Boise, Idaho. 12 pp.

Patz, M. 2010. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Marji Patz, Rangeland Management Specialist. USDA-NRCS. October 29.

Siddoway. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and John Siddoway, Soil Scientist. U. S. Department of Agriculture. Natural Resources Conservation Service. December 8.

USDA-NRCS. 2010. Ecological Site Descriptions. http://esis.sc.egov.usda.gov

PROPOSED SEED MIXTURES – BIG HORN COUNTY, MONTANA

SEED MIXTURE 1BM

Applicable to Pole Numbers — 30-7 to 34-1, 34-7 to 34-9, 36-3 to 41-3, 41-7 to 46-3

Rangeland Ecological Sites — Shallow, 15-19”; Shallow to Gravel, 15 to 19”; Thin Breaks, 15 to 19”; Thin Hilly, 15 to 19”; ,Silty, 15 to 19”

Environmental Assessment Vegetation Types — Mixed Herbaceous Uplands, Mixed Sagebrush Grasslands, Limber Pine/Rocky Mountain Juniper/Low Sagebrush

Table 1: Seed Mixture 1BM

Species	Preferred Varieties	Rate Lbs./Acre PLS Planted (Broadcast)	PLS Seeded/Acre
Bluebunch wheatgrass *Pseudoroegenaria spicata*	Goldar	8.00	1,112,000
Green needlegrass *Nassella viridula*	Lodorm	1.00	186,000
Needle-and-thread *Hesperostipa comata* ssp. *comata*	Common	1.00	115,000
Sandberg bluegrass *Poa secunda* ssp. *sandbergii*	High Plains	0.25	225,000
Slender wheatgrass *Elymus trachycaulus* var. *trachycaulus*	Pryor Copper-head	2.00	280,000
Thickspike wheatgrass *Elymus lanceolatus* ssp. *lanceolatus*	Critana	2.00	290,000
Western wheatgrass *Pascopyrum smithii*	Rosana	5.00	465,000
	Totals	**17.25**	**2,673,000 (~61 seeds/ sq. ft.)**

SEED MIXTURE 2BM

Applicable to Pole Numbers 34-2 to 34-7, 35-1 to 36-2, 41-4 to 41-6

Rangeland Ecological Sites Clayey, 15 to 19”

Environmental Assessment Vegetation Types Mixed Herbaceous Uplands, Mixed Sagebrush Grasslands

Table 2: Seed Mixture 2BM

Species	Preferred Varieties	Rate Lbs./Acre PLS Planted (Broadcast)	PLS Seeded/Acre
Bluebunch wheatgrass *Pseudoroegenaria spicata*	Goldar	8.00	1,112,000
Green needlegrass *Nassella viridula*	Lodorm	2.50	465,000
Slender wheatgrass *Elymus trachycaulus* ssp. *trachycaulus*	Pryor Copper-head	2.00	280,000
Western wheatgrass *Pascopyrum smithii*	Rosana	8.00	744,000
	Totals	**20.50**	**2,600,500 (~60 seeds/ sq. ft.)**

PROPOSED SEED MIXTURES – CARBON COUNTY, MONTANA

SEED MIXTURE 1CM

Applicable to Pole Numbers 19-1 to 20-3, 20-6 to 22-3, 24-1, 24-4 to 24-6, 25-2 to 25-6,26-6 to 27-1, 27-8 to 28-4, 28-8 to 30-4

Rangeland Ecological Sites Shallow, 10-14”; Thin Breaks, 10-14”; Limy, 10-14”; Sandy, 10-14”

Environmental Assessment Vegetation Types Mixed Woody-Herbaceous/Cushion Plant, Mixed Sagebrush/Grasslands, Shrub Juniper Ridge Top, Juniper Ridge Slope, Mixed Herbaceous Uplands

Table 3: Seed Mixture 1CM

Species	Preferred Varieties	Rate Lbs./Acre PLS Planted (Broadcast)	PLS Seeded/Acre
Bluebunch wheatgrass *Pseudoroegenaria spicata*	Goldar	6.00	834,000
Green needlegrass *Hesperostipa comata* ssp. *comata*	Lodorm	1.00	186,000
Indian ricegrass *Achnatherum hymenoides*	Rimrock	1.50	352,500
Needle-and-thread *Hesperostipa comata* ssp. *comata*	Common	1.00	115,000
Sandberg bluegrass *Poa secunda* ssp. *sandbergii*	High Plains	0.25	225,000
Slender wheatgrass *Elymus trachycaulus* ssp. *trachycaulus*	Pryor, Copper-head	2.00	280,000
Thickspike wheatgrass *Elymus lanceolatus* ssp. *lanceolatus*	Critana	3.00	435,000
Western wheatgrass *Pascopyrum smithii*	Rosana	2.00	186,000
	Totals	**15.75**	**2,613,500 (~60 seeds/ sq. ft.)**

SEED MIXTURE 2CM

Applicable to Pole Numbers	24-1 to 24-4, 24-7 to 25-2, 25-7 to 26-5, 27-1 to 27-7, 30-5 to 30-7
Rangeland Ecological Sites	Clayey, 10 to 14”
Environmental Assessment Vegetation Types	Mixed Woody Herbaceous/Cushion Plant; Mixed Sagebrush/Grasslands; Mixed Herbaceous Uplands

Proposed seed mixture same as for **SEED MIXTURE 2BM**, above.

SEED MIXTURE3CM

This seed mixture should be used in lieu of SEED MIXTURE 1CM in areas dominated by rock outcrop formations where construction disturbances occur in pockets of soil commonly referred to as “soil inclusions.”

Applicable to Pole Numbers	14-7 to 19-1, 20-4 to 20-6, 24-6 to 25-1
Rangeland Ecological Sites	Rock Outcrop; Rock Outcrop/Shallow, 10-14”
Environmental Assessment Vegetation Types	Sparse Juniper/Curl-leaf Mountain Mahogany, Mixed Woody/Herbaceous Cushion Plant, Curl-leaf Mountain Mahogany/Ridge Complex, Juniper Ridge Slope

Proposed seed mixture same as for **SEED MIXTURE 1BM**, above.

PROPOSED SEED MIXTURES – BIG HORN COUNTY, WYOMING

SEED MIXTURE 1BW

Applicable to Pole Numbers	1-2 to 1-3, 1-6, 2-3 to 2-4, 5-3 to 6-3, 9-5 to 9-6, 10-3 to 10-4, 12-3 to 12-5, 13-6, 46-5 to 46-6, 50-2 to 50-5, 51-6 to 52-8, 55-7 to 56-6, 61-6 to 61-7, 62-7 to 64-1, 7-2 to 69-7, 71-7 to 72-5, 73-4 to74-2 to 75-5, 76-7 to 78-8
Rangeland Ecological Sites	Sandy, 5-9"; Gravelly, 5-9"; Shallow sandy, 5-9"' Very shallow, 10-14"; Badlands/Disturbed Lands/Mined lands; Rock outcrop (soil inclusions)
Environmental Assessment Vegetation Types	Mixed Dryland Shrub/Herbaceous Grassland, Halogeton/Barren Uplands, Black Greasewood/Bottomlands, Mixed Shrub/Herbaceous, Gardner Saltbush, Wyoming Sagebrush/Gardner Saltbush, Badlands/Disturbed Lands/Mined Lands, Mixed Shrub/Herbaceous, Black Greasewood/Mixed Shrub, Mixed Shrub

Proposed seed mixture same as for **SEED MIXTURE 1CM**, above.

SEED MIXTURE 2BW

Applicable to Pole Numbers	0-2, 1-3 to 1-4, 6-3 to 8-6, 8-7 to 9-5, 9-7 to 10-3, 10-7 to 11-6, 45-5 to 45-6, 50-5 to 51-5, 54-8 to 55-7, 57-4 to 57-6, 58-4 to 61-6, 64-7 to 67-1, 70-4 to 70-7, 72-6 to 73-3, 75-6 to 76-7, 80-4 to 83-7
Rangeland Ecological Sites	Saline Upland, 5-9”, Lowland 5-9”, Saline Lowland 5-9”, Saline Subirrigated
Environmental Assessment Vegetation Types	Mixed Dryland Shrub/Herbaceous Grassland, Halogeton/Barren Uplands, Black Greasewood/Bottomlands, Gardner Saltbush, Gardner Saltbush/Birdsfoot Sagebrush, Mixed Shrub/Herbaceous, Mixed Shrub

Table 4: Seed Mixture 2BW

Species	Preferred Varieties	Rate Lbs./Acre PLS Planted (Broadcast)	PLS Seeded/Acre
Alkali sacaton *Sporobolus airoides*	None	0.25	439,500
Basin wildrye *Leymus cinereus*	Mangar, Trailhead, Washoe	1.00	375,000
Indian ricegrass *Achnatherum hymenoides*	Nezpar, Paloma, Rimrock	4.50	1,057,500
Sandberg bluegrass *Poa secunda* ssp. *sandbergii*	High Plains	0.25	225,000
Slender wheatgrass *Elymus trachycaulus* ssp. *trachycaulus*	Pryor, First Strike, Revenue, Copper-head	1.00	140,000
Western wheatgrass *Pascopyrum smithii*	Recovery, Rosana, Arriba	5.00	465,000
	Totals	**12.00**	**2,702,000 (~62 seeds/ sq. ft.)**

SEED MIXTURE 3BW

Applicable to Pole Numbers	11-6 to 11-8, 12-4 to 13-2, 13-4 to 14-2, 14-5 to 14-7, 27-1 to 27-7, 30-5 to 30-7, 45-6 to 46-5, 46-6 to 50-2, 52-8 to 54-7, 57-7 to 58-3, 64-2 to 64-6, 69-7 to 70-4, 70-7 to 71-6, 71-9 to 80-3, 83-7 to 84-3
Rangeland Ecological Sites	Shale, 5-9”; Shallow Clayey, 5-9”; Loamy, 10-14”; Shallow Loamy, 10-14”, Loamy, 5-9”
Environmental Assessment Vegetation Types	Mixed Woody Herbaceous/Cushion Plant; Mixed Sagebrush/Grasslands; Mixed Herbaceous Uplands, Gardner Saltbush, Gardner Saltbush/Birdsfoot Sagebrush, Wyoming Sagebrush/Gardner Saltbush, Badlands/Disturbed Lands/Mined, Black Greasewood/Mixed Shrub, Mixed Shrub, Mixed Dryland Shrub/Herbaceous Grassland, Mixed Shrub/Herbaceous, Shrub-Herbaceous/ Hill Slope

Proposed seed mixture same as for **Seed Mixture 1BM**, above.

SEED MIXTURE 4BW

Applicable to Pole Numbers	Any
Rangeland Ecological Sites	Marsh; Any vegetated wetland disturbance in the three counties
Environmental Assessment Vegetation Types	Marsh Inclusion in Agricultural Lands

Table 5: Seed Mixture 4BW

Species	Preferred Varieties	Rate Lbs./Acre PLS Planted (Broadcast)	PLS Seeded/Acre
Alkali sacaton *Sporobolus airoides*	None	1.00	1,175,000
Bluejoint reedgrass *Calamagrostis canadensis*	Sourdough	0.50	1,135,000
Prairie cordgrass *Spartina pectinata*	Red River	1.00	197,000
Switchgrass *Panicum virgatum*	Dacota, Forestburg, Sunburst	3.00	1,167, 000
	Totals	**5.50**	**3,674,000 (~84 seeds/ sq. ft.)**

Analysis of Soil Revegetation Constraints

The suitability of the soil map units (soils) for revegetation/reclamation located within the project area is a function of the physical and chemical characteristics of the soils that would be affected by the Proposed Project or its Alternatives. The analysis presented herein is based on the soil map unit and soil series descriptions, as well as selected use interpretations, presented in the NRCS documents identified above. The physical characteristics considered in this analysis include the presence of rock outcrop and badlands formations, soil depth, a severe erosion hazard, and clayey soil textures. Chemical characteristics considered were high potential soil salinity and soil sodium content. Other constraints were considered for analysis but were determined to be subordinate to these dominant constraints and would lead to the same revegetation concerns. Where the physical and chemical characteristics of a soil are such that they would potentially inhibit successful revegetation, they are termed "constraints." Tables 3.7-1 and 3.7-2 of the EA summarize the soil characteristics considered the dominant constraints to revegetation and present the acreages of such soils that could be impacted by construction activities along the ROW by county.

Not all soils along the ROW exhibit constraints to revegetation. The physical and chemical characteristics of a number of soil map units are all amenable to revegetation. However, the majority of soil map units contain dominant soils that exhibit one or more constraints to revegetation success. Rock outcrop and badlands formations are considered to be constraints since they exhibit little in the way of soil material present that would be suitable for revegetation, though some shallow soil inclusions do occur. Revegetation would not be of concern in areas where surface rock exposures exist since little in the way of established plant communities would have been present prior to disturbance. Shallow soils (~20 inches or less to bedrock), especially where such are dominated by high coarse fragment soil textures, typically exhibit very low to low available water capacities that give rise to droughty soil conditions and limited plant rooting depth that can potentially constrain revegetation success. A severe erosion hazard, can potentially constrain revegetation through soil loss and inhibit the proper application of revegetation techniques. Soils with clayey textures can be characterized by low infiltration rates, limited plant available water, and are subject to compaction when wet.

High soil salinity levels (>8.0 mmhos/cm) primarily reduce the plant available water in a soil profile potentially leading to droughty soil conditions and reduced plant growth. This constraint, when coupled with a shallow soil depths and a high coarse fragment texture, exacerbates the potential for droughty soil conditions. High soil sodium content, as indicated by a sodium absorption ratio (SAR) greater than 13, is indicative of a soil chemical imbalance that may lead to a poor physical soil structure resulting in reduced infiltration, soil aeration, hydraulic conductivity and plant available water in soils with clayey textures.

The presence of a constraint(s) does not necessarily result in poor revegetation success potential. The type, timing, duration, and intensity of a construction impact would determine, in great measure, the actual severity of an impact and its relationship to revegetation success. For example, where structures are erected without the need for grading on shallow, highly erodible soils, there would be less impacts leading to a reduced revegetation success potential as opposed to where extensive grading was required. Similarly, the location of impacts is of importance. Where construction work is completed on nearly level ridge crests, the potential for water erosion is significantly reduced in a soil classed as highly erodible due to slope steepness.

LIST OF NOXIOUS WEEDS DECLARED, DESIGNATED, AND/OR PROHIBITED BY BIG HORN COUNTY, WYOMING (1), CARBON COUNTY, MONTANA (2) AND BIG HORN COUNTY, MONTANA (3)

Absinth wormwood (*Artemisia absinthium*): 3
Baby's breath (*Gypsophila paniculata*): 1
Black henbane (*Hyoscyamus niger*): 1
Blueweed (*Echium vulgare*): 2, 3
Burdock (*Arctium minus*): 1, 3
Canada thistle (*Cirsium arvense*): 1, 2, 3
Common crupina (*Crupina vulgaris*): 1, 2, 3
Common tansy (*Tanacetum vulgare*): 1, 2, 3
Dalmation toadflax (*Linaria dalmatica*): 1, 2, 3
Diffuse knapweed (*Centaurea diffusa*): 1, 2, 3
(Wooly) Distaff thistle (*Carthamus lanatus*) 1
Dyers woad (*Isatis tinctoria*): 1, 2, 3
Eurasian watermilfoil (*Myriophyllum spicatum*): 2, 3
Field bindweed (*Convolvulus arvensis*): 1, 2, 3
Field dodder (*Cuscuta campestris*): 1
Flowering rush (*Butomus umbellatus*): 2, 3
Goatsrue (*Galega officinalis*): 1
Gorse (*Ulex europaeus*): 1
Henbane (*Hyocyamus niger*) : 3
Hoary alyssum (*Berteroa incana*) : 2, 3
Hoary cress (whitetop) (*Cardaria draba*): 2, 3
Hoary cress (whitetop) (*Cardaria pubescens*) Desv.) : 1
Houndstongue (*Cynoglossum officinale*): 1, 2, 3
Iberian starthistle (*Centaurea iberica*): 1
Italian thistle (*Carduus pycnocephalus*): 1
Japanese knotweed (*Fallopia japonica*): 1
Knotweed complex (Japanese, Giant, and Himalayan) (*Polygonum cuspidatum, sachalinense*, and *polystachyum*): 2, 3
Leafy spurge (*Euphorbia esula*): 1,2,3
Meadow hawkweed Complex (*Hieracium pratense*, *H. floribundum*, *H. piloselloides*): 2,3
Meadow knapweed (*Centaurea nigrescens, C. pratensis*): 1
Medusahead (*Taeniatherum caput-medusae*): 1
Milk thistle (*Silybum marianum*): 3
Musk thistle (*Carduus nutans*): 1, 3
Orange hawkweed (*Hieracium aurantiacum*): 1,2,3
Ox-eye daisy (*Chrysanthemum leucanthemum*): 1, 2, 3
Poison hemlock (*Conium maculatum*): 1
Puncturevine (*Tribulus terrestris*): 1
Purple starthistle (*Centaurea calcitrapa*): 1
Quackgrass (*Agropyron repens*): 1
Perennial pepperweed (*Lepidium latifolium*): 1, 2, 3
Perennial sowthistle (*Sonchus arvensis*): 1
Plumeless thistle (*Carduus acanthoides*): 1
Poison hemlock (*Conium maculatur*): 1, 2, 3
Purple loosestrife (*Lythrum salicaria*): 1, 2, 3
Purple starthistle (*Centaurea calcitrapa*): 1
Redstem fillaree (*Erodium circutarium*): 1
Rush skeletonweed (*Chondrilla juncea*): 1, 2, 3
Russian knapweed (*Acroptilon repens*): 1, 2, 3
Russian olive (*Elaeagnus angustifolia*): 1
Scentless camomile (*Matricaria perforata*): 1
Scotch broom (*Cytisus scoparius*):1, 2,3

Scotch thistle (*Onopardum acanthium*): 1, 3
Skeletonleaf bursage (*Franseria discolor*): 1
Spotted knapweed (*Centaurea maculosa*): 1, 2, 3
Squarrose knapweed (*Centaurea virgata* ssp. *squarrosa*): 1
St. Johnswort (*Hypericum perforatum*): 1, 2, 3
Sulfur cinquefoil (*Potentilla recta*): 1, 2, 3
Swainsonpea (*Sphaerophysa salsula*): 1
Syrian beancaper (*Zygophyllum fabago*):1
Tall buttercup (*Granunculus acris*): 2, 3
Tamarisk (*Saltcedar*) (*Tamarix* spp.): 1, 2, 3
Tansy ragwort (*Senecio jacobaea*): 1, 2, 3
Teasel (*Dipsacus fullonum*):1
Venice mallow (*Hibiscus trionum*): 1
Viper's bugloss (*Echium vulgare*): 1
Yellow flag iris (*Iris pseudacorus*): 2, 3
Yellow hawkweed (*Hieracium fendleri*): 1
Yellow starthistle (*Centaurea solstitialis*): 1, 2, 3
Yellow toad flax (*Linaria vularis*): 1, 2, 3

LIST OF ADDITIONAL NOXIOUS WEEDS / INVASIVE SPECIES REQUIRING CONTROL WITHIN THE BOUNDARIES OF THE BIGHORN CANYON NATIONAL RECREATION AREA (ALL COUNTIES)

Bull thistle (*Cirsium vulgare*)
Blueweed (*Echium vulgare*)
Burdock (*Arctium minus*)
Cheatgrass (*Bromus tectorum*)
Flowering rush (*Butomus umbellatus*)
Halogeton (*Halogeton glomeratus*)
Hoary cress (whitetop) (*Cardaria draba*)
Hoary cress (whitetop) (*Cardaria pubescens*) (Desv.)
Japanese knotweed (*Fallopia japonica*)
Kochia (*Bassia sieversiana*)
Meadow hawkweed Complex (*Hieracium pratense, H. floribundum, H. piloselloides*):
Musk thistle (*Carduus nutans*)
Russian olive (*Elaeagnus angustifolia*)
Russian thistle (*Salsola iberica*)
Tumble mustard (*Sisymbrium altissimum*)

Weed lists adapted from the following sources:

Bighorn County Weed Board and Scott Brockness. 2008. Big Horn County Noxious Weed Management Plan. Harden, Montana. 11 pp. + attachments.

Brockness, S. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Scott Brockness, Montana Weed Control Association, Bighorn County Weed District Administrator. July 29.

Bromley, C. Personal Communication between Stephen G. Long of Cedar Creek Associates, Inc. and Cassity Bromley, National Park Service, Chief of Resources, Email May 32, 2011.

Ostwald, B. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Brian Ostwald, Montana Weed Control Association, Weed Coordinator for Carbon County Weed and Pest District. August 6.

Richardson. 2008. Personal communication between Stephen Long of Cedar Creek Associates, Inc. and Brett Richardson, Assistant Supervisor, Big Horn County (Wyoming) Weed and Pest District. August 6.

Wyoming Weed and Pest Council. 2008a. Wyoming Weed & Pest Control Act Designated List. http://www.wyweed.org.

———2008b. 2008 Declared Weed and Pest List (Big Horn County). http://www.wyweed.org.

———2010a. Wyoming Weed & Pest Control Act Designated List. Available online: http://www.wyweed.org.

———2010b. 2010 Declared Weed and Pest List (Big Horn County). http://www.wyoweed.org.

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Appendix G– National Historic Preservation Act Consultation

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ARTS. PARKS. HISTORY.

Wyoming State Parks & Cultural Resources

January 4, 2011

Ree R. Rodgers
Preservation Officer
Department of Energy
Western Area Power Administration
Rocky Mountain Region
PO Box 281213
Lakewood, CO 80228-8213

Re: Lovell-Yellowtail Numbers 1 and 2 Transmission Lines (SHPO File # 0111JPL001)

Dear Ms Rodgers:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the Wyoming portion of the above referenced undertaking. We have reviewed the associated report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). We concur with your finding that sites 48BH13 and 48BH3757 are eligible for listing in the National Register of Historic Places and will not be adversely affected by the undertaking as long as the recommendations provided by Alpine Archaeology are followed. Additionally, we concur that sites 48BH2987, 48BH3124, and 48BH3756 are not eligible for listing in the National Register of Historic Places.

We recommend the Western Area Power Administration allow the undertaking to proceed in accordance with state and federal laws subject to the following stipulations:

> Work at 48BH13 and 48BH3757 should be narrowly restricted to the existing roads and an archaeological monitor should be present during any ground disturbing activities. If any cultural materials are discovered during construction, work in the area shall halt immediately, the federal agency and SHPO staff be contacted, and the materials be evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence with your finding of no historic properties adversely affected. Please refer to SHPO project #0111JPL001 on any future correspondence regarding this undertaking. If you have any questions, please contact John Laughlin at 307-777-3424.

Sincerely,

John P. Laughlin

John P. Laughlin
Archaeologist/Senior Cultural Resources Specialist

Matt Mead, Governor
Milward Simpson, Director

Big Sky. Big Land. Big History.
Montana
Historical Society

Historic Preservation
Museum
Outreach & Interpretation
Publications
Research Center

December 23, 2010

REE RODGERS
WAPA
POB 281213
LAKEWOOD CO 80228-8213

RE: Lovell – Yellowtail Numbers 1&2 Montana Rebuild

Dear Ms. Rodgers:

We have reviewed the class III inventory report for the above referenced proposed project in Carbon and Big Horn Counties, Montana (Alpine Archaeological Consultants 07/2010) as requested. We do not object to the eligibility determinations as recommended in the report, and with your concurrence as documented in your 12/06/2010 correspondence to us. For records keeping purposes we have attached table 45 from the Alpine report as the list detailing these 80 consensus determinations of eligibility/non eligibility. Your correspondence did not include copies of concurrence from land managing agencies such as BICA, MT DNRC, BLM etc., so we are assuming at this point you have or will receive those concurrences. If that is not the case we will need to return to this issue.

We agree with your Adverse Effect finding. We recommend you notify the ACHP of our mutual finding and determine in consultation with them what their role may be. Please forward their response to us once you have it. We anticipate an agreement document (an MOA or a PA with a detailed treatment/mitigation plan Appendix) will be necessary.

Summary or generic statements such as stipulations requiring traffic to remain on existing roads will not likely be adequate in the treatment plan. We recommend a site by site approach in which the mitigation plan addresses each of the specific recommendations made in the report text describing each site. It is not clear to us that 24CB2068 does not warrant the adverse effect finding and treatment as well for example; although the detailed plan may resolve that concern. We are also unable at this time to determine whether or not we could agree with the possible "off-site mitigation" proposed by BICA – again we need a more developed and detailed proposal for consideration. Certainly our knowledge of several of these sites would benefit from subsurface work.

Sincerely,

Stan Wilmoth

Stan Wilmoth, Ph.D.
State Archaeologist/Deputy, SHPO

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ARTS. PARKS. HISTORY.
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Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

RECEIVED
5 OCT 2010 BY JGH

Sep 29, 2010

Jim Hartman
Department of Energy
Western Area Power Administration
Environmental Manager
P.O. Box 3700
Loveland, CO 80539-3003

Re: Proposal to replace Structures and Repair Access Roads on the Lovell-Thermopolis Transmission Line in Big Horn and Washakie Counties (SHPO File # 0910JRD024)

Dear Mr. :

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced project. We agree with the stipulations of monitoring and avoidance presented in the treatment plan for this project. We look forward to seeing the testing results for site 48WA982, final determinations of eligibility for the sites within the area of potential effect, and updated site forms for this project.

Please refer to SHPO project #0910JRD024 on any future correspondence regarding this project. If you have any questions, please contact Joseph Daniele, Archaeology/Review and Federal Consultation at 307-777-8793.

Sincerely,

Joseph Daniele
Wyoming State Historic Preservation Office

Dave Freudenthal, Governor
Milward Simpson, Director

Big Sky. Big Land. Big History.
Montana
Historical Society

Historic Preservation
Museum
Outreach & Interpretation
Publications
Research Center

Thursday, May 27, 2010

RODNEY JONES
WAPA
555 EAST CROSSROADS BOULEVARD
LOVELAND CO 80538-8986

RE: Lovell-Yellowstone and Basin Lovell Transmission Line

Dear Mr. Jones:

Thank you for notifying us of the proposed above referenced undertaking and WAPA's intention to issue an EA. The notice does not address WAPA's responsibilities under section 106 of the National Historic Preservation Act (NHPA). The ACHP's implementing regulations at 36 CFR 800 require an agency comply with 106 prior to a FONSI or other final decision. A FONSI does not fulfill agency requirements under 36 CFR 800. We believe the rebuilt has the potential to adversely affect Historic Properties and recommend WAPA initiate consultation under 36 CFR 800.

Please also be advised that MT DEQ's cooperation in no way substitutes for consultation with MT SHPO regarding federal requirement under either NEPA or NHPA.

Stan Wilmoth, Ph.D.
State Archaeologist/Deputy, SHPO

225 North Roberts Street
P.O. Box 201201
Helena, MT 59620-1201
(406) 444-2694
(406) 444-2696 FAX
montanahistoricalsociety.org

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Rocky Mountain Regional Office
316 North 26th St.
Billings, Montana 59101

IN REPLY REFER TO: Environmental, Cultural & Safety (620)

NOV 1 2 2008

Jim Hartman
Environmental Manager
Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO. 80539-3003

Dear Mr. Hartman:

Thank-you for providing the Bureau of Indian Affairs the opportunity to review the survey report submitted by Alpine Archaeological Consultants, Inc. entitled *Class III Cultural Resource Inventory for the Lovell-Yellowtail Numbers 1 and 2 Transmission Lines and Access Roads Bighorn County Wyoming and Carbon and Bighorn Counties, Montana.* Overall the report is well written and concise. However, I do offer the following comments

General comments
What method is used to determine Phosphoria and Hartville cherts from other cherts? Likewise for Madison quartzite please give a definition or methodology of how this typing is made.

Specific comments
Page iii, paragraph 6, sentence 3
Replace the word "or" with the word "and" before the phrase "consulting with the Crow Tribal Historic Preservation Office (THPO)". Crow THPO assumed the State Historic Preservation Office responsibilities on the Crow Indian Reservation and should be consulted.

Page 2, Misspelled Lawrence Flat Lip name

Page 11, paragraph 1, sentence 9
Intermountain Brown Ware may be indicative of Shoshonean present into Montana and it may also be indicative of trade between the Shoshone and tribes in Montana

Page 11, Crow Origins
10th sentence beginning "No Northern Plains group…" Blackfeet made pottery cited by John C. Ewers in American Anthropologist 1945, Volume XLVII, number 2, pages 289-298, *The case for Blackfeet Pottery*, and Blackfeet tribal member John B. No Runner has published a book on Blackfeet Pottery

Page 38, Map
It is difficult to pick out stone tools on map. Describe the method use to determine site boundaries.

Page 65, National Register Recommendations
Cite historical reference which states site 24CB225 is a Crow village and buffalo kill site

Page 84
Along with chronometric data obsidian can be sourced. Sourcing is a reliable test to obtain data about where the obsidian originated from. This data is useful for migration or trade research questions. Knowing the beginning and ending location of obsidian can give some idea of migration of this material type.

Page 190, Traditional Cultural Properties
On page # 93 a Crow Tribal monitor identifies possible Medicine bundles that are buried at Site 24CB2050 (AAC-411). Please include Site 24CB2050 (AAC-411) along with sites 24CB225 and 24CB853 for further consultation with the Crow Tribal Historic Preservation Office, addressing the treatment or non treatment of these sites.

If you have questions, please feel free to contact me at (406) 247-7911.

Sincerely,

Jo'Etta Plumage Buckhouse

Jo'Etta Plumage Buckhouse
Archaeologist

RECEIVED

MONTANA HISTORICAL SOCIETY

225 North Roberts ◆ P.O. Box 201201 ◆ Helena, MT 59620-1201
◆ (406) 444-2694 ◆ FAX (406) 444-2696 ◆ www.montanahistoricalsociety.org ◆

Monday, November 03, 2008

JIM HARTMAN
WAPA
POB 3700
LOVELAND CO 80539-3003

RE: Lovell to Yellowtail 1 and 2 Transmission Rebuild Phase One Cultural Resource Inventory Report

Dear Mr. Hartman:

Thank you for requesting our review of the above referenced report. We are unable to concur in your finding at this time.

We believe that documentation of tribal consultation, beyond use of tribal survey monitors, is warranted and we require documentation of that effort as part of our review.

Similarly there is no documentation of NPS concurrence and we require land management agency findings in our review.

Further, we believe treatment/avoidance/reroute recommendations listed by table (#29) are too vague. Specific actions, both construction and impact avoidance, should be concise and not premised on unknown "if"s and "or"s. What is specific proposed action at each site and what is proposed for avoidance/treatment? Data recovery is proposed in the report where on going cumulative effects are occurring as of result WAPA undertakings (e.g. 24CB2069). Is that part of the plan? Where is the data recovery or research design?

Monitoring as described is not avoidance or mitigation. Detailed stop work and discovery protocols are warranted. Usually a finding of No Adverse Effect is warranted if actions which have potential to effect occur within sites even if plans are in hand to avoid *direct* effects. As such we recommend the eligibility of sites involved in these actions be resolved. (Has the historic transmission line been recorded and evaluated?)

We understand that a field visit regarding survey findings has been proposed for this December. We believe the results of that meeting should be shared with MT SHPO for our further consideration. The report references reports not submitted to SHPO based on Indiana University Field School sessions. SHPO should be able to view all reports upon which project findings are based. Please also submit a CRABS form for this report and any others.

Sincerely,

Stan Wilmoth

Stan Wilmoth, Ph.D.
State Archaeologist/Deputy, SHPO

Copy: NPS-BCNRA

STATE HISTORIC PRESERVATION OFFICE ◆ 1410 8th Ave ◆ P.O. Box 201202 ◆ Helena, MT 59620-1202
◆ (406) 444-7715 ◆ FAX (406) 444-6575

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

RECEIVED
BY JGH DATE 31 OCT 08

State Historic Preservation Office
Barrett Building, 3rd Floor
2301 Central Avenue
Cheyenne, WY 82002
Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

Oct 28, 2008

Jim Hartman
Environmental Manager
Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

re: Plans to Rebuild and Upgrade the Existing Lovell to Yellowtail Transmission Lines Located in Northern Wyoming and Southern Montana (SHPO File # 1008JRD020)

Dear Mr. Hartman:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced project. We have reviewed the project report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). We concur with your finding that site 48BH13 is eligible for listing in the National Register of Historic Places and will not be adversely affected by the project as planned. We do agree with your stipulation that an archaeological monitor be present during any construction activities. We also concur that sites 48BH3756 and 48BH3757 are not eligible for listing in the National Register of Historic Places and the project will not affect any historic properties.

We recommend the Department of Energy allow the project proceed in accordance with state and federal laws subject to the following stipulation:

> If any cultural materials are discovered during construction, work in the area shall halt immediately, the federal agency and SHPO staff be contacted, and the materials be evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence with your finding of no historic properties affected. Please refer to SHPO project #1008JRD020 on any future correspondence regarding this project. If you have any

Dave Freudenthal, Governor
Milward Simpson, Director

questions, please contact Joseph Daniele, Archaeologist/Review and Federal Consultation at 307-777-8793

Sincerely,

Joseph Daniele
Wyoming State Historic Preservation Office

Dave Freudenthal, Governor
Milward Simpson, Director

National Park Service
Bighorn Canyon National Recreation Area
20 Highway 14A East
Lovell, WY 82431
307-548-2251

In Reply Refer To: D-22 (1320)

October 15, 2008

Steven Tromley, Acting Historic Preservation Officer
Western Area Power Administration
Corporate Service Office
P.O. Box 281213
Lakewood, CO. 80228-8213

Mr. Tromley,

This is a request for a meeting to discuss the Class III inventory conducted on park lands during 2006, and 2007. It has come to our attention that the survey crew missed a large number of sites and site components during the survey of the power line corridor and associated access roads Western Area Power Authority plans to use during the proposed line upgrade. As presently written, we cannot accept this report. The original December 2006 draft report indicated that a total of 29 newly discovered or previously documented sites were encountered during the course of the survey.

Since the initial survey conducted by the contractor in 2006, the park archaeologist, his staff, or Western Area Power Authority employees have encountered 17 separate sites, or site components missed during the original Class III survey conducted by your contractor. This includes five components on sites documented by the contractor, one segment of road that passes through an undocumented segment of a site the contractor documented, and nine sites missed during the initial survey (5 of which still remain undocumented). Four of these sites were discovered during a September 16, 2008 field visit with Michael Korhonen (Western Area Power Administration Project Director for the upcoming rebuild project). If NPS personnel can find over 50% of the number of sites or site components discovered by the contractor in less than 20% of the entire project area, the accuracy and adequacy of the entire survey is in question. At this time, the document cannot be used by the NPS to make adequate decisions on the protection and preservation of cultural resources during the course of the proposed power line upgrade in Bighorn Canyon National Recreation Area.

Sincerely,

John Keck
Assistant Superintendent
Bighorn Canyon National Recreation Area
20 Hwy 14A East
Lovell, Wyoming 82431
(307) 548-5406

cc: project file
Dale Old Horn, Crow THPO.

Appendix H– Electrical and Magnetic (EMF) Field Profiles

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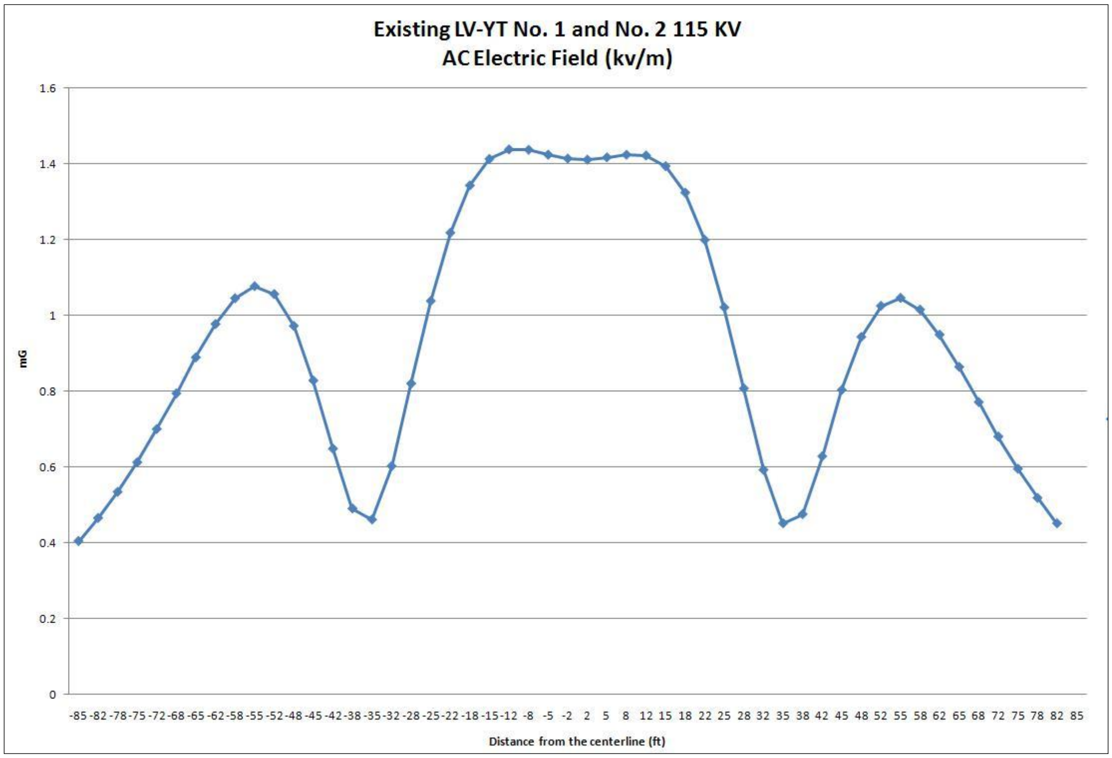

Figure H - 1 Electric Field Profile, Existing Lovell-Yellowtail No. 1 and No. 2 115-kV Transmission Line, 397 kcmil ACSR

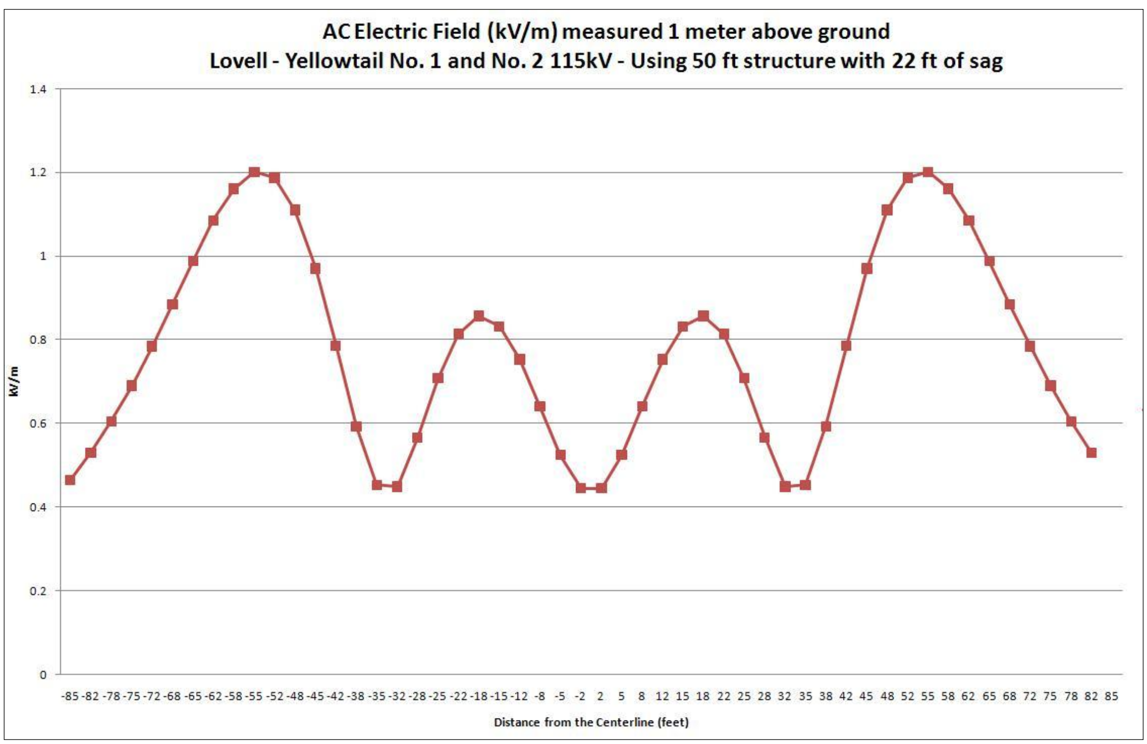

Figure H - 2 Electric Field Profile, Proposed Lovell-Yellowtail No. 1 and No. 2 115-kV Transmission Line, 795 kcmil ACSS

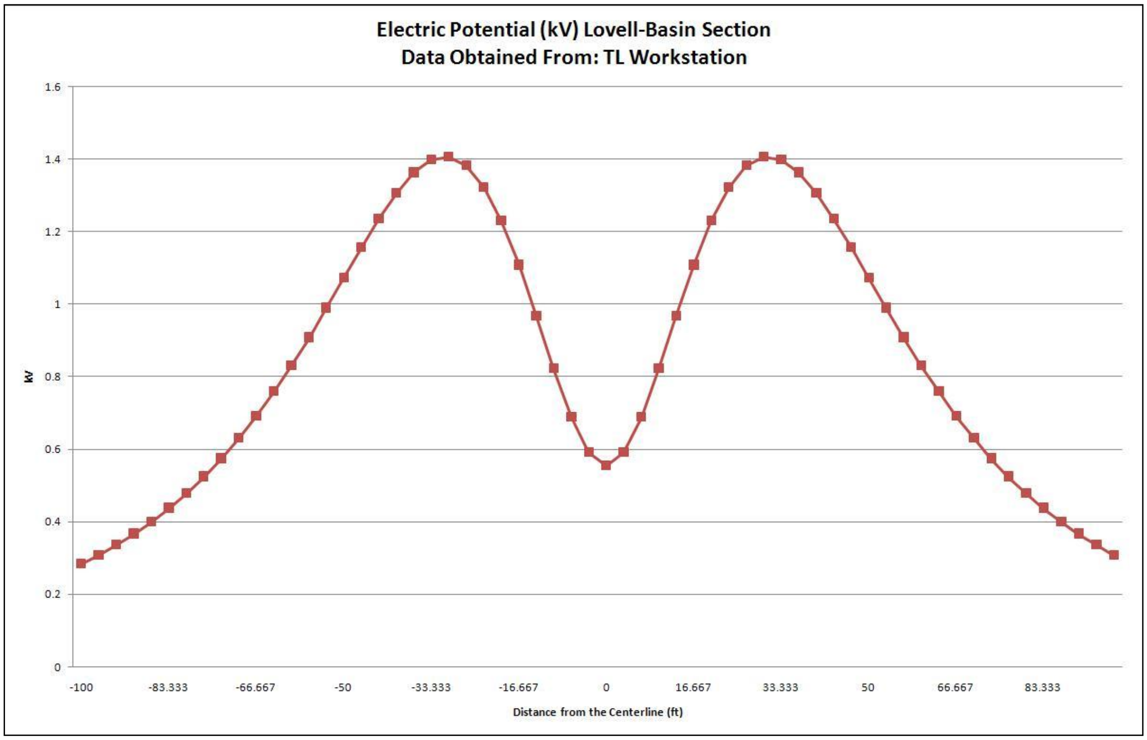

Figure H - 3 Electric Field Profile, Existing Lovell-Basin 115-kV Transmission Line, 397 kcmil ACSR

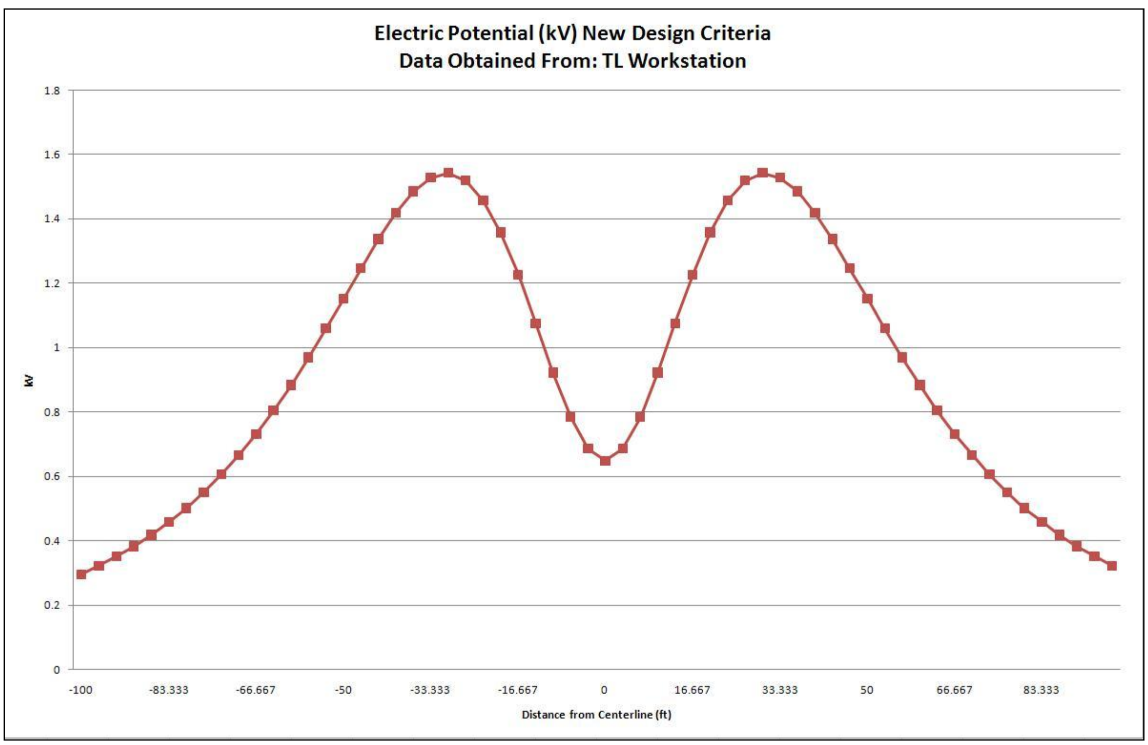

Figure H - 4 Electrical Field Profile, Proposed Lovell-Basin 115-kV Transmission Line, 795 kcmil ACSS

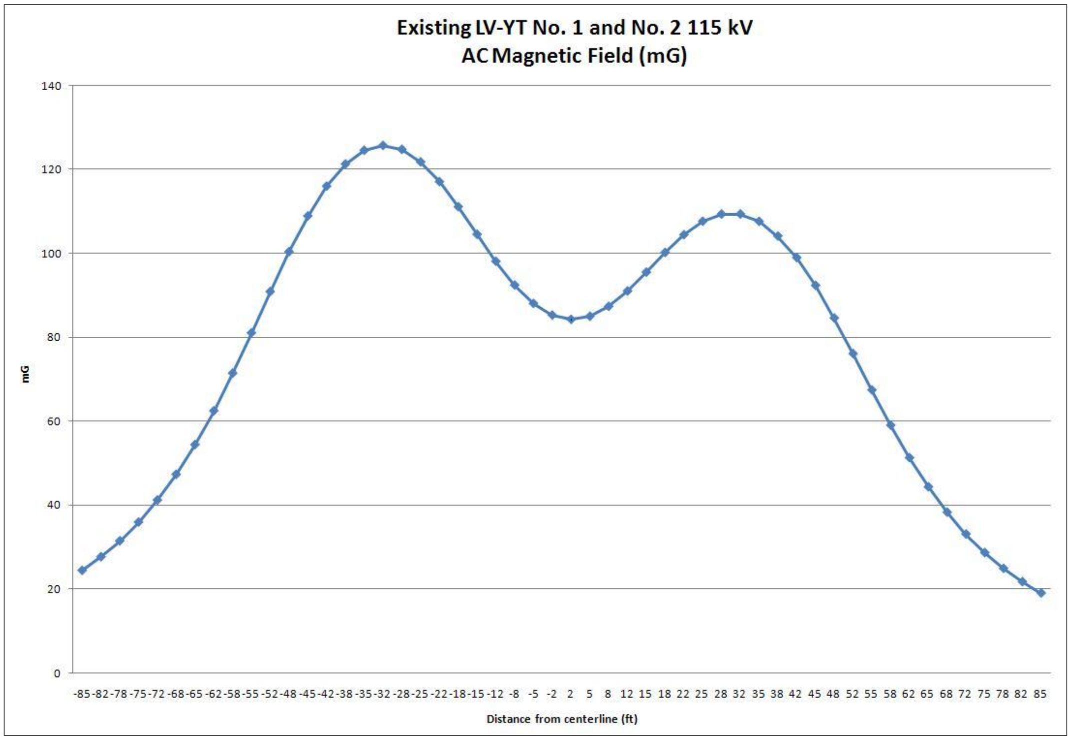

Figure H - 5 Magnetic Field Profile, Existing Lovell-Yellowtail No. 1 and No. 2 115kV Transmission Line, 397 kcmil ACSR

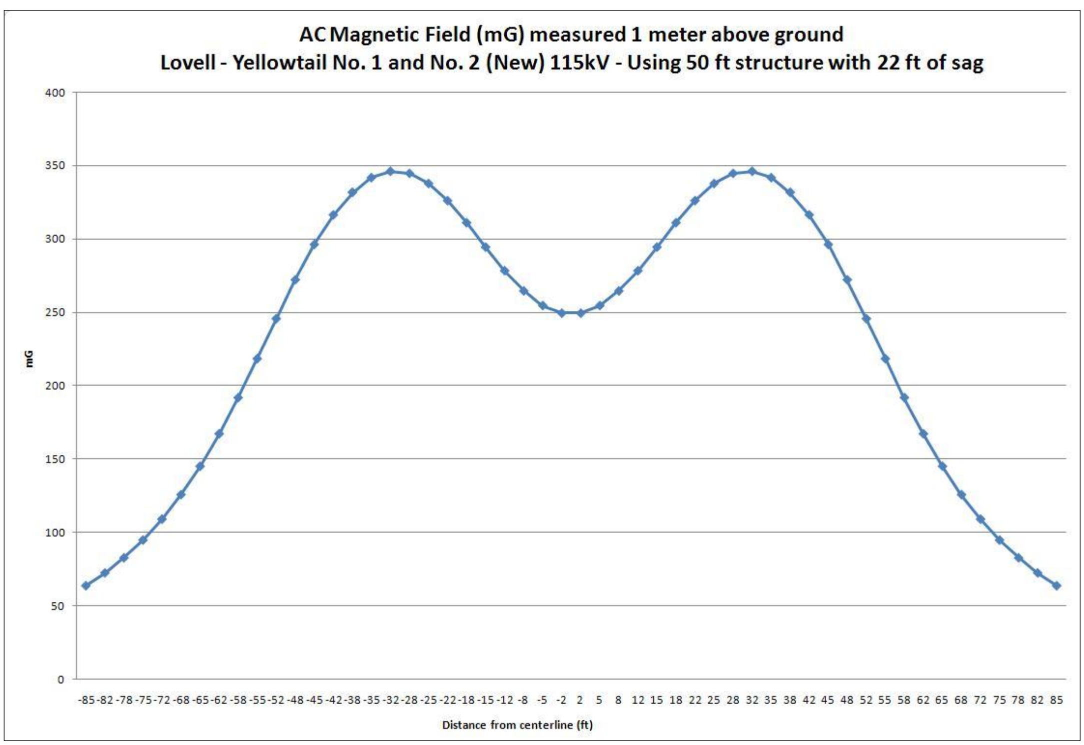

Figure H - 6 Magnetic Field Profile, Proposed Lovell-Yellowtail No. 1 and No. 2 115KV Transmission Line, 795 kcmil ACSS

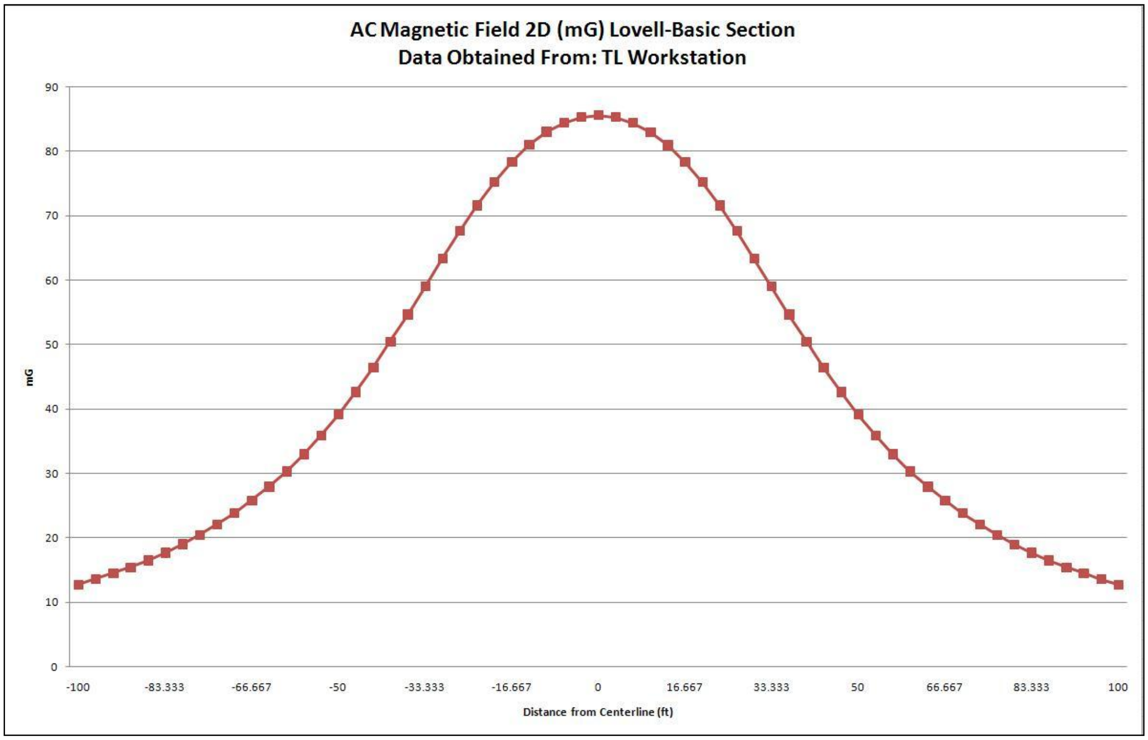

Figure H - 7 Magnetic Field Profile, Existing Lovell-Basin 115-kV Transmission Line, 397 kcmil ACSR

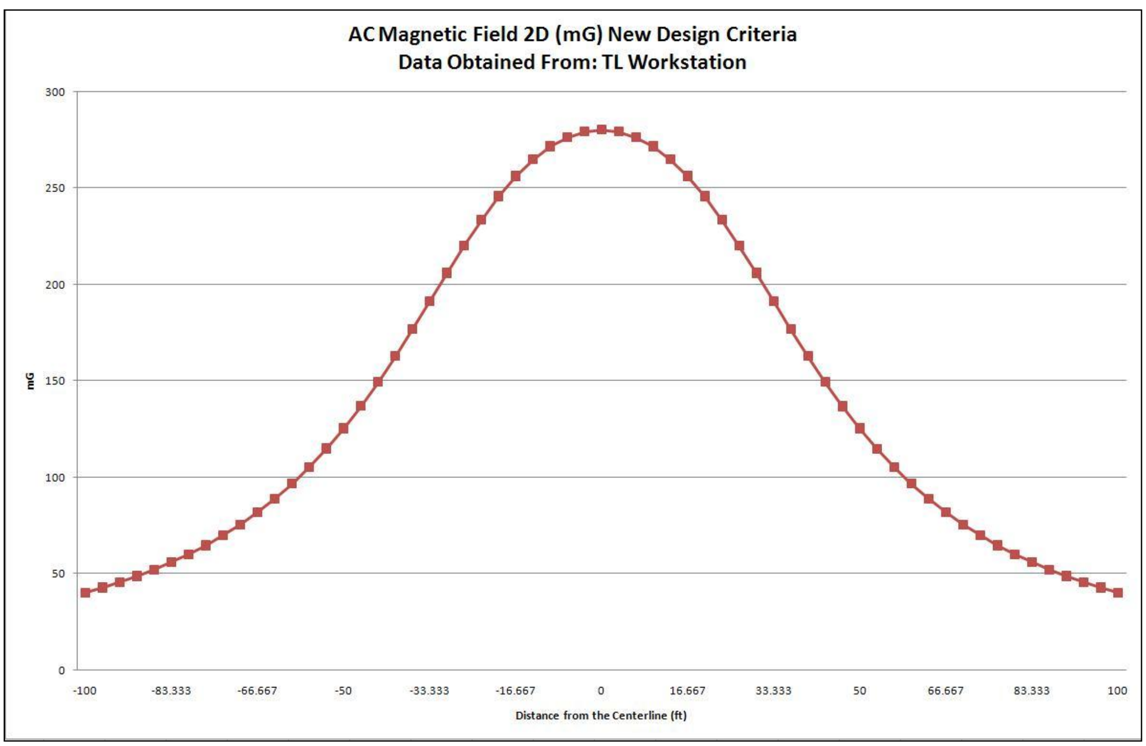

Figure H - 8 Magnetic Field Profile, Proposed Lovell-Basin 115-kV Transmission Line, 795 kcmil ACSS

Appendix I - Cooperating Agency Coordination

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CONTRACT NO. 09-RMR-2046

BETWEEN

MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

AND

UNITED STATES
DEPARTMENT OF ENERGY
WESTERN AREA POWER ADMINISTRATION
ROCKY MOUNTAIN REGION

LOVELAND AREA PROJECTS

FOR

ENVIRONMENTAL REVIEW SERVICES ON THE LOVELL-YELLOWTAIL #1 AND #2
TRANSMISSION LINE REBUILD PROJECT

CONTRACT NO. 09-RMR-2046

BETWEEN

MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

AND

UNITED STATES
DEPARTMENT OF ENERGY
WESTERN AREA POWER ADMINISTRATION
ROCKY MOUNTAIN REGION

LOVELAND AREA PROJECTS

FOR

ENVIRONMENTAL REVIEW SERVICES ON THE LOVELL-YELLOWTAIL #1 AND #2
TRANSMISSION LINE REBUILD PROJECT

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CONTRACT NO. 09-RMR-2046

BETWEEN

MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

AND

UNITED STATES
DEPARTMENT OF ENERGY
WESTERN AREA POWER ADMINISTRATION
ROCKY MOUNTAIN REGION

LOVELAND AREA PROJECTS

FOR

ENVIRONMENTAL REVIEW SERVICES ON THE LOVELL-YELLOWTAIL #1 AND #2 TRANSMISSION LINE REBUILD PROJECT

1. PREAMBLE: This Contract is made this 22nd day of December 2009, pursuant to the Acts of Congress approved June 17, 1902 (32 Stat. 388); December 22, 1944 (58 Stat. 887); August 4, 1977 (91 Stat. 565); Sections 75-20-106 and 75-20-215 (2)(a) of the Montana Code Annotated (M.C.A.), and acts amendatory or supplementary to the foregoing Acts; between the UNITED STATES OF AMERICA, acting by and through the Administrator, WESTERN AREA POWER ADMINISTRATION, Department of Energy, hereinafter called Western, represented by the officer executing this Contract or a duly appointed successor, hereinafter called the Contracting Officer; and the DEPARTMENT OF ENVIRONMENTAL QUALITY, a body corporate and politic, duly organized under and by virtue of the laws of the State of Montana, hereinafter called DEQ, its successors and assigns;

Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

each sometimes hereinafter individually called Party, and both sometimes hereinafter collectively called the Parties.

2. EXPLANATORY RECITALS:

2.1 Western needs to replace and upgrade the structures on its Lovell-Yellowtail transmission lines, hereinafter called the Project, to continue to provide adequate and reliable power and energy service to its customers.

2.2 Western will conduct environmental reviews and studies of the proposed Project in accordance with the National Environmental Policy Act (NEPA).

2.3 A portion of the Project lies within the State of Montana; therefore, DEQ will participate in Western's environmental reviews and studies for the purpose of determining compliance with applicable state substantive standards established under the Montana Major Facility Siting Act, Section 75-20-101, et seq., MCA, including the development of mitigation measures related to construction of the Project that may be required to comply with applicable state standards.

2.4 The Parties desire to enter into this Contract to provide for Project coordination, consultation, and reporting.

2

Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

3. AGREEMENT: The Parties agree to the terms and conditions set forth herein.

4. TERM OF CONTRACT: This Contract shall become effective on the date of execution, and subject to prior termination as otherwise provided herein, shall remain in effect for seven years from the date of execution, or until all services have been performed, whichever occurs first. This Contract may be terminated by either Party upon sixty (60) days written notice.

5. SERVICES TO BE PERFORMED BY WESTERN:

5.1 Western shall provide DEQ with copies of all comments on the Project that are submitted to Western during the environmental scoping period.

5.2 Western shall submit to DEQ information needed to determine compliance with applicable state substantive standards established under the Montana Major Facility Siting Act. Western shall respond to information requests by DEQ within 10 business days of receipt of a request, unless a request involves a policy decision by Western or the acquisition or production of technical information not readily available, in which case the information will be provided by a mutually agreed deadline.

Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

5.3 Western shall cooperate with DEQ in the development of mutually agreeable mitigation measures for reducing potential impacts to environmentally sensitive areas that may result from Project construction.

5.4 Western shall provide DEQ with a minimum of two (2) hard copies and one (1) electronic copy in Microsoft Word format of the Preliminary Draft Environmental Assessment (PDEA). Western shall provide DEQ the opportunity to review the document and comment upon its adequacy.

5.5 Western shall provide DEQ with a minimum of two (2) hard copies and one (1) electronic copy on CD of the final Draft Environmental Assessment (DEA). Western shall provide DEQ the opportunity to review the document and comment upon its adequacy.

5.6 Western shall provide DEQ with a minimum of two (2) hard copies and one (1) electronic copy on CD of the Final Environmental Assessment (FEA) and, if appropriate, a copy of the Finding of No Significant Impact.

5.7 Annually, Western will inform DEQ of the Project segments proposed for construction.

4

5.8 Western shall notify DEQ when it completes construction of a segment so that DEQ may inspect the segment for environmental mitigation measures.

6. SERVICES TO BE PERFORMED BY DEQ:

6.1 DEQ shall attempt to attend all remaining meetings, public meetings, workshops, and hearings which are conducted concerning the Project in order to obtain information and comments from the public. DEQ shall inform Western in the event that DEQ is unable to attend a meeting and shall seek an alternate representative for DEQ. DEQ shall ensure that public concerns and Western's responses are addressed in DEQ's report regarding Western's studies and evaluations of the Project, as identified in Section 6.7 of the Contract.

6.2 DEQ shall review Western's scoping comments and provide formal comments within 15 business days following receipt of the scoping comments. Failure of DEQ to provide comments in the prescribed time shall relieve Western of its obligation to respond to DEQ's scoping comments.

6.3 DEQ shall review the PDEA submitted by Western and provide formal comments to Western within 10 business days following receipt of the

PDEA. DEQ may, during the 10-day period, request additional time to provide written comments due to the need to meet other statutory or contractual deadlines. Western's assent to such a request shall not be unreasonably withheld.

6.4 DEQ shall review the DEA and provide formal comments to Western within 20 business days following receipt of the DEA. Failure of DEQ to provide comments in the prescribed time shall relieve Western of its obligation to respond to DEQ's comments.

6.5 DEQ shall review Western's Project construction standards to ascertain whether they are materially consistent with applicable DEQ construction standards. If the Parties' construction standards are materially different, the Parties agree to meet to discuss the differences and make a good faith effort to resolve any discrepancies.

6.6 DEQ shall serve as the coordinating agency for the Project in meeting the applicable requirements, if any, of the Montana Departments of Transportation; Commerce; Fish, Wildlife, and Parks; Natural Resources and Conservation; State Historic Preservation Office; Public Service Commission; Legislative Consumer Counsel; and other State of Montana agencies.

Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

6.7 DEQ shall prepare and publish a report which shall include, but is not limited to, a summary of Western's NEPA document, a description of DEQ's involvement in the Project, maps or descriptions of portions of Western's proposed transmission line centerline, a description of monitoring and mitigation plans, and DEQ findings regarding the substantive standards set forth in the Montana Major Facility Siting Act. Five (5) copies of said report shall be submitted to the Contracting Officer.

6.8 DEQ shall cooperate with Western in developing mutually agreeable mitigation measures for reducing potential impacts to environmentally sensitive areas that would result from Project construction.

6.9 DEQ shall conduct a site inspection of Western's proposed transmission line centerline to identify site-specific mitigation measures for environmentally sensitive areas.

6.10 DEQ shall monitor the implementation of mitigation measures developed by the Parties during Project construction.

7. BUDGET: The estimated Project cost for services provided in Section 6 is One Hundred Eighteen Thousand Five Hundred Twelve Dollars ($118,512). The budget is further detailed in Exhibit A attached hereto.

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Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

8. COMPENSATION: In the event that the costs incurred by DEQ exceed the budget set forth in Section 7, the Parties shall negotiate an amendment to this Contract. Not later than the 30th business day after the close of each quarter, DEQ shall submit to Western an itemized invoice of actual obligations incurred by DEQ. The invoice will contain all costs and expenses incurred by DEQ in completing services during the previous quarter. The costs and expenses invoiced to Western will be actual costs and expenses, plus leave additive rate and indirect costs as specified in Exhibit A of this Contract. At DEQ's discretion, if total costs and expenses incurred by DEQ during any given quarter do not exceed One Thousand Dollars ($1,000), they may be carried over to the succeeding quarter. Western shall make payment as soon as the necessary voucher can be prepared, but not more than 30 business days following receipt of a DEQ invoice. The invoice submitted by DEQ will be prepared using State of Montana accounting procedures. The accounting for all costs accrued under the Contract shall be in accordance with Western's accounting procedures. Should termination of the Contract occur pursuant to Section 12 below, DEQ shall be compensated for actual services rendered under the terms of the Contract up to the time of termination.

9. PROJECT ACCOUNTING: DEQ shall maintain accounting records for their work on the Project reflecting all costs and expenses, either direct or indirect, involved in computing any charges to Western under this Contract. DEQ shall furnish a

8

detailed description of this accounting to Western at the completion of its work on this Project.

10. PROJECT COORDINATORS: The Project Coordinators for the Parties are as follows:

Ms. Nancy Johnson DEQ - Environmental Mgt. Bureau 1520 East Sixth Avenue P.O. Box 200901 Helena, MT 59620-0901 (406)444-6797 Fax (406)444-1499	Mr. Rodney Jones WAPA – Rocky Mtn. Region 5555 East Crossroads Blvd. P.O. Box 3700 Loveland, CO 80539-3003 (970)461-7371 Fax (970)461-7213

11. EXHIBITS: In as much as certain provisions of this Contract may change during the term of this Contract, they will be set forth in the exhibits as formulated and modified from time to time as agreed upon by the Parties. The initial Exhibit A is attached hereto, made a part hereof, and shall be in full force and effect in accordance with its terms until superseded by a subsequent Exhibit A; Provided , That the exhibits will be reviewed as specified in each exhibit.

12. CONTINGENT UPON APPROPRIATIONS: Where activities provided for in this Contract extend beyond the current fiscal year, continued expenditures by the United States are contingent upon Congress making the necessary appropriations required for the continued performance of the United States' obligations under this Contract. In case such appropriation is not made, DEQ hereby releases the

Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

United States from its contractual obligations and from all liability due to the failure of Congress to make such appropriation.

13. JURISDICTION: No statements made by either Party, nor any agreements, contracts, or activities undertaken pursuant to any agreements or contracts, including this Contract, shall be construed as a submission by Western to jurisdiction of the State of Montana, or identify Western as a potential applicant under the Montana Major Facility Siting Act (Section 75-20-101, et seq., M.C.A.). Notwithstanding the agreements, terms and conditions contained in this Contract, it is mutually understood by the Parties that neither Party waives nor relinquishes any legal argument, defenses, action, or causes of action that are or may be available to either Party.

14. COVENANT AGAINST CONTINGENT FEES: DEQ warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by DEQ for the purpose of securing business. For breach or violation of this warranty, Western shall have the right to annul this Contract without liability or at its discretion to deduct from the Contract price or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

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Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

15. CONTRACT WORK HOURS AND SAFETY STANDARDS: This Contract, to the extent that it is of a character specified in Section 103 of the Contract Work Hours and Safety Standards Act (Act), 40 U.S.C. § 3701, as amended or supplemented, is subject to the provisions of the Act, 40 U.S.C. §§ 3701-3708, as amended or supplemented, and to regulations promulgated by the Secretary of Labor pursuant to the Act.

16. EQUAL OPPORTUNITY EMPLOYMENT PRACTICES: Section 202 of Executive Order No. 11246, 30 Fed Reg. 12319 (1965), as amended by Executive Order No. 12086, 43 Fed. Reg. 46501 (1978), as amended or supplemented, which provides, among other things, that DEQ will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin, is incorporated herein by reference in this Contract.

17. USE OF CONVICT LABOR: DEQ agrees not to employ any person undergoing sentence of imprisonment in performing the Contract except as provided by 18 U.S.C. § 3622 (c), as amended or supplemented, and Executive Order No. 11755, 39 Fed Reg. 779 (1973), as amended or supplemented.

18. SEVERABILITY: If any term or provision of this Contract is held to be illegal or in conflict with any Montana or Federal law by a court having jurisdiction over the matter, the validity of the remaining terms and provisions shall not be affected, and

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the rights and obligations of DEQ and Western shall be construed and enforced as if the Contract did not contain the particular term or provision held to be invalid.

19. CHOICE OF LAW: The Parties agree that this Contract or any provision thereof shall be governed by the law of the United States, as applicable.

20. AUTHORITY TO EXECUTE: Each individual signing this Contract certifies that the Party represented has duly authorized such individual to execute this Amendment that binds and obligates the Party.

Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

The Parties have executed this Contract as of the day and year set forth in Section 1 above.

WESTERN AREA POWER ADMINISTRATION

By: Bradley S. Warren
Bradley S. Warren

Title: Acting Regional Manager
Rocky Mountain Region

Address: Western Area Power Administration
P.O. Box 3700
Loveland, CO 80539-3003

MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

By: Richard H. Opper
Richard H. Opper

Title: Director

Address: P.O. Box 200901
Helena, MT 59620-0901

(SEAL)

Attest:

By: ______________________

Date: ______________________

State of Montana
County of Lewis & Clark

Subscribed and sworn to (or affirmed) before me this 16th day of December, 2009, by Richard H. Opper.

__________ (sign)
Notary Public for the State of Montana
Joyce L. Wittenberg (print)
Residing at: Helena, Montana
My Commission expires: May 21, 2011

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EXHIBIT A
Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENT QUALITY
Page 1 of 2

ENVIRONMENTAL REVIEW SERVICES ON THE LOVELL–YELLOWTAIL #1 AND #2 TRANSMISSION LINE REBUILD PROJECT
Budgets

1. This Exhibit A, made this 22nd day of December, 2009, to be effective under and as a part of Contract No. 09-RMR-2046, dated December 22, 2009, hereinafter called the Contract, shall become effective on the date first written above and shall remain in effect until superseded by another Exhibit A; Provided, That this Exhibit A or any superseding Exhibit A shall terminate upon expiration of the Contract.

2. Budgets: The estimated project costs for services provided in Section 6 of the Contract are as follows:

Budget 1 - Review Services: [1*]

Personal Services (includes leave additive and benefits)	$	31,478
Operating Expenditures:		
Travel (Per Diem/Assumes 3 people/1 trip per year for meetings/ review/3 days)	$	1,122
Motor Pool (462 mi Helena\Yellowtail Dam by Way of Lovell WY @ .202 per mile)	$	250
Supplies, Communication, Mailing, Printing, Temp services	$	5,000
Indirect costs @ .24 percentage of Personal Services	$	7,555
Total Costs for Review Services	$	45,405

EXHIBIT A
Contract No. 09-RMR-2046
MONTANA DEPARTMENT OF
ENVIRONMENT QUALITY
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Budget 2 – Construction Monitoring: [1*, 2*]

Personal Services (includes leave additive and benefits)	$	52,062
Operating Expenditures:		
Travel (Per Diem/Assumes 2 people/1 trip per year for monitoring/ review/3 days)	$	750
Motor Pool (462 mi Helena\Yellowtail Dam by Way of Lovell WY @.202 per mile)	$	2,800
Supplies, Communication, Mailing, Printing, Temp services	$	5,000
Indirect costs @.24 percentage of Personal Services	$	12,495
Total Costs for Construction Monitoring	$	73,107
Total Project Costs	$	118,512

1* Benefits, Leave Additive, Indirect Costs, Personal Services, Per Diem expenses and Vehicle Charges may change from time to time and shall be revised as agreed to between Authorized Representatives of Western and DEQ. If costs and expenses incurred by DEQ in completing services specified in Section 5 are expected to exceed budget, a contract amendment can be requested by DEQ.

2* This estimate is based on the assumption that construction will occur over a 2 to 3 year period and reclamation and re-vegetation would be successful within 5 years of the completion of Project construction.

3. Exhibit Revisions: This Exhibit A may be modified as provided for in Section 22 of the Contract; Provided, That this Exhibit A shall be reviewed not less than once every one (1) year from its effective date.

United States Department of the Interior
National Park Service
Bighorn Canyon National Recreation Area
20 Highway 14A East
Lovell, WY 82431
307-548-2251

Western Area Power Administration
Rocky Mountain Region
Loveland, Colorado

April 12, 2011

Dear Western Area Power Administration,

Thank you for the opportunity to review the March 20011 Preliminary Draft Environmental Assessment (DOE/EA-1617) Lovell-Yellowtail and Basin-Lovell Transmission Line Rebuild Project.

Bighorn Canyon National Recreation Area (NRA) is a unit of the National Park Service and is therefore governed under the Organic Act of 1916 (16 U.S.C. 1 2 3, and 4), "The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

We are concerned that this EA fails to adequately address the potential impacts of invasive species, including, but not limited to noxious weeds. This project will " Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species" as prohibited in the Federal Noxious Weed Control Act and Executive Order 13112. Additional appropriate mitigation includes pretreatment of disturbance areas and providing funding to treat disturbed areas for 2 years post construction.

As we pointed out in our December 17, 2009 review, the EA does not address the 14.3-mile access road system outside of the power line right of way. With the exception of Table 2.1-2 on page 2.1-11, the EA provides little specific information on the extent and impacts of access roads. We note the EA states "One new access road (1,500 feet long) would be constructed on the Bighorn Canyon NRA. Some portions of existing roads would require upgrading and spur roads to certain structure sites would be constructed (Summary p. 5)." Before NPS could approve additional road construction with Bighorn Canyon, detailed construction proposals and project-specific environmental impact information would be required. It is important to note that many of the "existing roads" have not been traveled by wheeled vehicles since shortly after completion of construction of the line. Many of these "roads" have suffered significant erosion, have stabilized through the process of natural re-vegetation, or have been stabilized, reclaimed, or re-vegetated by NPS, and they will require substantial improvement and work to be passable. It also seems evident that the larger equipment needed for this project will require a corridor wider than the existing roads. These impacts need to be more substantially addressed in the EA. Once NPS and Western agree on the extent of road construction and improvement within Bighorn Canyon, the EA should be revised to reflect that agreement.

We are concerned that the document mentions that "…redundant and abandoned access roads associated with the transmission lines within the Bighorn Canyon NRA would be reclaimed by the NPS…"(Summary, page 1) We have no funds to complete this work and would hope that we could work with Western to develop a mitigation plan acceptable to both agencies. The amount of restoration and re vegetation will be considerable and will extend well beyond the completion of project work. In this dry climate, some areas may need to be seeded again in the years following the project and invasive species will need to be addressed before, during and after construction work is complete. Because neither Western, nor NPS has the necessary experience, skills or time to oversee this restoration, we suggest mitigation will need to include a re-vegetation specialist, funded by Western and supervised by NPS. This person can be the lead on both restoration following construction, and on the reclamation of the abandoned roads.

Mitigations for approved access roads should include specifying a maximum width (14 feet is listed in visual impacts section, and 18-30 feet in Table 2.1-2 pg. 2.1-11), removing all berms along the edges, constructing water bars, and preparing and seeding roads. Some level of restoration will be required on all roads, including those kept for maintenance and emergencies. This will limit visual impact, erosion susceptibility, discourage ATV use, and limit access to cultural resources by collectors and looters.

The impacts to the Wilderness Study Area within the project area have not been properly addressed (see pg.4, December 17, 2009 comments). Drainage crossings, access roads and equipment pads in this area will require extensive ground disturbance, and planning for limited pre construction disturbance, and post construction restoration needs to be addressed in detail.

The recreation itself meets one of the CEQ significance criteria "Unique characteristics of the geographic area such as proximity to historic or cultural resources, **park lands**,[emphasis added] prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.," Although the EA does mention significance criteria under cultural resources, somewhere the document should also mention the potential adverse effects to this National Park System unit as well.

Depending on season of construction, work may need to be halted if snow cover prevents the adequate protection of cultural resources or if mud conditions make landscape damage likely.

SPECIFIC COMMENTS:

Pg 5: Summary Upland Vegetation. Some level of re-vegetation/ restoration will be required on all disturbed areas. Should also address impacts of disturbance on invasive species (not just noxious weeds).

Pg, 5: Summary Soils. These impacts would be minor to moderate where no grading would be required, and moderate where grading would be required. Mitigation measures such as re-vegetation may be required to prevent impacts from reaching the major threshold. Make this change

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throughout the document. Pg. 3.4-20, Pg. 3.4-21,

Pg 7 Summary : Work will occur in a Wilderness Study Area, and this should be added as an impact topic. Impacts to the Wilderness Study Area within the project area have not been properly addressed (see pg.4, December 17, 2009 comments). Drainage crossings, access roads and equipment pads in this area will require extensive ground disturbance, and planning for limited pre construction disturbance, and post construction restoration needs to be addressed in detail.

Pg 8 Summary Land Use, Socioeconomics, Community Resources, and Transportation. Minor to moderate impacts may occur on dirt roads from construction equipment movement during wet weather conditions. A mitigation plan should include language on when a temporary shutdown may be required to prevent excessive damage.

Pg 8 Summary should read "reclaim 12.6 *acres* of abandon road."

Visual Resources. It appears that the visual resource impact analysis failed to include the effects of access/service roads, nor is there any mention the NRHP listed Caroline Lockhart Ranch (24CB1085). The skyline 350 meters east of the main ranch house is dominated by conductor wires spanning the Davis Creek Drainage. Mitigation may be required to keep impacts minor to moderate Pg. 3.12-126.

"The larger and more industrial scale of the steel poles would be partially offset, however, since the steel pole structure would replace two sets of H-frame structures, thus reducing the overall amount of ground disturbance." We do not understand how reducing ground disturbance offsets adding larger steel poles. Once a disturbed area is re-vegetated, the ground disturbance is much less noticeable, but the taller poles remain

Pg 1.3-2 Purpose and need. Under point 3, a new permit will be obtained to reflect NPS control of land included in Bighorn Canyon NRA.

Pg 2.1-1 Clarify Western responsibility to fund reclamation of abandon roads. All road work will require some level of restoration (removal of berms, addition of waterbars etc).

Pg 2.1-9 section 2.1.4 Access Roads. NPS would expect to discuss overland construction methods and building of addition spur roads once you have prepared detailed drawings/specifications for these actions. We request that no construction occur in these areas until the proposals are discussed.

Pg 2.1-10 2.1.6.1 Update construction dates and adjust impacts as needed

pg. 2.1-12; 2.1.6.1, Clean-up all disturbed areas will require some cleanup and stabilization.

Table 2.1-2 pg. 2.1-11. Summary of short-Term and Long-Term Surface Disturbances from the 115-kV Transmission Line Construction. This Table includes 1,500 feet of new access roads listed as both Short-Term, and Long-Term disturbances, but does not mention the approximately 14 miles of existing service roads that will require upgrade for construction activities. If the 18-30 foot road width and easement on approximately 14 miles of service road is added to this table, an additional 30.55 to 50.9 acres will be disturbed by this project. Disturbances to roads and sites will endure more than 2 years and should be classed as long term according to current definitions.

Table 2.1-3 These mitigation measures can be developed more fully in a mitigation plan agreed to by both parties. GEN-4. Depending on season of construction, work may need to be halted if snow cover prevents the adequate protection of cultural resources or if mud conditions make landscape damage likely. Gen-5 roads required for maintenance will require waterbars and berm removal and seeding if necessary to prevent erosion and promote grass and forb revegetation, protecting the site while allowing for access by Western maintenance or emergency access. Erosion -1 Non ROW roads will require this treatment as well. Veg-? provide for pre and post treatment of invasive species. Cult 2. NPS will flag and monitor sites, and an NPS monitor must be present during construction. Transportation 2. C construction will need to allow for cattle trailing through the park as well. All roads, including those required for maintenance will need some erosion control and stabilization measures.

Pg 3.3-5, 3.3.1.2 Paleontology second paragraph last sentence. Remove 'dinosaur' before fossil.

Pg 3.3-7 3.3.2.2 Paleontology second paragraph Remove 'dinosaur' before fossil.

Table 3.4-2 This Table includes 1,500 feet of new access roads as a Short-Term disturbance in Phase I, but does not mention the approximately 14 miles of existing service roads that will require upgrade for construction activities. If the 18-30 foot road width and easement on approximately 14 miles of service road is added to this table, an additional 30.55 to 50.9 acres will be disturbed by this project. Disturbance will last longer than 2 years and should be long term. Why is there no Long-Term Disturbances listed here as was listed in Table 2.1-2?

Pg. 3.4-203.4.2.2 Impacts of the proposed project: 'Long-Term adverse, indirect impacts from sedimentation and erosion would be negligible.' We believe it more likely that impacts will be long term and minor-moderate. When the impact from the new access road is addressed, the 18-30 foot road width and easement on approximately 14 miles of service road is added to this statement an additional 30.55 to 50.9 acres will be added the amount of land impacted by Long-Term disturbance as a result of this project.

Pg 3.6-36 3.6.1.2 Noxious weeds Planning needs to address invasive species broadly, rather than just including noxious weeds. Preconstruction weed surveys and treatment, as well as post construction follow up, monitoring and treatment for two years post build are necessary mitigating measures.

Pg 3.6-37 3.6.2.2 Impacts of proposed project. Impacts will be long term (longer than 2 years). New spur roads have not been approved. Drought conditions may intensify impacts.

pg. 3.6-39 3.6.2.3 Impacts of the Alternatives.: Figures in Alternative A1_could be broken down into Phase I & II. There is a great deal of confusion between figures here (291 acres) and in Table 2.1-2 (355.6 to 367.03 acres), Table 3.4-2 (125.9 acres), and table 3.6-1 pg. 3.6-41 (existing Structure Removal 169.0 acres and Proposed Project 165.7. The figures listed here do not mention the

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approximately 14 miles of existing service roads that will require upgrade for construction activities. If the 18-30 foot road width and easement on approximately 14 miles of service road is added to these figures, an additional 30.55 to 50.9 acres will be disturbed by this project. This issue should be clarified on page 3.7-47 as well.

Pg 3.7-44, 3.7.1.2 Cryptobiotic soils: The impact analysis should also account for impact of access road use and improvement.

Pg 3.7-45 3.7.2.2 We suggest that NPS approval for stringing sites within Bighorn Canyon also be included in the mitigation plan.

Pg. 3.7-46: As we discussed previously, NPS would prefer that no new spur road construction be permitted within Bighorn Canyon.

Pg 3.7-48 3.7.2.5 Mitigation Measures. Erosion control will also be required on roads kept for maintenance, allowing for passage of emergency and maintenance vehicles. Compacted sites may need to be ripped.

Pg.3.8-70 3.8.2.2: Figures for area of impact do not match (**See 3.6.2.3 above**) **Big Game** Bighorn sheep do inhabit areas that will be impacted by the rebuild. Re-opening access roads, loss of habitat and construction during spring lambing/breeding season will have minor to moderate impacts.

Pg. 3.10-82 3.10.1 Affected Environment: The number of sites found during survey (75) listed here does not match the number in the report conducted by Alpine Archaeological Consultants during the Class III inventory (80). We suggest you check figures in Summary section of this document (pg. 317). There are visual impacts to the NRHP listed Caroline Lockhart Ranch (24CB1085). The skyline 350 meters east of the main ranch house is dominated by conductor wires spanning the Davis Creek Drainage.

Pg. 3.10-83 3.10.2.1 Issues and Significance Criteria: The Bad Pass Trail24CB853/24BH3372 is a Crow TCP and is NRHP listed. The Bad Pass Trail System is located in the South District of Bighorn Canyon NRA. Initial construction (1956 & 1966) and maintenance efforts since construction have resulted in serious damage or destruction of segments of the trail system. The rebuild project will further damage the integrity of this NRHP listed site, and mitigation and consultation involving NPS staff, and the Native American Community is critical before planning or construction efforts begin.

Pg. 3.10-84 3.10.2.2 There are two NAGPRA issues to be addressed on this project as well, and there will definitely be visual impacts to their properties. Mitigation plans must be in place pre-construction. We request that no construction activities occur within Bighorn Canyon without an NPS monitor present who can stop construction if cultural sites are imperiled. Even with mitigation there will be more then negligible effects. Original access routes were constructed without any section 106 compliance, so an unknown number of resources were affected. Because these roads may need substantial improvement in many cases, limiting access to 'existing' roads will still cause impacts.

Pg. 3.10-91: Table 3.10-3, 24CB853/24BH3372 (the Bad Pass Trail) is a Crow TCP and is NRHP listed. The Bad Pass Trail System is in the South District of Bighorn Canyon NRA and should be listed in this table.

Pg. 3.11-101 3.11.2.2 Impacts of the Proposed Project: New roads could potentially attract all-terrain vehicles (ATVs) and other unauthorized vehicle use in the Areas. These roads would need to be obscured or signed as closed where they intersect the main park Roads. Because of these concerns, NPS suggests that no access roads to the right of way open for maintenance operations be left without some effort to limit post construction visual impacts and erosion. We would like this to be an element of our proposed mitigation plan. Annual ground patrol, and emergency access does not justify leaving the access roads without some measure of reclamation to limit, visual impact, erosion susceptibility, discourage ATV use, and to limit access to cultural resources by collectors and looters. Long term moderate impacts will occur.

The adverse impacts of motor vehicle use off of roads have long been a grave concern in NPS areas. As a result, motor vehicle use off of roads is prohibited in national parks and monuments nationwide in order to protect the natural and cultural resources, and the scenic, scientific, and archeological features of national parks. This is because motor vehicles travelling off of roads disturb the soil and damage vegetation, which leads to soil erosion; damage archeological resources, directly by crushing or as a result of soil erosion induced by such travel; damage and destroy vegetation, which can adversely affect wildlife habitat, and can adversely affect the scenic quality of the natural landscape. Research has shown that, once such damage has occurred, it is very difficult or impossible to repair. Off-road vehicles are designed, produced and marketed for the purpose of off-road travel, and they are uniquely capable of easily leaving the road and travelling cross-country. No reasonable level of law enforcement presence would be sufficient to prevent ATV use off roads. Park rangers will have no ability to pursue and apprehend vehicle users off-road without adding to the damage they cause to park resources.

3.12.1.2 Visual Sensitivity: As previously discussed, the visual impacts of the project do not address the access/service roads, or mention the NRHP listed Caroline Lockhart Ranch (24CB1085). The skyline 350 meters east of the main ranch house is dominated by conductor wires spanning the Davis Creek Drainage.

Pg 3.12-113 Transmission Access Routes. Impacts will be moderate and long term.

Pg 3.12-114 The Lockhart ranch should be included as a key observation point.

Please contact us with questions and to discuss the details of potential mitigations for natural and cultural resources. Thank you for the time and effort spend to complete a thorough EA, and your willingness to work with us to make this a successful project.

Sincerely

____
Jerry Case
Superintendent
Bighorn Canyon NRA

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Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

April 6, 2011

Jim Hartman, Environmental Manager
Western Area Power Administration
Rocky Mountain Customer Service Region
PO Box 3700
Loveland, CO 80539-3003

Dear Jim:

The Montana Department of Environmental Quality (DEQ), as a cooperating agency assisting in the preparation and review of the Environmental Assessment (EA) for the Lovell-Yellowtail and Basin-Lovell Transmission Line Rebuild Project, submits the following comments on the administrative draft of March 2011.

Overall the document provides a comprehensive assessment of potentially affected resources and is very well written. DEQ has provided comments and questions within the document that would help clarify information related to potential environmental impacts. In addition, DEQ notes several areas where additional information will be needed to support conclusions and a determination of substantive compliance with the Montana Major Facility Siting Act (Title 75, chapter 20, part 1, Montana Code Annotated). These areas are:

1. The basis of the need for the facility, pursuant to 75-20-301(1)(a), MCA. DEQ requests additional information on reliability concerns and additional transfer capacity as described in comments provided under Purpose and Need.
2. Cost of the various alternatives to support conclusions on the nature and economics of the various alternatives, pursuant to 75-2-301(1)(c), MCA.
3. Information on the electric field at the edge of the right-of-way and the average annual noise level at the edge of the right-of-way in the subdivided Pryor Mountain Estates, sufficient to show that State standards found at ARM 17.20.1607(2)(d) and ARM 17.20.(2)(a)(i) will be met. Also note that these requirements may be waived by affected landowners.
4. Additional information that compares the length and cost of rebuilding the LV-YT 1 and 2 lines on private land adjoining the east side of Section 36,T7S, R28E with length and cost of rebuilding the lines within and on the east edge of Section 36, T7S, R28E, as described in information sent to Western on March 17, 2009. This information would help support a DEQ conclusion pursuant to 75-20-301(1)(h) on use of public lands for siting of transmission lines.

Enforcement Division • Permitting & Compliance Division • Planning, Prevention & Assistance Division • Remediation Division

DEQ appreciates the opportunity to work with Western and its contractor to address these information needs. Please contact Tom Ring at 406-444-6785 or Nancy Johnson at 406-444-6797 with any questions.

Sincerely,

Warren D. McCullough

Warren D. McCullough, Bureau Chief
Environmental Management Bureau
Department of Environmental Quality

Cc: Jennifer Kathol, Kathol & Company
Enclosure sent via electronic mail

National Park Service
Comment and Responses on Lovell-Yellowtail and Basin-Lovell Transmission Line Rebuild Project

Section/ Resource	Line Number	Page	Section	Comment	Response to Comment and Revisions
NPS COMMENTS					
Additional comments	Page 1	Paragraph 3	Letter accompanying specific comments	Additional appropriate mitigation includes pre-treatment of disturbance areas and providing funding to treat disturbed areas for 2 years post construction.	Western agrees to pre-treatment of noxious weeds prior and during construction and 2 years post construction. Specific Mitigation Measure VEG-PS-1. Western will control noxious weeds within Bighorn Canyon NRA per an agreement with the National Park Service. This agreement will be developed prior to construction start-up.
Additional comments	Page 1-2	Paragraph 4	Letter accompanying specific comments	"Once NPS and Western agree on the extent of road construction and improvement within the Bighorn Canyon NRA, the EA should be revised to reflect agreement.	Western has prepared an interagency agreement that both parties will sign regarding road construction, improvement, and reclamation. This agreement will be referenced in the EA summary.
Additional comments	Page 2	Paragraph 1	Letter accompanying specific comments	"As part of Phase I, redundant and abandoned access roads associated with the transmission lines within the Bighorn Canyon NRA would be reclaimed by the National Park Service (NPS) after construction." NPS is concerned about funds to complete the work… etc.	Sentence revised: "As part of Phase I, redundant and abandoned access roads associated with the transmission lines within the Bighorn Canyon NRA would be reclaimed by the National Park Service (NPS) after construction at Western's cost." Interagency agreement will provide mitigation plan for revegetation and reclamation work which will include a revegetation specialist. Once Western provides all funding the NPS will be responsible for implementation.
Additional	Page 2	Paragraph	Letter accompanying specific	"Mitigations for approved access roads should include	All of the proposed improvements in this

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Section/ Resource	Line Number	Page	Section	Comment	Response to Comment and Revisions
comments		2	comments	specifying a maximum width, removing all berms along edges, constructing water bars, and preparing and seeding roads. Some level of restoration will be required on all roads including those kept for maintenance and emergencies. This will limit visual impact, erosion susceptibility, discourage ATV use and limit access to cultural resources by collectors and looters.	paragraph will be completed. These improvements will be completed via the interagency agreement.
Additional comments	Page 2	Paragraph 3	Letter accompanying specific comments	The impacts to the Wilderness Study Area within the project area have not been properly addressed. Drainage crossings, access roads and equipment pads in this area will require extensive ground disturbance, and planning for limited pre construction disturbance, post disturbance, and post construction restoration needs to be addressed.	Text modified and additional information added to Impacts section. "The segment of access road within the WSA between structures 14-3 and 14-4 does not require improvement. The access road closest to the ROW between structures 14-5 and 14-6 will require improvement. Improvements to the roads will follow the mitigation plan agreed to in the interagency agreement between the NPS and Western. Mitigations for approved access roads would include specifying a maximum width, constructing water bars, and preparing and seeding roads. Some level of restoration will be required on all roads including those kept for maintenance and emergencies. This will limit visual impact, erosion susceptibility, discourage ATV use and limit access to cultural resources by collectors and looters."
Additional comments	Page 2	Paragraph 4	Letter accompanying specific comments	The recreation itself meets one of the CEQ significance Criteria "Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers or ecologically	National Park System added to significance criteria in Land Use section. Text was added stating short term impact from construction activity may occur to recreational resources.

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Section/ Resource	Line Number	Page	Section	Comment	Response to Comment and Revisions
				critical areas." Although the EA does mention significance criteria under cultural resources, somewhere the document should also mention the potential adverse effects to this National Park System unit as well.	
Additional comments	Page 2	Paragraph 5	Letter accompanying specific comments	Depending on season of construction, work may need to be halted if snow cover prevents the adequate protection of cultural resources or if mud conditions make landscape damage likely.	Additional language added to Western's Standard Construction Project Practices GEN-1 and CULT-3.
Summary		S-5	Upland Vegetation	Some level of re-vegetation/ restoration will be required on all disturbed areas. Should also address impacts of disturbance on invasive species (not just noxious weeds).	Disturbed areas will be subject to the appropriate level of revegetation and restoration per interagency agreement and revised text of Chapters 2.0 and 3.0. Commitments to control "invasive species" have also been added to Chapter 2.0, Table 2.1-3, with a list of invasive species to be controlled added to Appendix F.
Summary		S-5	Soils	These impacts would be minor to moderate where no grading would be required, and moderate where grading would be required. Mitigation measures such as re-vegetation may be required to prevent impacts from reaching the major threshold. Make this change throughout the document. Pg. 3.4-20, Pg. 3.4-21,	The text of Chapters 1.0, 2.0, and 3.0 of the EA have been modified to address the classification of impacts as "minor" or "moderate" as suggested. Reference to preventing "impacts from reaching a major threshold" has been made in the Summary of the EA.
Summary		S-7	Land Use Recreation	Work will occur in a Wilderness Study Area, and this should be added as an impact topic. Impacts to the Wilderness Study Area within the project area have not been properly addressed (see pg.4, December 17, 2009 comments). Drainage crossings, access roads and equipment pads in this area will require extensive ground disturbance, and planning for limited pre construction disturbance, and post	Discussion of construction impacts in the WSA has been added. Interagency agreement addresses pre and post construction restoration work on access roads.

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				construction restoration needs to be addressed in detail.	
Summary		S-8	Transportation	Minor to moderate impacts may occur on dirt roads from construction equipment movement during wet weather conditions. A mitigation plan should include language on when a temporary shutdown may be required to prevent excessive damage.	Language added to Standard Construction Project Practices in Table 2.1-3.
Summary		S-8	Visual Resources	It appears that the visual resource impact analysis failed to include the effects of access/service roads, nor is there any mention the NRHP listed Caroline Lockhart Ranch (24CB1085). The skyline 350 meters east of the main ranch house is dominated by conductor wires spanning the Davis Creek Drainage. Mitigation may be required to keep impacts minor to moderate Pg. 3.12-126. "The larger and more industrial scale of the steel poles would be partially offset, however, since the steel pole structure would replace two sets of H-frame structures, thus reducing the overall amount of ground disturbance." We do not understand how reducing ground disturbance offsets adding larger steel poles. Once a disturbed area is re-vegetated, the ground disturbance is much less noticeable, but the taller poles remain.	Effects on access/service roads are discussed in section3.12.2.2, Long Term Impacts to Visual Quality, Transmission Access Routes, and Improved and Reclaimed Access Routes on the Bighorn Canyon NRA. Discussion on the visual effects of the project on the Caroline Lockhart Ranch added. Comparison of impacts related to 2 H-frame structures vs. single pole steel structure clarified.
Purpose and Need		1.3-2	1.2	Under point 3, a new permit will be obtained to reflect NPS control of land included in Bighorn Canyon NRA.	"Acquire and clarify access to the transmission lines for maintenance. Western needs additional rights for access to its transmission lines to ensure that the lines can be efficiently maintained. Western and the NPS identified the need to reclaim old access roads on the Bighorn Canyon NRA and also clear up the access rights for line maintenance. Western is in the process of

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Section/ Resource	Line Number	Page	Section	Comment	Response to Comment and Revisions
					working with the NPS and the BLM to obtain new permits to clarify access as well as other issues in accordance with the existing permitted rights." added to Point 3.
General Description of the Proposed Project	32	2.1-1	2.1.1	Clarify Western responsibility to fund reclamation of abandon roads. All road work will require some level of restoration (removal of berms, addition of waterbars , etc).	See interagency agreement. Clarification added.
Access Roads		2.1-9	2.1-4	NPS would expect to discuss overland construction methods and building of addition spur roads once you have prepared detailed drawings/specifications for these actions. We request that no construction occur in these areas until the proposals are discussed.	See interagency agreement and construction specifications.
Construction Schedule		2.1-10	2.1.6.1	Update construction dates and adjust impacts as needed	Revised dates.
Transmission Line Construction		2.1-12	2.1.6.2	Clean-up all disturbed areas will require some cleanup and stabilization	Additional language added.
Transmission Line Construction		2.1-11	2.1.6.2 Table 2.1-2	Summary of short-term and long-term Surface Disturbances from the 115-kV Transmission Line Construction. This Table includes 1,500 feet of new access roads listed as both Short-Term, and Long-Term disturbances, but does not mention the approximately 14 miles of existing service roads that will require upgrade for construction activities. If the 18-30 foot road width and easement on approximately 14 miles of service road is added to this table, an additional 30.55 to 50.9 acres will be disturbed by this project. Disturbances to roads and sites will endure more than 2 years and should be classed as long term according to current definitions.	Table 2.1-2 changed to 18 feet. Roads will not be widened from 14 feet to 18 feet unless needed for equipment access. 18 feet is a reasonable width to accommodate construction equipment. Typically the entire road may not need to be widened—widening would only be needed in specific areas and will be done on a case by case basis. The specific areas cannot be identified at this time.
Western's		2.1-13	2.1.8	These mitigation measures can be developed more fully in a	Western agrees with the suggested

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Standard Construction Project Practices and Project Specific Mitigation Measures			Table 2.1-3	mitigation plan agreed to by both parties. GEN-4. Depending on season of construction, work may need to be halted if snow cover prevents the adequate protection of cultural resources or if mud conditions make landscape damage likely. Gen-5 roads required for maintenance will require waterbars and berm removal and seeding if necessary to prevent erosion and promote grass and forb revegetation, protecting the site while allowing for access by Western maintenance or emergency access. Erosion -1 Non ROW roads will require this treatment as well. Veg-? provide for pre and post treatment of invasive species. Cult 2. NPS will flag and monitor sites, and an NPS monitor must be present during construction. Transportation 2. C construction will need to allow for cattle trailing through the park as well. All roads, including those required for maintenance will need some erosion control and stabilization measures.	mitigation. See interagency agreement for construction specifications for the specific project components. "During inclement weather, construction activities may be stopped if: 1) (Gen- 4) conditions make landscape damage likely; 2) (Cult-2) snow cover prevents the adequate protection of cultural resources" added to Table 2.1-3 Standard Construction Project Practices.
Paleontology		3.3-5,	3.3.1.2	Remove 'dinosaur' before fossil.	Done
Paleontology		3.3-7	3.3.2.2	Remove 'dinosaur' before fossil.	Done
Water Resources			Table 3.4-2	This Table includes 1,500 feet of new access roads as a Short-Term disturbance in Phase I, but does not mention the approximately 14 miles of existing service roads that will require upgrade for construction activities. If the 18-30 foot road width and easement on approximately 14 miles of service road is added to this table, an additional 30.55 to 50.9 acres will be disturbed by this project. Disturbance will last longer than 2 years and should be long term. Why is there no Long-Term Disturbances listed here as was listed in Table 2.1-2?	See response above (Transmission Line Construction) regarding road widths and disturbance. Water Resources impact section has been modified, Table 3.4-2 has been deleted and long-term impacts have been addressed in the text.
Water Resources		3.4-20	3.4.2.2	'Long-Term adverse, indirect impacts from sedimentation and erosion would be negligible.' We believe it more likely that	See response above (Transmission Line Construction) regarding road widths and

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				impacts will be long term and minor-moderate. When the impact from the new access road is addressed, the 18-30 foot road width and easement on approximately 14 miles of service road is added to this statement an additional 30.55 to 50.9 acres will be added the amount of land impacted by Long-Term disturbance as a result of this project.	disturbance. Long-term adverse indirect impacts from sedimentation and erosion have been modified to account for the time required to establish vegetation on access roads.
Upland Vegetation		3.6-36	3.6.1.2 Noxious Weeds	Planning needs to address invasive species broadly, rather than just including noxious weeds. Preconstruction weed surveys and treatment, as well as post construction follow up, monitoring and treatment for two years post build are necessary mitigating measures.	Invasive species discussion added. Preconstruction weed surveys and treatment, post construction monitoring and treatment for two years post build are included in interagency agreement between Western and the NPS.
Upland Veg		3.6-37	3.6.2.2	Impacts will be long term (longer than 2 years). New spur roads have not been approved. Drought conditions may intensify impacts	Comment noted and impacts changed to long-term with additional discussion on conditions within study area.
Upland Veg		3.6-39	3.6.2.3	Figures in Alternative A1 could be broken down into Phase I & II. There is a great deal of confusion between figures here (291 acres) and in Table 2.1-2 (355.6 to 367.03 acres), Table 3.4-2 (125.9 acres), and table 3.6-1 pg. 3.6-41 (existing Structure Removal 169.0 acres and Proposed Project 165.7. The figures listed here do not mention the approximately 14 miles of existing service roads that will require upgrade for construction activities. If the 18-30 foot road width and easement on approximately 14 miles of service road is added to these figures, an additional 30.55 to 50.9 acres will be disturbed by this project. This issue should be clarified on page 3.7-47 as well.	Clarification of acres added to text. Original acres referred to structure removal and installation only and did not reflect the full area of impact of the project including access roads, staging sites, etc. These acre estimates have been deleted from text to reduce confusion. See response above (Transmission Line Construction) regarding road widths and disturbance.
Soils		3.7-44,	3.7.1.2 Cryptobiotic soils	The impact analysis should also account for impact of access road use and improvement.	Statement made that cryptobiotic soils may exist along access roads and road improvements may affect these soils.

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Soils		3.7-45	3.7.2.2	We suggest that NPS approval for stringing sites within Bighorn Canyon also be included in the mitigation plan.	See interagency agreement. Agreed.
Soils		3.7-46	3.7.2.2	As we discussed previously, NPS would prefer that no new spur road construction be permitted within Bighorn Canyon.	See interagency agreement.
Soils		3.7-48	3.7.2.5 Mitigation	Erosion control will also be required on roads kept for maintenance, allowing for passage of emergency and maintenance vehicles. Compacted sites may need to be ripped.	See interagency agreement. Agreed.
Wildlife		3.8-70	3.8.2.2 Big Game	Figures for area of impact do not match (See 3.6.2.3 above) Big Game Bighorn sheep do inhabit areas that will be impacted by the rebuild. Re-opening access roads, loss of habitat and construction during spring lambing/breeding season will have minor to moderate impacts.	Sentence restructured to avoid inconsistency. Additional discussion on Bighorn sheep and potential for habitat or lambing impacts included in text.
Cultural		3.10-82	3.10.1	The number of sites found during survey (75) listed here does not match the number in the report conducted by Alpine Archaeological Consultants during the Class III inventory (80). We suggest you check figures in Summary section of this document (pg. 317). There are visual impacts to the NRHP listed Caroline Lockhart Ranch (24CB1085). The skyline 350 meters east of the main ranch house is dominated by conductor wires spanning the Davis Creek Drainage.	Numbers of sites reviewed and corrected. A discussion of the visual effects on the Caroline Lockhart Ranch was included in the Visual Section.
Cultural		3.10-83	3.10.2.1 Issues and Significance Criteria	The Bad Pass Trail24CB853/24BH3372 is a Crow TCP and is NRHP listed. The Bad Pass Trail System is located in the South District of Bighorn Canyon NRA. Initial construction (1956 & 1966) and maintenance efforts since construction have resulted in serious damage or destruction of segments of the trail system. The rebuild project will further damage the integrity of this NRHP listed site, and mitigation and consultation involving NPS staff, and the Native American Community is critical before planning or construction efforts	A Memorandum of Agreement, Cultural Resources Treatment Plan and Monitoring Plan have been developed in Draft form by Western and the NPS. SHPO's, other federal and state agencies, Tribes and interested parties will be consulted with concerning these documents. Text was added to clarify.

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				begin.	
Cultural		3.10-84	3.10.2.2	There are two NAGPRA issues to be addressed on this project as well, and there will definitely be visual impacts to their properties. Mitigation plans must be in place pre-construction. We request that no construction activities occur within Bighorn Canyon without an NPS monitor present who can stop construction if cultural sites are imperiled. Even with mitigation there will be more then negligible effects. Original access routes were constructed without any section 106 compliance, so an unknown number of resources were affected. Because these roads may need substantial improvement in many cases, limiting access to 'existing' roads will still cause impacts.	All burial sites will be avoided and monitored during construction. Poles are already present so no significant new visual effect s are expected. Western will provide for NPS monitors during construction as agreed upon in interagency agreement. Mitigation is jointly developed by NPS, Western, SHPO's , Tribes and other interested parties in MOA.
Cultural		3.10-91:	Table 3.10-3	24CB853/24BH3372 (the Bad Pass Trail) is a Crow TCP and is NRHP listed. The Bad Pass Trail System is in the South District of Bighorn Canyon NRA and should be listed in this table.	Notations added to all tables to highlight sites that contain cairns associated with the trail.
Transportation		3.11-101	3.11.2.2 Impacts of the Proposed Project	New roads could potentially attract all-terrain vehicles (ATVs) and other unauthorized vehicle use in the Areas. These roads would need to be obscured or signed as closed where they intersect the main park Roads. Because of these concerns, NPS suggests that no access roads to the right of way open for maintenance operations be left without some effort to limit post construction visual impacts and erosion. We would like this to be an element of our proposed mitigation plan. Annual ground patrol, and emergency access does not justify leaving the access roads without some measure of reclamation to limit, visual impact, erosion susceptibility, discourage ATV use, and to limit access to cultural resources by collectors and looters. Long term moderate impacts will occur.	See interagency agreement. Roads will be obscured and signed as closed.

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				The adverse impacts of motor vehicle use off of roads have long been a grave concern in NPS areas. As a result, motor vehicle use off of roads is prohibited in national parks and monuments nationwide in order to protect the natural and cultural resources, and the scenic, scientific, and archeological features of national parks. This is because motor vehicles travelling off of roads disturb the soil and damage vegetation, which leads to soil erosion; damage archeological resources, directly by crushing or as a result of soil erosion induced by such travel; damage and destroy vegetation, which can adversely affect wildlife habitat, and can adversely affect the scenic quality of the natural landscape. Research has shown that, once such damage has occurred, it is very difficult or impossible to repair. Off-road vehicles are designed, produced and marketed for the purpose of off-road travel, and they are uniquely capable of easily leaving the road and travelling cross-country. No reasonable level of law enforcement presence would be sufficient to prevent ATV use off roads. Park rangers will have no ability to pursue and apprehend vehicle users off-road without adding to the damage they cause to park resources.	
Visual			3.12.1.2 Visual Sensitivity	As previously discussed, the visual impacts of the project do not address the access/service roads, or mention the NRHP listed Caroline Lockhart Ranch (24CB1085). The skyline 350 meters east of the main ranch house is dominated by conductor wires spanning the Davis Creek Drainage.	Effects on access/service roads are discussed in section3.12.2.2, Long Term Impacts to Visual Quality, Transmission Access Routes, and Improved and Reclaimed Access Routes on the Bighorn Canyon NRA. Discussion on the visual effects of the project on the Caroline Lockhart Ranch added. Comparison of impacts related to 2

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					H-frame structures vs. single pole steel structure clarified.
Visual		3.12-113.	Transmission Access Routes.	Impacts will be moderate and long term	Long-term added to text. Moderate impacts already defined.
Visual		3.12-114		The Lockhart ranch should be included as a key observation point	The Lockhart Ranch was affected when the transmission line was built in the 1950's. Relatively minor changes would result from the proposed project; therefore the Ranch was not included as a KOP. However, the location of the ranch in relation to the proposed project is discussed and the visual sensitivity included.

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Jeff Blend, MTDEQ	Summary	1	S-2	Purpose and Need	**Purpose and Need Statement, Item 1 (Summary and Chapter 1:1.2):** From Jeff Blend: DEQ requests supporting information concerning the stated basis of need in order to make substantive findings pursuant to 75-20-301(1)(a), MCA. For reliability concerns, please provide data on the current level of outages on the existing line compared to what an acceptable level would be. Also, please provide data on any other relevant reliability metric(s) that are related to the need for this line including current conditions and what an acceptable level would be (for that particular metric). Please include in your reliability explanation any NERC standards that would be fulfilled by the proposed rebuild project.	Western is rebuilding the 115-kV transmission line as preventative maintenance to ensure reliability and to increase its capacity. We would not wait until outages have been experienced and become a problem. Western needs additional capacity in case one line does have an outage then the other line would be able to handle the additional load demand to keep the service reliable. Structures are being modified to support the weight of the new conductor and to address the rejection rate of the structures during the past integrity testing. Western expects a rejection rate of 1-3% on all lines every 10 years. The rejection rate on these lines is unacceptable. One of the objectives for the Lovell-Yellowtail rebuilds is to establish significant transmission capacity to deliver the full output of Yellowtail generation across the Yellowtail South constraint path in both system intact (N-0 – NERC Standard TPL-001) and outage (N-1 – NERC Standard TPL-002) conditions. This objective would allow Western to reliably market Yellowtail generation south without transmission constraints while at the same time being able to perform maintenance and repairs on its lines. Taking into account possible future increases of Yellowtail generation resulting from the turbine rebuilds, Western is targeting a minimum rating for each Lovell-Yellowtail 115-kV line of at least 320 MW to meet this core objective. See Western response letter to MTDEQ.
Jeff Blend, MTDEQ	Summary	6	S-2	Purpose and Need	**Purpose and Need Statement, Item 2 (Summary and Chapter 1:1.2):** From Jeff Blend: For additional transfer capacity concerns please provide the current level of usage on the existing line including any current congestion. Please state why the additional transfer capacity is needed including any necessary load forecasts, changes in the electricity market, etc. Please explain quantitatively how the present electrical ratings of the Project transmission lines limit Western's ability to transmit and market the hydroelectric power generated at BOR's Yellowtail Power Plant to the south. Please give numerical examples of these limits. Please give a recent historical example of how the limitation in transmission capacity has caused Western to either purchase replacement	See response above and Western response letter to MTDEQ.

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					power from more expensive generation south of Yellowtail or pay	
	Chapter 1.3	1.4-3		Table 1.3-1	Clean Water Act. NPDES. DEQ recommends obtaining a 318 authorization (Short Term Water Quality Standard for Turbidity) from MDEQ in case construction equipment has to ford flowing streams or for installation of culverts or bridges should there be a runoff event. More detail can be found at: http://deq.mt.gov/wqinfo/othercert/318Authorization.mcpx	318 authorization added to Table 1.3-1
Nancy Johnson	Summary		S-16	Summary Table	Please add a row showing estimated total cost of the Proposed Project and Alternatives A1 and A2.	The estimated construction cost per mile for building a 115kV line with H-frame structures is $190k and $550k with double circuit steel poles. These are general costs that do not include terrain, access and geologic issues. Actual costs are highly dependent upon the market price of materials as these frequently fluctuate.
Craig Jones	Chapter 2		2.1-8	Figure 2.1-4	Are Glue-Laminated structures 14 or 19 feet deep?	Glue laminated structures are 14 feet deep. Diagram changed.
CB	Chapter 2		2.1-8	Figure 2.1-4	DEQ notes that steel lattice structures are present for the large span across the Bighorn River near Yellowtail Substation. Does Western plan to replace these structures? Text could be added to explain any rebuilds planned in this area, or where rebuilds are not planned. Also clarify whether the structures from Yellowtail Substation to the Pacificorp Electric Yellowtail Substation are planned for rebuild. These are shown on Figure A-18. A picture showing this area adjacent to Yellowtail Dam has been inserted into Appendix A following Figure A-18.	Yes, the lattice structures will be replaced with tubular steel structures. The line from Western's Yellowtail to PACE's Yellowtail will remain intact. Work on this line is not part of this project.
Nancy Johnson	Chapter 2	16	2.1-10	Summary and 2.1.6.1	Construction start-up date for Phase I, 2011 or 2012	Changed Phase I construction to 2011
Craig Jones	Chapter 2	34	2.1-10	2.1.6.2	Shouldn't the landowner or land managing agency have a say if leaving the structure in the ground is okay with them?	We added a statement that land owner or land manager would decide whether poles would be cut off or removed.
	Chapter 2	40	2.1.17	Table 2.1-3	Question on why CDOW cited.	Colorado Division of Wildlife cited because these are the only available guidelines for raptors and burrowing owls.

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Nancy Johnson	Chapter 2	34	2.2-18	2.2.2	It is not clear what resource benefits are gained due to increased siting flexibility within the existing ROW.	Avoidance of wetlands, specific soils, water crossings, TCP's and other sensitive environmental areas. Due to additional span lengths of monopoles, fewer structures would be required therefore less ground disturbance would occur.
Nancy Johnson	Chapter 2	8	2.2-21	2.2.2.1	Clarify whether single-pole steel structures were also considered across the 5-mile segment of private land between the Crow Reservation and the NRA. If not considered for this segment, explain why.	Yes single pole steel structures were considered; however, the proposed H-frames are considerably more cost effective and do not cause additional impacts.
James Strait	Chapter 3.3 Paleo	11	3.3-9	3.3.2.5	What happens in the case of private land/tribal ownership? Realize the chance is small, but should be addressed.	If fossils of suspected scientific significance are encountered during excavation into geological formations with PFYC 3, the private land owner, tribe, or agency with jurisdiction over the lands on which the discovery is made would be notified and a qualified paleontologist would evaluate the find.
Tom Ring	Chapter 3.4 Water	9	3.4-24	3.4.2.3	A very minor caveat: If concrete is used in the foundations of the steel double circuit line, there will be a very small amount of water used consumptively. We would not consider this to be significant.	Comment noted.
Tom Ring	Chapter 3.6 Upland Vegetation	15	3.6-34	3.6.1.2	This preconstruction weed survey should be done along the routes and access roads in Montana and measures should be taken to clean vehicles as they move out of weed infested areas in order to reduce the spread of weed seeds along the ROWs. Construction vehicles should be cleaned to remove weed seeds and plant parts before moving into Montana	See standard construction practice VEG-3 Table 2.1-3. Western has agreed to post construction weed treatment in Montana.
Tom Ring	Chapter 3.6 Upland Vegetation	14	3.6-37	3.6.2.2	This sentence seems out of place as it doesn't fit the context.	Sentence modified.
Tom Ring	Chapter 3.6 Upland Vegetation	5	3.6-38	3.6.2.2	The word 'would' in the first sentence seems to disagree with the word 'may' in the second sentence. Please explain further. Do you mean that steps would be taken to reduce the amount of disturbance and disturbed areas would be seeded but revegetation of areas with even limited disturbances on some of the drier, steep, rocky or gravely sites may not fully recover to their current levels of cover or diversity within the short-term? But the challenging sites are covered in the next paragraph. So does the 'may' statement apply to all sites?	Changes have been made in the text to eliminate this unintended contradiction. The word "may" was deleted and modifications to this and the following paragraph were made to clarify the distinction between potential site conditions.
Tom Ring	Chapter 3.6	25	3.6-	3.6.2.2	These two sentences seem contradictory. Please clarify.	Changes made in the text to eliminate this unintended

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	Upland Vegetation		38		Also, if weeds become established on the disturbed areas and move off the ROW or access roads into undisturbed areas, how can there be no indirect impacts to vegetation?	contradiction.
Tom Ring	Chapter 3.6 Upland Vegetation	35	3.6-38	3.6.2.2	This says it well! You should also add something about weeds that become established and move off the ROW. Also note that chemical weed control may adversely affect plant diversity.	The response to the comment above also addresses this comment concerning potential weed infestations.
Tom Ring	Chapter 3.7 Soils	14	3.7-46	3.7.2.2.	You should make an estimate of acreage based on certain assumptions and then list the assumptions. For example: access road 10 feet wide, no new access roads on slopes with less than 5-7% side slope, and then use the mileages based on the mapped locations shown in Appendix A. Also note that these are merely estimates and actual acreages may change based on conditions encountered in the field.	Sentences modified for further clarification.
Tom Ring	Chapter 3.7 Soils	18	3.7-48	3.7.2.5.	Wouldn't this also help on some of the more moderate slopes?	The intent of this measure is to ensure that soils in more erodible conditions would be subject to more stringent site protection methods. Mulching would be beneficial elsewhere on lesser slope angles. However, this technique was not included in this measure because the areas are less susceptible to erosion due to their size, location within established vegetated areas, and our opinion that mulching would not be needed for acceptable plant establishment.
Tom Ring	Chapter 3.8	11	3.8-7	3.8.1.2	Since Montana Fish, Wildlife and Parks (MFWP) is the wildlife management agency charged with managing wildlife off the Crow Indian Reservation in Montana, list the MFWP Tier One species of Greatest Conservation Need in this section as well as BLM Sensitive species. In this area (the Bighorn Intermontane Basin) these mammalian species include the spotted bat, pallid bat, black-tailed prairie dog, white-tailed prairie dog, gray wolf and black-footed ferret. See Montana Fish, Wildlife and Parks 2005, Montana's Comprehensive Fish and Wildlife Conservation Strategy, Helena, Montana. The information for most of these species is in the revised technical report. If no effects are expected, then those sensitive species could be lumped into one sentence that says there is	The technical report indicates white-tailed prairie dog is only found along the BA-LV portion of the project area. For the sake of brevity in the EA, we did not repeat a negative declaration for species presence. The Montana Field Guide (http://mtnhp.org/SpeciesOfConcern) indicates the current range of gray wolf is well west of the LV-YT analysis area. This species has been added to the Appendix Table A-1 with a negative potential to occur. We did not repeat a negative declaration of presence in the EA.

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					unlikely to be an effect to these species and cite the technical report. The gray wolf is not mentioned in either the technical report or the main EA text and should be. Are any white-tailed prairie dog colonies found in the Montana portion of the project area? If not, say so.	
Tom Ring	Wildlife	28	3.8-22	3.8.2.2	Also see this paper for another view on the topic of collisions with power lines: Martin&Shaw.2010.BirdCollisionsWithPowe	In addition, some bird species groups or bird species may be vulnerable to power line strikes due to blind spots in their visual field (Martin and Shaw 2010).
Tom Ring	3.9 Threatened, Endangered, and Other Special Status Species	14	3.9-29	3.9.2.2	This paragraph addresses BLM sensitive species, not state species of concern. Please address state species of concern in another paragraph, especially less mobile state sensitive species and nesting birds considered as state sensitive species.	For local populations of state species of concern, less mobile small mammals and reptiles, such as Merriam's shrew (Sorex merriami), Preble's shrew (Sorex preblei), greater short-horned lizard (Phrynosoma hernandesi), and sagebrush lizard (Sceloporus graciosus), and ground nesting birds, such as grasshopper sparrow (Ammodramus savannarum), chestnut-collared longspur (Calcarius ornatus), and McCown's longspur (Calcarius mccownii), could be adversely affected by construction. These potential effects are addressed in Section 3.8 (Wildlife).
James Strait	3.10 Cultural Resources	11	3.10-2	Intro to section	The letter provided by MT SHPO in Appendix G is Non-Concurrence. Have there been revisions and a subsequent review by MT SHPO that approves the class III inventory and/or the project? In addition, the review letter attached by the NPS (Bighorn Canyon 2008) also did not concur. Without concurrence from MT SHPO or NPS, DEQ cannot make a finding of no adverse effect to cultural resources. (This comment may be resolved after personal communication with Jennifer Kathol on 3/22/11). Based on documents DEQ received from Jennifer, SHPO has concurred with	Developing an MOA under Section 106 with NPS, Crow Nation and SHPO. This will mitigate any possible effects and result in no significant impacts.

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					eligibility determinations, but has not concurred with avoidance plans constituting no adverse effect.	
James Strait	3.10 Cultural Resources	2	3.10-4	3.10.2.2	Construction activity within an eligible cultural site is an impact and would require mitigation. Having a monitor present does not resolve that issue.	The features that make most of these sites eligible are surface features; if these features are avoided, no adverse effects on the sites would occur. Structure sites have previously been impacted when the line was originally built and would sustain the same impacts or less than the original construction.
James Strait	3.10 Cultural Resources	19	3.10-4	3.10.2.2	An impact to a TCP in the form of visual or auditory elements is a direct impact, not indirect, regardless of its temporal nature. It may be mitigated or minimized because of the short nature of the impact.	Comment noted. "historic properties" substituted for cultural resources for clarification.
James Strait	3.10 Cultural Resources	39	3.10-4	3.10.2.2	Would tribal monitors also be present on private land? DEQ recommends this.	For Phase I tribal monitors will be present on NPS and tribal lands. Treatment Plan under development for Phase II.
James Strait	3.10 Cultural Resources	45	3.10-4	3.10.2.2	And SHPO/MT DEQ on private lands?	"After consultation with other federal and state agencies, Tribes and interested parties a plan will be in place to mitigate any possible impacts," added to text.
Craig Jones	3.11 Land Use and	23	3.11-20	3.11.2.2	Table 2.1-2 says new access roads are going to be 18-30 ft. wide. So existing roads are going to be only 14 ft wide and new roads are going to be 18-30 ft wide, correct?	Table 2.1-2 changed to 18 feet. Roads will not be widened from 14 feet to 18 feet unless needed for equipment access. 18 feet is a reasonable width to accommodate construction equipment. Typically the entire road may not need to be widened—it would only be needed in specific areas. This will be done on a case by case basis. The specific areas cannot be identified at this time.
Nancy Johnson	3.12 Visual Resources	43	3.12-28	3.12.2.1	What visual sensitivity is considered for these communities?	The Visual sensitivity for these communities is considered low for Lovell and medium for Fort Smith.
Nancy Johnson	3.12 Visual Resources	4	3.12-29	3.12.2.1	Comment: please add a description of visual sensitivity here. This residence is within the FG viewing distance.	The visual sensitivity is considered medium for the residential home located within the Pryor Mountain Estates Subdivision. The residence was built long after the transmission line was installed. The view from the home will not change appreciably.
Nancy	3.12 Visual	29	3.12-	3.12.2.1	This text addition may not be in the correct section.	Additional text was added to identify location.

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Johnson	Resources		42			
James Strait	3.13 Socioeconomics and Environmental Justice	9	3.13-4	3.13.1.2	Should the difficulty for emergency services in reaching the project area be addressed somewhere? Can the emergency services in Lovell be utilized in Montana if needed?	Access to the area is equally difficult from Lovell to Montana. If an emergency situation arose, typically a helicopter would be used in the remote areas. A sentence was added stating that response time would be considerable if an emergency occurred within the remote areas of the project.
Nancy Johnson	3.13 Socioeconomics and EJ	26	3.13-6	3.13.2.2	Several sections in the EA refer to no expansion of the existing ROW. What does 'increase in ROW' refer to?	Erroneously left in text when ROW was expanded in previous version.
Craig Jones	3.15 Public Health and Safety	18	3.15-11		I did not see a Noise section anywhere in this EA. MDEQ has an Administrative Rule of Montana 17.20.1607(2)(a)(i) which states, "(2) The department must condition its approval of a facility on the following standards: (a) for electric transmission facilities, that average annual noise levels, as expressed by an A-weighted day-night scale (LDN) will not exceed: (i)50 decibels at the edge of the right-of-way in residential and subdivided areas unless the affected landowner waives this condition;" Please add a statement in a new Noise section or the Land Use section mentioning the impacts to the Pryor Mountain Estates subdivision and indicating whether the noise standard will be met or not.	A Discussion on Noise was added to Public Health and Safety and Land Use, which includes the following. Noise will not affect the few residences within less than one-half mile of the project ROW. The Pryor Mountain Estates subdivision will not be affected by noise. Western completed an analysis of audible noise for the LV-YT lines. A worst case scenario during heavy rain showed that audible noise for the line slightly exceeded 18 dB at the edge of the ROW. This is well below the Montana standard which states that the line should not exceed 50 dB at the edge of the ROW.
Craig Jones	3.15 Public Health and Safety	15	3.15-13	3.15.2.2	Note that the State of Montana has standards for electric fields at the edge of the ROW in subdivided areas and at road crossings found at ARM 17.20.1607(2)(d): for electric transmission facilities, that the electric field at the edge of the right-of-way will not exceed one kV per meter measured one meter above the ground in residential or subdivided areas unless the affected landowner waives this condition, and that the electric field at road crossings under the facility will not exceed seven kV per meter measured one meter above the ground.	Montana's standards state the electric field at the edge of the right-of-way will not exceed one kV per meter measured one meter above the ground in residential or subdivided areas unless the affected landowner waives this condition, and that the electric field at road crossings under the facility will not exceed seven kV per meter measured one meter above the ground. The electric field for the LV-YT and BA-LV transmission lines is 0.69kV/m at the edge of the ROW measured one meter above the ground. At no point along the ROW is the line ever close to

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Montana Department of Environmental Quality Comments and Responses on Lovell-Yellowtail and Basin-Lovell Transmission Line Rebuild Project						
Reviewer/ Responder	Section/ Resource	Line Number	Page	Section	Comment	Response to Comment and Revisions
					Please include a statement that the proposed transmission line will meet these standards. DEQ must condition its approval of the proposed line on these standards. DEQ notes that based on information provided in Appendix H, the 1 kV/m standard for the edge of the ROW in subdivided areas such as Pryor Mountain Estates would require a wider ROW than is currently proposed, unless waived by the affected landowner. This is based on the ROW width of 75 feet shown in Table 2.1-1.	a value of 7kV/m, so the Montana standards for electric fields are also met at road crossings.
Tom Ring	Appendix A		A-3		Between 19-7 and 20-3, after the main road from Highway 37 is closed, how would the line be accessed for maintenance? Also there is a spur road off Highway 37 (blue colored line) that does not connect to the blue line leading to 19-7 and 20-1.	Error on map. Map will be revised to show potential access road to be built so that other roads can be closed.
Tom Ring	Appendix A		A-18		There is a road proposed that leads from just below the label north of the lines (the 46-1label) out to below the 46-3 label that does not lead to either transmission line. Why is this spur road needed?	This is identified as an unpaved existing road in the project area. It is not a spur road and will not be improved or used for access.
Nancy Johnson	Appendix D	20	D-7		Please refer to BLM IM2008-009 for an updated description of class 3.	Text added to redefine PFYC
Nancy Johnson	Appendix H		H-3		Clarify whether the measurement shown on these figures is kV or kV/meter. Also note where the measurement is made – at ground level – one meter above ground level – or some other distance.	Electrical Field Profiles revised.

INTERAGENCY AGREEMENT
BETWEEN
UNITED STATES DEPARTMENT OF ENERGY, WESTERN AREA POWER ADMINISTRATION
AND
UNITED STATES DEPARTMENT OF THE INTERIOR,
BIGHORN CANYON NATIONAL RECREATION AREA

This INTERAGENCY AGREEMENT is hereby made and entered into by and between the United States Department of Energy, Western Area Power Administration, hereinafter referred to as Western, and United States Department of the Interior, Bighorn Canyon National Recreation Area, BCNRA, hereinafter referred to as the NPS, under the provisions of the Economy Act of June 30, 1932 (31 U.S.C. 1535, Pub. L. 97-258 and 98-216).

A. PURPOSE:

The purpose of this Agreement is to arrange for transfer of funds from Western to the NPS to cover NPS expenses and to articulate the working arrangement whereby Western and the NPS will coordinate in preparing a detailed site specific revegetation plan, reclamation of items included in the revegetation plan, weed control, and archeological survey and mitigation. These four items are required as part of Western's proposal to rebuild the Lovell to Yellowtail #1 and #2 transmission lines in the BCNRA. The site specific revegetation plan will be used by the NPS and Western to quantify the scope of reclamation efforts and negotiate funding requirements. Roads that have been identified for reclamation are shown in the attached map. The weed treatment prior to, during and after construction will abate the possibility of the introduction and spread of noxious weeds within the park. The archeological survey and mitigation services will be used to offset adverse effects sustained to historic properties as a result of construction activities. Specifically, these services require the testing of sites 24CB2081 and 24CB2069, and the installation of a public interpretive trail at site 24CB2068 to offset adverse effects sustained at 24CB807/24CB233. Additionally, a tribal monitoring program will be necessary to ensure avoidance of 27 other sites during construction activities within the Big Horn Canyon National Recreation Area. A copy of the proposed Site Treatment Plan and the Archaeological and Tribal Monitoring Plan is included with this document.

B. STATEMENT OF MUTUAL INTERESTS AND BENEFITS.

Western and the NPS agree that the revegetation plan, reclamation, and archaeological mitigation will be given a high priority, will be initiated and completed promptly.

Approximately 15 miles of Western's LV-YT 1&2 115kV lines are located within the BCNRA. Western intends to rebuild these lines and improve and maintain the access roads to all new structure locations for use during O&M activities. The NPS is interested in revegetating and reclaiming all unused access roads related to the original construction

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of the power lines. This revegetation includes weed control prior to, during and after construction. Western and the NPS have communicated these interests and benefits by identifying all access roads associated with Western's transmission lines and categorizing them to discern what roads will be used for construction and O&M purposes and what roads will be reclaimed by the NPS at Westerns cost. The attached map shows these categorized roads.

The parties recognize that NPS retains contractual responsibility for any consultant contracts.

C. IN CONSIDERATION OF THE ABOVE, THE PARTIES AGREE AS FOLLOWS:

It is anticipated by Western and the NPS that the revegetation plan will be prepared by a Contractor, acquired by the NPS and paid for by Western. The revegetation plan Contractor will serve under the technical direction and control of the NPS Contracting Officer's Representative (COR). The Contractor may obtain technical assistance or information from one or more subcontractors subject to Contracting Officer approval.

It is also anticipated by Western and the NPS that the weed control treatments completed by a Contractor, acquired by the NPS and paid for by Western. This Contractor will also serve under the technical direction and control of the NPS Contracting Officer's Representative (COR). The Contractor may obtain technical assistance or information from one or more subcontractors subject to Contracting Officer approval.

Western will also provide funding for the reclamation effort in a lump sum payment. The amount of this payment will be negotiated between the NPS and Western and is primarily based upon the results of the revegetation plan. This amount will be amended to this agreement through the modification process once it is determined.

No decision with regard to contract price proposals/modification/change orders shall be considered unless Western and the NPS are in agreement. At appropriate points in the process, NPS and Western will approve the revegetation plan in a manner that meets established project schedules.

After approval of the revegetation plan, and funding for the reclamation effort has been provided by Western to the NPS, the NPS will be solely responsible for completing the reclamation covered in the plan.

It is anticipated by Western and the NPS that the archaeological mitigation will be conducted by the NPS and paid for by Western. The NPS agrees to work with the Crow Nation to provide tribal monitors during construction activities. After approval of the Site Treatment Plan, Archaeological and Tribal Monitoring Plan, and the Memorandum of Agreement, and funding for the archaeological mitigation effort has been provided by Western to the NPS, the NPS will be solely responsible for completing the mitigation covered in the plan.

Meetings between Western and the NPS, for the purpose of exchanging facts and/or information, and updating the status of the work for the revegetation plan and the archaeological mitigation, will occur throughout the project.

These meetings in no way limit the communications between Western and the NPS regarding questions of procedural matters, scope of analysis, technical feasibility, reclamation, or other matters. All such meetings will generally include the NPS Project Manager and the Western Point of Contact (POC).

D. THE NPS SHALL:

1. Establish a principal point of contact for the NPS as the Project Manager on all matters relating to the revegetation plan, weed control, reclamation, and archaeological mitigation. The duties of the Project Manager shall include oversight of both projects; facilitate communications between the NPS, Western, the Contractor, and subcontractors to assure a timely and thorough exchange of relevant information among the parties; and be responsible for other duties as required to complete the projects. The goal is to facilitate appropriate and efficient communication between the NPS, Western, the Contractor, and other affected parties, to expedite the flow of information.

2. Coordinate all modification of the revegetation plan contract with the Western POC.

3. Provide Western the opportunity to attend all meetings related to the revegetation plan, and archaeological mitigation.

4. Be responsible for appropriate reclamation efforts and results of those efforts making no claim against Western for additional fees, costs, and expenses.

E. WESTERN SHALL:

1. Establish a principal point of contact on all matters relating to the revegetation plan, weed control, and archaeological mitigation.

2. Coordinate and communicate with the NPS.

3. Be responsible for appropriate revegetation plan costs, and expenses and make no claim against the NPS for such fees, costs, and expenses.

F. IT IS MUTUALLY AGREED AND UNDERSTOOD BY THE PARTIES THAT:

1. Any NPS hired revegetation plan and weed control Contractor will be under the contractual authority of the NPS, and the NPS will work with Western to make the final determination concerning the scope and contents of the consultant's work.

2. All relevant submittals collected by the NPS from the revegetation plan Contractor and subcontractors will be provided by the NPS to Western.

3. All relevant submittals collected by the NPS from the archaeological and tribal monitors will be provided by the NPS to Western.

4. Either party, in writing, may terminate this Interagency Agreement in whole, or in part, at any time before the date of expiration, but with at least 30 days written notice. In the event of termination, it is agreed to as follows:

    a. The revegetation plan preparation process, weed control, and archaeological mitigation will terminate.

    b. All documentation, reports, analyses, and data used in the revegetation plan developed by NPS, the Contractor, or the Prime Consultant's subcontractors up to the date of termination will be delivered to Western.

    c. All documentation and reports produced as a result of the archaeological mitigation and/or monitoring up to the date of termination will be delivered to Western.

    d. NPS's contract will require the Contractor to submit to Western copies of all deliverable products and all record supporting the development of these.

    e. No parties shall incur any new obligations for the terminated portion of the instrument after the effective date and shall cancel as many obligations as possible. Full credit shall be allowed for each Party's expenses and all non-cancelable obligations properly incurred up to the effective date of termination.

    f. Excess funds shall be refunded within 60 days after the effective period.

5. This Interagency Agreement in no way restricts the NPS or Western from participating in similar activities with other public and private agencies, organizations, and individuals.

5. NPS ACKNOWLEDGED IN PUBLICATION AND AUDIOVISUALS. NPS support shall be acknowledged in any publications and audiovisuals developed as a result of this instrument.

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6. FUNDING EQUIPMENT AND SUPPLIES. Federal funding under this instrument is not available for reimbursement of recipient/cooperator purchase of equipment (and supplies).

7. MODIFICATION. Modifications within the scope of the instrument shall be made by mutual consent of the parties, by the issuance of a written modification, signed and dated by all parties, prior to any changes being performed. Western is not obligated to fund any changes not properly approved in advance.

8. FREEDOM OF INFORMATION ACT (FOIA). Any information furnished to the Forest Service under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).

9. EXTENSION OF PERFORMANCE PERIOD. Western and the NPS, by written modification may extend the performance period of this instrument for a total duration not to exceed 5 years from its original date of execution.

10. PRINCIPAL CONTACTS. The principal contacts for this instrument are:

NPS Project Contact Cassity Bromley, Chief of Resources, Bighorn National Recreation Area, 20 Highway 14A East Lovell, WY 82431	***Western Project Contact*** Mike Korhonen, Field Engineer, Western Area Power Administration, Rocky Mountain Region, 5555 E. Crossroads Blvd, Loveland, Colorado 80538-8866
Phone: 307-548-5415 FAX: 307-745-2398 E-Mail: Cassity_Bromley@nps.gov	Phone: 970-461-7267 FAX: 970-461-7420 E-Mail: Korhonen@wapa.gov
NPS Administrative Contact Jay Tobin, Park Contracting Officer, Bighorn National Recreation Area 5 Avenue B, P.O.Box 7458, Fort Smith, MT 59035	***Western Administrative Contact*** Amy Wright Contracting Officer Western Area Power Administration 5555 E. Crossroads Blvd. Loveland, CO 80538-8866
Phone: 406-666-3321 FAX: 406-666-2415 E-Mail: Jay_Tobin@NPS.gov	Phone: 970-461-7523 FAX: 970-461-7377 E-Mail awright@wapa.gov

11. BILLING. The estimated total cost liability to Western for the NPS costs as of April 1, 2011 is $281,500. If mutually agreed between the NPS and Western, this amount may be increased or decreased by written modification to the agreement. The estimate is based on the following components:

A. Archaeological and Tribal Monitoring (NPS in conjunction with the Crow Nation): $155,500 (includes monitors fees for 52 weeks, truck rental for 52 weeks, NPS administrative costs)
B. Interpretive trail and signage for 24CB2068: $50,000 (design includes using existing road cuts as trails and cost of signage – research, design)
C. Testing and Data Recovery at 24CB2081 and 24CB2069: $60,000 (includes 10 test units, samples and analysis, report preparation)
D. Site specific revegetation plan (NPS Contractor to accomplish this work): $16,000
E. Weed control treatments prior to, during and after construction (Price will be determined prior to first treatment)
F. Site specific reclamation activities (Price will be determined after revegetation plan is completed by NPS Contractor)

Transfer of funds to the NPS will be through an Interagency Payment and Collection System (IPAC) billing. The IPAC billing document which the NPS will prepare shall contain the following information as the first line of the description or the reference section:

Agency Agreement or Instrument No.	DE-AI65-08WJ78023
Agency Cost Accounting Data	See attached DOE Form
Agency Location Code NPS	12-40-1100
Agency Location Code Western	89-00-1602
Budget Object Code	0250
Agency DUNS # Western	139731186

12. A detailed list of charges shall be submitted with each billing. Any excess funds not used for the agreed costs shall be refunded to Western upon expiration of this instrument.

13. COMMENCEMENT/EXPIRATION DATE. This instrument is executed as of the date of last signature and is effective through September 30, 2012, at which time it will expire unless extended.

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IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the last written date below.

Western Area Power Administration	USDA FOREST SERVICE Medicine Bow, Routt, White River, and Arapahoe and Roosevelt National Forests
Amy K. Wright DATE Contracting Officer	Mary H. Peterson DATE Forest Supervisor
USDA FOREST SERVICE Arapahoe-Roosevelt National Forests	USDA FOREST SERVICE White River National Forest
James Bedwell DATE Forest Supervisor	MariBeth Gustason DATE Forest Supervisor

The authority and format of this instrument has been reviewed and approved for signature.

Sam Fairbairn DATE
FS Agreements Coordinator

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Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

JUN 30 2011

Mr. Warren D. McCullough
Bureau Chief
Environmental Management Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. McCullough:

Thank you for assisting in the preparation and review of the Environmental Assessment for the Lovell-Yellowtail and Basin-Lovell Transmission Line Rebuild Project, and providing your comments on the administrative draft from March 2011. Western Area Power Administration (Western) reviewed your comments and questions (your letter to Jim Hartman dated April 6, 2011). In response to your request for additional information on four technical topics, Western prepared the enclosed information.

Your staff provided Western with section-by-section comments on the draft Environmental Assessment. The comments were received by e-mail. Enclosed please find a table that lists your comments and Western's response to each comment.

Again, Western appreciates your assistance. If you have questions, or require additional information on the project, please call me at (970) 461-7267.

Sincerely,

Michael Korhonen
Project Manager

2 Enclosures

cc:
Ms. Jennifer Kathol
Kathol & Company
1320 West Oak Street
Fort Collins, CO 80521
(w/copy of enclosures)

Ms. Nancy Johnson
Environmental Science Specialist
Kathol & Company
1320 West Oak Street
Fort Collins, CO 80521
(w/copy of enclosures)

Lovell-Yellowtail 115-kV rebuild project
Response to Montana DEQ comments

MT DEQ: For additional transfer capacity concerns please provide the current level of usage on the existing line including any current congestion.

Western: The usage of Western's Lovell-Yellowtail 115-kV lines is tracked as elements of the Yellowtail-South constraint path (YTS). Western's maximum allocation of the YTS constraint path is 225 MW and is based upon the ratings of Western's Lovell-Yellowtail 115-kV lines. There are periods when Western uses 100% of its capacity on the Yellowtail South constraint path. For example, in 2010 Western had 55 hours where Western's share of YTS was utilized at or above 90% and 453 hours of utilization at or above 75%.

MT DEQ: Please state why the additional transfer capacity is needed including any necessary load forecasts, changes in the electricity market, etc.

Western: The primary purpose for the Lovell-Yellowtail 115-kV lines is for Western to market and deliver Yellowtail Powerplant generation output south. The Yellowtail Powerplant has a maximum generating capability of 288 MW, though it is currently limited to 252 MW. During peak loading hours, Western will schedule the entire output of the Yellowtail Powerplant south across the Lovell-Yellowtail 115-kV lines. In 2010, Yellowtail generation exceeded Western's YTS capacity for 622 hours.

The Bureau of Reclamation (BOR) is about to initiate a project to rebuild the Yellowtail Powerplant turbines. At a minimum, rebuilding the turbines will return Yellowtail generation to the 288 MW rating. However, the BOR is hopeful the rebuilds will result in increased generation capacity from the Yellowtail Powerplant. At this time, the BOR does not know the amount of any possible generation increase; however, any Yellowtail generation increase only aggravates the transmission problem south across the YTS path.

One of the objectives for the Lovell-Yellowtail rebuilds is to establish significant transmission capacity to deliver the full output of Yellowtail generation across the Yellowtail South constraint path in both system intact (N-0) and outage (N-1) conditions. This objective would allow Western to reliably market Yellowtail generation south without transmission constraints while at the same time being able to perform maintenance and repairs on its lines. Taking into account possible future increases of Yellowtail generation resulting from the turbine rebuilds, Western is targeting a minimum rating for each Lovell-Yellowtail 115-kV line of at least 320 MW to meet this core objective.

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Lovell-Yellowtail 115-kV rebuild project
Response to Montana DEQ comments

MT DEQ: Please explain quantitatively how the present electrical ratings of the Project transmission lines limit Western's ability to transmit and market the hydroelectric power generated at BOR's Yellowtail Power Plant to the south. Please give numerical examples of these limits. Please expand the discussion on the operational constraints to Western's transmission system from limited transfer capacity.

Western: The Lovell-Yellowtail lines have caused operational constraints scheduling Yellowtail generation south across the Yellowtail South constraint path, which has a rating of 625 MW shared between PacifiCorp (400 MW) and Western (225 MW). The existing path rating under normal system intact (N-0) conditions limits the amount of Yellowtail generation Western can be schedule south to 225 MW. Currently, the Yellowtail Powerplant has generation capability of 252 MW. In order to fully utilize the Yellowtail generation output south, Western would have to purchase 27 MW of transmission across the YTS path from PacifiCorp.

Under outage (N-1) conditions for the YTS path, Western's share could be reduced to as low 122 MW due to the existing ratings of the Lovell-Yellowtail 115-kV lines. Thus, Western is further limited to the amount of Yellowtail generation it can schedule south and increasing the likelihood of purchasing transmission from PacifiCorp.

MT DEQ: Please give a recent historical example of how the limitation in transmission capacity has caused Western to either purchase replacement power from more expensive generation south of Yellowtail or pay neighboring utilities to transmit Yellowtail generation, both at significant cost to Western and ultimately Western's customers.

Western: From 2005 to 2009, Western made transmission purchases from PacifiCorp across the YTS path ranging from $124,345 to $1,009,132 per year for a total of $2M. Transmission limitations south of Yellowtail has caused instances where Western's ability to market Yellowtail generation is limited. Under extreme conditions Western would have to sell Yellowtail generation to PacifiCorp at a heavily discounted price or cause the BOR to bypass the Yellowtail generation and "spill" water.

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Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

JUL 1 1 2011

Mr. Warren D. McCullough
Bureau Chief
Environmental Management Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. McCullough:

Thank you for submitting your request for additional information to support conclusions and determination of substantive compliance with the Montana Major Facility Siting Act on April 6, 2011. Western Area Power Administration (Western) reviewed these comments and questions and responded to items 1, 2, and 3 regarding reliability and transfer capability, cost of alternatives, and electric fields, respectively, in a previous letter dated June 28, 2011. The enclosed letter addresses item 4 concerning a comparison to relocate the two transmission lines on adjoining private land.

Again, Western appreciates your assistance with the preparation of this Environmental Assessment. If you have questions, or require additional information on the project, please call me at (970) 461-7267.

Sincerely,

Michael Korhonen
Project Manager

Enclosure

cc:
Ms. Nancy Johnson
Environmental Science Specialist
Montana DEQ
Environmental Management Bureau
Major Facility Siting Program
P.O. Box 200901
Helena, MT 59620-0901
(w/copy of enclosure)

Ms. Jennifer Kathol
Kathol & Company
1320 West Oak Street
Fort Collins, CO 80521
(w/copy of enclosure)

Lovell-Yellowtail and Basin-Lovell 115kV Transmission Line Rebuild Project
Response to Montana DEQ Comments

MTDEQ Comment: Additional information that compares the length and cost of rebuilding the LV-YT 1 and 2 lines on private land adjoining the east side of Section 36,T7S, R28E with length and cost of rebuilding the lines within and on the east edge of Section 36, T7S, R28E, as described in information sent to Western on March 17, 2009. This information would help support a DEQ conclusion pursuant to 75-20-301(1)(h) on use of public lands for siting of transmission lines.

Western: To relocate the existing Lovell to Yellowtail transmission lines onto Montana public land in section 36 of Township 7 South and Range 28 East, many tasks that have already been completed must be redone and additional costs will be incurred.

To relocate these lines onto Montana public lands Western would need to obtain approximately 20 acres for the 150 foot right of way (ROW) and area needed for guying the now required angle structures. The land cost is unknown and cannot be determined without an appraisal.

A cultural survey for the entire Lovell to Yellowtail transmission ROW has already been completed. The width of this survey was 200 feet centered on the existing shared inside ROW line. This survey does not overlap any of the ROW needed to relocate the lines onto Montana public lands. Therefore another survey must be completed on for the 150 foot ROW and guy pockets created by angle structures. This would cost Western approximately $45,000.

A ground survey of the entire Lovell to Yellowtail ROW has also been completed. A new ground survey would be required to aid in the design if the line were to be relocated to Montana public lands. Western has estimated that it would cost an additional $20,000 resurvey the proposed reroute.

Design for the new lines has already been completed. To relocate the line sections at this point we would need to redesign this section. Western has estimated that it would cost an additional $6,000 redesign for the proposed reroute.

The estimated cost to complete construction of both lines using the existing alignment is $378,000. The estimated cost to construct the lines on the relocated alignment is $450,000. This is a cost difference of $72,000.

New access roads and gates will also need to be installed on along the ROW to access structures for construction and maintenance activities. It is estimated that this will cost Western an additional $8,000 to install new access roads and gates along the relocated alignment.

In total Western would spend an additional estimated $151,000 plus the lands cost to relocate the two Lovell to Yellowtail transmission lines onto Montana public lands.