Palisades-Goshen Transmission Line Reconstruction Project

Preliminary Environmental Assessment

DOE/EA-1591

April 2008

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Bonneville Power Administration

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Chapter 1

Need for and Purpose of Action

This chapter explains *why* the Bonneville Power Administration (BPA) needs to take action. The chapter also explains the background for this need and the purposes that BPA is trying to achieve. Finally, this chapter identifies the cooperating agencies that are participating in the preparation of this Environmental Assessment (EA), and describes the public involvement that has occurred.

1.1 Background

BPA is a federal agency that owns and operates more than 15,000 miles of high-voltage transmissions lines. The transmission lines move most of the Northwest's high-voltage power from facilities that generate the power to power-users throughout the region. BPA has a statutory obligation to ensure that its transmission system has sufficient capability to serve its customers while maintaining a system that is safe and reliable. The Federal Columbia River Transmission Act directs BPA to construct improvements, additions, and replacements to its transmission system that are necessary to maintain electrical stability and reliability, and to provide service to BPA's customers (16 U.S.C. § 838b(b-d).

The Palisades-Goshen 115-kilovolt (kV) transmission line was built by the U.S. Bureau of Reclamation (Reclamation) in 1949 when they built the Palisades Dam. The line extends from Palisades Dam in eastern Idaho approximately 52 miles west to BPA's Goshen Substation south of Idaho Falls, Idaho (see Figure 1-1). In 1963, ownership of the line transferred to BPA. The Palisades-Goshen line, along with BPA's Swan Valley-Goshen and Goshen-Drummond lines, serve Fall River Rural Electric Cooperative and Lower Valley Energy, which are two energy cooperatives with customers located in eastern Idaho, northwestern Wyoming, and southwestern Montana.

Since 1963, BPA has performed routine maintenance on the Palisades-Goshen line as required, but the majority of the wood structures and cross arms are the ones originally installed in 1949 when the line was first constructed. As with all transmission lines, the condition of the line has gradually deteriorated over the years because of age, exposure to the elements, and other factors.

The areas served by the Palisades-Goshen, Swan Valley-Goshen, and Goshen-Drummond lines continue to experience growth in electrical load. Electrical load in this service area has been growing at an average of 4 percent per year for the last 8 years. Load growth is projected to continue at an average annual rate of 2.5 percent for the next 10 years. In addition, some portions of the service area are expected to experience a locally higher rate of electrical load growth because of more intensive development.

For example, load growth in the Driggs/Victor area in Idaho is expected to continue at a rate greater than 6 percent per year for at least the next 8 years.

In the past few years, the Swan Valley-Goshen line (also built at approximately the same time as Palisades-Goshen line) has been rebuilt—with a 230-kV design—because of its deteriorated condition, and is operating at 161-kV to accommodate current and projected future load growth. The Goshen-Drummond line, originally built in 1988 with both a 161-kV and 230-kV structure design, also operates at 161-kV to accommodate current and projected future load growth. Both of these lines were originally operated as 115-kV lines.

1.2 Need for Action

BPA needs to take action to ensure that it can continue to provide stable and reliable transmission service in the area served by the Palisades–Goshen line. Many of the line's wood structures can no longer withstand required structural loads, including stresses caused by snow and ice buildup during winter. Most of the cross arms are now rotting, and many show splitting and damage, which seriously compromise their integrity. A long-term solution is needed to address these problems.

In addition, a need exists to address load growth in the service area served by the Palisades–Goshen line. Although BPA studies have indicated that loads actually requiring a higher voltage may not materialize until 2027, BPA believes that it is more cost effective to rebuild now using a 230-kV structure to accommodate these future loads.

1.3 Purposes

In satisfying the underlying need for action, BPA would like to achieve the following purposes:

- Minimize costs.
- Minimize impacts to the natural and human environment.
- Maintain transmission system reliability to BPA and industry standards.
- Continue to meet BPA's contractual and statutory obligations.

BPA would use these purposes to decide whether the Proposed Action or the No Action Alternative would be implemented.

1.4 Cooperating Agencies

The Palisades-Goshen transmission line crosses lands managed by three federal agencies: the Caribou-Targhee National Forest (C-TNF) (Palisades Ranger District), the Bureau of Land Management (BLM) (Medicine Lodge Resource Area), and Reclamation. Each of these agencies would need to make a decision about whether

to allow BPA to reconstruct the line on the respective lands that each agency manages. The BLM, Reclamation and C-TNF are cooperating agencies for this EA, and it is expected that these agencies will use this EA to make a decision concerning the Proposed Action. The C-TNF will prepare a Categorical Exclusion for its decision related to BPA's proposed project based on the information in this EA.

1.5 Public Involvement

Early in the preparation of this EA, BPA sent notice of the proposed project and EA preparation to potentially interested parties, including adjacent landowners, public interest groups, local governments, Tribes, and state and federal agencies. BPA sent one letter concerning the proposed project and EA in May 2007, and after identifying additional potentially interested landowners, another letter in October 2007. The letters explained the proposal, the environmental process, and how to participate. In addition to being mailed to identified potentially interested parties, these letters were posted on the BPA Web site.

The mailing of the first public letter initiated the public scoping comment period for the EA, which closed on June 15, 2007. During the scoping period, BPA also held public meetings on May 30 and May 31, 2007, in Shelley and Irwin, Idaho, to explain the proposed project and solicit public input about what issues should be considered in the EA.

Twenty-five comments were received about the Proposed Action. The most common comment category was how design specifics relate to particular properties (12 comments). The issue of concern was largely the placement of specific towers and how that placement would relate to fields, homes, and current irrigation practices.

Seven commenters were concerned about access issues. People were concerned about BPA's rights to access the structures, and whether roads or gates would be built and maintained.

The repair of damage or effects on private property was the concern expressed in four comments. People expressed concern that any damage be repaired and that the Proposed Action not affect Conservation Reserve Program (CRP) payments.

One comment was received concerning the potential for erosion resulting from construction traffic. One commenter was concerned about the possibility of damage to Papoose Creek Spring, a drinking water source.

All public letters and comments can be viewed at: http://www.transmission.bpa.gov/PlanProj/Transmission_Projects/Palisades-Goshen/default.cfm. A list of all interested parties, including adjacent landowners, public interest groups, local governments, tribes, and state and federal agencies is included in Appendix A.

Chapter 2

Proposed Action and Alternatives

This chapter describes the Proposed Action, the No Action Alternative, and alternatives considered but eliminated from detailed study. Figure 1-1 shows the location of the Proposed Action. This chapter also compares the Proposed Action and the No Action Alternative to the project purposes.

2.1 Proposed Action

BPA is proposing to rebuild the existing Palisades-Goshen 115-kV transmission line, which extends from Palisades Dam in eastern Idaho approximately 52 miles west to the Goshen Substation south of Idaho Falls, Idaho (see Figure 1-1). In general, the Proposed Action would involve removing the line's existing wood H-frame structures and cross arms, and replacing them with new structures. Most of these new structures would be 230-kV wood structures, but 230-kV single-circuit and double-circuit steel structures would also be used at a few locations along the line.

In addition to rebuilding the line, the first approximately 2.5-mile portion of the line beginning at Palisades Dam would be relocated to a new right-of-way (ROW) roughly parallel to and about 600 feet southwest of the existing ROW. A similar length of BPA's existing Palisades-Swan Valley 115-kV line, which is in the same existing ROW as the existing Palisades-Goshen line, would also be relocated to this new ROW. As a result of the relocation, four wood poles on the existing Reclamation 12.5-kV distribution line near Palisades Dam would be relocated to avoid conflict with the relocated BPA lines (see Figure 2-1).

Although the line would be rebuilt with 230-kV structures for future load growth planning purposes, the line would continue to be operated at 115 kV under the Proposed Action. The following discussion provides more detailed information for the elements of the Proposed Action.

References to specific structures in this EA, for example to structure 4/5, refer to the mile number (4) and structure number in that mile (5) of the transmission line. If the Proposed Action is built, all structures would be renumbered.

2.1.1 Transmission Line Right-of-Way

Under the Proposed Action, BPA would rebuild the Palisades-Goshen transmission line within its existing ROW for almost all of its 52-mile length. Only in two locations would the rebuilt line be rerouted to new ROW:

- From structure 1/1 (the first structure in mile 1) at Palisades Dam to structure 2/7 (the seventh structure in mile 2), approximately 2.5 miles of new ROW would be acquired from Reclamation for use by the rebuilt line (see Figure 2-1). The new

ROW would be located generally next to an existing dam access road and U.S. Highway 26 (US 26), and would be roughly parallel to and about 600 feet southwest of the existing ROW. This new ROW also would be generally adjacent to the existing ROW for Reclamation's 12.5-kV distribution line near Palisades Dam. This reroute would remove the Palisades-Goshen and Palisades-Swan Valley lines from a steep hillside above Palisades Dam, thus providing safer and easier maintenance access.

- In the vicinity of existing structure 4/5, the ROW would be realigned approximately 32.5 feet to the east of the current ROW alignment to move the line farther away from a house that has been built too close to the line. Rather than attempting to have the property owner remove this encroachment of the line, BPA is proposing to acquire the new ROW and relocate the rebuilt line. The new ROW would be acquired from a private landowner.

In addition to these two areas of new ROW, BPA would acquire additional ROW width in other places along the Palisades-Goshen transmission line to widen the existing ROW. The existing ROW width for the line is not consistent and varies by location; along some portions of the line, the existing ROW consists of only a pole line easement (essentially meaning no ROW width), while along other portions, the existing ROW is 150 feet wide.

Under the Proposed Action, width of the proposed ROW would reflect appropriate ROW widths for proposed new transmission structures at different locations along the line as well as other factors. The minimum width would be 75 feet, and the maximum width would be 175 feet. Table 2-1 shows the proposed width of the ROW for various segments of the Palisades-Goshen line to be rebuilt. Appendix B shows the location of the existing ROW.

TABLE 2-1
Proposed Right-of-Way Widths for Rebuilt Line

Line Segment (beginning at Palisades Dam)		
From	**To**	**Width**
Palisades Dam	Structure 2/7	125 feet
Structure 2/7	Structure 4/1	115 feet
Structure 4/1	Structure 4/8	75 feet
Structure 4/8	Structure 45/6	150 feet
Structure 45/6	Goshen Substation	175 feet

2.1.2 New Transmission Structures

BPA would primarily use 230-kV wood structures in rebuilding the Palisades-Goshen transmission line. These structures would be H-frame structures,

meaning that they would each consist of two or three vertical wood poles supporting a single steel cross arm (see Figure 2-2). BPA would install these structures from structure 2/8 to 3/8 and from structure 4/9 to 49/8 of the rebuilt line.

The proposed 230-kV wood pole structures would be between 50 and 120 feet tall, with most of the structures typically between 80 to 90 feet tall. On average, the proposed structures would be approximately 5 feet taller than the existing 115-kV structures (see Figure 2-2). The width between the vertical wood poles of the proposed structures would be 20 feet, as compared to the 12-foot spacing between poles of the existing 115-kV structures.

To construct the new wood pole structures, holes for the new poles would be drilled in the ground at each new structure site. These holes would be drilled with a 2-foot auger on a drill rig and would be about 12 feet deep on average. The new poles would then be directly embedded in the ground in these holes. Holes would be back-filled with excavated material. While most of the new structures would remain in the same location as the existing structures, some structures would be moved slightly ahead- or back-on-line to avoid sensitive resources. The new, wider structures would not be placed in the existing holes vacated by the 115-kV structures.

Most of the structures would be constructed of wood with either galvanized or COR-TEN steel cross arms. COR-TEN cross arms are preferred, but may not be available from the supplier, in which case galvanized cross arms would be used.

All new wood pole structures and cross arms would be assembled onsite. A temporarily disturbed area up to 150 feet by 150 feet around each structure would be needed for materials, structure assembly, equipment set-up and operation, and parking. The disturbance area at structures located in the Fall Creek drainage would be limited to avoid wetlands and riparian areas. Also, several structures in the Fall Creek drainage would be moved to avoid wetlands.

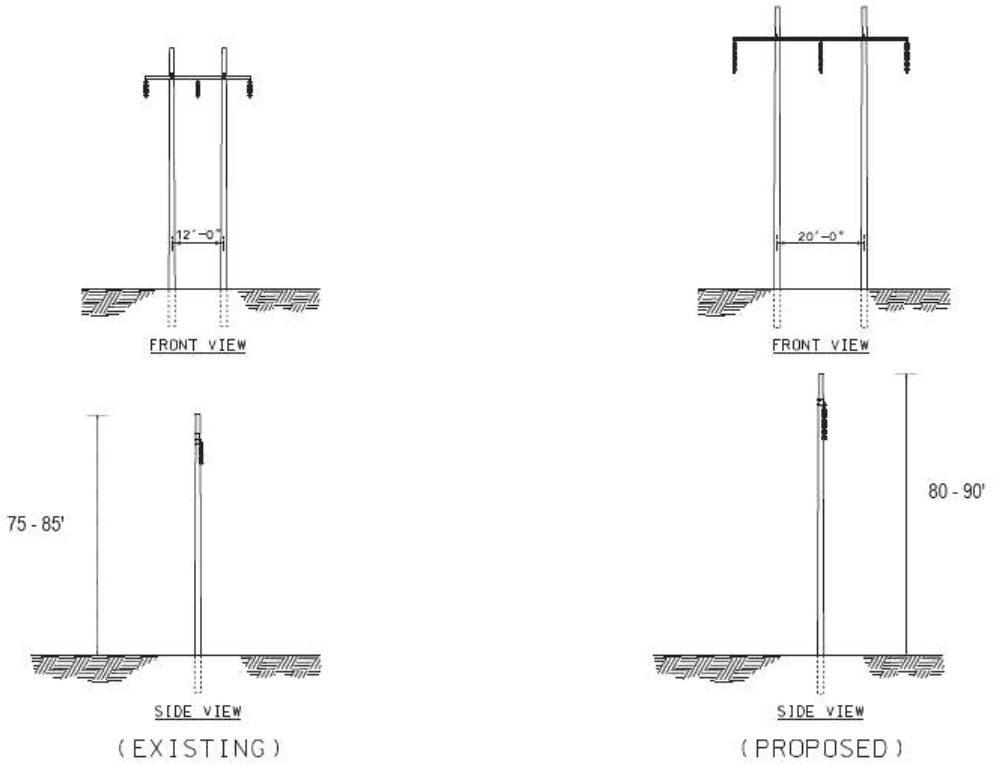

Figure 2-2. Existing wood structures and proposed replacement wood structures for the Palisades-Goshen Transmission Line (to be used at all locations except structures ½ to 2/7 and 4/1 to 4/8).

In addition to the new wood pole structures, BPA would use 230-kV steel pole structures in a few locations. These structures are made of galvanized steel and come in both single-circuit and double-circuit configurations (see Figure 2-3). Double-circuit steel pole structures would be used for the segment of rebuilt Palisades-Goshen line to be located on new ROW from structure 1/1 at Palisades Dam to structure 2/7. These structures would be between 80 feet to 120 feet tall, and are typically approximately 110 feet tall (see Figure 2-3). Double-circuit structures would be used for this segment because the proposed structures would carry the conductors (wires) for the Palisades-Swan Valley transmission line proposed to be relocated to the new ROW (see Section 2.1.9), in addition to the conductors for the Palisades-Goshen line.

Single-circuit steel pole structures would be used for the segment of rebuilt Palisades-Goshen line from structure 4/1 to 4/8. These structures would be between 80 feet to 120 feet tall, and are typically approximately 90 feet tall (see Figure 2-3).

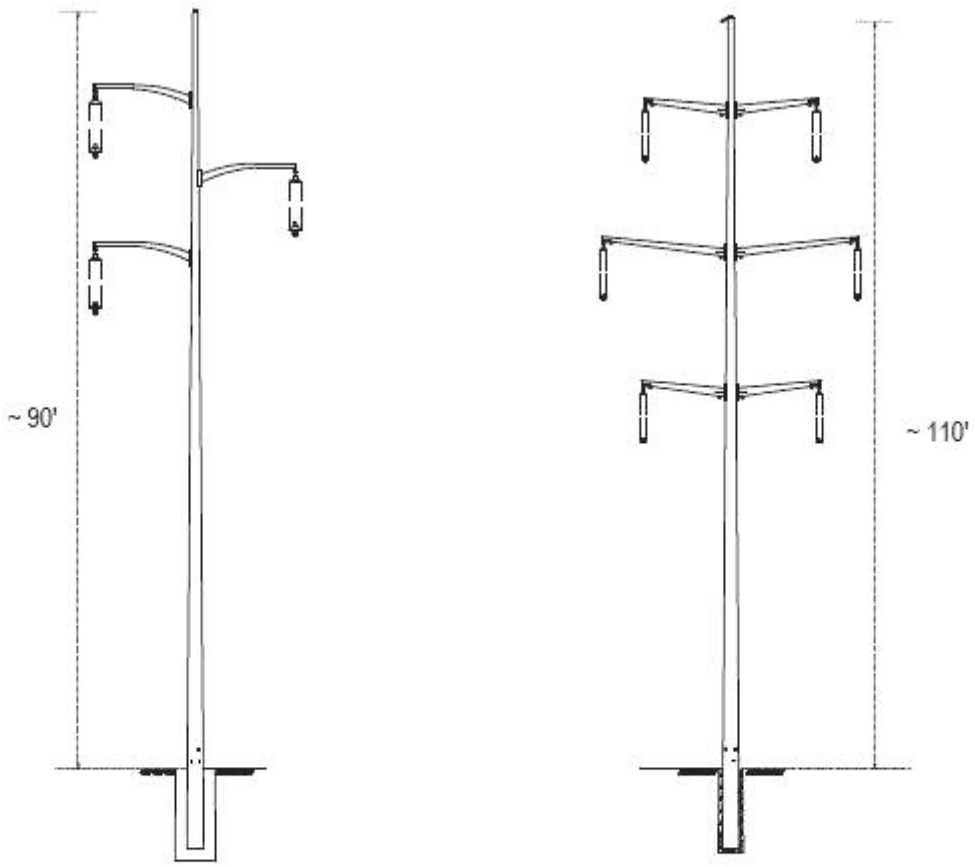

Figure 2-3. Steel 230kV structures to be used for short segments of the Palisades-Goshen Transmission Line.

Construction methods for the new steel pole structures would be similar to those for constructing the new wood pole structures. Pole holes would be drilled at each new structure site, but these holes would be deeper (25 feet deep on average) than the ones for the wood poles. The new poles would be directly embedded in these holes, but would be backfilled with concrete instead of excavated material.

In general and except for the two reroutes described in Section 2.1.1, structures would be replaced in the same location as the existing structures. Table 2-2 identifies those structures that are proposed to be moved at this time for engineering or environmental mitigation reasons. As design continues and possibly during construction (if BPA decides to proceed with the Proposed Action), structure

locations may continue to be adjusted because of engineering or environmental mitigation reasons. In addition, a few additional structures may be needed along the existing line to add strength to weak areas along the existing line that may exist because of stricter design standards. Modern design standards are very different than design standards in 1949 when the line was originally built. All new structures, if needed, or subsequent structure moves not identified below would be coordinated with the land owner or manager.

The location of existing structures proposed to be moved forward or back along the line or to one side or another to avoid conflicts with existing roads, avoid sensitive areas, reduce agricultural conflicts on private lands, or for other reasons are listed in Table 2-2. Appendix B shows the new locations of these structures.

TABLE 2-2.
Palisades – Goshen Transmission Line Structure Moves

Existing Structure Number	Direction, Distance, and Reason for Moving Structure
12/6	Move BOL 90’ (Mine impairment, survey will determine whether we need to or not)
13/8	Move BOL 15’ (Environmental issue mitigation)
14/4	Move AOL 100' (Engineering)
14/7	Move AOL 15’ (Environmental issue mitigation)
15/4	Move BOL 50’ (Environmental issue mitigation)
15/5	Offset 5' Northwest (away from road) (Engineering)
15/7	Offset 5' North (away from road) (Engineering)
15/9	Move AOL 175', offset 13' - away from road (Environmental issue mitigation)
17/4	Move AOL 25’ (Environmental issue mitigation)
18/6	Move BOL 60' (Engineering)
19/6	Move BOL 80' (Engineering)
19/7	Move AOL 120' (Engineering)
48/4	Move BOL 53' (Avoid agricultural conflict)
48/5	Move BOL 128' (Avoid agricultural conflict)
48/6	Move BOL 244' (Avoid agricultural conflict)
48/7	Move BOL 304' (Avoid agricultural conflict)
49/4	Move AOL 7' (Avoid agricultural conflict)
49/6	Move AOL 156' (Avoid agricultural conflict)

BOL = Back on Line; AOL = Ahead on Line. Structure moves are shown in Appendix B.

2.1.3 Conductor, Insulators, and Overhead Groundwire

Conductors are the wires on the structures that carry the electrical current. Each existing structure on this line currently carries three conductors. The rebuilt line

would also carry three conductors on the single-circuit wood structures and steel structures and six conductors on the double-circuit steel structures.

Conductors are attached to the transmission structures by insulators. Insulators are bell-shaped devices that prevent the electricity from jumping from the conductors to the structures and going to the ground. Overhead groundwire exists along the entire line and protects against lightning strikes to the line.

The existing conductor and groundwire would be reused along most of the line. New insulators would be installed on the entire reconstructed line and new groundwire would be installed in mile 17. New conductor, insulators, and overhead groundwire would be installed from Palisades Dam to structure 2/7.

2.1.4 Access Roads

Existing access roads consist of a mix of narrow, unimproved roads and two-track roads, many of which are overgrown with low-growing native vegetation. BPA proposes to improve these existing access roads and build new access roads to each structure for construction and continued future maintenance of the line. About 38 miles of existing access roads would be improved, and about 3 miles of new access roads would be constructed. The locations of these roads are shown in Appendix B. Roads would be designed for use by trucks transporting cranes and materials, excavators, drill rigs, supply trucks, log trucks, and line trucks.

BPA would secure easements for existing and new access roads. Fifty feet of ROW width would be secured for construction and improvement of roads. Twenty feet of ROW width would be permanently secured for continued use of the access roads after construction is complete. Table 2-3 shows land ownership and lengths of new and reconstructed access road; the locations are shown in Appendix B.

TABLE 2-3
Length of New and Reconstructed Access Roads by Land Ownership (in miles)

Land Owner or Manager	Construct New Access Roads	Reconstruct Access Roads
Private	2	24
Forest Service	1	7
Bureau of Land Management	0	4
State of Idaho	0	1
Bureau of Reclamation	0	2
Total	**3**	**38**

The locations of new and reconstructed roads are shown in appendix B, bound separately. All values have been rounded to the nearest whole number.

Typically, new and reconstructed access roads would be 12 feet to 14 feet wide. An additional 3 feet of clearing would be required on each side of the road for

construction of shoulder berms, and for cutting out openings for water bars, drain dips, and outlet ditches. Construction and improvement of access roads would involve crushing or clearing existing low-growing vegetation, grading and shaping existing road surfaces and turnouts, cleaning existing ditches and culverts, and installing seven new culverts. All disturbed areas that are not part of the permanent access roads would be reseeded.

Rock surfacing material and rip rap would be purchased from a local, commercial source and brought to the ROW for use in reconstructing the roads. At this time, the Blacktail borrow pit located on the C-TNF, just north of structure 18/5, has been designated as the source for rocky material to be used on the C-TNF (from approximately structures 9/1 to 22/5). A rubber tired loader would be used in the C-TNF borrow pit to load material into trucks to be hauled to the ROW.

A low-water crossing would be constructed at Taylor Creek. This would include placement of about 60 tons of surfacing on the driving surface of the low-water crossing, and 100 tons of riprap to reinforce the upstream and downstream channel. The expected width of impact is 40 feet at the widest point.

A bridge would be replaced at Sand Creek Road near structure 46/6. While the concrete abutments would remain intact, the old wooden structure would be removed and replaced with a pre-assembled modular bridge.

2.1.5 Vegetation Clearing

Vegetation clearing would be conducted in order to rebuild the Palisades-Goshen line. Although the existing ROW receives regular vegetation maintenance as part of ongoing routine maintenance activities, additional vegetation removal would be required for improving existing access roads and for new access roads, as well as for the new line ROW. During access road construction, low growing vegetation in the proposed roadways would be removed. For and the new line ROW, any danger trees along the line within or adjacent to the ROW would need to be removed. Danger trees are trees that could potentially grow, fall, or bend close enough to the lines to cause electricity to jump from the line to the trees, which could result in a fire at that location, as well as a line outage. The area of danger tree removal (mostly cottonwood) would occur along the 2.5-mile section of new line ROW beginning at Palisades Dam.

2.1.6 Staging Area(s)

Three temporary staging areas would be needed along or near the ROW to store and stockpile structure materials, conductor reels, trucks and other equipment. Preference is given to existing flat, paved, or graveled areas. One 5 acre site is proposed on Reclamation land next to Palisades Dam along the dam access road. A second 3 acre site is proposed on private land adjacent to the ROW near structure

46/6. A third site, unknown at this time, would also be on private land south of the Snake River crossing. No staging areas would be located on BLM or C-TNF land.

2.1.7 Conductor Pulling and Retensioning Sites

The existing conductor would be reused along most of the reconstructed line. New conductor would only be used on the double-circuit steel structures. The conductor would be placed in travelers (pulleys) from structure to structure with a large piece of equipment pulling the conductor and a truck holding the reel of conductor if new conductor is being used. The same equipment would be used when retensioning existing conductor. The pulling and retensioning sites typically occur along the ROW at angle points (where the line makes a turn in direction) and can disturb an area of about 150 feet by 150 feet or less. This would possibly create disturbance outside of the existing ROW in some areas.

BPA does not tell the contractor where to locate these sites. However, BPA can, and routinely does, prohibit contractors from using certain areas for these activities. BPA would provide the contractor with a map of sensitive areas. These areas include wetlands, cultural resource sites, and important fish and wildlife habitat areas. Sites to be avoided would be marked in the field before construction and the BPA inspector would monitor for contractor compliance. Sensitive area polygons would extend beyond the ROW if needed to protect sensitive resources.

2.1.8 Counterpoise

A system of underground wires, or "counterpoise," would be attached to each structure for additional lightning protection. The wires are laid out horizontally away from each structure. In general, each structure would have up to four buried wires, two wires laid 100 feet ahead and 100 feet back of the structure and two wires up to 40 feet perpendicular to the structure. This design would be adjusted to avoid sensitive areas, if needed, after each structure site was studied in detail. The wires would be buried 1 foot to 3 feet under the ground surface. A narrow-width trencher would be specified for installation in all areas of native habitat to minimize temporary impacts. A drop plow may be used in tilled agricultural areas. A backhoe would only be used if there is bedrock at or near the surface, in which case, the wire would be laid on the surface and buried with loose aggregate.

2.1.9 Reconstruction of Other Lines

As part of the Proposed Action, BPA would relocate and reconstruct portions of two other existing lines in the vicinity of the Palisades-Goshen line. One of these other lines is BPA's existing Palisades-Swan Valley 115-kV transmission line. The portion of this line from structure 1/1 at Palisades Dam to structure 2/5 would be relocated to the approximately 2.5 miles of new ROW that would be acquired from Reclamation for use by the rebuilt Palisades-Goshen line (see Figure 2-1 and Section 2.1.1). As with the relocated Palisades-Goshen line, this reroute of the

Palisades-Swan Valley line would remove it from a steep hillside above Palisades Dam, providing safer and easier maintenance access. The conductors for the Palisades-Swan Valley line would be strung on the same proposed double-circuit steel pole structures in the new ROW that would carry the conductors for the rebuilt Palisades-Goshen line (see Section 2.1.2).

The other line that would be relocated and reconstructed is a small portion of Reclamation's existing 12.5-kV distribution line (see Figure 2-1). This line runs north about 2 miles from Palisades Dam to the small town of Palisades (also known as Government Camp), which includes Reclamation's facilities about 2 miles downstream of the dam. BPA would relocate and replace four wood pole structures of this line to avoid conflicts with the proposed 2.5-mile segment of relocated BPA Palisades-Goshen and Palisades-Swan Valley lines. The structures would be moved from the east side of US 26 and the Palisades Dam access road to the west side and remain close to both roads. (See Figure 2-1.)

2.1.10 Line Removal

After the first approximately 2.5 miles of relocated line (up to structure 2/7 of the Palisades-Goshen line and structure 2/5 of the Palisades-Swan Valley line) is constructed and energized (switched on), structure 1/1 to 2/7 of the existing Palisades-Goshen line and structure 1/1 to 2/5 of the existing Palisades-Swan Valley line would be removed.

The soil around the structure legs would be dug away. The structure legs would be cut about 2 feet or 3 feet below the ground surface, and a crane would lower the structure to the ground. The structures would be dismantled and hauled away on the back of a large truck.

The wood pole structures for the rest of the line would be removed individually in the same way as the new structures were being installed.

2.1.11 Cost

The Proposed Action would cost about $12 million.

2.1.12 Construction Timing

Construction would be phased over approximately 3 years, weather permitting. BPA has proposed to begin road work in June 2008 and to complete this work in August 2008. Replacement of the first 23 miles of line beginning at Palisades Dam, and the crossing at Henry's Creek in mile 38, is proposed to begin July 16, 2008, and would be done by a contractor to BPA. At the same time, BPA crews would begin replacing structures from Goshen Substation east to mile 30. Line work would continue as far into the fall as weather permits. Construction of the line would then continue by BPA crews in 2009-10 during the summer construction months.

Access road and line construction in specific locations might vary at times because of sensitive resource restrictions required by permits and statutory or agency land management requirements.

2.1.13 Operation and Maintenance

Operation of the line would remain at 115-kV. For possible future actions related to the voltage of the line, see Section 2.4.

Maintenance of the lines would be the same as that carried out on the existing lines—that is, routine, periodic maintenance, emergency repairs, and, most typically, replacement of insulators.

The new 230-kV structures would allow BPA maintenance crews to perform maintenance on the line more safely and without having to obtain a line outage in most cases, which temporarily removes the line from service while maintenance is performed.

Vegetation would be maintained for safe operation of the line and to allow access to the structures. Vegetation management would continue to be guided by BPA's *Transmission System Vegetation Management Program EIS* (BPA 2000). This program includes ongoing consultation between BPA, landowners, the Forest Service, Reclamation and BLM. A number of different vegetation management methods may be used: manual (hand-pulling, clippers, chainsaws); mechanical (roller-choppers, brush-hog); biological (insects or fungus for attacking noxious weeds); and chemical (herbicides). Danger trees would be identified and removed in consultation with the land management agencies. BPA would continue to work with the Bonneville and Bingham County Weed Boards and the agencies on area-wide plans for noxious weed control.

2.2 No Action Alternative

For the No Action Alternative, BPA would not take action to reconstruct the Palisades-Goshen transmission line. Leaving the situation as is, BPA would continue to plan the replacement of individual structures as they decay. BPA would also replace structures due to any unplanned failure (from decay or other event). For purposes of this analysis, it is assumed that the No Action Alternative involves the continuation of the status quo (existing structures and lines remain in their existing location and are replaced as needed).

2.3 Alternatives Considered But Eliminated From Detailed Study

The alternatives discussed below were considered early in the planning process. These alternatives were eliminated from detailed study because they would not continue to provide needed electricity to the service area, would not solve the problem of decaying transmission line structures in a timely or cost-effective

manner, or would not serve to reduce environmental effects. The Palisades-Goshen line is more than 40 years old and has approximately 700 structures and 60 cross arms that need to be replaced because of decay. The entire line consists of 860 structures and 430 cross arms.

2.3.1 Retire and Remove the Line

BPA eliminated this option from detailed study because the Lower Valley area served by this line has had a growth rate of 4 percent per year for the last 8 years, and needs the continued service provided by this line. In addition, loss of the Palisades-Goshen line would limit the ability to move the power generated at Palisades Dam to Fall River and Lower Valley load, as well as the ability to serve Lower Valley's load in case of a loss of either the Goshen-Drummond 161-kV line or the Goshen-Swan Valley 161-kV line.

2.3.2 Replace Only Decayed Structures with New 115-kV Structures Now

This option would replace only the decayed structures and cross arms with similar (115-kV) structures now. However, based on load growth projections showing a need for a third 161-kV line by 2027, to serve the growing Lower Valley and Fall River loads in the area, it is reasonable to expect that BPA would need to reconstruct the line to 161-kV operation by replacing all the structures once again in 2027. This option was considered but eliminated from detailed study for the following reasons:

- Rebuilding this line within 20 years or less of replacing most of the existing structures would not be cost-effective since the replaced poles would be relatively new and not in need of replacement.
- Unexpected load growth is occurring in the Targhee-Victor area that was not factored into the 2004 studies. Therefore, the upgrade to 161-kV operation could occur prior to 2027.
- The structure replacement now and line rebuild (2027 or sooner) would each require several years of extended summer time outages, which could limit the ability to serve load if another line in the area were to go out of service.

2.3.3 Replace Only Decayed Structures with New 230-kV Structures Now

This option would replace only the decayed structures and cross arms with 230-kV structures now so that when the line needs to be upgraded to 161-kV operation, only the structures that were not previously replaced would need to be added. This option would still require replacement of all remaining 115-kV structures within 20 years or less of the current structure replacement operation. This would result in a "piecemeal" approach to project construction and would spread temporary construction impacts over a greater period of time at a higher cost. For these reasons, this option was considered but eliminated from detailed study.

2.3.4 Use Existing ROW for Segment of Line Up To Structure 2/7

For the segment of the Palisades-Goshen line from structure 1/1 at Palisades Dam to structure 2/7, BPA considered the option of leaving this segment in its existing ROW. However, this existing ROW is on a steep hillside above Palisades Dam. In addition to the difficult maintenance and repair access this presents, the need to routinely access this portion of the line in its existing ROW potentially would cause increased erosion and other environmental effects. On balance, relocating this segment of line to the proposed new ROW would not result in environmental effects significantly different from leaving this segment in its existing ROW. Thus, because of the access difficulties associated with this option, it was eliminated from detailed study.

2.4 Future Actions That May Occur Related to the Line

At this time and for purposes of this EA, BPA is proposing to upgrade the Palisades Goshen line by replacing all 115-kV wood structures with 230-kV wood and steel structures. The line would continue to operate at 115-kV until BPA studies show that an increase in voltage is necessary to meet load growth, which could possibly occur around 2027. If and when BPA proposes to increase the voltage of the line to 161-kV, BPA would identify any additional facilities that would be required for this voltage change and would prepare appropriate National Environmental Policy Act (NEPA) documentation prior to making a decision concerning the voltage change.

At this time, it is uncertain what if any additional facilities may be needed for a voltage change. However, it is possible that system upgrades would be needed at both Palisades Dam and Goshen Substations. Depending on the equipment needed, the yard at Palisades Substations may need to be expanded or a new yard built. Possible upgrades at Palisades and Goshen Substations could include:

- Palisades Substation (presently owned by Reclamation): Add a 161-/115-kV transformer somewhere in the present yard. Because of Reclamation ownership/management of this substation, it may be necessary for BPA to construct its own substation in the area.
- Goshen Substation: Remove 115-kV transformers.

For the purposes of this EA, these general actions are considered in the cumulative impact sections of the EA (see Chapter 3).

2.5 Other Potential Cumulative Actions

The C-TNF revised forest plan (USFS 1997) and the BLM Medicine Lodge Resource Management Plan (BLM 1985), as well as the Bingham and Bonneville County Comprehensive Plans (Bingham County 2005, Bonneville County 1994), were reviewed to determine if they included past, ongoing or future activities to be addressed under cumulative impacts. No such specific actions were identified.

2.6 Comparison of Alternatives

The compared effects of the Proposed Action and No Action Alternatives are presented in Table 2-4.

TABLE 2-4
Comparison of the Proposed Action and No Action Alternative

	Proposed Action	No Action
Purpose		
Maintain transmission system reliability to BPA and industry standards	Improves transmission system reliability by reducing planned or unplanned outages because of a deteriorating line.	Risks public health and safety during outages.
Continue to meet BPA's contractual and statutory obligations	Maintains system reliability and subsequent power delivery to BPA's customers in the Palisades – Goshen service area.	Deteriorating condition of the existing line threatens system reliability and subsequent power delivery.
Minimize impacts to the natural and human environment	All but 2.5 miles of the line would be rebuilt on the existing ROW to reduce environmental impacts.	Avoids construction impacts but continues sporadic maintenance impacts; could result in impacts to the local economy and public health and safety from decreased reliability and power delivery.
Minimize cost	Total project costs: about $12 million.	Avoids near-term construction costs, but increases near-term maintenance costs related to on-going repairs needed to maintain existing deteriorating line. Costs to rebuild in 2027 or sooner may be more expensive given rising labor and material costs. May create socioeconomic costs in the future.
Environmental Resource		
Land Use	Very minor or no changes in land use. Low impacts expected.	No change in impacts from existing condition.
Geology and Soils	Low-to-moderate impacts expected from construction; most impacts on soils can be mitigated with erosion control measures. About 398 acres of soil disturbed, with productivity lost on approximately 101 acres permanently.	No change from existing operations and maintenance; maintenance needs could increase over time.
Vegetation (including Wetlands)	About 297 acres of vegetation removed temporarily and 71 acres removed permanently. Vegetation impact differs from soil disturbance because portions of existing roads to be upgraded are not vegetated. Noxious weeks would likely spread. Low-to-moderate impacts on vegetation expected. Most structures would be built outside of wetlands and low impacts are expected.	No change from existing operations and maintenance; maintenance needs could increase over time.

TABLE 2-4
Comparison of the Proposed Action and No Action Alternative

	Proposed Action	No Action
Wildlife	No impacts to federally listed threatened or endangered species expected. Some relatively minor impacts to USFS sensitive and BLM special status species. Low to moderate impacts expected to wildlife and habitat during both construction and operation.	No change from existing operations and maintenance; maintenance needs could increase over time.
Water Resources and Fisheries	Low-to-moderate impacts expected with erosion control and vegetation management planned. Impacts would be temporary.	No change from existing conditions.
Floodplains	Low impacts expected. Flood storage capacity would not change.	No change from existing conditions.
Visual Quality	Temporary impacts during construction. New structures would be 5 feet taller than existing ones. Low impacts expected.	No change from existing conditions.
Air Quality	Temporary impacts during construction. Low impacts expected.	No change from existing conditions.
Socioeconomics	Minor positive impacts from the construction project expected. New transmission line could create a more reliable system, which would be a positive impact.	Future transmission system reliability problems could impact the local economy and public health and safety.
Cultural Resources	No impacts are expected with avoidance of all eligible and potentially eligible sites.	No impacts expected.
Health and Safety	Low impacts expected.	Future transmission system reliability problems could result in loss of power required for safe locomotion and security. Residential and commercial consumers lose electricity used for heat, air conditioning, cooking, and refrigeration.
Noise	Short-term, low-to-moderate impacts expected during construction. Transmission line corona noise impacts would remain about the same as the existing line. Low impacts expected.	No changes expected.
Electric and Magnetic Fields (EMF)	Maximum EMF at the edges of the ROW would be less than 1.5 milligauss and represent a marginal increase in the existing field strength.	No change from existing conditions.

Chapter 3

Affected Environment, Environmental Impacts and Mitigation

3.1 Introduction

This chapter evaluates the expected impacts of the Proposed Action and the No Action Alternative on natural, cultural, and social resources to determine the potential for significant environmental effects from each alternative. For each resource, the chapter describes the affected environment, the environmental impacts, and proposed mitigation.

Resource specialists used the best available data from a variety of sources to describe the Affected Environment of the project area. They used currently accepted methods and protocols to determine and describe the expected impacts of the Proposed Action and the No Action Alternative on affected resources. The resource specialists also developed Best Management Practices (BMPs) and mitigation measures to avoid and minimize impacts where possible and to compensate for some unavoidable impacts.

Four impact levels were used to evaluate impacts from construction, operation, and maintenance activities**:** high, moderate, low, and no impact. High impacts are considered to be significant impacts, while moderate and low impacts are not. The impact ratings for each resource area are defined in Appendix C.

Both direct and indirect impacts were evaluated. Direct impacts are those that would occur within or next to the ROW during a construction activity and would have an immediate effect on the environmental resource being evaluated. For example, removal of vegetation used for foraging or refuge during project construction would constitute a direct impact on wildlife. Generally, direct impacts would be confined to the existing ROW, except in those areas where access road improvements are planned outside the ROW. Indirect impacts are those that would occur after a construction activity or in an area adjacent to construction activities or outside the ROW. For example, the introduction of noxious weeds following the removal of vegetation that results in lower quality habitat for wildlife would be an indirect impact. If the affected environment for a specific natural or other resource extends beyond the general limits of the existing ROW, it is noted under the specific resource.

The impact analysis lists proposed mitigation that could reduce or compensate for impacts and discusses cumulative effects of the proposal when combined with impacts from past, present, or foreseeable future projects in the area. Impact discussions assume that the proposed mitigation measures are fully implemented. If no cumulative impacts are expected, none are listed.

The impacts of the No Action Alternative are discussed in the final part of each resource section.

3.2 Vegetation

3.2.1 Affected Environment

Vegetation in the ROW that could be affected by the project includes native plant communities (canopy tree species and understory), rare or protected plants, and noxious weeds. In addition to privately owned lands, the proposed ROW crosses lands managed by the C-TNF, the BLM, Reclamation, and the State of Idaho. The native plant communities in the ROW are represented by the following vegetation: mixed coniferous forest, aspen, wetland and riparian areas, mountain brush, shrub-steppe, and aquatic habitats. Disturbed areas include roads, farmland, developed areas, and disturbance that are a part of the existing transmission line ROW and dam. The following vegetation and disturbance types are discussed in the following text are present in the ROW.

3.2.1.1 Vegetation and Land Cover Types

Mixed Coniferous Forest

Coniferous tree cover is scattered and generally tree stand size is small in acres and is primarily associated with C-TNF lands. North- and east-facing slopes typically are moist enough to support mixed conifer stands on the eastern portion of the project area. Douglas-fir (*Pseudostuga menziesii*) is the primary conifer species in the project area. This is mixed with lodgepole pine (*Pinus contorta*) and aspen (*Populus tremuloides*) in many areas. Lodgepole pine (*Pinus contorta*) is an early succession species and Douglas-fir is a mid-succession species (Forest Service 2002a). Aspen, and occasionally mountain brush, are also mixed with these conifer species along some areas of the ROW. Lodgepole pine is decreasing in extent as succession continues. Disturbance is necessary for early successionally species such as lodgepole pine and aspen to regenerate. Of these disturbances, fire regimes, in particular, have been altered by human intervention, which gives shade-tolerant conifers the advantage (Bartos 2001). Because of lack of disturbance, standing dead snags and downed woody debris, which are key components of forest vegetation types in the area, are developing in many stands as succession develops (USFS 2002).

Wetland and Riparian Habitats

Wetlands in the project vicinity were identified by using National Wetland Inventory Maps prepared by the USFWS for Idaho, aerial photo interpretation, and reconnaissance level field inspections. Large stands of narrowleaf cottonwood (*Populus angustifolia*) forest occur along the South Fork of the Snake River (SFSR) downstream of where the transmission line crosses the SFSR. Cottonwoods along the SFSR in the vicinity of the transmission line crossing are limited to a relatively

narrow, irregular strip of trees and shrubs. A few isolated cottonwoods occur along Fall Creek. Shrub wetland and riparian areas occur along Fall Creek and other perennial and intermittent drainages, including Tex Creek, Taylor Creek, and Willow Creek. Within the ROW, dominant species along riparian corridors are willow (*Salix* spp), hawthorn (*Crataegus douglasii*), alder (*Alnus* sp.), and red-osier dogwood (*Cornus sericea*=*Cornus stolonifera*).

Emergent marsh wetlands are common along seep areas and channels, especially areas that get storm water and high water flows near the east end of the ROW. Reed canarygrass (*Phalaris arundinacea*), tufted hairgrass (*Deschampsia caespitosa*), and redtop (*Agrostis stolonifera*) are present, along with a variety of sedges and rushes.

Aquatic Influence Zones

Portions of the ROW are within the Caribou Range Mountains Subsection administered by the C-TNF (USFS 1997). Lakes, reservoirs, ponds, perennial and intermittent streams, and wetlands that occur in this area are prescribed as Aquatic Influence Zones (AIZs). These zones control the biotic and abiotic processes that affect water quality and habitat characteristics important for aquatic plant and animal species. Many vegetation types and habitats within AIZs are rare and sensitive to disturbance. Site specific boundary widths for various habitat types identified as AIZs are identified in the TNF Revised Forest Plan (USFS 1997) and vary relative to management goals and objectives. AIZ management direction overrides direction from other overlapping management areas. The AIZs in the vicinity of the ROW are shown in Appendix B, under separate cover.

Aspen

The Forest Service (2002) indicates that aspen occupies about 30 percent of the forested area of the Fall Creek watershed. Aspen is primarily mixed with conifers along the Fall Creek portion of the ROW. However, relatively pure aspen stands continue intermittently on private lands to the west of the Forest along the ROW to the vicinity of structure 27/5. These are primarily private and State of Idaho parcels. Aspen occurs in several areas mixed with mountain brush species.

Although aspen is the most widely distributed native deciduous tree in North America, it is declining in the western U.S. In Idaho, aspen have declined by 61 percent (Bartos 2001).

Mountain Brush

The mountain brush community occupies about 23 percent of the forested area of the Fall Creek watershed (USFS 2002b). Not much of the ROW passes through this vegetation type on the Forest. However, a few areas on private and State of Idaho lands to the west of the Forest would likely impact this community type. Predominant species include chokecherry (*Prunus virginiana*), serviceberry (*Amelanchier alnifolia* and/or *A. utahensis*), snowberry (*Symphoricarpos albus* and/or *S. oreophilus*), snowbush (*Ceanothus velutinous*), and currant (*Ribes* sp.). This vegetation type is sometimes found mixed with aspen and juniper along the ROW.

Shrub-Steppe

Shrub-steppe generally occurs on south facing slopes at lower elevations of the C-TNF. Shrub-steppe also occurs on a variety of aspects at higher elevations of the C-TNF and on BLM lands to the west of the C-TNF. Predominant plants include big sagebrush, bitterbrush (*Purshia tridentata*), snowbush, snowberry, horsebrush, and rabbitbrush (*Chysothmnus* spp.) (USFS 2002a). Curl-leaf mountain mahogany (*Cercocarpus ledifolius*) and Rocky Mountain juniper (*Juniperus scopulorum*) and/or Utah juniper (*Juniperus osteosperma*) also occur in a few locations within the shrub-steppe matrix. Grass is an important component of this vegetation type, include Sandberg's bluegrass (*Poa secunda*), mountain brome (*Bromus marginatus*), slender wheatgrass (*Agropyron trachycaulum=Elymus trachycaulus*), and bluebunch wheatgrass (*Agropyron spicatum=Pseudoroegneria spicata*). Forb abundance varies by aspect and soil moisture and includes arrowleaf balsamroot (*Balsamorhiza sagittata*), tapertip hawksbeard (*Crepis acuminata*), and buckwheat (*Eriogonum caespitosum*). Shrub-steppe communities also occur on steeper slopes on some BLM parcels to the west of the C-TNF.

Sagebrush has been declining across the Western U.S. for many decades (Welch 2003). Sagebrush habitat west of the C-TNF was noted to be in very good condition during a site reconnaissance of the ROW.

Areas with bitterbrush, which is an important winter browse for big game animals, are located in the vicinity of structure 1/6; along the base of slope between structures 3/8 and 4/7; between structures 4/4 and 4/9; between structures 13/9 and 14/2; and in association with curlleaf mountain mahogany between structures 14/5 and 14/6.

Curlleaf mountain mahogany is a shrub-steppe species that is even more limited in distribution than sagebrush and bitterbrush. It is declining across the West because of extremely limited seedling recruitment.

Aquatic Habitats

The SFSR is the major river crossed by the line. Fall Creek, Willow Creek, and Tex Creek are the predominant perennial streams crossed by the project. The line also crosses many other smaller tributaries to these drainages. Many are intermittent, such as Taylor Creek and are considered to be Waters of the U.S., which are regulated by the U.S. Army Corps of Engineers because of their general importance as aquatic habitats. Main irrigation canals also carry Waters of the U.S.

Disturbed Areas

The east end of the ROW is located on fill associated with construction of Palisades Dam. Other disturbed areas also include roadways, some of which are a result of off-road vehicle and camping use, particularly in some areas of the ROW associated with Fall Creek and Taylor Creek crossing and farmlands.

Farm Land

The western end of the line beyond structure 46/6 crosses irrigated farm land. Irrigated pasturelands are also present near the town of Palisades (Government Camp). Many areas of what appear to be former dry land farms in the SFSR valley are being converted to residential uses and do not appear to be actively farmed. Benches above the SFSR and large areas of private lands west of the C-TNF also include parcels of non-irrigated farm land.

3.2.1.2 Noxious Weeds

Noxious weeds are legally designated by the State of Idaho. The Federal Noxious Weed Act of 1974 (7 U.S.C. §§ 2801-2814, January 3, 1975, as amended 1988 and 1994) provides for the control and management of non-indigenous plants. Noxious weeds are non-native plants that have been designated as undesirable plants by law because they are invasive and can degrade and lower the economic value of the lands on which they occur. They degrade farmland and threaten the integrity of native plant communities by displacing native species and decreasing species diversity.

Idaho has designated 57 species of weeds as noxious (ISDA 2007). Under Idaho law, the land owner or manager is primarily responsible for controlling noxious weeds. In Idaho, Cooperative Weed Management Areas (CWMA) are formed when the landowners and land managers of a given area work together to control weeds in their respective areas.

Bonneville County Weed Control completed in-depth weed surveys of the Palisades-Goshen ROW in 2007 (Pettingill 2007). These surveys mapped a total of 10 weed species in 374 areas along the ROW. Species mapped include Canada thistle (*Circium arvense*), musk thistle (*Carduus nutans*), leafy spurge (*Euphorbia dentata*), houndstongue (*Cynoglossum officinale*), spotted knapweed (*Centaurea maculosa*), field bindweed (*Convolvulus arvensis*), yellow toadflax (*Linaria vulgaris*), Dalmation toadflax (*Linaria genistifolia*), black henbane (*Hyoscyamus niger*), and puncturevine (*Tribulus terrestris*). The most abundant areas of weed invasion were classified as sagebrush-steppe, grasslands, CRP land, and fallow fields. Riparian areas also had significant numbers of weeds (primarily thistles), especially considering the relatively few acres of this vegetation type that occurs along the ROW. This report found that vehicles, earth-moving equipment, and livestock were the primary disturbance vectors at weed occurrences.

3.2.1.3 Special Status Plant Species

Special status plant species are those species that have been identified for protection under federal or state laws. Only one special status plant species, the Ute ladies'-tresses (*Spiranthes diluvialis*), is known to occur in the vicinity of the proposed project. Ute ladies'-tresses was listed under the Endangered Species Act (ESA) on July 17, 1992 as threatened over its entire range. Ute ladies'-tresses is found in moist

soils in mesic or wet meadows near springs, lakes, or perennial streams below 7,000 feet. It occurs primarily on sites subject to intermittent and unpredictable inundation, and the plants often emerge from shallow water (Sheviak 1984). It typically occurs in areas where the vegetation is relatively open and not overly dense, overgrown, or overgrazed (Coyner 1989, 1990; Jennings 1989, 1990). Although commonly found along gravelly streamside reaches with a sand-silt texture, where it tolerates disturbance, it has also been found in relatively undisturbed wetlands, such as wet meadows fed by stable groundwater, along meandering wetlands, and in seeps in alkaline valley bottoms (Heidel 1997). This orchid may exhibit prolonged dormancy, possibly because of a symbiotic relationship with mycorrhizal fungi (USFWS 1995a). Additional details regarding this species are found in the project No Effect Determination Memorandum (CH2M HILL 2008a).

No other protected plants are documented in the proposed ROW. Forest Service surveys have found no rare plants on their lands within the ROW (Lehman, pers. comm., 2007). No formal rare plant surveys were completed on the remaining ROW, but the nearest known locations of BLM-sensitive species are in other counties.

3.2.2 Environmental Impacts—Proposed Action

3.2.2.1 Vegetation

Vegetation could be impacted by the Proposed Action by tree and plant removal and damage, loss of plant habitat, fragmentation of plant habitat, loss of native seed, and noxious weed infestation.

The primary direct impact of the Proposed Action on vegetation would be the temporary and permanent removal of native plant communities in the ROW. The overall direct impact of the Proposed Action on vegetation would be relatively low, with implementation of mitigation measures listed below. Several plant communities that are declining in the West, including aspen, sagebrush, bitterbrush, and curlleaf mountain mahogany, would be impacted to a moderate degree. Most wetland impacts would be avoided by moving structures that would have impacted wetland areas into upland areas. Some of these structure realignments entail substantial moves to avoid impacts.

Direct construction effects from the Proposed Action are divided into permanent and temporary impacts. These are provided in Table 3-1. Clearing and vegetation removal during construction would permanently remove a few trees for the life of the line. These activities would primarily impact aspen as well as a few cottonwoods. Aspen stands have been mapped as sensitive areas to avoid when possible because of their ecological importance and substantial decline across the West. Maintenance activities can cause direct impacts to adjacent vegetation by damaging trees and shrubs that do not need to be removed and from equipment crushing low-growing vegetation as trees are felled. Overall, direct construction and maintenance impacts to vegetation are expected to be moderate.

TABLE 3-1
Area of Temporary and Permanent Project Impacts for Reconstruction of the Palisades-Goshen Transmission Line

Project Feature	Area of Temporary Impact (acres)	Area of Permanent Impact (acres)
Structure Sites (430 sites)	222.1	2.0
Counterpoise Lines	10.7	0
Upgrade Access Roads	45.8	61.3*
New Access Roads	10.8	7.2
Conductor-Pulling and Re-tensioning Sites	2.0	0
Staging Area	5.0	0
Total	**296.4**	**70.5**

*Assumes that about two-thirds of the permanently affected area for upgrading access roads would require removal of native vegetation that has reoccupied old access roads and two-tracks or that is outside of previous disturbance; the other one-third is not vegetated because of ongoing disturbance. Therefore, this currently disturbed area is not counted as a permanent impact. However, soil disturbance would occur in all disturbed areas. Therefore, the area of soil disturbance is greater than the area of vegetation removal.

Sites with tree and shrub (primarily conifer, aspen, mountain shrub, willows) canopies are cooler, allow snow to stay longer, and allow more moisture to infiltrate rather than run off. Removal of tree and shrub canopies would increase runoff to some degree. Few conifers would be removed and impacts to coniferous forests are expected to be low. Removal of topsoil during construction would result in the loss of native seed and microbes and minerals that are essential to healthy plant growth. Topsoil removal would therefore result in less natural regeneration of native plants in areas that would be temporarily impacted by counterpoise trenching. All areas disturbed during installation of counterpoise wires would also be seeded as described below under Mitigation. Impacts from topsoil removal are expected to be low.

Heavy equipment used to dig footing holes, assemble structures, and retension or pull conductor would compact the soil at structure and pulling/tensioning sites, making regrowth and recovery of vegetation more difficult. Runoff could lead to increased erosion (see the Soils and Geology section in this chapter) and loss of native seeds that would be found in the eroded topsoil. Less infiltration can result in less natural regeneration of native seeds in the seed bank. Road blading and maintenance would impact many areas. Some access roads that currently consist of two-track trails within areas of high quality sagebrush would be bladed and graveled. Sagebrush habitat along the ROW west of the C-TNF has been mapped so that construction impacts can be limited to the fullest extent possible in the area. To reduce habitat loss and disturbance of high quality shrub-steppe habitat from structures 20/4 to 25/3, blading and gravelling would be reduced to a width of 8 feet to 9 feet instead of the usual 14 feet to 16 feet. This would reduce, but not

avoid, all habitat loss in this area. Impacts to high quality habitats would be moderate.

The ROW would cross several perennial and intermittent streams. With one minor exception, potential direct impacts to streams have been avoided by moving the location of structures (see Table 2-2). Movement of structures to avoid wetlands was initially based on inspection of the structure locations relative to the boundaries of National Wetland Inventory (NWI) mapped wetlands. NWI wetland mapping is based on interpretation of aerial photographs and is not as accurate as wetland mapping that follows established wetland delineation protocols. Each of the locations where a structure was located within an NWI-mapped wetland was inspected in the field by an experienced wetland delineator. Based on this field inspection, structures were moved outside of areas that were likely to be jurisdictional wetlands. The NWI wetland boundaries on the maps in Appendix B have not been adjusted, so some structures may still appear to be within an NWI-mapped wetland. However, as indicated above, these structures have been moved outside of the likely jurisdictional wetlands.

One access road would cross and impact Taylor Creek, an intermittent stream and Water of the U. S., where a new ford would be constructed. Developing a hard crossing at this point would impact approximately 40 feet of wetland vegetation on both sides of the channel for a total of about 800 square feet or 0.02 acre. It currently is heavily impacted by its use as a non-improved ford by off-highway vehicle (OHV) users, recreationists, and others. Improving the crossing at this point would improve current water quality and erosion problems that result from current use of the unimproved ford. Impacts to perennial and intermittent streams and associated riparian vegetation would be low.

The AIZs in the vicinity of the ROW are shown in Appendix B, under separate cover. Table 3-2 shows the lengths of new and reconstructed access roads within AIZs on the C-TNF. Approximately 1 mile of new road and 7 miles of reconstructed road would be located on the C-TNF. Of the total, approximately 0.4 miles of new road would be constructed in AIZs and approximately 3.4 miles of road would be reconstructed in AIZs. Mitigation measures and BMPs described in Sections 3.2.3, 3.3.3, 3.4.3, and 3.5.3 would minimize construction impacts within AIZs and effects to associative vegetation on the C-TNF. Overall, project-related impacts to AIZs would be considered low to moderate.

In addition, construction of a culvert at mile 6 could impact as much as 1,200 square feet of irrigation channel, which is a Waters of the U.S. channel. Total impacts to wetlands or Waters of the U.S. would be less than 0.1 acre. Installation of counterpoise and reconstruction of a few structures along Fall Creek may have temporary impacts on less than 0.1 acre of wetlands. However, structures have been moved and counterpoise has been specifically designed to avoid or reduce these impacts. Impacts to irrigation channels would be low.

TABLE 3-2
Total Length of All Access Roads to be Constructed or Reconstructed on U.S. Forest Service Lands and the Length of Those Roads Located in AIZs

Structure	Access Road Type	Total Length of Access Road (Feet)	Portion of Access Road in AIZ (Feet)
8/9 to 9/1	New Construction	507	507
8/9 to 9/1	Reconstruction	198	198
9/1to 9/2	New Construction	208	-
9/2 to 9/3	New Construction	201	-
9/2 to 9/3	Reconstruction	319	-
9/9 to 10/1	Reconstruction	1772	1343
11/4 to 11/5	New Construction	704	-
11/5 to 11/6	New Construction	432	-
11/5 to 11/6	Reconstruction	221	-
11/6 to 11/7	Reconstruction	145	-
12/4 to 12/5	Reconstruction	298	-
12/5 to 12/6	Reconstruction	639	-
12/7 to 13/1	Reconstruction	523	523
13/1 to 13/2	Reconstruction	624	-
13/2 to 13/3	Reconstruction	179	-
13/2 to 13/3	Reconstruction	244	244
13/3 to 13/4	Reconstruction	1,861	675
13/4 to 13/5	Reconstruction	543	-
13/5 to 13/6	Reconstruction	643	643
13/6 to 13/7	Reconstruction	654	154
13/7 to 13/8	Reconstruction	667	667
13/9 to 14/1	Reconstruction	775	396
14/1 to 14/2	Reconstruction	130	-
14/2 to 14/3	Reconstruction	145	145
14/3 to 14/4	New Construction	60	60
14/4to 14/5	New Construction	195	195
14/4 to 14/5	Reconstruction	195	87
14/6 to 14/7	Reconstruction	80	80
14/7 to 14/8	New Construction	308	308

TABLE 3-2
Total Length of All Access Roads to be Constructed or Reconstructed on U.S. Forest Service Lands and the Length of Those Roads Located in AIZs

Structure	Access Road Type	Total Length of Access Road (Feet)	Portion of Access Road in AIZ (Feet)
14/7 to 14/8	Reconstruction	102	102
14/8 to 15/1	Reconstruction	128	128
15/2 to 15/3	Reconstruction	121	121
15/3 to 15/4	Reconstruction	36	36
15/5 to 15/6	Reconstruction	67	67
15/6 to 15/7	Reconstruction	45	45
15/8 to 15/9	New Construction	58	58
15/8 to 15/9	Reconstruction	90	90
15/9 to 16/1	Reconstruction	481	481
16/2 to 16/3	Reconstruction	239	239
16/3 to 16/4	Reconstruction	118	118
16/4 to 16/5	Reconstruction	387	283
16/5 to 16/6	Reconstruction	643	88
16/6 to 16/7	Reconstruction	388	388
17/1 to 17/2	Reconstruction	511	511
17/3 to 17/4	Reconstruction	368	368
17/4 to 17/5	Reconstruction	45	45
17/6 to 17/7	Reconstruction	816	816
17/7 to 17/8	Reconstruction	695	695
17/8 to 18/1	Reconstruction	734	1149
18/2 to 18/3	Reconstruction	867	867
18/3 to 18/4	Reconstruction	463	463
18/5 to 18/6	Reconstruction	1,060	1,060
18/6 to 18/7	New Construction	400	400
18/8 to 19/1	New Construction	116	116
18/8 to 19/1	Reconstruction	763	497
19/1 to 19/2	Reconstruction	487	477
19/2 to 19/3	Reconstruction	1,192	1,192
19/3 to 19/4	Reconstruction	169	169
19/4 to 19/5	Reconstruction	82	82

TABLE 3-2
Total Length of All Access Roads to be Constructed or Reconstructed on U.S. Forest Service Lands and the Length of Those Roads Located in AIZs

Structure	Access Road Type	Total Length of Access Road (Feet)	Portion of Access Road in AIZ (Feet)
19/5 to 19/6	Reconstruction	41	41
19/6 to 19/7	New Construction	80	80
19/8 to 20/1	Reconstruction	1,136	-
20/1 to 20/2	Reconstruction	594	177
20/2 to 20/3	New Construction	176	19
20/2 to 20/3	Reconstruction	999	547
20/4 to 20/5	New Construction	420	217
20/4 to 20/5	Reconstruction	880	307
20/5 to 20/6	Reconstruction	850	-
20/6 to 20/7	Reconstruction	874	-
20/7 to 21/1	New Construction	156	-
20/7 to 21/1	Reconstruction	661	-
21/1 to 21/2	Reconstruction	665	-
21/2 to 21/3	New Construction	417	-
21/2 to 21/3	Reconstruction	185	-
21/4 to 21/5	New Construction	185	-
21/4 to 21/5	Reconstruction	384	-
21/5 to 21/6	Reconstruction	850	-
21/6 to 21/7	Reconstruction	760	-
21/7 to 21/8	New Construction	55	-
21/7 to 21/8	Reconstruction	723	202
21/8 to 22/1	Reconstruction	601	-
22/1 to 22/2	New Construction	405	10
22/1 to 22/2	Reconstruction	861	533
22/2 to 22/3	Reconstruction	586	355
22/3 to 22/4	Reconstruction	653	-
22/4 to 22/5	Reconstruction	719	-
22/5 to 22/6	Reconstruction	609	-
	TOTAL	**40,666**	**19,863**

Construction, operation, and maintenance of the project are not expected to significantly affect the long-term existence, quality, or natural functioning of wetlands. Structures directly impacting wetlands were moved to the greatest extent possible in order to comply with the Section 404 of the Clean Water Act. Impacts of the access road crossing at Taylor Creek and construction of culverts would be coordinated with the U.S. Army Corps of Engineers (Walla Walla District) and Idaho state and county regulatory agencies. These are expected to total less than 0.5 acres of impacts and are expected to be permitted under Section 404 Nationwide Permits.

3.2.2.2 Noxious Weeds

The primary indirect impact of the Proposed Action on vegetation would be the likely spread of noxious weeds. Soil disturbance, removal of current vegetation, and a minor increased sunlight penetration to the understory at a few locations are all associated with weed invasion. Weed inventories completed in the ROW found 10 noxious weed species already present at 374 locations along the Palisades-Goshen line (Pettingill 2007). This means the seed banks for these species are in place. Many noxious weeds do extremely well in open areas that receive direct sunlight, especially on disturbed sites. Noxious weeds tend to be extremely resilient, opportunistic species, with quick germination and regeneration rates. It is likely that species such as thistle, knapweed, toadflax, and leafy spurge would increase and spread into sites that are disturbed during construction, even with reseeding. Impacts from weed expansion are expected to be moderate.

3.2.2.3 Special Status Plant Species

Potentially suitable habitat exists for the Ute ladies'-tresses orchid along Fall Creek in the ROW. Surveys for this orchid were completed along Fall Creek during 1997, 1998, 1999, and 2007 (Pettingill 2007). No occurrences of Ute ladies'-tresses were found. The location where the Palisades-Goshen transmission line crosses the SFSR (mile 8) is not suitable habitat and no suitable habitat exists on other federal land that would potentially be disturbed by this project. No Forest Service or BLM-protected plants are likely to occur in the ROW. Therefore, there would be no impacts to protected plants.

3.2.3 Mitigation Measures

The following mitigation measures would help avoid, minimize, or compensate for the identified impacts to vegetation. Implementation of these mitigation measures would reduce the described impacts. Mitigation would be as follows:

- Restrict construction activities to the area needed to work effectively to complete the project.
- Continue ongoing weed control efforts on the ROW. Presently, BPA contracts with the C-TNF, Bonneville and Bingham counties to control weeds along the ROW. These arrangements would continue after construction is complete. On

public lands, chemicals and methods used would be approved by a Forest Officer or the BLM.

- Coordinate with land management agencies and private landowners to determine the scale of weed control necessary after construction. Monitoring and weed control would continue, for the life of the line.
- Implement procedures outlined in BPA's *Transmission System Vegetation Management Program Record of Decision* (BPA 2000) to address weed problems in subsequent maintenance activities.
- Seed all disturbed areas as soon as possible with certified weed-free seed to stabilize the sites. On the C-TNF, a seed mixture approved by the Forest Officer would be used. On BLM and Reclamation lands, a seed mixture approved by the BLM botanist would be used. Within big game winter range, the seed mix would be consistent with C-TNF or BLM winter range objectives. Crested wheatgrass, intermediate wheatgrass, smooth brome, and orchard grass would not be used as part of any seed mix for disturbed lands.
- To reduce habitat loss and disturbance of high quality shrub-steppe habitat from structures 20/4 to 25/3, reduce blading and gravelling to a width of 8 feet to 9 feet instead of the usual 14 feet to 16 feet. Construction equipment needing a wider travel route would drive over the existing vegetation on designated and well-marked access routes to reduce disturbance and potential weed infestation. Counterpoise lines in this area would be installed using a narrow-width trencher to minimize disturbance.
- Adopt and implement any mitigation for impacts to waters of the United States and wetlands that are identified by the Army Corps of Engineers (ACOE) through the Section 404 permitting process for the Proposed Action.
- Avoid clearing of mapped aspen stands when possible.
- Avoid clearing of mapped sagebrush habitat along the ROW west of the C-TNF to the fullest extent possible.
- Where practical, salvage weed-free topsoil and replace it on the finished cut and fill areas to promote vegetation regrowth. This would promote regrowth from the native seed bank in the topsoil.
- Place 50-foot sections of jack fence in the vicinity of structures 20/4 and 21/8 to discourage off-highway vehicles (OHVs) from accessing the ROW access road in these areas of high quality shrub/steppe vegetation. This fence would be removed by the Forest Service in the future after disturbed areas are reseeded and vegetation is re-established along the access road.

- Block public access to the existing user-created road near structure 18/6 by installing a pipe gate located about 600 from Fall Creek to reduce ongoing resource damage.

3.2.4 Unavoidable Impacts Remaining After Mitigation

Access road and other construction would permanently affect approximately 71 acres of vegetation and temporarily remove vegetation on about 295 acres. Areas cleared of mature plant communities that can be revegetated would have a temporary loss of mature plants, habitat complexity, and species diversity. In addition, it is not possible to entirely avoid impacts to wetlands, even though mitigation and compensation would be provided for these impacts. Based on the prolific nature of noxious weeds and the difficulty in controlling them, their unintentional spread into areas that are not currently colonized is likely to occur. Replacement of structures and installation of counterpoise would cause soil compaction at each structure. Because of the limited length of new ROW and road surface required and the temporary nature of much of the disturbance, unavoidable impacts remaining after mitigation are expected to be relatively low.

3.2.5 Cumulative Impacts

Vegetation in the general area could be cumulatively impacted by other actions occurring in the area or by actions that could occur in the future. As population increases and development expands on private lands, a shift away from native vegetation communities would occur. Remaining native vegetation would become more fragmented based on access roads providing access to recreationists. Access roads serve as focal points for recreational pursuits, such as hunting and camping, OHV use, and increased opportunity for weed invasion and wildfires across all vegetation types. Potential upgrades at Palisades or Goshen Substation would not impact native vegetation but may create additional sites for weed infestations.

3.2.6 No Action Alternative

The existing line would continue to operate and current vegetation management practices would continue. No plant communities would be disturbed and no protected species would be impacted by construction but very minor impacts would continue to occur during ongoing maintenance activities.

3.3 Wildlife

3.3.1 Affected Environment

The terrain crossed by the transmission line varies considerably in aspect, elevation, and soil moisture resulting in a wide variety of vegetation communities or wildlife habitats. Habitat types crossed by the line that are most important to wildlife include the SFSR and associated cottonwoods; mixed conifer forest on the C-TNF;

and scrub-shrub wetland/riparian, aspen, mountain brush, and shrub-steppe on the C-TNF and BLM lands. General wildlife use of the ROW is described below proceeding from east to west, beginning at Palisades Dam.

Forested slopes above Palisades Dam provide habitat for typical forest-dwelling species including woodpeckers, song birds, hawks and owls, and a variety of small and medium-sized mammals. Habitat quality along parts of the line that would be removed has been somewhat degraded by the presence of a few roads and houses. USFS (2007) GIS data indicates that a radio-collared wolverine was located just east of the line, and an active peregrine falcon eyrie exists within 1 mile of the line to be removed. Another active eyrie exists on private land about 900 feet from the existing line. Down closer to the dam, on Reclamation land, small areas of wetlands, weedy fields, and a few small stands of aspen, cottonwood, and conifer exist where the line would be relocated. Habitat values are low because of past disturbance and relatively high levels of human activity near the dam, US 26, and Government Camp (Palisades).

The line from structure 2/7 to structure 4/8 where it crosses US 26 is located at the edge of agricultural fields on the northeast side of Swan Valley. Vegetation in the adjacent foothills consists of shrub-steppe with a few areas of widely spaced junipers. Overall wildlife habitat values are relatively low because of human presence and human-related degradation of native vegetation. However, this area is used by wintering big game according to the USFS (2007). After crossing to the west side of US 26, the line runs through mostly non-irrigated agricultural lands, some of which are being converted to housing developments. A few small patches of nearby cottonwood trees support raptor nests and osprey nests are on two of the transmission line structures. The osprey nests were removed from these structures during the non-breeding season.

The line crosses the SFSR between structures 8/6 and 8/7. The SFSR and associated riparian community provides habitat for semi-aquatic mammals such as mink, beaver, and river otter, and small-and medium-sized terrestrial mammals. The SFSR also provides year-long or seasonal habitat for numerous species of waterfowl, such as trumpeter swans, and a large number of bird species including owls, hawks, eagles, and neotropical migrant song birds.

From structure 8/7 to 12/3, the line crosses mostly non-irrigated agricultural lands that border the C-TNF. A few steeper areas and drainages, including Papoose Creek, support conifers and riparian shrubs. Wildlife use is focused in the areas of permanent cover, and some big game animals likely winter in these areas. Planted fields probably provide early summer forage for deer and elk.

The transmission line crosses the C-TNF from structure 12/3 to 22/6. Generally north-facing slopes have mixed forests of subalpine fir, Douglas-fir, lodgepole pine and quaking aspen mixed with mountain maple and other mountain brush species

including elderberry, currant and snowberry, depending on elevation and aspect. Standing dead snags and down dead wood are key components because of insect and disease activity or lightning strikes that never developed into full-blown forest fires. These forest types support a wide range of resident, migratory, and breeding species of wildlife including neotropical migrant songbirds; several species of primary and secondary cavity nesters such as woodpeckers, chickadees, and nuthatches; and several species of hawks and owls. Many species of small, medium, and large mammals use forest and other habitat types on the C-TNF. All of the C-TNF lands crossed by the line are classified as big game winter range (USFS 2007). These lands are typically used by mule deer, elk, and moose from about December 1 through April 15, with specific areas and dates of use varying by year depending on snow conditions. The upper part of the Fall Creek drainage is an important spring and fall migration route for deer and elk herds that winter on the Tex Creek Wildlife Management Area (WMA) (USFS 2002a).

Habitats occupying the floodplain of Fall Creek are dominated by shrub wetland and riparian types, which also occur along other perennial and intermittent drainages. Riparian and wetland habitats are important for an especially large number of wildlife species. Although habitat quality along Fall Creek has been degraded by roads, the transmission line, and summer recreation use of the area, these communities are still very important for wildlife—and, especially, migratory birds.

Shrub-steppe habitats generally occur on south-facing slopes at lower elevations of the C-TNF. Shrub-steppe also occurs on a variety of aspects at higher elevations of the C-TNF and on BLM lands to the west of the C-TNF. Shrub-steppe habitat near the western edge of the C-TNF was noted to be in very good condition during a site reconnaissance of the ROW. Several habitat specialists and sagebrush obligates use these shrub-steppe communities, including Brewer's and sage sparrows. Sharp-tailed grouse have been observed in the upper parts of the Fall Creek drainage and in suitable habitats to the west of the C-TNF (Idaho CDC 2007). These same shrub-steppe communities also provide suitable habitat for greater sage-grouse. The USFS (2002) indicates that both of these grouse species occur in the upper Fall Creek basin.

Lands to the west of the C-TNF are mostly private with a few parcels managed by the BLM. Steeper portions of private lands and the BLM lands support aspen, mountain brush, and shrub-steppe habitats. Much of the private land consists of dry land farms or non-irrigated pastures. Areas with permanent vegetative cover support a variety of wildlife species, some of which graze on dry land crops. The most important areas of wildlife habitat west of the C-TNF are the BLM parcels between structures 31/2 to 32/4 and 33/1 to 33/5, which are managed by the Idaho Department of Fish and Game (IDFG) as part of the much larger Tex Creek WMA. The WMA is a very important area for wintering deer and elk. It also provides year-long habitat for sharp-tailed grouse and greater sage-grouse.

3.3.1.1 Forest Service Sensitive Species and Management Indicator Species

Forest Service sensitive species are designated plant and animal species that are susceptible to habitat changes or impacts from activities. The official designation is made by the Forest Service at the regional level and is a separate designation from being listed under the Endangered Species Act (ESA) of 1973. Forest Service Management Indicator Species (MIS) are identified in the Land and Resource Management Plans for each national forest and are generally identified to represent habitat types that occur within the national forest boundary and/or because they are thought to be sensitive to National Forest System management activities. Table 3-3 lists the Forest Service sensitive species and MIS that may occur in the project area. Additional detail regarding Forest Service sensitive and MIS species occurrence on the C-TNF are included in the project Biological Evaluation (BE) (CH2M HILL 2008b).

Two species with known occurrences in the vicinity of the ROW are the Columbian sharp-tailed grouse and greater sage-grouse. Suitable habitat for these species exists on the C-TNF. Alford (pers. comm. 2007) noted sightings of sage-grouse and suitable habitat on parts of the C-TNF west of Rash Canyon (structure 17/8). There are also confirmed sightings of both sharp-tailed grouse and greater sage-grouse in the area upper reaches of the C-TNF from the vicinity of structure 19/7 to the west edge of the C-TNF near structure 22/6. No leks have been identified on the C-TNF for either species.

3.3.1.2 BLM Type 2 and Type 3 Special Status Species

BLM Special Status species includes sensitive species that are not already listed under the ESA. BLM policy is to provide these species with the same level of protection as is provided for ESA-candidate species in BLM Manual 6840.06 C, that is to "ensure that actions authorized, funded, or carried out do not contribute to the need for the species to become listed." The Special Status Species designation is normally used for species that occur on BLM administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management. BLM Special Status species overlap in some cases with Forest Service species. However, for the most part these two species lists differ considerably primarily because of the different habitat types managed by each of these agencies. Table 3-4 lists the BLM Type 2 and Type 3 Special Status species within or near the ROW, and indicates whether or not the species is known to occur or if suitable habitat is present.

TABLE 3-3
Forest Service Sensitive and Management Indicator Species Analyzed for Suitable Habitat and Potential Impacts Within or Near the ROW

Species	General Habitat Requirements	Status	Suitable Habitat Within or Near the ROW on USFS Land
Bald Eagle (*Haliaeetus leucocephalus*)	Closely associated with lakes and large rivers with mature trees. Nest near open water in late-successional forest with low levels of human disturbance.	FS Sensitive	Yes; extensive use of the SFSR. Some use of Fall Creek. Nests about 1,200 feet from structure 5/3 and 2,000 feet downstream of the SFSR crossing location.
Northern Goshawk (*Accipiter gentilis*)	Mature coniferous and mixed coniferous and aspen forests interspersed with small clearings.	FS Sensitive MIS	Yes, closest known nest site is over 2 miles away. Other nests are 6 or more miles away. Sightings in the Fall Creek area.
Peregrine Falcon (*Falco peregrinus*)	Far ranging flier that nests, roosts in/on cliffs.	FS Sensitive MIS	Present within about 2/3 mile of structure 2/7 (C-TNF land) and within 900 feet of structure 4/1 (private land).
Flammulated Owl (*Otus flammeolus*)	Breeds in mature and old forests of Douglas-fir, ponderosa pine, mixed conifer, aspen with moderate density of large trees and snags.	FS Sensitive MIS	Known to occur in the Fall Creek area.
Boreal Owl (*Aegolius funereus*)	High elevation spruce-fir forest; nests in dense trees with an open understory and multi-layered canopy.	FS Sensitive MIS	Not known to occur in the ROW.
Great Gray Owl (*Strix nebulosa*)	Mature coniferous and mixed coniferous forests interspersed with small clearings.	FS Sensitive MIS	Known to occur in the Fall Creek area.
Trumpeter Swan (*Cygnus buccinators*)	Breeds in remote marshes, lakes, and ponds 5 to 10 acres or larger.	FS Sensitive MIS	The SFSR provides wintering habitat for trumpeter swans in the adjacent area.
Common Loon (*Gavia immer*)	Breeds in lakes greater than 9 acres.	FS Sensitive MIS	No
Harlequin Duck (*Histrionicus histrionicus*)	Undisturbed, low gradient, meandering mountain streams.	FS Sensitive MIS	No
Columbian Sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*)	Mountain shrub-grassland communities. Typically found in high elevation grassland areas interspersed with serviceberry, chokecherry, sagebrush, snowberry, and aspen.	FS Sensitive	Yes, but no leks are known. Suitable habitat in the upper part of the Fall Creek drainage.
Greater Sage-grouse (*Centrocercus urophasianus*)	Obligate sagebrush species throughout the year. Prefer relatively tall sagebrush for nesting areas and open sites surrounded by sagebrush for lekking (male breeding display) areas.	FS Sensitive	Yes, but no leks are known. Suitable habitat in the upper part of the Fall Creek drainage.

TABLE 3-3
Forest Service Sensitive and Management Indicator Species Analyzed for Suitable Habitat and Potential Impacts Within or Near the ROW

Species	General Habitat Requirements	Status	Suitable Habitat Within or Near the ROW on USFS Land
Three-toed Woodpecker (*Picoides tridactylus*) and other MIS Primary Cavity nesters	Mature conifer and mixed conifer forests; uses dead standing timber left by stand- replacing fires.	FS Sensitive MIS	Unknown, suitable habitat present
Red-naped Sapsucker (*Sphyrapicus nuchalis*)	Coniferous-deciduous forests with willow, alder, aspen, cottonwood.	FS MIS	Unknown, suitable habitat present
Townsend's Big-eared Bat (*Plecotus townsendii*)	Hibernates in caves, rock outcrops, and mine shafts; roosts in hollow trees and snags.	FS Sensitive MIS	Foraging habitat present along the SFSR and in the ROW. Snags also present in the immediate vicinity of the ROW.
Spotted Bat (*Euderma maculatum*)	Caves, roosts in rock crevices on steep cliff faces.	FS Sensitive MIS	Foraging habitat present along the SFSR and in the ROW.
Wolverine (*Gulo gulo)*	Alpine and arctic tundra, boreal and mountain forests (primarily coniferous). Usually in areas with substantial snow cover during the winter.	FS Sensitive MIS	Wolverine sighting about 4.5 miles north of the ROW on C-TNF. Radio-collared animals detected east of the ROW near Palisades Reservoir.
Fisher (*Martes pennanti*)	Mature and old growth forest, closed canopy coniferous forests at mid- to lower elevations; may be limited by snow depth.	FS Sensitive MIS	Habitat present, but no records known in Swan Valley. Closest record just north of Palisades District.
Pygmy Rabbit (*Brachylagus idahoensis*)	Big sagebrush stands growing on deep soils	FS Sensitive	No
Columbia Spotted Frog (*Rana luteiventris*)	Fish-free, spring fed creeks and ponds.	FS Sensitive MIS	Recorded on Palisades District, but none known in Swan Valley
Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*)	Rivers and perennial streams throughout the C-TNF	FS Sensitive MIS	Present in the SFSR, Fall Creek, Squaw Creek, and perennial streams throughout the C-TNF.
Red Squirrel (*Tamiasciurus hudsonicus*) and Pine Marten (*Martes americana*) Habitat	Mature, late seral and old growth conifer forests provide squirrel habitat, which are prey for martens.	FS MIS	Squirrels are common in the pines and mixed edge habitat. Martens are present on Ranger District in conifer forests.
Big Game Winter Range (MIS) Elk, Deer and Moose (*Cervus elaphus nelsoni, Odocoileus hemionus, Odocoileus virginiana, Alces alces*)	Lower elevation forest types and shrub-steppe	FS MIS	Much of the Fall Creek drainage, where the line is located, is big game winter range
Gray Wolf (*Canis lupus)*	Wolves are habitat generalists and are adaptable to a variety of habitats. They do require areas with low human population, low road density, and high prey density.	FS Sensitive	Yes, suitable habitat is present in the ROW area on the C-TNF.

Sources: USFS 2002a and 2002b; USFS 2005, Palisades Ranger District GIS data: and Idaho CDC 2007.

TABLE 3-4
Bureau of Land Management (BLM) Special Status Wildlife Species Analyzed for Suitable Habitat and Potential Impacts Within and Near the ROW

Species	General Habitat Requirements	Status[a]	Suitable Habitat on BLM Parcels Within and Near the ROW
Bald Eagle (*Haliaeetus leucocephalus*)	Closely associated with lakes and large rivers with mature trees. Nest near open water in late-successional forest with low levels of human disturbance.	BLM Type 2 Special Status	Yes; extensive use of the SFSR. Nests about 1,200 feet from structure 5/3 and 2,000 feet downstream of the SFSR crossing location.
Northern goshawk (*Accipiter gentilis*)	Mature coniferous and mixed coniferous and aspen forests interspersed with small clearings.	BLM Type 3 Special Status	Not likely to nest on BLM lands because of small patch size. May forage on BLM.
Ferruginous Hawk (*Buteo regalis*)	Semi-arid grasslands and shrub-steppe with scattered trees, rocky outcrops, and shallow canyons that overlook open valleys.	BLM Type 3 Special Status	May nest on BLM lands
Peregrine Falcon (*Falco peregrinus*)	Far ranging flier that nests, roosts in /on cliffs.	BLM Type 3 Special Status	Possible foraging during breeding, migration, or juvenile dispersal
Prairie falcon (*Falco maxicanus)*	Far ranging flier that nests, roosts in /on cliffs.	BLM Type 3 Special Status	Possible foraging during migration or juvenile dispersal
Greater Sage- grouse (*Centrocercus urophasianus*)	Obligate sagebrush species throughout the year. Prefer relatively tall sagebrush for nesting areas and open sites surrounded by sagebrush for lekking (male breeding display) areas.	BLM Type 2 Special Status	Suitable patches of sage-grouse habitat appear to exist at higher elevations of the C-TNF and on BLM parcels. No sage-grouse leks are known from either of these areas.
Columbia Sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*)	Large areas of undisturbed low elevation native shrub-grasslands year round. Spring-Fall: mountain and riparian shrubs. Winter: clumps of trees or tall shrubs.	BLM Type 3 Special Status	Yes, several occurrences in the vicinity of BLM lands; no leks identified
Lewis' Woodpecker (*Melanerpes lewis*)	Primarily inhabit open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine forest,	BLM Type 3 Special Status	No
Loggerhead Shrike (*Lanius ludovicianus*)	Sagebrush-steppe, grasslands, open areas with scattered trees, open grassy woodlands, and deserts.	BLM Type 3 Special Status	Yes, suitable habitat is present
Sage Sparrow (*Amphispiza belli*)	Sagebrush obligate that breeds in areas with tall sagebrush in patchy cover and low grass cover.	BLM Type 3 Special Status	Yes, suitable habitat is present

TABLE 3-4
Bureau of Land Management (BLM) Special Status Wildlife Species Analyzed for Suitable Habitat and Potential Impacts Within and Near the ROW

Species	General Habitat Requirements	Status[a]	Suitable Habitat on BLM Parcels Within and Near the ROW
Brewer's Sparrow (*Spizella breweri*)	Closely associated with dense sagebrush stands intermixed with grassy areas. In the northern part of their range, also use sub-alpine fir, dwarf birch, or montane pinion-juniper woodlands habitats.	BLM Type 3 Special Status	Yes, suitable habitat is present
Trumpeter swan (*Cygnus buccinators*)	Breeds in remote marshes, lakes, and ponds 5-10 acres or larger. The SFSR provides wintering habitat for trumpeter swans in the adjacent area.	BLM Type 3 Special Status	No
Flammulated Owl (*Otus flammeolus*)	Breeds in mature and old forests of Douglas-fir, ponderosa pine, mixed conifer, aspen with moderate density of large trees and snags.	BLM Type 3 Special Status	No
Calliope hummingbird (*Stellula calliope*)	Occurs in a variety of riparian and terrestrial habitats including deserts; grasslands; and conifer, hardwood, and mixed forests in the mountains. Nests in a tree, frequently a conifer) at the edge of a meadow or in a canyon or thicket along a stream. Forages in open montane forests, mountain meadows, and willow and alder thickets.	BLM Type 3 Special Status	Yes, suitable habitat is present
Williamson's sapsucker (*Sphyrapicus throideus*)	Breeds in montane coniferous forest, especially Douglas-fir and lodgepole pine. During migration and winter may also occur in lowland forests. Nests in tree cavity; usually digs a hole 2 to 18 m above ground. Standing snags or dead trees are required for nesting. Usually nests in dead or decaying pine, fir or aspen.	BLM Type 3 Special Status	Unlikely because of lack of suitable habitat on BLM lands
Willow flycatcher (*Empidonax trailii*)	Strongly tied to brushy areas of willow (Salix spp.) and similar shrubs. Found in thickets, open second growth with brush, swamps, wetlands, stream sides, and open woodland	BLM Type 3 Special Status	Likely, suitable habitat is present
Hammond's flycatcher (*Empidonax hammondii*)	Associated with several cool conifer forest types and woodlands. In southeast Idaho these include dense fir; mixed conifer, Douglas-fir, ponderosa pine, lodgepole pine, spruce-fir, and aspen.	BLM Type 3 Special Status	No

TABLE 3-4
Bureau of Land Management (BLM) Special Status Wildlife Species Analyzed for Suitable Habitat and Potential Impacts Within and Near the ROW

Species	General Habitat Requirements	Status[a]	Suitable Habitat on BLM Parcels Within and Near the ROW
Olive-sided flycatcher (*Contopus borealis*)	Nest in coniferous forest and mixed coniferous-deciduous forests and woodland, especially in burned-over areas with standing dead trees. Most nesting sites contain dead standing trees, which are used as singing and feeding perches.	BLM Type 3 Special Status	No
Yellowstone Cutthroat Trout (*Oncorhynchus clarkii bouvieri*)	Rivers and perennial streams throughout the C-TNF	BLM Type 2 Special Status	Present in the SFSR, Fall Creek, Squaw Creek, and perennial streams throughout the C-TNF.
Common Garter Snake (*Thamnophis sirtalis*)	Variety of habitats, forests, mixed woodlands, grassland, chaparral, farmlands. Often found near ponds, marshes, or streams.	BLM Type 3 Special Status	Likely; suitable habitat is present
Northern leopard frog (*Rana pipiens*)	Springs, slow streams, marshes, bogs, ponds, canals, flood plains, reservoirs, and lakes; usually permanent water with rooted aquatic vegetation. In summer, commonly inhabits wet meadows and fields.	BLM Type 2 Special Status	Possible in small streams and adjacent wet meadow
Western toad (*Bufo boreas)*	Variety of moist habitats, marshes, springs, creeks, small lakes, meadows, woodlands, forests, desert riparian areas.	BLM Type 3 Special Status	Possible in small streams and adjacent wet meadow and uplands
Gray Wolf (*Canis lupus)*	Wolves are habitat generalists and are adaptable to a variety of habitats. They do require areas with low human population, low road density, and high prey density.	BLM Type 2 Special Status	Winter and early spring occurrences on BLM lands associated with wintering deer and elk are possible.
Pygmy Rabbit (*Brachylagus idahoensis*)	Closely associated with clumps of tall dense sagebrush coupled with deep loose textured soils for burrow construction.	BLM Type 2 Special Status	Not likely because of lack of suitable soils
Townsend's big-eared bat (Corynorhinus *townsendii*)	Hibernates in caves, rock outcrops, and mine shafts; roosts in hollow trees and snags.	BLM Type 3 Special Status	Not likely because of lack of suitable soils
Spotted bat (*Euderma maculatum*)	Caves, roosts in rock crevices on steep cliff faces.	BLM Type 2 Special Status	Foraging habitat present along the SFSR and in the ROW on the C-TNF. No suitable habitat on BLM lands.

TABLE 3-4
Bureau of Land Management (BLM) Special Status Wildlife Species Analyzed for Suitable Habitat and Potential Impacts Within and Near the ROW

Species	General Habitat Requirements	Status[a]	Suitable Habitat on BLM Parcels Within and Near the ROW
Piute ground squirrel (*Spermophilus mollis artemisae*)	Occur mainly in high desert sagebrush, shadscale, and greasewood communities. They generally occur in well-drained soils, especially embankments, where they create extensive burrow systems.	BLM Type 3 Special Status	None are known to occur in the ROW and they are not likely present.
Wolverine (*Gulo gulo*)	Alpine and arctic tundra, boreal and mountain forests (primarily coniferous). Usually in areas with substantial snow cover during the winter.	BLM Type 3 Special Status	No suitable habitat
Idaho point- headed grasshopper (*Acrolophitus pulchellus*)	Known only from Idaho; in association with (*Grayia polygaloides*) (*Chenopodiaceae*).	BLM Type 2 Special Status	No suitable habitat

Notes:
BLM Type 2 Species. Range wide / Globally Imperiled Species: Includes species that are experiencing significant declines throughout their range with a high likelihood of being listed under the Endangered Species Act in the foreseeable future because of their rarity and/or significant endangerment factors.

BLM Type 3 Species. Regional / State Imperiled Species: Includes species that are experiencing declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future.

Sources: Idaho CDC 2007; NatureServe at: http://www.natureserve.org/explorer/

3.3.1.3 Threatened and Endangered Species

Three wildlife species protected under the ESA occur in either Bonneville or Bingham Counties, where the transmission line is located (Table 3-5). Habitat and known occurrences within or near the line are summarized below. Additional details about each species are included in the project No Effect Determination Memorandum (CH2M HILL 2008a). Gray wolves were formerly listed as Experimental /Non-Essential under the ESA but were delisted on March 28, 2008.

TABLE 3-5
ESA Protected Wildlife Species Listed for Bonneville County or Bingham County, Idaho

Species	Federal Status	General Habitat Requirements	Suitable Habitat within or Adjacent to the ROW
Canada Lynx (*Lynx canadensis)*	Threatened	Generally occurs in boreal and montane regions dominated by coniferous or mixed forest with thick undergrowth, but also sometimes enters open forest, rocky areas, and tundra to forage for abundant prey.	The immediate vicinity of the ROW has adjacent secondary habitat in suitable condition. Forest Service staff characterized the ROW as linkage habitat with the riparian habitat in Fall Creek providing good travel routes for lynx. No lynx analysis units in the area.
Yellow-Billed Cuckoo (*Coccyzus americanus*)	Candidate	Large stands of mature cottonwood with a dense understory of willow	No large blocks of potentially suitable cuckoo habitat exist in the vicinity of the location where the transmission line crosses the SFSR or along lower parts of Fall Creek.
Utah Valvata Snail (*Valvata utahensis*)	Endangered	Generally associated with cold, clean, well-oxygenated flowing waters in the main stem Snake River and perennial flowing waters in large spring complexes	No; the SFSR crossing location is 50 miles upstream of the nearest occupied habitat.

Canada Lynx

The immediate project area has adjacent secondary habitat in suitable condition. The project area is not within or near any lynx analysis units (LAUs). No suitable lynx habitat exists on BLM, Reclamation, or private lands crossed by the proposed project. During the ESA streamlining meeting, Forest Service staff characterized the project area on the C-TNF as linkage habitat with the riparian habitat in Fall Creek providing good travel routes for lynx.

Yellow-billed Cuckoo

This species may go unnoticed because it is slow-moving and prefers dense vegetation. In the West, it favors areas with a dense understory of willow (*Salix* spp.) combined with mature cottonwoods (*Populus* spp.) and generally within 325 feet of slow or standing water (Gaines 1974; Gaines 1977; Gaines and Laymon 1984). The yellow-billed cuckoo is also known to use non-riparian, dense vegetation such as wooded parks, cemeteries, farmsteads, tree islands, Great Basin shrub-steppe, and high elevation willow thickets (Finch 1992, DeGraff et al. 1991).

A recent study by Reynolds and others (TREC 2004) indicates that eastern Idaho along the Snake River including the SFSR is the stronghold for breeding cuckoos in

the state. TREC (2004) reported cuckoos 13 times on the SFSR in 2003, but none were recorded in the upper 30 miles below Palisades Dam where the line is located. No large blocks of potentially suitable cuckoo habitat exist in the vicinity of the location where the transmission line crosses the SFSR or along lower parts of Fall Creek.

Utah Valvata Snail

The Utah valvata snail was listed by the USFWS as endangered under the ESA on December 14, 1992 (57 FR 59244). On November 26, 1995, the USFWS approved the Snake River Aquatic Species Recovery Plan (USFWS 1995b). This plan provides direction on recovering the Utah valvata snail, as well as four other species of Snake River mollusks that were concurrently listed under the ESA on December 14, 1992. In June of 2007 the USFWS issued a 12-month finding on a petition to de-list the snail. The nearest location of known habitat is about 50 river miles downstream of the SFSR line crossing.

3.3.1.3 Snake River Activity/Operations Plan and Snake River Area of Critical Environmental Concern

The Snake River Activity/Operations Plan (USDI and USDA 1991) also provides guidance regarding wildlife management on BLM and USFS lands along the SFSR corridor, including the location where the transmission line crosses the SFSR. The 1991 plan is currently being updated. General objectives include:

- Maintain, restore, and improve riparian areas as healthy and productive plant communities.
- Maintain/enhance critical nesting, foraging, and wintering areas for bald eagles.
- Maintain big game winter range and improve unsatisfactory big game habitat.
- Maintain heron rookeries and improve goose nesting opportunities.
- USFS will manage domestic livestock grazing according to existing allotment management plans and the BLM will manage grazing in support of wildlife, riparian and recreation.

The Snake River ACEC covers approximately 88 miles of river on public lands and includes the entire SFSR, the Henrys Fork of the Snake River, and parts of the main Snake River. The Snake River ACEC was designated with the intent to recognize and conserve a unique cottonwood ecosystem, scenic values, bald eagle habitat, and other wildlife species and their habitats. These sections of the Snake River flow through some of the most valuable terrestrial and aquatic wildlife habitat in Idaho. Sections of the Palisades-Goshen transmission line near the SFSR (mile 8) are within the 1,120 acre ACEC.

3.3.2 Environmental Impacts—Proposed Action

Wildlife could be impacted by the Proposed Action through the following:

- Removal of wildlife habitat (tree and brush clearing) that causes animals to either permanently or temporarily move elsewhere, or experience increased exposure to predators, and/or lack of food and shelter
- Noise and human activity from construction that causes disturbance and displacement during breeding or nesting seasons
- Heavy equipment and vegetation removal that injures or kills wildlife unable to flee during construction activities
- Presence of conductors that could create hazards for birds
- Development of new and improvement of existing access roads and two-tracks that would result in OHV use of the areas that are not presently used could cause habitat loss and disturbance and displacement of wildlife
- The spread of weeds onto and from newly disturbed sites following construction and/or because of human use of access roads

3.3.2.1 Direct Habitat Loss

Table 3-1 in the Vegetation section notes that there would be about 297 acres of temporary impacts to wildlife habitats, mostly at structure sites and for access roads. There would be about 71 acres of permanent loss, mostly through construction and improvement of access roads. Mobile species of wildlife using these areas would be permanently displaced to nearby similar habitats. If these similar habitat areas are not already occupied the displaced animals would likely survive. If the similar habitats are fully occupied, then the displaced animals or others that use the same resources could be lost from the population. Given the minor overall acreage of habitat that would be affected and the relatively abundance of similar habitats in the area, impacts from habitat loss would be low and would not be expected to result in significant displacement of wildlife species. The effect of these very minor habitat losses on species with large home ranges such as deer or elk also would not be expected to affect their range or cause any population level effects, and thus would be low.

3.3.2.2 Construction Noise and Human Activity

Noise levels would be fairly substantial during construction in the immediate vicinity of each structure site, at conductor pulling and retensioning sites, and during road construction and improvement activities. Current noise levels are generally low throughout most of the ROW. Exceptions include traffic noise along US 26 and noise from OHVs and recreation traffic along Fall Creek.

Both noise and human activity have been demonstrated to displace wildlife from occupied habitats, interfere with the ability to hear territorial songs in birds, interfere with mating and alarm calls in amphibians and ground squirrels, and interfere with raptor foraging activities. Numerous studies document wildlife avoidance of roads and facilities and wildlife disturbance from human activity at varying distances (Madsen 1985; Van der Zande et al. 1980; Fyfe and Olendorff 1976).

Audible noise is measured in decibels (dBA) on the A weighted scale. The A weighted scale describes sound which corresponds to human perception. The equivalent sound level (L_{eq}) is the level of a constant sound for a specified period of time. It is an average sound level. The maximum noise levels (L_{max}) is the maximum noise level expected to occur during an event, such as during replacement of structures.

Maximum construction noise levels may approach 82-dBA L_{max} at a distance of 50 feet from the construction site, with sustained levels of 78-dBA L_{eq}. This would be a substantial increase from the 40- to 50-dBA L_{eq} typical of rural settings along most of the line. Therefore, some displacement of wildlife from otherwise useable habitat can be expected to occur in the vicinity of construction sites during the construction period. The degree of displacement would generally be proportional to the change in noise levels and the type of human activity. It would also vary by species depending on sensitivity to noise and human activity. After construction work concludes, these species would be expected to return to the usable habitat near the ROW over time. Although these impacts would be temporary, they would be considered a moderate impact of the project because they would occur during the breeding season.

3.3.2.3 Direct Mortality

Heavy equipment and vegetation removal activities could possibly kill or injure any less mobile species of wildlife that are in the area and unable to leave the area during these activities. However, given that these activities would typically be preceded by other human activities in the area, species that are inclined to leave the area such as birds and medium and large mammals, would probably do so. Species such as small mammals and reptiles that typically retreat to shallow burrows to escape danger would be most likely to suffer direct mortality. A minor increase in vehicle collisions would also result from construction-related traffic on existing roads. Most, though not necessarily all, removal of tall vegetation or trees would occur outside of the migratory bird breeding season. Any removal of tall vegetation or trees during the migratory bird breeding season could result in loss of nestlings. These impacts would be considered low to moderate.

3.3.2.4 Bird Strike Hazard

The presence of conductors could create hazards for flying birds, especially where the line crosses the SFSR. However, the reconstructed line would cross the SFSR at the same location as the existing line and bird flight diverters would be added to the new line to increase its visibility. This action would reduce the potential bird strike hazard where the line crosses the SFSR compared to the current conditions. The relocated portion of line near Palisades Dam would be closer to the SFSR. This might increase the bird strike hazard until birds become accustomed to the new location. No specific problem areas for bird strikes have been identified, although no studies of the line have been conducted. The current level of bird strikes would likely continue following construction because the rest of the line would be in the same location as the existing line. These impacts would be low.

3.3.2.5 Indirect Effects of Access Roads

The indirect effects of new and improved access roads likely pose the largest potential long-term adverse effects on wildlife. Indirect impacts of road development and use on wildlife and wildlife habitat have been well documented for a variety of projects (Trombulak and Frissell 2000, USDI and USDA 2001, Wisdom et al. 2000). Except as described in Section 3.3 and as specifically requested by land owners, access roads would not be closed to the public. New and improved access roads along the transmission line could improve public access resulting in more human use of lands in the vicinity of the ROW and could also result in additional illegal user-created roads and trails branching off from the ROW access roads (USDI and USDA 2001, USFS 2002b).

In 2004, the Forest Service identified unmanaged recreation, partially because of the overuse of the land, especially by OHVs, as one of four key nationwide threats requiring action through at least 2008 (http://www.fs.fed.us/plan/par/2003/final/html/mda/new_priorities.shtml). The Forest Service stated, "A near doubling of OHV use from 1982 to 2001 has resulted in damage to wetlands and wetland species, severe soil erosion, spread of invasive weeds, and increased susceptibility to fire in times of drought. In addition, this heavy use is destroying values that recreational opportunities should provide."

Development of user-created roads and trails could occur on public and private lands where access is not restricted by effective barriers. These devices, where used, may be successful in reducing public access. However, the C-TNF has found that gates are often not effective in stopping the development of user-created roads and trails. The open rolling nature of the terrain in the ROW, especially west of structure 18/8, combined with the proliferation of four-wheel-drive trucks and OHVs increases the potential for the creation of user-created roads and trails (USDI and USDA 2001). This would cause additional road-related direct and indirect impacts over large open areas because of the great sight distances in this part of the ROW. Road-related direct and indirect impacts on wildlife could include the following:

- OHV use of the areas that are not presently used
- Damage to vegetation and direct habitat loss
- Increased spread of noxious weeds resulting from soil disturbance during construction and subsequent OHV use
- Increased erosion and siltation into streams
- Additional legal harvest and illegal poaching of game animals (Cole et al. 1997) and target shooting of animals such as ground squirrels and other similar species (Ingles 1965)
- Chasing and harassing of animals (Posewitz 1994, USDI and USDA 2001)
- Increased incidence of human-caused fires
- Greater removal of standing and down wood used by many species (USFS 2002b)

Use of OHVs and snowmobiles can result in a number of disturbance and displacement impacts on wildlife, including stress, disruption of normal foraging and reproductive habits, abandonment of unique habitat features, and increased energy expenditure (Trombulak and Frissell 2000, Wisdom et al. 2000). Numerous studies document wildlife avoidance of roads and facilities and wildlife disturbance at distances of 1,650 feet (Madsen 1985), 6,600 feet (Van der Zande et al. 1980), and as far as 2 miles or more for sage grouse (summarized in Connelly et al. 2000) and raptors (Fyfe and Olendorff 1976). Elk avoidance of roads has been documented in many studies throughout the West (Lyon 1979 and 1983, Perry and Overly 1976, Rost and Bailey 1979, Ward et al. 1973).

These factors contribute to reduced over-winter survival for individuals; poor condition entering the breeding season; reduced reproductive success and recruitment; and, depending on the extent, eventual local population declines (Trombulak and Frissell 2000, Wisdom et al. 2000). For sensitive species, displacement from important habitat features is effectively equal to loss of habitat and the individuals that occupied that habitat. Wildlife cannot generally just move to unoccupied habitat in response to disturbance and survive there because other suitable habitat is already occupied by other individuals of the same species or by similar species using the available resources. However, given the very limited amount of new (1 mile) and improved (11 miles) roads on Forest Service and BLM lands, the proposed project would not be expected to significantly contribute to OHV use and other unmanaged recreational activities in the project vicinity. The indirect impact of access roads associated with the proposed project thus would be low to moderate.

3.3.2.6 Forest Service Sensitive Species and MIS, and BLM Type 2 and Type 3 Special Status Species

Table 3-6 lists all of the Forest Service sensitive species and MIS, and BLM Type 2 and Type 3 Special Status species that are known to occur in the ROW or vicinity. Table 3-6 also indicates whether or not the project is expected to impact each of the species or its habitat. Impacts to these species would be similar to the types of direct and indirect impacts on wildlife discussed above. Impacts on Forest Service sensitive species and MIS were discussed at length in the BE (CH2M HILL 2008b). Effects on BLM Special Status species are stated in Table 3-6 for those species that would be affected by the project. These impacts would be moderate.

3.3.2.7 Threatened and Endangered Species

Table 3-7 presents the effects determinations for listed and candidate species and summarizes the rationale supporting the determination. Details are presented in the No Effect Determination Memorandum for the project (CH2M HILL 2008a). These impacts would be low.

3.3.2.8 Snake River Activity/Operations Plan and Snake River Area of Critical Environmental Concern

Replacement of the existing transmission line at the same location would not affect wildlife management activities covered by the Snake River Activity/Operations Plan or the Snake River ACEC.

TABLE 3-6
Expected Effects from the Proposed Action on USFS Sensitive Species and Management Indicator Species for the Palisades Ranger District and BLM Type 2 and Type 3 Special Status Species for the Medicine Lodge Resource Area

Species/Status	Effects	Rationale for Determination
Bald Eagle USFS S; BLM T2SS	FS – MINTFL BLM - MINTFL	The USFS and BLM are concerned about possible bald eagle collisions along that portion of the ROW near the SFSR and especially where the new line crosses the SFSR.
Northern Goshawk USFS S, MIS; BLM T3SS	NI	USFS - This project is not within any 600-acre nesting or post fledgling areas of known territories, or within the 6,000-acre territory of any known pairs. BLM - Not likely to nest on BLM lands due to small areas of suitable habitat.
Peregrine Falcon USFS S, MIS; BLM T3SS	NI	USFS - One eyrie is not visible from the ROW and the other is located in an area with regular human activity. The nearest eyrie was not affected by nearby recent highway construction. These birds are accustomed to human activity. BLM – no suitable nesting habitat.
Flammulated Owl USFS S, MIS; BLM T3SS	FS – MINTFL BLM - NI	USFS – collisions with power lines possible BLM – no suitable habitat on BLM land
Boreal Owl USFS S, MIS	NI	Not known to occur in the vicinity of the ROW. Habitat within and adjacent to the ROW is of very low quality
Great Gray Owl USFS S, MIS	MINTFL	Nesting and wintering owls are known in adjacent forests. There is a low risk that owls hunting along the roadway edge would be hit by construction-related vehicles and a small risk of collision with the power line.
Trumpeter Swan USFS S, MIS; BLM T3SS	USFS – MINTFL BLM - NI	USFS - Collisions with power lines are a known problem and possible in Swan Valley and where the line crossed the SFSR. BLM - No suitable habitat on BLM lands.
Common Loon USFS S, MIS	NI	No suitable habitat in the vicinity of the ROW
Harlequin Duck USFS S, MIS	NI	No suitable habitat in the vicinity of the ROW
Columbian Sharp-tailed Grouse USFS S; BLM T3SS	USFS and BLM - MINTFL	USFS and BLM - Grouse and suitable habitat occur in and near the ROW. No leks are known. Road construction in suitable habitat may destroy nests or disturb nesting hens
Greater Sage-grouse USFS S; BLM T2SS	USFS and BLM - MINTFL	USFS and BLM - Grouse and suitable habitat occur in and near the ROW. No leks are known. Road construction in suitable habitat may destroy nests or disturb nesting hens
Three-toed Woodpecker and other MIS Primary Cavity nesters USFS S, MIS	NI	Suitable habitat is present within the ROW area. New access roads may remove less than 0.1 acre of potentially suitable habitat.
Townsend's Big-eared Bat USFS S, MIS; BLM T3SS	NI	USFS - Suitable foraging habitat along the SFSR would not be affected. Ongoing maintenance has prevented development of roosting habitat within the ROW. BLM – no suitable roosting habitat or hibernacula on or near BLM lands.

TABLE 3-6
Expected Effects from the Proposed Action on USFS Sensitive Species and Management Indicator Species for the Palisades Ranger District and BLM Type 2 and Type 3 Special Status Species for the Medicine Lodge Resource Area

Species/Status	Effects	Rationale for Determination
Spotted Bat USFS S, MIS	NI	Suitable foraging habitat along the SFSR would not be affected. No suitable roosting habitat is present within the ROW or in areas where access roads would be constructed.
Wolverine USFS S, MIS; BLM T3SS	FS – MINTFL BLM - NI	USFS - Individuals are present in nearby areas. The length of roads per square mile in areas of dispersal habitat crossed by the ROW would increase. BLM – no suitable habitat occurs on or near BLM lands.
Fisher USFS S, MIS	NI	Neither the line nor any of the access roads would be constructed within large areas of contiguous interior forest, the fisher's preferred habitat.
Pygmy Rabbit USFS S, BLM T2SS	NI	No suitable habitat in the vicinity of the ROW
Columbia Spotted Frog USFS S, MIS	NI	Recorded on the Palisades District, but not known to occur in Swan Valley.
Yellowstone Cutthroat Trout USFS S, MIS	MINTFL	Possible increase in sediment delivery to occupied streams during construction and from possible higher use of access roads and user-created roads and trails
Red Squirrel and Pine Marten Habitat USFS MIS	Minimal Impact	Squirrels are common in the pines and mixed edge habitat. Martens are present on Ranger District in conifer forests. Vehicle collisions may occur.
Big Game Winter Range (Elk, Deer and Moose) USFS MIS	Minimal Impact	The entire Fall Creek drainage, where the ROW is located, is big game winter range. Habitat loss would be relatively low.
Gray Wolf USFS S	MINTFL	Concentrations of big game animals on winter range are attractive to wolves. No construction would occur during the winter and construction activities would not degrade habitat values for big game. Therefore, little, if any, adverse effect on wolves is expected.
USFS Sensitive Plants	NI	None are known or expected to be present on USFS land in the vicinity of the ROW
Ferruginous Hawk BLM T3SS	NI	May nest on BLM or adjacent lands but potential nesting substrate and foraging habitat would not be impacted.
Prairie falcon BLM T3SS	NI	No suitable nesting habitat.
Lewis' Woodpecker BLM T3SS	NI	No suitable habitat on or near BLM land in the vicinity of the ROW
Loggerhead Shrike BLM T3SS	NI	May nest on BLM or adjacent lands but nesting and foraging habitat would not be impacted.
Sage Sparrow BLM T3SS	MINTFL	Construction of access roads through sagebrush areas would result in loss and degradation of habitat
Brewer's Sparrow BLM T3SS	MINTFL	Construction of access roads through sagebrush areas would result in loss and degradation of habitat

TABLE 3-6
Expected Effects from the Proposed Action on USFS Sensitive Species and Management Indicator Species for the Palisades Ranger District and BLM Type 2 and Type 3 Special Status Species for the Medicine Lodge Resource Area

Species/Status	Effects	Rationale for Determination
Calliope hummingbird BLM T3SS	NI	No suitable habitat on BLM lands would be affected.
Williamson's sapsucker BLM T3SS	NI	No suitable habitat exists on BLM lands that would be affected by the project.
Willow flycatcher BLM T3SS	NI	No suitable habitat on BLM lands would be affected.
Hammond's flycatcher BLM T3SS	NI	No suitable habitat on BLM lands.
Olive-sided flycatcher BLM T3SS	NI	No suitable habitat on BLM lands.
Common Garter Snake BLM T3SS	NI	Willow Creek, Rock Creek, and Dry Fork on BLM lands may provide suitable habitat. However, construction activities should not affect habitat or individuals.
Northern leopard frog BLM T2SS	NI	Willow Creek, Rock Creek, and Dry Fork on BLM lands may provide suitable habitat. However, construction activities should not affect habitat or individuals.
Western toad BLM T3SS	NI	Willow Creek, Rock Creek, and Dry Fork on BLM lands may provide suitable habitat. However, construction activities should not affect habitat or individuals.
Piute ground squirrel BLM T3SS	NI	No suitable habitat on BLM land in the vicinity of the ROW
Idaho point-headed grasshopper BLM T2SS	NI	No suitable habitat on BLM land in the vicinity of the ROW
BLM Special Status Plants	NI	None are known or expected to be present on BLM land in the vicinity of the ROW

USFS S = USFS Sensitive
MIS = USFS Management Indicator Species
BLM T2SS = BLM Type 2 Special Status Species
BLM T3SS = BLM Type 3 Special Status Species
FS= USFS
NI = No Impact
MINTFL = May impact individuals or habitat, but would not likely contribute to a trend towards federal listing or loss of viability to the population or species

Note: there is no official wording for effects on species that are only classified as MIS.

TABLE 3-7
Effects Determinations for Threatened and Endangered Species

Species	Effect Determination	Rationale
Canada Lynx	No effect	None of the new or reconstructed access roads would be paved, and no significant increases in traffic volumes or traffic speeds are expected. Because lands in the general vicinity of the ROW are not considered primary lynx habitat, any increases in use of access roads should not impact lynx or suitable primary habitat. Development would not occur on C-TNF lands. Therefore, there would be "No Effect" on Canada lynx.
Yellow-Billed Cuckoo	No effect	There would be No Effect because no suitable habitat would be affected by the proposed action.
Utah Valvata Snail	No Effect	The areas from which this species is known do not include the SFSR and the nearest location of known habitat is about 50 river miles downstream of the Palisades-Goshen ROW.

3.3.3 Mitigation Measures

In addition to mitigation measures in Sections 3.2.3 and 3.5.3, the following measures would help avoid, minimize, or compensate for identified impacts to wildlife:

- Place bird flight diverters on the new line where it crosses the SFSR to increase visibility of the line for bald eagles, trumpeter swans, and other birds. Diverters would be installed from structure 8/4 to structure 8/9.
- Design and construct transmission lines as described in Avian Power Line Interaction Committee (2005 and 2006) so that perching or nesting raptors and other large birds cannot be electrocuted or injured by making accidental contact between phases or phase and ground.
- Where possible, remove tall growing vegetation only between September 1 and March 1 to avoid conflicts with provisions of the Migratory Bird Treaty Act. Where possible, remove trees for construction or maintenance only between September 1 and October 15.
- Construct access road improvements in this area as late into the spring as possible to reduce potential impacts to nesting sharp-tailed grouse and greater sage-grouse in the area's upper reaches of the C-TNF from the vicinity of structure 19/7 to the west edge of the C-TNF near structure 22/6, and to reduce disturbance of any leks that may exist and also to reduce possible nest destruction.

- If active sage-grouse or sharp-tailed grouse leks are identified within 0.6 mile of the ROW, do not conduct activities including inspections, maintenance, and related human activities from 6 PM to 9 AM from March 15 to May 1 to avoid disturbance to lekking birds.
- Place 50-foot sections of jack fence in the vicinity of structures 20/4 and 21/8 to discourage OHVs from accessing the ROW access road in these areas of high quality habitat. This fence would be removed by the USFS in the future after the disturbed areas are reseeded and vegetation is re-established along the access road.
- Minimize runoff from construction sites by using standard erosion control Best Management Practices (BMPs) and provisions of the Eastern Washington Stormwater Management Manual. BPA's Contractor would maintain BMPs until reseeding is successful. If this success is achieved during the contract period, the Contractor would remove and dispose of the BMP. If seeding is not established, the Contractor would inspect and maintain BMPs until the end of the Contract period. At that time the care of the BMP (along with any inspection reports and records) would become the responsibility of BPA.

During preparation of this EA, the BLM suggested consideration of a bat-friendly structure for the Sand Creek replacement bridge to provide suitable day or night roost sites for bats. A publication by Keeley and Tuttle (no date) titled *Bats in American Bridges,* indicates that bridges designed for day roosts have 10 feet or more of clearance and that long box culverts designed for night roosts have at least 5 feet of clearance. The Sand Creek replacement bridge would have only 18 inches of clearance above the water. Therefore, including day or night roost sites for bats at the bridge is not feasible because of the low clearance.

3.3.4 Unavoidable Impacts Remaining After Mitigation

Access road and other construction would permanently affect approximately 71 acres of wildlife habitat and temporarily remove habitat on about 295 acres. Direct and indirect habitat loss and degradation, as well as wildlife disturbance and displacement, would occur as a result of access road construction and improvement. User-created roads and trails could be developed at an unknown number of locations along transmission line access roads, causing additional direct and indirect impacts on wildlife and habitat. This could occur in spite of efforts to block some access points. Noxious weeds would likely spread as a result of the project, thereby degrading wildlife habitat value. As indicated above, it may not be possible to remove all tall growing vegetation only between September 1 and March 1 and to remove trees for construction or maintenance only between September 1 and October 15. Therefore, some impacts to migratory birds may occur. Overall, relative to the area of habitat available, this should not substantially affect wildlife or their habitat because of mitigation measures, seasonal work restrictions, and the short-

term nature of most of the project activities. Therefore, overall impacts would be low, but unauthorized creation and use of trails could have moderate, localized impacts.

3.3.5 Cumulative Impacts

Future first and second home residential development on private lands in Swan Valley at the eastern end of the line and in the Idaho Falls area would increase the local population of the area, leading to more recreational use of the C-TNF and BLM lands crossed by the line. This would result in additional use of project access roads that are not effectively closed to the public, as well as development of illegal user-created roads from these access roads. Additional human presence and additional roads would cause both direct habitat loss and indirect impacts such as wildlife disturbance and displacement and increased spread of noxious weeds. Given their locations it is very unlikely that potential future upgrades at the Palisades or Goshen substations would have any impacts on wildlife. Other past and ongoing activities that have and would continue to impact wildlife include logging, agriculture, habitat fragmentation, and livestock grazing.

3.3.6 No Action Alternative

Though not identified as a problem at any specific location, occasional wildlife collisions with the transmission line conductors would continue. Bird flight diverters intended to increase conductor visibility would not be placed on the conductors in the vicinity of the SFSR crossing. Very minor habitat loss and occasional wildlife disturbance would continue to occur during line maintenance.

3.4 Geology and Soils

3.4.1 Affected Environment

The ROW extends along the boundary of the Middle Rockies, the Snake River Plain and the Northern Basin and Range Ecoregions in Idaho (McGrath, et al. 2002). The steep, dry, and partly forested mountains in this area vary in elevation from about 6,000 feet to over 9,000 feet. Many of the soils here formed from geology containing shale and limestone, and in turn exhibit a dominance of clay and silt, as opposed to sandy soils that have higher erosion potential and may produce high levels of sediment when erosive conditions occur (USFS 2002b).

Beginning at the eastern-most point of the existing transmission line, Hobacker- and Badgerton-variant soils are the most dominant, formed through historic gravel/cobble outwash of the SFSR (SCS 1981). Heading westward up the slopes of the Caribou Range, Tetonia and Rin (windlaid) soils become the more predominant soil types (SCS 1981). Along these mountains and ridges, formed soils are moderately deep to very deep (20 inches to greater than 60 inches), with some shallow soils (less than 20 inches) located on the ridge tops. Because these soils

formed on steep slopes and with sedimentary parent material, erosion potential can be high, especially when the protective ground cover is removed. Furthermore, when these soils become saturated with water, the potential for high mass movement increases (USFS 2002b).

The basins and foothills of this area are covered by loess and for the most part are very deep (greater than 60 inches) and well drained. Sagebrush, aspen and mountain shrubs are the dominant vegetation. These soils have less potential to erode than those formed on the mountains and ridges because they formed on slopes of less than 40 percent. Maintenance of ground cover on these soils is important to maintain stable conditions (USFS 2002b).

The Fritz Complex and Tophat Complex are the predominant soil units that the transmission line crosses on the C-TNF (websoilsurvey 2008). Slopes range from 15 to 70 percent and the soils are well drained. In general, these soil units are not well suited for road construction because of the steep slopes and their severe erosion hazard. Other soil units crossed on the C-TNF include Raynoldson, Tetonia Complex, and the Haplocryepts, Fine Association.

Continuing westward along the existing transmission line, soils in the basins and drainages are almost always very deep (greater than 60 inches), influenced by moisture during at least some period of the year. They are some of the most productive soils in the watershed, demonstrated by established riparian vegetation assemblages that include willows and sedges. Most of these soils have well established cover and are at minimal risk from erosion. To the west of the Forest Service boundary, many other upland soils are more representative of loess soils and were historically dominated by sagebrush vegetation. Most of these lands are now private and have seen more disturbance than those of federal jurisdiction. These previously disturbed soils may be at greater risk of erosion.

3.4.2 Environmental Impacts—Proposed Action

The variety and type of soils present, as well as ground cover, land use, slope, fertility, and a variety of other factors, affect the potential for erosion in the area of the Proposed Action. Sensitivity to these variables, as well as an understanding of how current and historic land use has affected the integrity of soils in the ROW, is important for minimizing potential management effects.

Soils could be impacted by the Proposed Action through the following:

- Ground disturbing activities (tree and shrub removal; grading; road building; cleaning of existing ditches and culverts; developing new ditches and culverts; and piling of soil) that could expose soils to rain and cause erosion.

- Heavy equipment that could compact soils, reducing soil productivity and ability to absorb water.
- Soil removal for structure access roads that would remove productive topsoil.

Soil disturbance during construction would occur on about 398 acres, 101 of which would be permanent. The overall impact on soils from the Proposed Action is anticipated to be relatively low with the greatest risk of erosion on steeper slopes. Because much of the Proposed Action is on relatively level ground, this risk should be minimal in most areas, although it must be recognized and addressed when working on steeper slopes.

Grading and ground disturbance during construction of new and existing access roads, structure replacement, and vegetation clearing, would expose soils to rain and snow melt, increasing the potential for erosion.

Holes would be dug for each structure to embed the footings or structures. Soil from these holes would be piled and then used for backfilling the holes once the poles were put in place. These exposed soils would be vulnerable to transport from disturbed sites during rain and snow melt runoff both during and after construction until ground cover vegetation is established.

Vegetation clearing would expose soils, leading to potential increases in runoff and erosion. On much of the ROW, where the terrain is level, little erosion would occur. In areas of hilly terrain, where greater water flows are possible, the potential for surface runoff and erosion would increase. Most at risk are slopes that exceed 40 percent slope. Few of these exist in the ROW. Potential impacts on exposed soils would continue to occur until ground cover vegetation is established after construction. The risk of erosion is directly related to the amount of exposed soils, time until vegetation is reestablished, and the timing and magnitude of rain events.

Localized changes in runoff and erosion patterns could occur from placement or removal of soil for new access roads. Existing access roads along the ROW are susceptible to relatively low rates of erosion because they appear to have not been well maintained, allowing vegetation to become reestablished on many of the roads. Reconstruction of restabilized access roads, as well as the construction of 3 miles of new roads, would increase the amount of non-vegetated land in the area, disturb soils that have restabilized, and increase the risks associated with runoff, sediment transport/erosion and noxious weed encroachment. New access roads built across steeper slopes would require road cuts, which could interrupt subsurface water flow and cause erosion from the new road or road failure. Portions of access roads would be graveled, which would help hold soil. All access roads, culverts, and bridges have the potential to result in erosion. BPA requires its contractors to abide by the provisions of the *Eastern Washington Stormwater Management Manual* (Washington Department of Ecology 2004) (http://www.ecy.wa.gov/pubs/0410076.pdf) to protect water quality. Mitigation, including water bars, revegetation measures, and

implementation of the Eastern Washington Stormwater Management Manual, would reduce potential effects of soil erosion on water quality.

Heavy machinery use at each structure site (cranes, trucks, graders, excavators) would compact soils, reducing soil productivity and making it harder for plants to revegetate or grow back. Access road construction and any associated tree or shrub clearing during May, June, and July, when the soils are usually very wet, would make rutting and soil compaction worse than if construction occurred in the dry season. Structure replacement would occur after July 15 when soils are typically drier, which would reduce potential rutting and soil compaction.

Throughout the life of the line, periodic line maintenance and vegetation management would result in very minor erosion potential. Maintenance vehicles traveling on access roads or around structures sites and vegetation management would cause very minor soil disturbance, soil compaction, and subsequent erosion.

3.4.3 Mitigation Measures

The following mitigation measures would avoid or reduce identified potential adverse soils impacts.

- Prepare and implement a Storm Water Pollution Prevention Plan.
- Save topsoil removed for structure replacement and new access road (spur road) construction and use onsite for restoration activities, to promote regrowth from the native seed bank in the topsoil.
- Cover exposed piles of soil (or use other erosion control measures) if there is a threat of rain, to reduce erosion potential.
- Limit grubbing to the area around structure sites to lessen the impact on the roots of low-growing vegetation, so they may resprout.
- Minimize vegetation clearing at sides of access roads to 3 feet or less, where possible, to minimize impacts to adjacent areas of native vegetation.
- Install sediment barriers, where needed, and other suitable erosion and runoff control devices prior to ground-disturbing activities at construction sites to minimize off-site sediment movement.
- Leave erosion and sediment control devices in place and monitor their effectiveness until all disturbed sites are revegetated and erosion potential has returned to pre-project conditions.
- Retain existing low-growing vegetation where possible to prevent sediment movement offsite.

- Design access roads to control runoff and prevent erosion by using low grades, out sloping, intercepting dips, water bars, and ditch-outs as needed to minimize erosion.
- Re-vegetate or seed all disturbed areas with a native plant/grass seed mixture suited to the site, to promote revegetation that would hold soil in place.
- Break up compacted soils where necessary by tilling or scarifying before reseeding.
- Monitor reseeding efforts for adequate growth. Implement contingency measures as necessary.
- New and reconstructed access roads constructed to remove existing structures from structure 1/2 to 2/7 would be ripped, recontoured, and seeded. Depending on safety issues, roads from structure 1/6 to 2/3 may only be ripped and seeded.

3.4.4 Unavoidable Impacts Remaining After Mitigation

Unavoidable impacts remaining after mitigation include potential for increased erosion throughout the proposed ROW, because of soil compaction, new and reconstructed roads, and loss of soil productivity where vegetation will be permanently removed. Loss of productivity would occur next to and under new structures and under permanent roads.

Of the 398 acres of soil disturbance, productivity would be lost on approximately 101 acres that would be occupied by permanent roads and other project features. Temporarily disturbed areas would be reseeded to avoid loss of productivity. The mitigation measures described above would reduce unavoidable impacts to low or moderate levels.

3.4.5 Cumulative Impacts

Erosion from upland soils in the area is occurring from naturally erodible geologic formations—such as the Wayan Formation—and from locally intensive livestock and recreation use. Localized impacts on soils related to livestock grazing, mining, and recreation use have been identified and documented and would continue. Geological materials erode down-slope as they weather out and are exposed. Construction activities would temporarily add to existing erosion in the project area, but will subside as revegetation measures are implemented.

Sediment entering drainages crossed by the ROW, including the SFSR, Fall Creek, and Willow Creek would continue from ongoing and future activities, but should not increase as a result of the project, following implementation of BMPs and mitigation measures.

Past and current land uses in the area such as grazing, off road recreation, and timber harvest have increased compaction in many areas, as well as the potential for

soil erosion. Past actions that may have adversely impacted soils within and near the ROW include logging activities, transmission line construction, development, and OHVs. Compaction would be ameliorated in areas temporarily disturbed, but would remain in permanently impact areas, thereby increasing the total area of compacted soils in the project area. The project would result in the permanent loss of soil productivity on approximately 101 acres. These areas would be graveled and mostly used for maintenance access roads to structures. This productivity loss would be added to productivity already lost in the project area from activities such as road building and development, as well as from productivity lost due to future projects. Erosion from permanent access roads is expected to be relatively low after reseeding of temporarily disturbed areas.

Future work at Palisades or Goshen Substation, or other work that may be needed for operation and maintenance would have little additional impact relative to soils in the area, because activities would occur in already disturbed areas and on level ground, within or adjacent to the two existing substations.

Additional future impacts on soils, such as reduced productivity and compaction, would increase as development on private lands continues. The immediate area around the substations, where development would most likely occur, is relatively flat so erosion is not a concern, assuming erosion control measures are used. Future development of private lands along the existing ROW could impact soils through grading, excavation, or potential chemical spills.

3.4.6 No Action Alternative

Construction impacts on soils would be avoided. Continued operation and maintenance of the existing ROW would have no to low soil impacts because soil would rarely be disturbed.

3.5 Water Resources and Fisheries

3.5.1 Affected Environment

3.5.1.1 Water Resources and Floodplains

The reconstructed transmission line would cross the SFSR, Fall Creek, Willow Creek, and many other smaller tributaries to these drainages. From Palisades Dam and continuing westward, the line would cross Sharp Creek, Palisades Creek, the SFSR, Indian Creek, Squaw Creek, Papoose Creek, Fall Creek (six times as it parallels the drainage for approximately 7.5 miles), Gibson Creek, Tex Creek, Bulls Fork, Willow Creek, Taylor Creek, Rock Creek, Henry Creek, Henry Dry Fork, and two canal crossings. Crossings would occur in the same location as they do in the existing line and in crossing these drainages, their associative floodplains would also be crossed by the line.

Much of the proposed project area occurs in the Caribou Range Mountains Subsection and is administered by the C-TNF (USFS 1997). Lakes, reservoirs, ponds, perennial and intermittent streams, and wetlands that occur in this area are prescribed as AIZs. These areas control the biotic and abiotic processes that affect water quality and habitat characteristics important for aquatic plant and animal species. Many habitats are rare and sensitive to disturbance. Site specific boundary widths for various habitat types identified as AIZs are identified in the TNF Revised Forest Plan (USFS 1997) and vary relative to management goals and objectives. AIZ management direction overrides direction from other overlapping management areas.

The federal Clean Water Act requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and Tribes must adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the waters whenever possible. Section 303(d) of the Clean Water Act establishes requirements for states and Tribes to identify and prioritize water bodies that are water quality limited (that is, water bodies that do not meet water quality standards). States and Tribes must periodically publish a priority list of impaired waters, currently every 2 years. For waters identified on this list, states and Tribes must develop water quality improvement plans known as total maximum daily loads (TMDLs) that establish allowable pollutant loads set at levels to achieve water quality standards (IDEQ 2003).

In the proposed project area, five water bodies have been placed on the 303(d) list of impaired water bodies. These include: Fall Creek, the SFSR, Willow Creek, Tex Creek, and Rock Creek. In Fall Creek, temperature and sediment are the listed pollutants of concern. To fully support the beneficial use of cold water aquatic life, TMDLs are needed to control sediment in Fall Creek. The goals are to achieve 80 percent stream bank stability and 28 percent subsurface fine sediment. Additionally, a temperature TMDL is needed to reduce stream temperature to achieve salmonid spawning criteria in Fall Creek (IDEQ 2003).

TMDLs for Fall Creek were approved by EPA in April 2004. A small section of the SFSR is listed for flow alteration. Although flow is not considered a pollutant under the Clean Water Act and TMDLs are not required, it is recommended that this stream remain on the 303(d) list for flow. TMDLs for the SFSR were approved by the EPA in November 2004. Tex Creek and Rock Creek both occur in the Willow Creek subbasin. Willow Creek and Tex Creek are listed for temperature and sediment as pollutants of concern, while in Rock Creek, temperature is the listed pollutant of concern (IDEQ 2004a and 2004b). TMDLs for the Willow Creek subbasin were set in June 2004 to control pollution from sediment and to lower temperature in various segments of the subbasin.

The locations of the 100-year floodplains were determined from Flood Insurance Rate Maps published by the Federal Emergency Management Agency (FEMA), U.S. Department of Housing and Urban Development (HUD). Floodplains in the vicinity of the existing ROW are shown in Appendix B. The FEMA floodplain boundaries were neither inspected in the field nor adjusted for accuracy.

3.5.1.2 Fish Species and Habitat

Some of the drainages crossed by the existing ROW represent extensive areas of fish habitat. In particular, the SFSR drainage is widely recognized as providing habitat for some of the few remaining healthy populations of Yellowstone cutthroat trout (YCT) (*Onchoryncus clarkii bouvieri*). YCT, a Forest Service Sensitive Species and BLM Type 2 Special Status species, are known to occur in the SFSR, Palisades Creek, Fall Creek, Squaw Creek, Willow Creek, Indian Creek and Pritchard Creek. More specifically, an isolated resident population of YCT occurs in Fall and Garden Creeks, and Pritchard and Garden Creeks are considered YCT strongholds by the C-TNF. Pritchard Creek provides habitat for both resident and fluvial (river dwelling) cutthroat (IDFG 2007).

USFWS was petitioned to list YCT in August 1998. In February 2001, USFWS determined the petition did not provide substantial information to indicate listing may be warranted. In March 2006, the Fish and Wildlife revisited their finding and reaffirmed their earlier determination. The C-TNF is currently addressing the needs of YCT by maintaining consistency with their Forest Plans. Within the range of YCT, Forest activities are guided by the Targhee Forest Plan Revision (Targhee portion of the C-TNF) and the Caribou Forest Plan Revision (Caribou portion of the C-TNF).

Intensive surveys for YCT distribution have been conducted on the C-TNF since 1997. The subspecies appear to be distributed throughout most of the Forest, but populations in various streams or stream segments vary in strength. While some populations are threatened by competition and hybridizing with nonnative species, others appear to be thriving in isolated streams or stream reaches. Some populations have been replaced by introduced nonnative fish species. Genetic interactions between existing YCT populations have diminished from historic conditions because of a decrease in connectivity.

The two life history patterns of YCT that occur in the project area are resident and fluvial. Resident trout spend their entire lives in small streams that are tributaries to the South Fork of the Snake River, such as Squaw and Fall creeks. Fluvial fish spend most of their lives in the South Fork of the Snake River, migrating into small streams in the spring to spawn. The project analysis area bisects the center of YCT strongholds on the Forest. Based upon project plans and the concentration of activity, there are 2 primary YCT populations of interest in the project area; the Fall Creek and Squaw Creek populations. The population of YCT in Fall Creek exhibits a resident life history pattern. The falls at the mouth of the stream prohibit the

upstream migration of fluvial YCT trout into Fall Creek. The resident population in Fall Creek coexists with non-native brook trout. Fall Creek is a popular recreational destination, heavily used by motorized recreation enthusiasts and campers. Fall Creek is also grazed by cattle. These activities have been documented as sources of sediment to the stream.

In addition to YCT, there are also known populations of game and non-game fish including: Kokanee (*Onchoryncus nerka*) in the SFSR; longnose dace (*Rhinichthys cataractae*) in Willow Creek; mountain whitefish (*Prosopium williamsoni*) in the SFSR; mountain sucker (*Catostomus platyrhynchus*) in Tex Creek; redside shiner (*Richardsonius balteatus*) in Willow Creek and Fall Creek; sculpin (*Cottus* sp.*)* in Willow Creek and Palisades Creek; speckled dace (*Rhinichthys osculus)* in Willow Creek; lake trout *(Salvelinus namaycush)* in the SFSR (upstream of the confluence with Palisades Creek); rainbow trout (*Onchoryncus mykiss)* in Willow Creek, Tex Creek, Palisade Creek, and the SFSR; brook trout (*Salvelinus fontinalis)* in Willow Creek and Tex Creek; and brown trout (*Salmo trutta)* in Willow Creek, Tex Creek and the SFSR (Idaho CDC 2007).

The SFSR is recognized worldwide as a premier fishery. Local community livelihoods and the ecological functionality of the drainage as a whole is dependant on the long-term sustainability of the fishery. In turn, they are reliant on preserving water quality and riparian habitat, while also working toward restoring those areas already highly impacted by past and present land use strategies. These include but are not limited to dispersed camping, vegetation management, grazing, road building and maintenance, and motorized recreation (C-TNF 2002). All of these land use strategies have affected the quality and quantity of habitat available to fish in the drainage.

In Willow Creek in particular, intensive grazing practices have contributed to poor riparian habitat conditions in the upper parts of the drainage through excessive sediment transport and loading. Water quantity and quality is degraded as a result. The Natural Resources Conservation Service (NRCS) has identified Willow Creek as one of the ten worst soil erosion areas in the United States (IDFG 2007). Excessive sediment loading has been identified as detrimental to salmonids (Thurow and King 1994) and other aquatic life. Increased temperature, reduced dissolved oxygen content, a decline in growth and feeding rates, and slower alarm responses have all been positively correlated to the concentration and duration of suspended sediment in aquatic systems (Newcombe and MacDonald 1991).

3.5.2 Environmental Impacts—Proposed Action

The Proposed Action would be expected to result in moderate to low direct impacts to water resources and fish habitat and species. Although the existing line to be rebuilt crosses the SFSR, two of its tributaries, and a number of smaller tributaries feeding these systems (a total of 21 stream crossings), all of the construction work

associated with structure placement or removal would take place outside of wetlands. In-stream work associated with the project, however, does have the potential to increase erosion, fines, and suspended sediment in the system. Mitigation measures are expected to reduce impacts from moderate to low.

3.5.2.1 Water Resources and Floodplains

The proposed rebuilt line would cross floodplains of several waterways (see Appendix B). Of the five 303(d) listed water bodies noted above, two (SFSR and Fall Creek) have both existing structures and access roads located within the floodplain, and one (Willow Creek) has only an existing access road within the floodplain. Existing structures and access roads in floodplains associated with each of these crossings would be as follows:

- Palisades Creek would be crossed between structures 4/7 and 4/8, which includes approximately 375 feet of 100-year floodplain. An existing access road in this area would cross approximately 400 feet of this floodplain to the south of the line. No structures would be located in the floodplain.
- The SFSR would be crossed between structures 8/6 and 8/8, which includes approximately 500 feet of 100-year floodplain and approximately 250 feet of 500-year floodplain. Structure 8/7 and about 160 feet of existing access road would be located within the 100-year floodplain for the SFSR.
- Fall Creek would be crossed between structures 13/8 and 13/9, which includes approximately 500 feet of 100-year floodplain. Structure 13/8 would be located within this floodplain.
- Fall Creek would be crossed again between structures 17/3 and 17/6, which includes approximately 625 feet of 100-year floodplain. Structures 17/4, 17/5, 17/6, and a small portion of existing access road would be located within this floodplain.
- Structures within the Fall Creek 100-year floodplain prior to the next crossing would include structures 17/8 through 18/6 and numerous sections of existing access road.
- Fall Creek would be crossed again between structures 18/8 and 19/2, which includes approximately 500 feet of 100-year floodplain. Structure 19/1 would be located within this floodplain.
- Willow Creek would be crossed between structures 31/4 and 31/5, which includes approximately 500 feet of 100-year floodplain. No structures would be located within this floodplain, but approximately 600 feet of existing access road would be within this floodplain.

- Structures within the Snake River 100-year floodplain east of the Goshen Substation would include all existing structures and access roads from 47/6 through 49/6. All access roads to these structures would be located within the same 100-year floodplain. The Goshen Substation is also within the 100-year floodplain.

As with any fill and/or excavation below the ordinary high water mark, improvement to existing access roads and new structures within these floodplains have the potential to increase the risk of flooding or flood damage. This however, is not expected to occur because all of the roads and structures already exist and the small amount of improvement to existing access roads would not cause floodplain capacity to be decreased significantly.

The proposed project would also include construction of a low-water stream crossing at Taylor Creek. Stream crossing structures can modify in-stream flow velocities and influence channel migration in some cases. Also, unprotected stream crossings (fords) may cause accelerated sediment delivery to streams. The proposed crossing at Taylor Creek would, however, improve an already established and unprotected earthen ford that, in its current state, results in erosion and transport of sediment and fines into the stream when it is used for transmission line maintenance or by the public.

Stream crossings that also involve the construction of new, or cleaning of existing ditches and/or culverts, bridge replacement, or new or reconstructed access roads, would pose more potential risk associated with soil erosion and sediment transport into these streams where vegetation is removed and soil is disturbed, as well as other abiotic factors (for example, temperature increases and pollutant transport). This is especially relative to road reconstruction where existing access roads have had a chance to become restabilized. User-created roads could result in additional erosion into perennial and intermittent streams and rivers.

Water resources and fish habitat and species could be impacted from any ground disturbing activities (tree and shrub removal, grading, road building, cleaning of existing ditches and culverts, developing new ditches and culverts, and piling of soil) that expose soils to rain and cause erosion. Sediment runoff from disturbed sites could expose soils and increase the risk of erosion and transport of sediment into streams. Surface erosion occurs in areas of disturbed soils during construction, and from the road surface following construction. Surface erosion would also occur where roads intersect areas of unstable soil. Direct channel encroachment by roads and water flows, and sediment delivery from ditches and road surfaces, are the most probable deleterious effects that may occur relative to the Proposed Action. These modifications would occur primarily where roads intersect streams or areas of aquatic influence along streams. This risk would be reduced with mitigation measures and avoidance of most ground-disturbance within riparian corridors.

As noted specifically in the *Targhee National Forest Roads Analysis*, "sediment can be increased through road construction and maintenance and through stream erosion caused when roadbeds confine streams. When trees and shrubs are removed within road ROWs, woody debris is removed from the stream ecosystem. This reduces the amount of woody substrate in the stream—thus affecting aquatic habitat and channel processes" (Forest Service 2002a).

Access roads located within AIZs are listed in Table 3-2. All AIZ boundary widths would be adhered to as applying to fish-bearing streams, permanently flowing and intermittent streams, ponds, lakes, reservoirs, and wetlands, and as defined in the TNF RFP (1997). Site-specific widths may be increased where necessary to achieve riparian management goals and objectives, or decreased where default widths are not needed to attain riparian management objectives or avoid adverse effects. Establishment of AIZ widths different from default widths would require completion of watershed analysis or monitoring to provide the ecological basis for the change or may be modified by amendment in the absence of watershed analysis where stream reach or site-specific data support the change. In all cases, the rationale supporting modification would be documented (USFS 1997).

Overall, impacts to the aquatic environment would relatively low**.** Except for the Taylor Creek crossing and Sand Creek bridge, all structures, roads, and other construction would take place outside of riparian corridors, and culvert and ditch cleaning and/or installation would be minimal. There are some potential risks to the aquatic environment associated with new road development and reconstruction of existing access roads.

There is an existing spring in the Papoose Creek drainage that is used as a domestic water supply for one residence. It is located about 300 feet above the ROW and would not be affected by project construction or operation and maintenance.

The highest potential for long-term impacts on water resources would be from erosion and sediment runoff from user-created roads. Mitigation measures and BMPs discussed in Sections 3.2.3, 3.3.3, 3.4.3, and 3.5.3 would reduce the duration and potential severity of short-term impacts and relatively few long-term impacts on water quality and AIZs are expected. BPA requires its contractors to abide by the provisions of the *Eastern Washington Stormwater Management Manual* (Washington Department of Ecology 2004) (http://www.ecy.wa.gov/pubs/0410076.pdf) to protect water quality. Additionally, the state of Idaho recognizes USFS BMPs as an effective process for protecting beneficial use and ambient water quality as associated with 303(d)-listed waterbodies and associative TMDLs.

3.5.2.2 Fish Species and Habitat

The Proposed Action has the potential to affect riparian functions to a limited degree. These concerns are greatest on Squaw and Fall Creeks and the SFSR, where

YCT occur (CH2M HILL 2008b). Overall, minimal in-stream construction would occur with this proposed project.

The Proposed Action would also temporarily impact approximately 297 acres of vegetation and 398 acres of soils through the replacement of transmission structures, road reconstruction, placement of counterpoise, conductor pulling and retensioning sites and staging areas (see Table 3-1). These temporary impacts and ground-disturbing activities would increase the risk of erosion and transport of sediment and fines down slope and into proximate streams. Approximately 101 acres would be permanently impacted by these project activities.

Sediment runoff from disturbed sites proximate to stream crossings and structures could expose soils and increase the risk of erosion and transport of sediment into streams. In addition to the potential effects to waterways and other abiotic components necessary to support healthy fisheries, fish species and their associative habitat can be adversely affected by increased sediment transport into streams by both suspended sediment and the deposition of fines across spawning and rearing cobbles. Excessive sediment loading has been demonstrated to deleteriously impact salmonid fisheries, most notably through the smothering of redds (spawning nests). As noted specifically in the *Targhee National Forest Roads Analysis*, "sediment can be increased through road construction and maintenance and through stream erosion caused when roadbeds confine streams. When trees and shrubs are removed within road rights-of-way, woody debris is removed from the stream ecosystem. This reduces the amount of woody substrate in the stream—thus affecting aquatic habitat and channel processes" (Forest Service 2002a).

Unprotected stream crossings (fords) may cause accelerated sediment delivery to streams. The proposed project would include construction of a low-water stream crossing at Taylor Creek. This modification would, however, improve an already established and unprotected earthen ford that, in its current state, results in erosion and transport of sediment and fines into the stream when it is used for transmission line maintenance or by the public

Riparian vegetation is also valuable to fish their habitats because it protects against erosion and sedimentation by covering soil, holds streambanks together with roots, and provides large wood for stream energy dissipation and cover. Riparian vegetation also provides shade to cool streams. In addition, destruction of canopy cover in riparian corridors has been associated with increased water temperatures (Bartholow 2000) and a reduction of large woody debris (LWD) recruitment. Ground-breaking work that reduces vegetation and/or poses the risk of increased sediment loading into the river and its tributaries, or wetlands would have short-term adverse impacts on fish and fish habitat.

The direct effects of the Proposed Action on YCT are expected to be displaced by the benefits expected from the implementation of the mitigation measures listed below.

Improvement of fish passage at the SFSR Road crossing of Squaw Creek with the placement of a suitable crossing will increase the resiliency of the Squaw Creek YCT population by restoring full access of river fish to the upper watershed. Providing a properly sized crossing structure at the SFSR Road will also decrease erosion and sedimentation associated with the current under-capacity culvert. Short-term sedimentation associated with the relocation of road segments and the replacement of the culvert is expected during implementation. However, these low level impacts will be minimized with erosion control measures such as working when the culvert is dry whenever possible, using sediment barriers where needed, and planting of exposed soil. The long-term benefits of these mitigation measures are expected to offset short term impacts on the YCT associated with project implementation (CH2M HILL 2008b).

The highest potential for long-term impacts on fish and fish habitat would be from erosion and sediment runoff from user-created roads. Mitigation measures and BMPs discussed in Sections 3.2.3, 3.3.3, 3.4.3, and 3.5.3 would reduce the duration and potential severity of short-term impacts and relatively few long-term impacts are expected. Overall, impacts to fish and fish habitat would be relatively low.

3.5.3 Mitigation Measures

In addition to the mitigation measures identified in Section 3.2.3, 3.3.3, and 3.4.3, the following mitigation measures would avoid or reduce potential impacts to water resources and fish habitat and species:

- Install a properly sized, pipe arch, bottomless crossing structure to replace the undersized culvert at the SFSR Road (Forest Service road #076) crossing of Squaw Creek. The structure would be designed to accommodate flood flows and provide for fish passage. The new crossing structure would be purchased by BPA and installed by Bonneville County road crew in cooperation with the Forest Service. The Forest Service would coordinate permit requirements with the Army Corps of Engineers.
- Relocate the access road on FS road #079 from 2 feet to 10 feet away from Squaw Creek for up to 1,200 feet in mile 9.
- Install sediment barriers and other suitable erosion and runoff control devices where needed prior to ground-disturbing activities at construction sites to minimize off-site sediment movement.
- Rock new and existing access roads where needed to prevent erosion and rutting.
- Minimize grading, clearing, or other construction work in wetlands or riparian corridors. Do not permit use of these areas for construction staging, equipment or materials storage, fueling of vehicles, or related activities.

- Design any new culvert construction or replacement to meet flow requirements, protect fluvial integrity, and protect aquatic species of concern as identified in C-TNF Forest Plan
- Develop and implement a Spill Prevention, Control, and Countermeasure Plan to minimize the potential for spills of fuels, oils, or other potentially hazardous materials to reach the seasonal perched water table or surface water bodies.
- Keep vehicles and equipment in good working order to prevent oil and fuel leaks.
- Do not withdraw water (for dust control or other purposes) from Fall Creek or other streams or rivers for any construction-related or dust suppression activities without proper authorization from the Forest Service or BLM and the State of Idaho.

3.5.4 Unavoidable Impacts Remaining After Mitigation

Some unavoidable impacts would remain after mitigation because any ground disturbing activity, no matter how benign, would by its nature increase the risk of erosion and sediment loading in surface water processes. Even if these mitigation measures are fully implemented, potential effects from the Proposed Action to the SFSR and its tributaries in the vicinity of the ROW would remain at a low risk of sediment loading until disturbed sites are revegetated. In addition, given span requirements between proposed structures, reconstruction of structures and access roads in floodplains cannot be avoided.

3.5.5 Cumulative Impacts

Erosion transported from upland soils into creeks, rivers, and other waterways is occurring in the ROW from naturally erodible geologic formations (SCS 1981), as well as various land use strategies (intensive livestock and recreation use, timber harvest, vegetation management and road building). Erosion potential is highest on soils that formed on the mountains and ridges, have a 40 percent grade or higher, and/or have been previously disturbed. For the most part, watersheds in the general vicinity of the ROW are in good health, with undisturbed and productive soils. Willow Creek is the exception because it remains highly erosive from extensive grazing over the last century (IDFG 2007) and from general agricultural activities in the drainage.

Potential future upgrades at Palisades Dam or Goshen Substation or other work that may be needed would have little additional impact relative to soils in the area as both would occur in already disturbed areas and on level ground, within or adjacent to the two existing substations.

Suspended sediment and water quality in drainages crossed by the ROW remain low, again with the exception of Willow Creek. However, open roads and trails have

the potential to produce continued cumulative impacts on soil and water quality (erosion and sedimentation). Past actions that may have adversely impacted soils in the vicinity of the ROW include logging activities, grazing, transmission line construction, development, and OHV use. Many of these actions continue to occur in the project area, and, coupled with future land use, sediment and pollutant transport are likely to occur. Future impacts on soils, such as reduced productivity and compaction, could even increase as the area develops further. The immediate area, where development would most likely occur, is relatively flat so erosion is not a primary concern, assuming appropriate erosion control measures are implemented. Future development of private lands in the vicinity of the existing ROW also has the potential to impact soils through grading, excavation, or potential chemical spills. In addition to the potential of future development affecting sediment and pollutant transport into the watershed, dewatering of the system is also a potential risk associated with future development of the proximate area. All of these actions would adversely affect water quality, and in turn aquatic flora and fauna.

3.5.6 No Action Alternative

Construction-related impacts on the watershed would be avoided. Continued operation of the line and maintenance of the existing line and ROW would have no-to-low water resources and/or fisheries related impacts because soil would rarely be disturbed and no new construction activity would take place. Past actions that may have adversely impacted soils in the vicinity of the ROW include logging activities, road construction and maintenance, agricultural practices, grazing, transmission line construction, development, and OHV use.

3.6 Air Quality

3.6.1 Affected Environment

The Idaho Department of Environmental Quality (DEQ) routinely assesses outdoor (ambient) air quality to satisfy federal regulatory requirements and to scientifically determine the quality of Idaho's air sheds. DEQ's monitoring network measures the levels of five of the six ambient air criteria pollutants identified by the federal Clean Air Act. The criteria pollutants are: Particulate matter (PM_{10} = particulate matter less than or equal to 10 microns in diameter, $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter), carbon monoxide, nitrogen dioxide, sulfur dioxide, and ozone.

To provide a quantifiable means to measure air quality, EPA's Office of Air Planning and Standards has established standards for these six criteria pollutants. For each pollutant, the standard includes a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS) and are listed in Table 3-8.

TABLE 3-8
National Ambient Air Quality Standards

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour[a]	None
	35 ppm (40 mg/m^3)	1-hour[a]	None
Lead	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 $\mu g/m^3$)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM_{10})	Revoked[b]	Annual[b] (Arith. Mean)	Revoked[b]
	150 $\mu g/m^3$	24-hour[c]	Same as Primary
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual[d] (Arith. Mean)	Same as Primary
	35 $\mu g/m^3$	24-hour[e]	Same as Primary
Ozone	0.08 ppm	8-hour[f]	Same as Primary
	0.12 ppm	1-hour[g] (Applies only in limited areas)	Same as Primary
Sulfur Dioxide	0.03 ppm	Annual (Arith. Mean)	[see below]
	0.14 ppm	24-hour[a]	[see below]
	[see above]	3-hour[a]	0.5 ppm (1300 $\mu g/m^3$)

Source: http://www.epa.gov/air/criteria.html

[a] Not to be exceeded more than once per year.

[b] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} standard in 2006 (effective December 17, 2006).

[c] Not to be exceeded more than once per year on average over 3 years.

[d] To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 $\mu g/m^3$.

[e] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 $\mu g/m^3$ (effective December 17, 2006).

[f] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

[g] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1, as determined by Appendix H.
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

The two types of standards are primary and secondary. Primary standards set limits to protect public health, including the health of "sensitive" populations, such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, vegetation, and buildings. Idaho has adopted the federal air quality standards in the Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01.575-587).

Based upon levels of air pollutants, geographic areas are classified by EPA as attainment or non-attainment areas. A geographic area that meets or has pollutant levels below the NAAQS is called an attainment area. An area with persistent air quality problems is designated a non-attainment area. This means that the area has violated federal health-based standards for outdoor air pollution. Each non-attainment area is declared for a specific pollutant. Non-attainment areas for different pollutants may overlap each other or share common boundaries. Although four non-attainment areas exist in Idaho neither Bonneville County nor Bingham County where the project is located, nor any cities located in either county, are classified as non-attainment areas.

3.6.2 Environmental Impacts—Proposed Action

Air quality for this project would primarily be impacted during the construction phase, and slightly during operation and maintenance of transmission facilities. Overall, the air quality impacts from construction and operation and maintenance of the Proposed Action would be low and no violations of air quality standards would be expected. Air Quality could be impacted by the Proposed Action by the following:

- Heavy equipment emitting pollutants
- Construction activities creating dust

Of the six "criteria" air pollutants, particulate matter in the form of dust is the main concern during line reconstruction. Fugitive dust could be created during project site preparation, including road building and improvement, onsite travel on unpaved roads and surfaces, and soil disrupting operations. Wind erosion of disturbed areas would contribute to fugitive dust until revegetation efforts are successful.

The amount of dust generated by vehicles driving on unpaved roads is relative to the amount of small particle silt and moisture found in the roads' soil. Generally, the coarser the surface road material and the higher the moisture content, the lower the amount of surface dust that would enter the air. Soils in the vicinity of the ROW are mostly gravel/cobble outwash and loess (wind laid), both of which are quite erosive when exposed.

Proposed road construction and improvement would take place over a 3-month period, beginning June 1, weather permitting. Structure replacement from Palisades Dam to mile 23, the Henry Creek crossing, and from Goshen Substation east to mile 31, would occur between June 1 and the end of October or November, depending on weather conditions. Soils would be generally moist to wet during the early part of this period and there would be little, if any, dust generated. Soils may dry out later during this period, depending on the extent of snow cover the previous winter and the amount of rain during the spring. Construction and improvement of access roads under drier conditions would generate some dust locally.

The remaining structures would be replaced in subsequent years, during the summer months. Soils would be generally dry during this time, especially at lower elevations. Road surfaces would likely be dry during much of this period. Placement of gravel on access roads would minimize particulate matter that would be released into the air from those areas. Relatively small amounts of dust would be generated during temporary construction at each of the 430 sites where structures would be replaced. The largest amount of dust would be generated by construction-related vehicles traveling to, from, and among work sites over existing county and Forest Service roads.

Heavy equipment and vehicles, including those with diesel internal combustion engines, would emit pollutants such as carbon monoxide, carbon dioxide, sulfur oxides, particulate matter less than 2.5 microns in diameter (PM 2.5), oxides of nitrogen, volatile organic hydrocarbons, aldehydes, and polycyclic aromatic hydrocarbons. Vehicle and equipment emissions would be relatively small and comparable to current conditions in agricultural and roaded Forest Service and BLM lands. Overall, impacts on air quality would be low.

Overall, air emissions from the proposed project would be short-term and would not be expected to exceed any air quality standards. Air quality impacts therefore would be considered low.

3.6.3 Mitigation Measures

The following mitigation measures would help avoid, minimize, or compensate for identified impacts to air quality:

- Use water trucks on an as-needed basis to minimize dust, especially on C-TNF and county roads.
- Gravel or rock access roads before line reconstruction to minimize dust.
- Drive all construction vehicles at low speeds (5 mph) on access roads to minimize dust.
- Keep off-road vehicles in good running condition to minimize emissions.
- To minimize dust, reseed and revegetate the disturbed areas (Forest Service, BLM, and private) to minimize exposed soil prone to erosion.

3.6.4 Unavoidable Impacts Remaining After Mitigation

Some particulate matter in the form of dust and exhaust emissions would be emitted during construction and later during routine maintenance of the line, though the impacts would not violate air quality standards and would be considered low.

3.6.5 Cumulative Impacts

Future home residential development on private lands in Swan Valley at the eastern end of the line would increase the local population of the area, leading to more recreational use of the C-TNF and BLM lands crossed by the line. This may result in increased use of project access roads that are not effectively closed to the public, as well as development of more illegal user-created roads from these access roads. More human presence and additional roads would result in an increase in airborne dust during summer recreation periods. Particulate matter created from short-term construction activities would not contribute to regional or local haze. Potential future upgrades at Palisades Dam or Goshen Substation would result in temporary increases in airborne dust in the immediate construction areas but would not be expected to violate air quality standards.

3.6.6 No Action Alternative

Very minor occasional impacts on air quality would continue during line maintenance activities, mainly in the form of dust and air emissions from vehicles accessing the line for these activities.

3.7 Socioeconomics and Environmental Justice

3.7.1 Population, Income, and Ethnicity

The Proposed Action would be constructed in Bonneville County and Bingham County, in southeast Idaho. Table 3-9 lists the population, income and ethnicity data for the two counties.

3.7.2 Employment

The civilian labor force for Bonneville County in 2006 was 46,988. For Bingham County it was 20,758. Private non-farm employment made up 97 percent of employment in Bonneville County, and 47 percent of employment in Bingham County. Employment in government made up 12 percent of employment in Bonneville County, and 20 percent of employment in Bingham County (Bureau of Economic Analysis 2005 and 2006). The unemployment rate in Bonneville County in 2004 was 3.4 percent. In Bingham County in 2004, it was 4.4 percent (city-data.com 2004).

TABLE 3-9
Population, Income, and Ethnicity Data for Bonneville and Bingham Counties

Total Population	Per Capita Income	2005 Race (Percentage of Total Population)
Bonneville County		
94,630 in 2006	$29,642 in 2005	Caucasian (91.0)
		Hispanic or Latino Origin (14.0)
		Caucasian not Hispanic (77.0)
		African American (0.3)
		American Indian (7.0)
		Asian (0.6)
		Native Hawaiian (0)
		Other Race (1.0)
		Two or more Races (1.0)
Bingham County		
44,051 in 2006	$21,569 in 2005	Caucasian (94.0)
		Hispanic or Latino Origin (8.0)
		Caucasian not Hispanic (86.0)
		African American (0.7)
		American Indian (0.6)
		Asian (0.8)
		Native Hawaiian (0.08)
		Other Race (3.8)
		Two or more Races (1.0)
Poverty Rate		
Bonneville County: 11.4% in 2004		
Bingham County: 13.2% in 2004		

Notes:
"American Indian" includes Alaska Native.
"Asian" includes Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian.
"Native Hawaiian" includes Native Hawaiian, Guamanian or Chamorro, Samoan, and Other Pacific Islander.
"Other Race" does not indicate the specific race.

Source:
Bureau of Economic Analysis, 2004, 2005, and 2006.

3.7.3 Housing and other Accommodations

In 2000, Bonneville County had 94 percent owner-occupied housing units, with 6 percent of the housing units being vacant (U.S. Census Bureau 2000). In 2005, there were 34,663 housing units in Bonneville County. In 2000, the homeownership rate was 74.7 percent (Bureau of Economic Analysis 2005).

In 2000, Bingham County had 93 percent owner-occupied housing units, with 7 percent of the housing units being vacant (U.S. Census Bureau 2000). In 2005, there

were 15,024 housing units in Bonneville County. In 2000, the homeownership rate was 79.3 percent (Bureau of Economic Analysis 2005).

Throughout Bonneville County, there are 21 hotels and motels and 3 RV parks and campgrounds (city-data.com 2002a). Throughout Bingham County, there are 34 hotels and motels and no designated RV parks or campgrounds (city-data.com 2002b). Other than camping within the Targhee National Forest, no designated campgrounds appear to be near the transmission line ROW.

3.7.4 Property Taxes

Property taxes help support the activities of local taxing districts, such as schools and local government services, and are paid by private property owners unless in a tax exempt status. All federal, state, and local government real property is exempt from paying property taxes. When BPA acquires an easement across private property, the landowner continues to pay property taxes, but often at a lesser value, based on any limitation of use created by the encumbrance.

3.7.5 Sales/Use Taxes

The Idaho state sales/use tax is currently 6.0 percent. Some cities and counties also assess a tax on retail sales; Bingham County and Bonneville County do not do so (Idaho State Tax Commission 2008). Although BPA, as a federal government agency, is exempt from paying Idaho state sales taxes on materials purchased within the State of Idaho, it is not exempt from paying a use tax on materials purchased outside of the state that would be used within the State of Idaho. In addition, BPA workers are taxed on all local purchases of goods and services while in Idaho, unless those individuals reside in states that grant them a tax exempt status from paying sales taxes while in Idaho.

3.7.6 Property Values

When BPA acquires new ROW, landowners are offered fair market value for the land, as established through the appraisal process. The appraisal accounts for all factors affecting property value, including the impact the transmission line and/or access ROW would have on the remaining portion of the property. Each property is appraised individually using neighborhood-specific data to determine fair market value. Where existing rights-of-way accommodate new transmission facilities or roads, and no new acquisition would be made, no additional compensation is paid.

3.7.7 Environmental Justice

Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register [FR] No. 32), requires that each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and

activities on minority populations and low-income populations. In his memorandum transmitting E.O. 12898 to federal agencies, President Clinton further specified that, "each federal agency shall analyze the environmental effects, including human health, economic and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969."

For the purposes of E.O. 12898, minority populations include all people of the following origins: African American, Asian, American Indian and Alaskan Native, Native Hawaiian or Other Pacific Islander, and Hispanic. Low-income populations are populations that are at or below the poverty line (as established by the U.S. Department of Health and Human Services poverty guidelines).

3.7.8 Environmental Impacts—Proposed Action

Both local and non-local construction workers are expected to be needed to construct the Proposed Action. Changes in local population and local employment/ unemployment rates resulting from construction of the proposed action are expected to revert to pre-construction levels once construction is complete.

Local workers are expected to remain in their existing lodging, creating no demand for new lodging. Non-local workers would require local lodging during the project construction period. Existing local lodging is expected to be sufficient for both the local construction workers and the potential temporary relocation of non-local workers to the area, as a result of the existing housing vacancy rates in the two counties, the number of hotels/motels throughout the two counties, and the available camping in the nearby C-TNF. Public services and utilities (police protection, fire protection, medical services, schools, and utilities) would not be adversely affected because no long-term increase in the local population is expected to occur as a result of implementation of the Proposed Action.

Income earned by the project construction workers is not expected to affect the annual per capita income levels of either Bonneville or Bingham counties. Construction of the Proposed Action would, however, stimulate the area's economy during construction through material purchases in the local area, payroll, and related direct and indirect spending, commonly referred to as the multiplier effect. Purchases of local supplies and materials and other spending by construction workers would create a positive impact on the local economy. These expenditures typically amount to 5 percent or more of total project costs, estimated at $12 million (2007 dollars)—approximately half for materials and half for labor costs. Construction workers typically spend approximately 40 percent of their wages locally, which would amount to approximately $2.4 million. Both material purchases by the contractors ($6 million) and salary expenditures by the workers ($2.4 million) would have additional multiplier effects on the local economy in the area, and would be considered a short-term benefit to the area.

Construction of the Proposed Action would not affect the amount of property taxes collected by the two counties where the project is located. Property owners would continue to pay property taxes in accordance with existing valuations; no property devaluations and no property acquisitions are expected to occur as a result of constructing the proposed action. States cannot directly tax purchases by the federal government; however, the Idaho State Tax Commission can assess taxes on materials purchased out of state that are used within the state, such as the materials and equipment that would be used on the proposed action. Because these materials would be expected to cost approximately $6 million, and because the Idaho use tax rate is 6 percent (the same as the sales tax rate), approximately $360,000 in use tax would be paid. Workers would also be taxed on all local purchases of goods and services while in Idaho, unless those individuals' permanent residences are within states or other jurisdictions that are exempt from paying a local sales tax within the state. These are considered short-term benefits to the area.

The Proposed Action is an upgrade to an existing transmission line, with the upgraded structures located in substantially the same location as the existing structures, so construction impacts would occur in an area that has already been disturbed. The percentage of minority and/or low-income populations in the two counties is low, and because the majority of the area in the vicinity of the ROW is undeveloped open space (rather than residential), minority and/or low-income populations would not be exposed to disproportionately high and adverse human health or environmental effects, so no impacts on minority or low-income populations (environmental justice impacts) are expected.

The overall impact of construction of the Proposed Action would be moderate and there would be no ongoing impacts during operation and maintenance of the line.

3.7.9 Mitigation Measures

No impacts requiring mitigation measures were identified, so no mitigation is proposed.

3.7.10 Unavoidable Impacts Remaining After Mitigation

Impacts on socioeconomics or minority or low-income populations (environmental justice impacts) remain the same as reported in Section 3.7.8.

3.7.11 Cumulative Impacts

Potential future upgrades at Palisades and Goshen substations would require construction personnel, thus creating short-term construction jobs if the work were not done by existing BPA construction crews. The local pool of construction workers would be expected to be adequate to provide personnel for these projects unless BPA were to choose an out-of-state contractor. In this case, the contractor would bring its own work crews into the area to complete the work, and only draw from

the local work pool if a specialty skill is needed. In either case, the existing housing supply is expected to be sufficient for local workers who would stay in their existing lodging and out-of-state workers who typically stay temporarily in available housing or bring their housing with them and stay in local RV parks or campgrounds. In addition, public services and utilities (police protection, fire protection, medical services, schools, and utilities) would not be adversely affected because no major increase in the local population is expected to occur. The Proposed Action and any potential future upgrades would be located in substantially the same location as the existing facilities, so construction impacts would occur in areas that have already been disturbed. In addition, the percentage of minority and/or low-income populations in the two counties is low. Because the majority of the area in the vicinity of these projects is undeveloped open space, no cumulative effects on socioeconomics or minority or low-income populations (environmental justice impacts) are expected.

3.7.12 No Action Alternative

Project construction would be avoided if this alternative is implemented, resulting in no effects on population, employment, or housing. Therefore, no effects on socioeconomics or minority or low-income populations (environmental justice impacts) are expected.

However, future transmission system reliability problems could have adverse impacts on the local economy because a less reliable power supply may discourage businesses from expanding or locating within the service area. When a loss of electricity occurs, all services provided by electrical energy cease. Lighting used by residential, commercial, industrial, and municipal customers for safe locomotion and security is affected. Residential consumers lose heat. Electricity for cooking and refrigeration is also lost, so residential, commercial, and industrial customers cannot prepare or preserve food and perishables. Mechanical drives stop, causing impacts as elevators, food preparation machines, and appliances for cleaning, hygiene, and grooming are unavailable to residential customers. Commercial and industrial customers also lose service for elevators, food preparation, cleaning, office equipment, heavy equipment, and fuel pumps. Sewage transportation and treatment can be disrupted.

3.8 Recreation

3.8.1 Affected Environment

Lands crossed by the ROW provide a variety of recreational opportunities within the C-TNF including dispersed camping, fishing, hunting, hiking, and trail motorbike riding. The SFSR is a world class fishery and the Palisades Creek National Recreation Trail is located in the vicinity of the ROW. Cross country skiing, camping, boating, fishing, and hiking are common activities at the reservoirs,

streams, and public lands in Bonneville County. Hiking, fishing, hunting, and water sports are common recreation activities in Bingham County.

3.8.1.1 Regulatory Setting—Forest Service

Goals, Objectives, Standards, and Guidelines

The 1997 Revised Forest Plan for the Targhee National Forest includes "forest-wide" goals, objectives, and standards and guidelines for recreation. They relate to: (1) providing winter recreation opportunities, OHV opportunities, developed recreation facilities; (2) providing dispersed recreation opportunities (such as camping or hiking), and trails; and (3) use capacities for outfitter and guide recreation opportunities throughout the forest (USFS 1997).

The 2003 Revised Forest Plan for the Caribou National Forest (USFS 2003) includes forest-wide goals, objectives, and guidelines for recreation. They relate to: (1) ensuring that recreation facilities, access, and programs are consistent with the desired ROS setting and other resource goals of the area in which they are located; (2) they meet all applicable local, state, and national standards for health and safety; (3) they are barrier-free to the extent practical; (4) recreation information and environmental education and interpretation are provided; and (5) recreation facilities are cost-effective to operate and maintain. In addition, specific U. S. Forest Service activities are specified (USFS 2003).

None of the listed goals, objectives, standards, or guidelines are directly applicable to the Proposed Action (that is, transmission line construction, operation, and/or maintenance) because they relate to general goals, objectives, and/or standards for activities that should be performed by the Forest Service to increase, improve, and maintain recreation opportunities and facilities on Forest lands. However, under the Forest Service's forest-wide goals, objectives, and standards, proposed actions should also be considered relative to Forest Service direction provided at the subsection (that is, ecological unit) and management prescription level, both described below. The Proposed Action is located within the Big Hole Mountains and Caribou Range Mountains subsections. The applicable management prescription is 8.1, Concentrated Development Areas, and is described in further detail below.

The C-TNF's desired future condition for the Big Hole Mountains subsection portion of the C-TNF is that it will provide a wide variety of resources and recreation opportunities. This includes continuing to improve summer time off-highway vehicle (OHV) use and to protect the resource values by locating and maintaining trails in suitable locations. The desired future condition for the Palisades portion of the Big Hole Mountains subsection C-TNF is that it will provide primitive motorized and non-motorized recreation opportunities, with an emphasis on quality backcountry experiences for those uses along appropriate designated trails. The desired future condition for the Caribou Range Mountains subsection portion of the forest includes emphasis on dispersed recreation opportunities, and semi-primitive

backcountry experiences while providing high-quality motorized use on designated trail systems. Goals for this portion of the forest include (1) improving the quality of summer time OHV use and protect resource values by locating and maintaining trails at suitable locations; and (2) emphasizing winter recreation by allowing continued grooming of snow machine trails oriented toward family opportunities and providing shelter facilities (USFS 1997).

Although these forest subsection goals provide direction to the Forest Service staff and do not relate directly to the Proposed Action's construction, operation, and/or maintenance, several utility corridors (including the Proposed Action) are noted as being located within these subsections. Therefore, the Proposed Action is reviewed relative to the subsection goals to determine if the project would be consistent or inconsistent with the Forest Service' goals for recreation within that area.

The goal associated with the management prescription 8.1, Concentrated Development Areas, is to allow concentrated development in small areas for mineral development and infrastructure needs. Applicable standards include (1) energy/utility corridors will be no more than 600 feet in width, (2) do not encourage dispersed recreation in proximity to concentrated development sites, (3) protect existing trails and avoid development of trails in or near concentrated development sites, (4) the Recreation Opportunity Spectrum (ROS) of the area should be Semi-Primitive to Urban, and (5) the Visual Quality Objective (VQO) is generally Partial Retention to Maximum Modification (USFS 1997).

Recreation Opportunity Spectrum

The Forest Service has used the ROS since the 1980s as a management tool to describe and allocate outdoor recreation settings. The area of the C-TNF that is in the vicinity of the ROW has been classified into two ROS classes. The ROW is located on lands designated by the Forest Service as being Roaded Natural (14.11 miles) and Rural (3.38 miles) (USFS 2004).

The Roaded Natural ROS setting consists of areas near improved and maintained roads. Although these areas are mostly natural in appearance, some human modifications are evident, with moderate numbers of people, visible management controls, and developments. The experience provides for a sense of security through the moderate number of visitors and developments, but with some personal risk-taking and challenges.

The Rural ROS setting is characterized by a substantially modified natural environment. Resource modification, development, and use are obvious. Human presence is readily evident, and interaction between users is often moderate to high. The experience provides for modern visitor conveniences, moderate to high levels of interactions with others, and a feeling of security from personal risk.

3.8.1.2 Regulatory Setting—Bureau of Land Management

The ROW crosses BLM lands that are managed pursuant to the 1995 Medicine Lodge Resource Management Plan (RMP). Lands are managed for dispersed recreation, among other uses (BLM 1985). Dispersed recreation refers to recreation activities that occur in primitive areas where there are no developed facilities, such as trailheads, tables, toilets, treated water, or fire rings/grates. Two parcels of land are co-managed by the IDFG and BLM as part of the Tex Creek Wildlife Management Area.

3.8.1.3 Regulatory Setting—Snake River Activity/Operations Plan and Snake River Area of Critical Environmental Concern (ACEC)

The Snake River Activity/Operations Plan (USDI and USDA 1991) also provides guidance regarding recreation activities along the Snake River corridor, including the location where the transmission line crosses the SFSR. The SFSR is also eligible as a Wild and Scenic River (USDI and USDA 1991). The 1991 plan is currently being updated. A general recreation-related goal is to maintain the full range of multiple uses allowed and established in the Medicine Lodge Resource Management Plan (RMP) and Targhee Forest Plan. The Snake River ACEC covers approximately 88 miles of river on public lands and includes the SFSR. Sections of the Palisades-Goshen transmission line near the SFSR (mile 8) are within the 1,120 acre ACEC.

3.8.1.4 Regulatory Setting—County Comprehensive Plans

The ROW crosses Bonneville and Bingham counties. The Bonneville County 1994 Comprehensive Plan includes recreation-related goals that may be applicable to the Proposed Action. These relate to providing adequate recreation facilities for the present and future population of Bonneville County and cooperating with other government jurisdictions to meet this recreation demand and avoid facility duplication. Bonneville County recreation-related goals also specify development setbacks from rivers and streams to preserve water quality, natural scenery, fish and wildlife habitat, irrigation water, open space and recreation and maintaining or enhancing greenscapes on all waterways, where possible.

The Bingham County 2005 Comprehensive Plan also includes recreation-related goals that may be applicable to the Proposed Action. These include maintaining and upgrading recreational facilities and programs and expanding these as needed as population increases; encouraging the preservation and improvement of areas with special interests or uses (including recreation uses); and maintaining and improving existing county-owned recreation areas.

3.8.2 Environmental Impacts—Proposed Action

Direct impacts on recreation activities during project construction may include temporarily eliminating access to areas along Fall Creek used for dispersed

camping. However, the C-TNF has recently taken actions to eliminate dispersed camping at some areas along Fall Creek to allow improvement in riparian vegetation and water quality. Areas within and near the ROW may be closed to OHV or other recreation use during the construction period for safety and security reasons. In addition, the use of C-TNF roads by construction vehicles, equipment, and workers may result in minor traffic delays in accessing nearby areas used for recreation activities.

Indirect impacts on recreation activities include the potential effects of noise and dust on the enjoyment of such recreation activities from the localized presence of the construction vehicles, equipment, activities, and workers. The severity of the impact would depend on the recreationists' expectations when engaging in the recreation activities. Recreationists expecting a solitary quiet experience while viewing wildlife or scenery may perceive project construction as undesirable or intolerable, while OHV users may notice the construction noise, dust, and activity to a lesser degree. Dispersed recreation users along the Fall Creek road would not have an expectation of a solitary quiet experience because of the presence of the well-used road. In the unlikely event of nighttime project emergency equipment/vehicle repair, construction lights may affect the experience of recreationists camping within the C-TNF.

After project construction and revegetation activities are completed, land managers may prevent or limit access to some access roads to avoid erosion and minimize weed invasion. This may result in a long-term reduction in an area that is used by OHVs and possibly other recreationists. However, excessive OHV use in the ROW vicinity has been identified as a nation-wide problem by the Forest Service and by the C-TNF and some access restrictions are desired. Two specific locations where access by the public would be discouraged would be in the vicinity of structures 20/4 and 21/8. Public lands in the Tex Creek WMA are currently closed to OHV use and would continue to be closed.

Implementation of the Proposed Action would result in fewer OHV opportunities near the upgraded alignment, if access to the area is controlled. This would not be a significant reduction in recreation opportunities though, because the project would occupy a very small percentage of C-TNF, BLM, and/or private land. Accordingly, project implementation would not conflict with or detract from the ROS designations of C-TNF lands along the ROW as Roaded Natural or Rural. Implementation of the Proposed Action also would be consistent with the identified applicable goals and policies of the BLM Management Plan, as well as the Bonneville County and Bingham County Comprehensive Plans.

Operation of the Proposed Action would have no adverse effect on existing recreation opportunities near the upgraded alignment because the project features (transmission line structures) already are in place. OHV opportunities may increase if some improved or new access roads are not effectively closed to use public use.

Operation of the Proposed Action would be consistent with the identified applicable BLM, Forest Service, and Bonneville County and Bingham County Comprehensive Plan policies.

Implementation of the Proposed Action would be consistent with the Forest Service subsection and management prescription goals because it would replace an existing transmission line, following the existing transmission line's alignment, which would minimize the project-related disturbance to undisturbed Forest land, which would also minimize conflicts with recreation facilities and activities on Forest land.

Implementation of the Proposed Action would be compatible with the BLM's multiple use management of the land, including management of the land for recreational uses because it would replace an existing transmission line along the same alignment as the existing line. This would minimize the project-related disturbance to undisturbed BLM lands, which would minimize conflicts with other uses on those lands.

Implementation of the Proposed Action would be compatible with Bonneville County's and Bingham County's recreation-related goals because replacing an existing transmission line with the Proposed Action, along the same alignment as the existing transmission line, would minimize project-related disturbance to undisturbed lands within those county jurisdictions, which would enable the counties to pursue meeting their recreation goals.

Replacement of the existing transmission line at the same location would not affect recreation activities covered by the Snake River Activity/Operations Plan, nor would it affect eligibility of the SFSR as a Wild and Scenic River. Similarly, replacement of the existing transmission line at the same location would not affect recreation uses on public lands administered by the BLM within the Snake River ACEC.

The overall impact of construction of the proposed action on recreation would be low.

3.8.3 Mitigation Measures

The following mitigation measures would be implemented to avoid or minimize the potential for project-related impacts on recreation activities:

- Send an information letter to the project mailing list regarding the upcoming construction activities and schedule.
- Request that the C-TNF post project information on its website.

- Specify that the construction contractor use downward-directed shielded construction lighting for nighttime emergency equipment/vehicle repair, should this occur. Lights should meet federal, state, and local requirements for safety and security of workers and the public.
- Place 50-foot sections of jack fence in the vicinity of structures 20/4 and 21/8 to discourage OHVs from accessing the ROW access road in these areas of high quality shrub/steppe vegetation. This fence would be removed by the Forest Service in the future after disturbed areas are reseeded and vegetation is re-established along the access road.

3.8.4 Unavoidable Impacts Remaining After Mitigation

With the implementation of the proposed mitigation measures, no unavoidable adverse impacts on recreation are expected to occur.

3.8.5 Cumulative Impacts

Cumulative impacts to recreational opportunities in the area have been both adverse (removal of land from recreational use, increased human development and activities, etc.) and beneficial (development of recreational trails, campsites, etc.). Because the Proposed Action would not result in significant impacts to recreation after the implementation of recommended mitigation measures and the use of standard construction and best management practices, the Proposed Action would not contribute to cumulative impacts in the jurisdictions that the upgraded transmission line would cross. Potential upgrades at the Palisades and Goshen substations would not affect recreation opportunities.

3.8.6 No Action Alternative

If the No Action Alternative is implemented, no project-related ground-disturbing activities would occur in the upgraded transmission line area. The No Action Alternative would result in no project-related effect on recreation opportunities or recreation facilities, and no mitigation would be required.

3.9 Land Use

3.9.1 Affected Environment

3.9.1.1 Existing Land Ownership and Uses

Approximately 31 miles of the 52-mile-long ROW crosses private land, 16 miles would be on the C-TNF, 3 miles would be on BLM land, 2 miles crosses Reclamation land, and less than a 0.5 mile would be located on state land.

The proposed project would be located in Bingham and Bonneville counties. Bingham County encompasses 2,184 square miles (Bingham County 2005), and is a

rural county with a density of approximately 21 people per square mile (city-data.com 2008). Bonneville County encompasses 1,868 square miles, and has a density of approximately 49 people per square mile (city-data.com 2008).

The primary land uses that would be crossed by the ROW are undeveloped open space, rangeland (used for grazing), and agricultural land. Other existing land uses along and/or near to the proposed project include a travertine mine and a few rural residences. The proposed project would cross several electric distribution lines, telephone lines, roads, canals and culverts.

3.9.1.2 Farmlands

The Farmlands Protection Policy Act of 1981 (FPPA) regulates effects of federal actions on farmlands. Locally important farmlands as well as prime and unique farmlands were inventoried for the project. A farmland conversion form was completed on December 13, 2007, and is on record with the Natural Resource Conservation Service (NRCS), of the U.S. Department of Agriculture, Idaho Falls Service Center.

Prime farmland is land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. According to the NRCS, prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops, when treated and managed (including water management) according to acceptable farming methods. Prime Farmland soils exist in the project area only when irrigated and are located in Bingham County.

3.9.2 Environmental Impacts—Proposed Action

3.9.2.1 Ownership and Land Uses

Line reconstruction would not affect existing ownership of the lands crossed by the ROW. Section 2.1.3 describes changes in the width of the ROW along the length of the line. Because ROW is purchased as an easement, ownership of the land does not change.

Because the transmission line consists of structures that would be spaced an average of 750 feet apart, construction of the Proposed Action would result in temporary minor and localized disruption to recreation, mining, and farming activities along sections of the ROW. Construction is not expected to result in long-term interference with existing land uses (undeveloped open space, recreation, grazing, agriculture, mining, industrial, and rural residential uses). In addition, maintenance activities are not anticipated to interfere with, nor would those activities result in an adverse impact on existing land uses along the ROW. In locations where the alignment would be upgraded within road rights-of-way or within easements or rights-of-way for utilities, effects on existing land uses are expected to be minimal. In locations where the upgraded transmission line would bisect a parcel of land,

there may continue to be lasting effects on the parcel's existing land use. However, because this is an upgrade of an existing transmission line, impacts on land use would not change from existing conditions.

3.9.2.2 Farmlands

The wider structure design would remove a total of less than 0.1 acre of farmland from production at the base of the structures in Bingham County; all of which are considered Prime Farmland as these soils are being irrigated for agricultural production.

In accordance with the FPPA, Federal agencies associated with proposed projects that may convert farmland to nonagricultural uses must complete a U.S. Department of Agriculture Farmland Conversion Impact Rating Form NRCS-CPA-106. Activities not subject to FPPA are as follows:

- Projects on land already in urban development or used for water storage
- Construction of structures on existing footprints within an existing ROW purchased on or before August 4, 1984. This exemption applies to all but six structures for this project. Structures 48/4, 48/5, 48/6, 48/7, 49/4, and 49/6 would be moved to new locations to avoid conflicts with ongoing agricultural activities, and are therefore subject to FPPA.

The NRCS-CPA-106 form was submitted to the Bingham County Soils Resource Conservationist on December 13, 2007. The total score for the proposed action was 170 and therefore in accordance with 7 CFR Chapter VI Section 658.4 (c) 2 (NRCS 1984), further consideration for farmland protection is required. BPA would continue to coordinate with landowners to move structures so that they do not impact pivot irrigation systems.

A relatively small area of land enrolled in the Conservation Reserve Program (CRP) may be temporarily affected during project construction. Any damage to these lands would be repaired by regrading and reseeding, as needed, similar to the treatment of other disturbed agricultural lands. Any loss of federal CRP payments because of project construction would be reimbursed by BPA.

Impacts to all farmlands would be considered low.

3.9.3 Mitigation Measures

The following mitigation measures are recommended to minimize the potential for project effects on land use:

- Coordinate with affected landowners for permission to enter their land, and negotiate appropriate agreements with landowners to obtain ROW easements.

- If the land use of a parcel would continue to be adversely affected by the proposed structure locations, consider modifying their locations, if feasible, to reduce the effects on the parcel's existing land use.
- If crops would be damaged, if crops could not be planted, or if CRP payments are reduced because of project construction, appropriate compensation would be provided to the affected farmers.

3.9.4 Unavoidable Impacts Remaining After Mitigation

With the implementation of the recommended mitigation measures, no unavoidable impacts on land use are expected to occur.

3.9.5 Cumulative Impacts

Timber harvest, mineral extraction, residential and commercial development and other development activities have changed and will continue to change land use in the project vicinity. In addition, the Comprehensive Plans of the various city and county jurisdictions in the project vicinity call for growth and development to occur within their planning boundaries. Such planned growth and development may cause change to existing land use on private lands. Because the Proposed Action would not result in impacts to land use after the implementation of recommended mitigation measures, the Proposed Action would not contribute to cumulative land use impacts in the jurisdictions that the upgraded transmission line would cross. Potential future upgrades at Palisades and Goshen would have no impacts on land uses in the immediate vicinity of the substations because the areas are already disturbed and not used for other purposes.

3.9.6 No Action Alternative

If the No Action Alternative is implemented, no project-related ground-disturbing activities would occur in the project area. A few existing minor conflicts with farming operations related to structure locations would continue. The No Action Alternative would result in no new project-related effects on land uses or land ownership and no mitigation would be required. Property acquisitions would not occur; therefore, no farmlands would be impacted as a result of the No Action alternative.

3.10 Cultural Resources

3.10.1 Affected Environment

For cultural resources, the area of potential effect, or APE, is the geographic area where the character or use of historic properties (significant cultural resources) may directly or indirectly be altered because of a project undertaking (36 CFR 800.16). A cultural resource is "significant" if it is found to meet criteria for eligibility to local,

state and national registers, and if it possesses integrity of its original historical features and characteristics. The APE for the Proposed Action was developed in accordance with state and federal guidelines. The APE includes proposed areas of ground disturbance and subsurface construction, as well as construction staging areas. The APE for the transmission line is 150 feet wide (75 feet on each side of centerline) and expands to a 150-foot-wide radius around the transmission line's angle points. The APE for access roads (existing, proposed for improvement, and new) is 20 feet.

In addition to literature reviews and background research, archaeologists conducted a visual above ground pedestrian inventory survey of the entire APE along the transmission line and proposed access roads to relocate previously documented cultural resources, assess their condition, and identify additional new cultural resources. The inventory survey was conducted according to state and federal guidelines regulating cultural resource practice. Inventory transects were walked and spaced no more than 30 meters apart for the entire APE.

Research and fieldwork for the project resulted in 22 cultural resources in the APE. Table 3-10 summarizes these resources and their NRHP eligibility status and general location, and reflects SHPO concurrence with Eligibility findings for the cultural resources documented for this study.

3.10.2 Environmental Impacts—Proposed Action

For this project, direct impacts to cultural resources would result from physical ground disturbances caused by material and equipment staging; removal and reconstructing structures; access road building and reconstruction and vehicle and heavy equipment access to and from project work areas. Indirect project impacts may result from intermittent access of people and vehicles to the transmission line for continued operation and maintenance purposes. Such indirect impacts are expected to be minimal, especially if access roads are initially designed to avoid significant or unevaluated cultural resource sites. Other indirect project impacts could include increased use of the area by ranchers running livestock, as well as recreationists using the C-TNF for hunting, fishing, camping, and other leisure activities because of access road improvements.

TABLE 3-10
Summary of Cultural Resources in the Project APE

Site #	Site Type and Historic Themes	NRHP Eligibility Determination/Recommendation	Location
10BM696	Historic Canal, Irrigation, and Agriculture	Recommended Eligible	Private Land
*10BV6	Prehistoric Campsite	Recommended Not Eligible	Caribou-Targhee National Forest
10BV62	Prehistoric Lithic Scatter	Recommended Potentially Eligible Under Criterion D	Caribou-Targhee National Forest
10BV76	Prehistoric Lithic Scatter	Recommended Eligible	BLM Land
10BV130	Calf Hollow Lithic Scatter	Recommended Eligible	Caribou-Targhee National Forest
10BV155	Prehistoric Lithic Scatter	Recommended Eligible	Caribou-Targhee National Forest
10BV158	Isolated Secondary Flake	Recommended Not Eligible	Caribou-Targhee National Forest
10BV159	Isolated Flakes	Recommended Not Eligible	Caribou-Targhee National Forest
10BV225	Henry Creek Historic Dump	Recommended Not Eligible	Private Land
10BV226	Willow Creek Lithic Scatter	Eligible	BLM Land
CH-1	Historic Farmstead	Recommended Eligible under Criterion A	Private Land
CH-2	Historic Farmstead	Recommended Eligible under Criterion C	Private Land
CH-3	Historic Farmstead	Recommended Not Eligible	Private Land
CH-5	Prehistoric Lithic Scatter	Recommended Eligible	Caribou-Targhee National Forest
CH-7	Historic Farmstead	Recommended Not Eligible	Private Land
CH-8	Prehistoric Lithic Scatter	Recommended Eligible	Caribou-Targhee National Forest
CH-9	Historic Cow Camp	Recommended Not Eligible	Caribou-Targhee National Forest
CH-10	Prehistoric Lithic Scatter	Recommended Not Eligible	Idaho State Lands
CH-11	Historic Farmstead	Recommended Not Eligible	Private Land
CH-12	Historic Farmstead	Recommended Not Eligible	Private Land
CH-13	Prehistoric Lithic Scatter	Recommended Eligible	Private Land
Goshen 2004-4	Palisades-Goshen 115 kV Transmission Line	Recommended Not Eligible	State Land, BLM Land, Caribou-Targhee National Forest, and Private Land

*Consultation with SHPO regarding NRHP eligibility ongoing.

Table 3-11 lists BPA's project Determination of Effect for sites for which the Idaho SHPO has concurred with NRHP Eligibility. These determinations of project effect have been discussed and coordinated with the C-TNF and BLM archaeologists on their respectively managed lands. This information, along with the cultural resource

technical report, was sent to the SHPO for review and concurrence. The SHPO has concurred with BPA's determination of eligibility findings for the cultural resources documented for this project. The report was also sent to the potential interested Tribes for review, including the Blackfeet Tribe, the Duck Valley–Shoshone Paiute Tribes, the Nez Perce Tribe, the Shoshone Bannock Tribe, and the Northwestern Band of the Shoshone Nation.

TABLE 3-11
BPA Effect Determinations for Cultural and Historic Sites

Site	BPA Effect Determination	Notes
*10BV6	No Effect	BPA recommended Not Eligible; Site Obliterated
10BV62	No Adverse Effect	Existing Route of Travel
10BV76	No Effect	Will be avoided; flag in field
10BV130	No Adverse Effect	Existing Route of Travel
10BV155	No Adverse Effect	Existing Route of Travel
10BV226	No Effect	Will be avoided; flag in field
10BM696	No Effect	Will be avoided
CH-1	No Effect	Will be avoided
CH-2	No Adverse Effect	Existing Route of Travel
CH-5	No Adverse Effect	Existing route of travel - BPA proposes to utilize filter fabric and a layer of sterile sediment on roadway
CH-8	No Effect	Will be avoided
CH-13	No Adverse Effect	Existing route of travel - BPA proposes to utilize filter fabric and a layer of sterile sediment on roadway

*Consultation with SHPO regarding NRHP eligibility ongoing.

3.10.3 Mitigation Measures

SHPO recommends complete avoidance of all sites eligible or potentially eligible for listing on the NRHP. If complete avoidance is not possible, mitigation measures would be implemented for affected sites. Mitigation measures identified at this time for sites that would be adversely impacted by this project include:

- Place filter fabric and sterile rock on 250 feet of a spur access road in order to protect site CH-5.
- Flag culturally sensitive areas so that these areas may be avoided by project personnel.
- Place filter fabric and sterile rock on 200 feet of the ROW road to protect CH-13.
- If previously undiscovered cultural resources, either archaeological or historical materials, are discovered during construction activities, stop all construction

work immediately and notify appropriate BPA personnel, the Idaho SHPO, and the Tribes.

- Stop construction in the area immediately should human remains and/or burials be encountered. Secure the area, placing it off limits for anyone but authorized personnel and immediately notify proper law enforcement, BPA archeologist, the Idaho SHPO, and the Tribes.
- Prevent unauthorized collection of cultural materials by ensuring a professional archaeologist and tribal monitor are present during any excavation within known sites.

Implement any additional mitigation measures for cultural resources identified by the state SHPO through the Section 106 consultation process

3.10.4 Unavoidable Impacts Remaining After Mitigation

With implementation of mitigation measures, there would be no unavoidable impacts to cultural resources for this project.

3.10.5 Cumulative Impacts

Cultural resources in the project vicinity have been and are being affected because of past, present, and current development and activities. These cumulative impacts include disturbance of cultural sites, reduction of the cultural integrity of certain sites, and removal of cultural artifacts. The Proposed Action could contribute incrementally, albeit in a very minor way, to these cumulative impacts. In addition, there is the potential for the Proposed Action to impact previously undiscovered cultural resources or artifacts. Although mitigation is identified to lessen or avoid the potential for this impact, if the Proposed Action does impact previously undiscovered cultural resources or artifacts, it also would contribute incrementally to the adverse cumulative impact to cultural resources in the area.

3.10.6 No Action Alternative

Under the No Action Alternative, reconstruction would not occur and the potential to harm or have any other effects on any type of cultural resource in the APE would not exist. There might be the potential to harm or have effects on cultural resources through continued operation and maintenance of the line. Before maintenance activities on the existing line were to occur, and if they had the potential to affect cultural resources, a cultural resource survey would be done at that time before the action took place.

3.11 Visual Quality

3.11.1 Affected Environment

The ROW crosses a variety of terrains that contribute to visual diversity: relatively open and flat areas with patches of cottonwood and aspen trees near a Reclamation recreation area along the SFSR; agricultural land (both irrigated and dry land farming); wooded draws; a mine; stands of conifer forest and riparian areas near Fall Creek; paralleling a road with conifer forest on the northern side and sagebrush grass on the southern side; crossing a stream with willows, sagebrush grass, and aspen in the area; undeveloped open space (pasture land); and grazed sagebrush grass with aspen and deciduous shrubs on steeper slopes. A few rural residential land uses were noted in the immediate vicinity of the ROW, and much of the landscape appears natural, having few human-made elements.

Recreation (camping, hunting, fishing, and OHV use) occurs in the Fall Creek drainage. The number of people having views of the current transmission line alignment is limited to those driving along US 26, other local roads in the vicinity of the ROW, some houses in the areas mentioned above, and recreationists.

Idaho has officially recognized Scenic Routes since June 1977. The Teton Scenic Byway is located near the eastern terminus of the ROW and includes US 26 (idahobyways.gov 2008). The ROW crosses US 26 twice and runs parallel to and within a few hundred feet of the highway for about 7 miles.

The existing transmission line corridor has created visual impacts and has changed the landscape quality in the vicinity of the line. In general, existing impacts are most apparent where the corridor is adjacent to or near highways, residences, or recreation sites.

3.11.1.1 The Forest Service Scenery Management System (SMS) and Visual Management System (VMS)

Approximately 16 miles of the ROW passes through the C-TNF and would be subject to Forest Service directives related to visual resources (called scenic resources by the Forest Service). The methodology used by the Forest Service to manage visual (scenic) resources is guided by their Visual Management System (VMS) or the more recent Scenery Management System (SMS). Both systems provide an overall framework for the orderly inventory, analysis, and management of scenery. The systems apply to all Forest Service lands and to all Forest Service activities including, but not limited to, timber harvesting, road building, stream, range, and wildlife improvements, special use developments, utility line construction, recreation developments, and fuels management. Two Forest Service handbooks describe the VMS system (USFS 1974) the SMS system (USFS 1995).

The Forest-wide Standard and Guideline Goal for Visual Quality, as presented in the C-TNF 1997 Revised Forest Plan, is as follows: Manage the visual landscape in

accordance with the planned VQO, as mapped in the Geographic Information System (USFS 1997). The 16 miles of ROW that crosses Forest Service land is designated the VQO of Modification (equivalent of the designation of Low in the SMS). The designation of Modification refers to landscapes where the valued landscape character "appears moderately altered." Deviations begin to dominate the valued landscape character being viewed, but they borrow valued attributes such as size, shape, edge effect, and pattern of natural openings, vegetative type changes, or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed, but compatible or complimentary to the character within.

3.11.1.2 The U.S. Bureau of Land Management Visual Management System (VMS)

Approximately 3 miles of the ROW crosses BLM land and would be subject to BLM directives related to visual resources. The BLM has developed the Visual Resource Management (VRM) system to maintain the scenic value of public lands that are within its jurisdiction. The VRM system is an analytical process that identifies, sets, and meets objectives for maintaining scenic values and visual quality. The VRM system is implemented through the BLM RMPs. To assess the scenic values of land within its jurisdiction, BLM typically conducts a visual resource inventory. Once inventoried and analyzed, lands are given relative VRM ratings (known as VRM Classifications). The VRM Classifications represent the relative value of the visual resources. Classes I and II have the highest values, Class III represents moderate values, and Class IV has the least value. The classes provide the basis for establishing visual values and do not establish management direction (BLM 1986).

The BLM has established different objectives for each VRM Classification, with differing degrees of modifications allowed to the basic elements of the landscape (the form, line, color, and texture). The ROW crosses BLM lands designated VRM Class II and III. They are defined as follows:

Class II. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

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. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

3.11.2 Environmental Impacts—Proposed Action

Construction-related visual impacts would be caused by vegetation removal, new and improved access roads, earthwork and grading scars, piles of dirt, staging areas, heavy equipment tracks, trenching, temporary support machinery and tool storage, and construction personnel and vehicles. The visual effects of the presence of construction equipment and activities would be temporary intermittent activities over a 3-year period.

The visual impacts resulting from construction activities would be reduced by site reclamation activities, but they would still be long-term because of the length of time required to re-establish vegetation in disturbed areas.

During project construction, trucks and construction personnel would periodically enter and exit the construction staging area. These visual changes would be substantial; however, they would be temporary and would not create an adverse long-term visual effect.

It is expected that the upgraded transmission line would not dominate any views. The transmission line structures would be seen to varying degrees along the existing route. However, except for the first 2 miles, views of the transmission line would be nearly unchanged from current conditions. The replacement structures would average 5 feet taller and up to 8 feet wider than the existing structures. See Figure 2-2. Replacement structure spans would be similar to the existing spans. The replacement structures would be installed in the same locations as the existing structures except for where sensitive areas need to be avoided. The upgraded transmission line is not expected to change existing land uses along or near the ROW.

It should be noted that, depending on location, views toward construction activities could be blocked by differences in terrain, shrubs, structures, or other features in the viewer's immediate foreground. In addition, beyond approximately 1 mile to 3 miles from the construction area, the proposed action is not expected to be visible due to screening by the features identified above, or would be of such a small size in the background field of view that significant impacts to visual resources would not be expected.

Most of the structures would be constructed of wood with either galvanized or COR-TEN steel cross arms. COR-TEN cross arms are preferred but may not be available from the supplier, in which case galvanized cross arms would be used. COR-TEN cross arms would turn a rust-brown color and better blend with the wood poles than galvanized cross arms. Galvanized steel structures would be used for the rerouted line beginning at Palisades Dam, structure 1/1 to structure 2/7 of the Palisades Goshen line and in mile 4 from structure 4/1 to 4/8. See Figure 2-3. Galvanized steel would appear as gray vertical elements in the landscape. Conductors spanning the poles would also be seen (as they are now). Bird diverters

installed along lines near and across the SFSR (mile 8) would increase line visibility in that area compared to the existing line.

Replacing the transmission line structures and conductors would not change the existing character of the area. Viewers are used to seeing the existing transmission lines, so once the upgraded line is constructed, viewers are not expected to notice much difference in the transmission line or its effects on the landscape. The proposed action would be visually subordinate to the viewed landscape. It would meet the Forest Service VQO of Modification and the BLM's Class II and III designations. In addition, the proposed action would have no effect on the ability of US 26 to be considered a Scenic Byway.

The overall impact of construction of the Proposed Action would be moderate, and the ongoing impacts during operation would be low.

3.11.3 Mitigation Measures

Mitigation measures that would reduce or avoid the potential impacts of the proposed action on visual resources are as follows:

- If nighttime emergency repair of equipment or vehicles becomes necessary, illumination that meets federal, state, and local worker safety regulations would be required. To the extent possible, the nighttime lighting would be erected pointing toward the center of the site where activities are occurring, and would be shielded. Task-specific lighting would be used to the extent practical while complying with worker safety regulations.
- Install non-specular conductor and ceramic insulators.
- Locate structures in the same general location as the existing structures to the extent practicable, and except where sensitive resources need to be avoided.
- Use COR-TEN cross arms if available from the manufacturer.

3.11.4 Unavoidable Adverse Impacts Remaining After Mitigation

With the implementation of the recommended mitigation measures, no unavoidable adverse impacts on visual resources are expected to occur.

3.11.5 Cumulative Impacts

The Comprehensive Plans of the counties' jurisdictions call for growth and development to occur within their planning boundaries. Such planned growth and development would result in a change to the existing landscape (visual resources), especially in the Snake River valley near the western end of the line. Potential future upgrades or expansion of the Palisades and Goshen substations would result in only very minor changes to the current views of these two areas because of the presence of the existing substations. Because the proposed action would not result in

significant impacts to visual resources after the implementation of recommended mitigation measures and the use of standard construction and best management practices, the proposed action would not contribute to cumulative impacts in the jurisdictions that the upgraded transmission line would cross. Upgrades or expansion of the Palisades and Goshen substations would result in only very minor changes to the current views of these two areas because of the presence of the existing substations.

3.11.6 No Action Alternative

If the No Action Alternative is implemented, no project-related ground-disturbing activities would occur in the upgraded transmission line area. The No Action Alternative would result in no project-related effect on the landscape, resulting in no impacts on visual resources.

3.12 Public Health and Safety

3.12.1 Affected Environment

3.12.1.1 Vehicle Travel and Aircraft

The existing environment includes persons who live or recreate near the existing transmission line, as well as travelers on US 26, the SFSR Road (construction access to Fall Creek), the Fall Creek Road, Kepps Crossing Road, Bone Road, and Taylor Creek Road. All but US 26 are gravel roads maintained by the respective counties and visitors to C-TNF and BLM lands crossed by the transmission line. Traffic on roads in the vicinity of the ROW is higher during the summer and early fall than during winter and early spring. US 26 is a major access route to tourist destinations in the Jackson Hole, Wyoming area and to Grand Teton and Yellowstone National Parks. Traffic on the SFSR and Fall Creek roads is relatively higher during the summer months because of Forest visitors and accessing the world-class fishery of the SFSR. Use of the other roads in the general vicinity of the ROW is low except near the western end of the project in the Idaho Falls area.

Transmission facilities can potentially harm humans through contact. The Federal Aviation Administration (FAA) establishes requirements for towers and other tall structures that would potentially interfere with aircraft safety. Typically, structures taller than 200 feet would require flashing warning lights for aircraft safety.

3.12.1.2 Electric and Magnetic Fields

The existing environment that should be considered for effect of electric and magnetic fields is the public living in proximity to or traveling along the route of the proposed rebuilt transmission line. There are few homes in proximity to the transmission line route with those being at the eastern end of the route along US 26.

Very little human habitation is found once the route turns up Fall Creek and heads for its western termination at the Goshen substation.

Transmission lines, like all electric devices and equipment, produce electric fields and magnetic fields (EMF). Current (the flow of electric charge in a wire) produces the magnetic field. Voltage (the force that drives the current) is the source of the electric field. The strength of electric and magnetic fields depends on the design of the line and on the distance from the line. Field strength decreases rapidly with distance.

Electric fields from high-voltage transmission lines can cause nuisance shocks when a grounded person touches an ungrounded object under a line or when an ungrounded person touches a grounded object. Transmission lines are designed so that the electric field will be below levels where primary shocks could occur from even the largest (ungrounded) vehicles expected under the line.

Electric and magnetic fields are found around any electrical wiring, including household wiring and electrical appliances and equipment. Throughout a home, the electric field strength from wiring and appliances is typically less than 0.01 kVs per meter (kV/m). However, fields of 0.1 kV/m and higher can be found very close to electrical appliances.

There are no national guidelines or standards for electric fields from transmission lines except for the 5-milliampere criterion for maximum permissible shock current from vehicles. Idaho does not have any specific guidelines for electric field strength. BPA designs new transmission lines to meet its electric-field guideline of 9-kV/m maximum on the ROW and 5-kV/m maximum at the edge of the ROW.

Average magnetic field strength in most homes (away from electrical appliances and home wiring, etc.) is typically less than 2 milligauss (mG). Very close to appliances carrying high current, fields of tens or hundreds of milligauss are present. Typical magnetic field strengths for some common electrical appliances found in the home are given in Table 3-12. Unlike electric fields, magnetic fields from outside power lines are not reduced in strength by trees and building materials. Transmission lines and distribution lines (the lines feeding a neighborhood or home) can be a major source of magnetic field exposure throughout a home located close to the line.

There are no national guidelines or standards for magnetic fields. The state of Idaho does not have magnetic field limits. BPA does not have a guideline for magnetic field exposures.

TABLE 3-12
Typical Magnetic Field Strengths (1 foot from common appliances)

Appliance	Magnetic Fields (mG)[a]
Coffee maker	1-1.5
Electric range	4-40
Hair dryer	0.1-70
Television	0.4-20
Vacuum cleaner	20-200
Electric blanket[b]	15-100

mG = milligauss
[a] The magnetic field from appliances usually decreases to less than 1 mG at 3 to 5 feet from appliances.
[b] Values are for distance from blanket in normal use (less than 1 foot away).
Source: Miler 1974; Gauger 1985

3.12.1.3 Intentional Destructive Acts

Intentional destructive acts (that is, acts of sabotage, terrorism, vandalism, and theft) sometimes occur at power utility facilities. Vandalism and thefts are most common, and recent increases in the prices of metal and other materials have accelerated thefts and destruction of federal, state, and local utility property. BPA has seen a significant increase in metal theft from its facilities over the past several months due in large part to the high price of metals on the salvage market. There were more than 50 burglaries at BPA substations in 2006. The conservative estimate of damages for these crimes is $150,000, but the actual amount is likely much higher since this number does not factor in all the labor-related costs associated with repairing the damage.

The Proposed Action is comprised of many components. Overhead transmission conductors and the structures that carry them are mostly on unfenced utility rights-of-way. The conductors use the air as insulation. The structures and tension between conductors make sure they are high enough aboveground to meet safety standards. Structures are constructed on footings in the ground and are difficult to dislodge. The Palisades and Goshen substations, which may need to be upgraded in the future, are both fenced to restrict access to authorized workers. Security cameras and other specialized equipment are in place to safeguard the areas.

Federal and other utilities use physical deterrents, such as fencing, cameras, warning signs, and rewards, to help prevent theft, vandalism, and unauthorized access to facilities. In addition, through its Crime Witness Program, BPA offers up to $25,000 for information that leads to the arrest and conviction of individuals committing crimes against BPA facilities. Anyone having such information can call BPA's Crime

Witness Hotline at (800) 437-2744. The line is confidential and rewards are issued in such a way that the caller's identity remains confidential.

3.12.2 Environmental Impacts—Proposed Action

3.12.2.1 Vehicle Travel and Aircraft

Potential health and safety impacts of the Proposed Action would include the following:

- Construction activity hazards
- Heavy equipment safety
- Potential fuel spills
- Traffic entering and traveling along US 26, the SFSR Road, the Fall Creek Road, Kepps Crossing Road, Bone Road, and the Taylor Creek Road
- Potential aircraft hazards

The risk of fire and injury is associated with the use of heavy equipment, working near high-voltage lines, and hazardous materials such as fuels during access road construction, and replacement of structures and conductors. Fuel spills may occur where vehicles that are not highway authorized are fueled.

There would be potential safety issues with more traffic on the highways and roads in the general vicinity of ROW during construction. By far the greatest potential hazard from construction traffic exists along US 26 during the summer and early fall. Without mitigation measures, construction trucks and vehicles turning off and onto US 26 could cause substantial safety hazards for vehicles and travelers using the road.

The presence of the rebuilt transmission line, like the existing line, could pose a hazard to any low-flying aircraft. However, given the relatively low height of the proposed structures (one structure could be up to 120 feet tall and all of the others would be shorter), the risk associated with this potential hazard would be considered extremely low, and would be a change from current conditions.

3.12.2.2 Electric and Magnetic Fields

Electric fields for existing and new locations are reported in Table 3-13, with certain values noted, such as maximums and at edges of the ROW. All electric field values along the new edge of ROW are less than 1 kV/m—a level at which no nuisance shocks are expected to occur. Existing ROW maximums of about 3 kV/m near Palisades are not significantly changed by the new line. These levels are far below BPA electric-field guidelines of 9 kV/m maximum on the ROW and 5 kV/m at the edge of the ROW.

Magnetic fields are subject to controversy. After decades of research, the issue of whether there are long-term health effects associated with transmission-line fields remains controversial. Magnetic fields are most in question as possible sources of long-term effects, although studies sometimes lump the two (electric and magnetic) fields together. For the latest information, BPA defers to the determinations of the National Institute of Environmental Health Science (NIEHS) and to the related web site denoted by EMFRAPID (http://www.niehs.nih.gov/emfrapid/home.htm). Scientific reviews of the research on EMF health effects have found that there is insufficient evidence to conclude that EMF exposures lead to long-term health effects. However, some uncertainties remain for childhood exposures at levels above 4 mG.

TABLE 3-13
ROW Electric Field Values*

	North Side ROW (kV/m)	Maximum on ROW (kV/m)	South Side ROW (kV/m)
Palisades Dam to Structure 2/7			
Existing	N/A	N/A	N/A
New	0.09	1.07	0.09
Structure 2/7 to 4/1			
Existing	1.19	1.31	1.19
New	1.21	1.68	1.68
Structure 4/1 to 4/8			
Existing	0.70	1.25	0.70
New	0.70	1.45	0.70
Structure 4/8 to 45/6			
Existing	0.16	1.25	0.16
New	0.27	1.64	0.27
Structure 45/6 to Goshen Substation			
Existing	0.90	2.93	0.11
New	0.90	2.92	0.21

* Values developed from BPA modeling program.

An increase in public exposure to magnetic fields could occur if field levels increased or if residences or other structures draw people to these areas. The predicted field levels are only indicators of how the proposed project may affect the magnetic-field environment. They are not measures of risk or impacts on health.

BPA has predicted the magnetic fields of the proposed ROW and of the existing ROW as shown in Table 3-14. Magnetic Field levels shown below are annual average values. These levels are computed from line loading data spanning September 19, 2006, through September 19, 2007. Long term EMF exposure is related to average levels. Actual magnetic fields at any particular time will be higher or

lower depending on line loading at that time. Loading varies throughout the day and year.

Maximum EMF at the edges of the ROW would be less than 1.5 milligauss and represent a marginal increase in the existing field strength.

Magnetic fields up to about 10 milligauss can affect the pictures of standard television tubes and computer monitors. Pictures may appear "wavy." Liquid crystal displays (LCDs) are immune to these effects. LCD screens are common in laptop computers and can be obtained to replace desktop computer monitors. Should these effects occur, BPA would investigate them on a case-by-case basis.

TABLE 3-14
Predicted Magnetic Fields

	North Side ROW (mG)	Maximum on ROW (mG)	South Side ROW (mG)
Palisades Dam to Structure 2/7			
Existing	N/A	N/A	N/A
New	0.6	22.7	0.6
Structure 2/7 to 4/1			
Existing	0.8	25.0	0.7
New	0.9	26.8	1.1
Structure 4/1 to 4/8			
Existing	0.4	22.8	0.4
New	0.5	19.2	1.5
Structure 4/8 to 45/6			
Existing	0.4	22.8	0.4
New	0.6	27.6	0.6
Structure 45/6 to Goshen Substation			
Existing	1.0	30.3	0.6
New	1.0	34.0	0.7

3.12.2.3 Intentional Destructive Acts

The impacts from vandalism and theft, though expensive, do not generally cause a disruption of service to the area. Stealing equipment from electrical substations, however, can be extremely dangerous. In fact, nationwide, many would-be thieves have been electrocuted while attempting to steal equipment from energized facilities. On October 11, 2006, a man in La Center, Washington, was electrocuted while apparently attempting to steal copper from an electrical substation.

Acts of sabotage or terrorism on electrical facilities in the Pacific Northwest are rare, though some have occurred. These acts generally focused on attempts to destroy large transmission line steel towers. For example, in 1999, a large transmission line steel tower in Bend, Oregon, was toppled.

Depending on the size and voltage of the line, destroying towers or other equipment could cause electrical service to be disrupted to utility customers and end users. The effects of these acts would be as varied as those from the occasional sudden storm, accident, or blackout and would depend on the particular configuration of the transmission system in the area. While in some situations these acts would have no noticeable effect on electrical service. In other situations, service could be disrupted in the local area, or if the damaged equipment was part of the main transmission system, a much larger area could be left without power.

When a loss of electricity occurs, all services provided by electrical energy cease. Illumination is lost. Lighting used by residential, commercial, industrial, and municipal customers for safe locomotion and security is affected. Residential consumers lose heat. Electricity for cooking and refrigeration is also lost, so residential, commercial, and industrial customers cannot prepare or preserve food and perishables. Residential, commercial, and industrial customers experience comfort/safety and temperature impacts, increases in smoke and pollen, and changes in humidity, resulting from loss of ventilation. Mechanical drives stop, causing impacts as elevators, food preparation machines, and appliances for cleaning, hygiene, and grooming are unavailable to residential customers. Commercial and industrial customers also lose service for elevators, food preparation, cleaning, office equipment, heavy equipment, and fuel pumps. Sewage transportation and treatment can be disrupted. A special problem is the loss of industrial continuous process heat. Electricity loss also affects alarm systems, communication systems, cash registers, and equipment for fire and police departments. Loss of power to hospitals and people on life-support systems can be life-threatening.

While the likelihood for sabotage or terrorist acts on the Proposed Action is difficult to predict given the characteristics of the project, it is unlikely that such acts would occur. Even if such an act did occur, any impacts from sabotage or terrorist acts likely could be quickly isolated. In addition, the Department of Energy, public and private utilities, and energy resource developers include the security measures mentioned above and others to help prevent such acts and to respond quickly if human or natural disasters occur.

3.12.3 Mitigation Measures

The following mitigation measures would help avoid or minimize potential health and safety risks to workers and the public.

- Prior to starting construction, require the contractor to prepare and maintain a safety plan in compliance with State of Idaho, BLM, Reclamation, and C-TNF requirements. This plan would detail how to manage hazardous materials such as fuel, and how to respond to emergency situations. It would be kept onsite at all times.
- During construction, require the contractors to hold crew safety meetings at the start of each workday to review potential safety issues and concerns.
- At the end of each workday, require the contractor and subcontractors to secure the site to protect equipment and the general public.
- Train employees as necessary, in structure climbing, cardiopulmonary resuscitation, first aid, rescue techniques, and safety equipment inspection.
- To minimize the risk of fire, fuel all highway-authorized vehicles offsite. Fueling of construction equipment would be done in accordance with regulated construction practices and state and federal laws.
- Comply with all fire safety laws, rules, and regulations of the State of Idaho, BLM, Reclamation, and the Forest Service. The contractor will be required to prepare a Fire Prevention and Suppression Plan that would meet BPA, local authority, and land manager requirements.
- Provide notice to the public of construction activities.
- Remain on established access roads during construction activities.
- Keep vegetation cleared to avoid contact with transmission lines.
- During construction, follow BPA specifications for grounding fences and other objects on and near the ROW.
- Ensure transmission towers minimize EMF, corona and electric field through implementation of standard BPA design and construction practices. All BPA lines are designed and constructed in accordance with the National Electrical Safety Code (NESC). NESC specifies the minimum allowable distance between the lines and the ground or other objects. These requirements determine the edge of the ROW and the height of the line, that is, the closest point that houses, other buildings, and vehicles are allowed to the line.
- Ground fences and other metal structures on and near the ROW during construction to limit the potential for nuisance shocks. BPA provides a free booklet that describes safety precautions for people who live or work near transmission lines.

3.12.4 Unavoidable Impacts Remaining after Mitigation

Potential unavoidable public health and safety risks include accidental release of fuels or oils, accidental injury to construction workers, and possible collisions between construction vehicles and vehicles driven by the public. Nuisance shocks may occur infrequently under the proposed line.

3.12.5 Cumulative Impacts

Health and safety in the area is affected by the existing transmission lines, existing traffic, and new construction that occur periodically in the area. The Proposed Action would contribute to those potential impacts. Likely population growth focused at both ends of the ROW, but especially at the west end, would add traffic to the area and likely increase accident rates. Potential upgrades at Palisades or Goshen substations would temporarily impact local traffic but would have no lasting impacts on public health and safety.

3.12.6 No Action Alternative

Under the No Action Alternative, the proposed transmission line would not be reconstructed and the potential health and safety risks associated with reconstruction traffic would not occur. The existing transmission line would remain with electric and EMF fields as they are now, as shown in Table 3-14. A failed structure, which is an unplanned event, can cause the line to go out of service, resulting in impacts to residential and commercial customers who depend on this transmission line for power. When a loss of electricity occurs, all services provided by electrical energy cease. Lighting used by residential, commercial, industrial, and municipal customers for safe locomotion and security is affected. Residential and commercial consumers lose electricity used for heat, air conditioning, cooking, and refrigeration.

3.13 Transportation/Traffic

3.13.1 Affected Environment

The majority of the existing ROW is located in rural areas where existing traffic volumes are low. Traffic volumes on roads in the vicinity of the ROW tend be lower in winter and early spring, and higher during the summer and early fall. This is due to the presence of additional vehicles associated with tourists and recreationists during the summer and early fall.

The only paved road that is crossed by the existing ROW is US 26. No railroads are crossed. County, local, and Forest Service roads crossed by the ROW are in rural areas, including federal and state lands, and are unpaved. These are the SFSR Road, the Fall Creek Road, Kepps Crossing Road, Bone Road, and Taylor Creek Road. The

SFSR Road would be crossed and would also provide construction access to the Fall Creek Road. All but US 26 are maintained by the respective counties.

3.13.2 Environmental Impacts—Proposed Action

During construction of the Proposed Action, there would be an influx of construction workers and the delivery of construction equipment, materials, and water to the ROW. Construction equipment and material deliveries would occur throughout the construction period. These construction-related vehicle trips would temporarily affect the transportation system by creating minor traffic congestion on local roads leading to the ROW, and potentially increasing roadside parking hazards. The delivery of construction equipment and materials to staging area(s) may result in temporary and periodic traffic congestion in the local area. Project construction at road crossings could affect vehicle traffic flow

Construction crews would use the same local existing county and Forest Service roads to access the construction area that are currently used for maintenance of the transmission line. Access road improvements and construction would be completed before transmission line construction begins. Modifications (including grading, shaping, and/or widening) of approximately 38 miles of existing roads and two-tracks and construction of approximately 3 miles of new roads would be required to access structures. The construction of access roads would have a temporary localized minor impact on use of existing roads in the vicinity of active construction.

No significant adverse transportation impacts would be expected during operation of the transmission line because there would be only minimal traffic. Operation and maintenance of the upgraded transmission line would, therefore, not result in a decrease in the level of service of a roadway, nor would it increase the roadside parking hazard. The overall impact of construction of the Proposed Action would be low, and there would be no impacts during operation.

3.13.3 Mitigation Measures

To minimize or avoid transportation and traffic impacts from reconstruction of the line, the following mitigation measures, in addition to those previously described, would be implemented:

- Use water trucks on an as-needed basis to minimize dust, especially on C-TNF and county roads.
- If water is used, locate the water storage areas directly adjacent to or in proximity to the existing ROW to minimize the impact of the water trucks on public roads.
- Do not withdraw water (for dust control or other purposes) from Fall Creek or other streams, etc.
- Leave at least one lane of traffic open at all road crossings.

- Maintain emergency vehicle access at all road crossings.
- Place and maintain flaggers, signs, barricades, guard rails, safety fences, and signals at locations where construction traffic would enter US 26 and along the SFSR and Fall Creek roads, as required by county, state, and federal regulations and ROW and permit conditions.
- Repair all existing roads used for access, if necessary, after line reconstruction.

3.13.4 Unavoidable Impacts Remaining after Mitigation

With the implementation of the recommended mitigation measures, the only unavoidable adverse impacts on transportation would be minor traffic delays along US 26 and the SFSR and Fall Creek roads during active construction.

3.13.5 Cumulative Impacts

The Comprehensive Plans of the counties' jurisdictions call for growth and development to occur within their planning boundaries. The Proposed Action would result in only temporary impacts to transportation/traffic after the implementation of recommended mitigation measures, and would not contribute to long-term cumulative traffic impacts in the jurisdictions that the upgraded transmission line would cross. Potential upgrades or new construction at either Palisades or Goshen substations would result in only very minor and localized temporary traffic congestion during construction.

3.13.6 No Action Alternative

If the No Action Alternative is implemented, no project-related ground-disturbing activities would occur in the upgraded transmission line area. No change in transportation/traffic is expected from the continuation of the operation and maintenance activities that are currently being performed on the existing transmission line. These activities may include occasional traffic and delays if large equipment is being transported and used for maintenance. The No Action Alternative would result in no project-related effect on transportation and traffic, and no mitigation would be required.

3.14 Noise

3.14.1 Affected Environment

Noise is commonly defined as unwanted sound that disrupts normal human activities or diminishes the quality of the human environment. Sources of noise associated with electrical transmission systems include construction and maintenance equipment, transmission line corona, and electrical transformer "hum." Corona-generated noise, characterized as a hissing, crackling sound, is generally only of concern for transmission lines with voltages of 230-kV or greater.

Both ambient noise levels and users vary considerably along the length of the ROW. The eastern most section of the ROW follows US 26 along the SFSR before turning up Fall Creek Road and traveling generally westward to its termination at the Goshen Substation. There are houses near the ROW along mile 4 and along the SFSR; no houses exist along the Fall Creek portion of the route through the C-TNF. There are scattered farm structures along the ROW west of the C-TNF.

Most of the transmission line corridor is located in rural, undeveloped areas where noise levels generally are very low. In the more developed areas, traffic and noise associated with human activity are major contributors to background noise. During foul weather, noise from the existing line can be a source of background noise, along with wind and rain hitting vegetation.

Audible Noise is measured in decibels (dBA) on the A weighted scale. The A weighted scale describes sound that corresponds to human perception. Table 3-15 contains examples of common activities and the associated noise level in dBA.

TABLE 3-15
Common Activities and Associated Noise Levels

Sound Level (dBA)	Noise Source
110	Rock and roll band
80	Truck at 50 feet
70	Gas Lawnmower at 100 feet
60	Normal conversation indoors
50	Moderate rainfall on foliage
40	Refrigerator
25	Bedroom at night

BPA has established a 50-dBA design criterion for corona-generated audible noise from transmission lines at the edge of the ROW.

Corona on transmission line conductors can also generate electromagnetic noise in the frequency bands used for radio and television signals. The noise can cause radio and television interference. In certain circumstances, corona-generated electromagnetic interference (EMI) can also affect communications systems and other sensitive receivers. Interference with electromagnetic signals by corona-generated noise is generally associated with lines operating at voltages of 345-kV or higher. This is especially true of interference with television signals. BPA is not aware of any instances where the existing transmission line has caused radio and television interference of any significant magnitude.

3.14.2 Environmental Impacts—Proposed Action

The potential noise impacts of the Proposed Action would include the following:

- Construction activity
- Maintenance activity
- Corona noise
- Radio and Television Interference

3.14.2.1 Construction Noise

Short-term noise impacts would occur during line removal and construction with the use of conventional construction equipment, including heavy equipment operation and truck traffic. Table 3-16 summarizes noise levels produced by typical construction equipment that would likely be used for the Proposed Action.

TABLE 3-16
Typical Construction Noise Levels

Type of Equipment	Maximum Noise Level (dBA_{max}) at 50 Feet
Road grader	85
Bulldozer	85
Heavy truck	88
Backhoe	80
Pneumatic tools	85
Concrete pump	82
Crane	85
Combined equipment	89

Construction would involve replacing 430 transmission line structures, building 3 miles of new access roads, and substantially improving 38 miles of existing access roads and two-tracks. Noise levels in the immediate vicinity of construction activity would range from 80 to 90-dBA and would only occur during the day. Because the impacts would be temporary and consistent with typical construction activity noise, this impact would be considered low.

3.14.2.2 Maintenance Noise

Periodic noise impacts would occur during maintenance activities. Maintenance noise would involve noise generated by occasional maintenance and repair activities for the transmission line, similar to the maintenance noise that currently occurs for the existing transmission line to be rebuilt. In addition, during periodic vegetation

maintenance activities, noise would be generated by various cutting devices such as chainsaws to remove vegetation from the ROW. Line maintenance using pickup trucks and OHVs would generate occasional noise levels in the range of 70 to 85-dBA. Similar noise levels are regularly generated by recreation users during the summer. Given the short-term nature of this noise, this impact would be considered low.

Although not part of the proposed project, BPA also conducts routine helicopter inspection patrols of the federal transmission system in the Pacific Northwest, including the transmission lines in the proposed rebuild corridor. As part of these routine patrols, BPA would continue to use helicopters to fly the line to look for any problems or repair needs. These patrols typically occur two or three times a year, generally in March, July, and/or October. Any noise experienced by receptors on the ground during these flyovers thus would be extremely infrequent, as well as very short-term (that is, only for the few seconds it would take for the helicopter to pass over the receptor).

3.14.2.3 Corona Noise

During fair weather, the proposed conductors would generate very little noise, similar to the existing lines. Noise from the conductors thus would be unlikely to be perceived beyond the edge of the ROW along the corridor under these conditions. However, during certain weather conditions, usually high humidity or foul weather, the transmission lines could create corona noise.

Table 3-17 presents computed corona noise levels. These levels are very low, with the highest level being less than 38-dBA, a level which can barely be heard even during wet weather. Even where relocated on new ROW (near Palisades Dam) the line would be very quiet.

These levels are barely discernible by most humans, and based on Table 3-16, the levels can be categorized as below the sound of a refrigerator running and would be below the 50-dBA Bonneville criterion. These impacts are considered to be low to no impact.

TABLE 3-17
Computed Noise Levels

Structure	Average Estimated Elevation	Existing ROW (dBA)	New ROW (dBA)
Palisades Dam – 2/7	5,600	25.3	22.5
2/7 – 4/1	5,600	25.3	22.8
4/1 – 4/8	5,600	25.3	19.1
4/8 – 45/6	4,600	19.99	16.0
4/8 – 45/6	6,400	21.7	17.9
45/6 – Goshen Sub (north side ROW)	4,600	37.7	37.6
45/6 – Goshen Sub (south side ROW)		33.3	33.1

3.14.2.4 Radio and Television Interference

Expected EMI levels for the proposed transmission line would be comparable to those that are present near the existing lines. Accordingly, no additional impacts of corona-generated interference on radio, television, or other receptors are anticipated. If the rebuilt transmission lines were found to be the source of radio or television interference in areas with reasonably good reception, measures would be taken to restore the reception to a quality as good as or better than before the interference.

3.14.3 Mitigation Measures

The following mitigation measures would reduce or avoid identified potential adverse noise impacts to short-term low-to-moderate, and long-term low:

- Use mufflers on all equipment with exhaust.
- Conduct noise-generating construction activities within 1,000 feet of residential structures only during normal day time hours (that is, between 7 a.m. and 7 p.m.).
- Restore radio or television reception to a quality as good as or better than before the project, if the rebuilt transmission lines were found to be the source of interference.

3.14.4 Unavoidable Impacts Remaining after Mitigation

Unavoidable noise impacts would include noise that would be experienced by residents during construction activities, and the very low permanent corona-generated noise of the transmission lines during inclement weather.

3.14.5 Cumulative Impacts

Noise levels in the area are affected by the existing transmission lines, existing traffic, recreation activities, and new residential and commercial construction in the area. These noise levels would continue and the Proposed Action would contribute to these impacts during the temporary construction period. Noise levels would return to current levels following construction. Potential upgrades or new construction at either the Palisades or Goshen substations would generate temporary noise levels similar to those during reconstruction of the new transmission line.

3.14.6 No Action Alternative

Under the No Action Alternative, the existing line would not be reconstructed and the noise issues associated with reconstruction traffic for the proposed project would not occur. Noise associated with maintenance would continue as in the past and would occur more often than under the Proposed Action. This is because the deteriorated condition of the existing line would require more frequent and longer duration maintenance. The existing line would continue to generate low levels of corona noise as shown in Table 3-17.

Chapter 4

Consultation, Review, and Permit Requirements

This chapter addresses federal statutes, implementing regulations, and Executive Orders potentially applicable to the proposed project. This Environmental Assessment (EA) is being sent to Tribes, federal agencies, and state and local governments as part of the environmental review process for this project.

4.1 National Environmental Policy Act

This EA has been prepared by BPA in accordance with regulations implementing the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.), which requires federal agencies to assess the impacts that their actions may have on the environment. NEPA requires preparation of an environmental impact statement (EIS) for major federal actions significantly affecting the quality of the human environment. BPA prepared this Preliminary EA to determine whether the Proposed Action would create any significant environmental impacts that would warrant preparing an EIS, or if a Finding of No Significant Impact (FONSI) is justified.

4.2 Vegetation and Wildlife

The Endangered Species Act of 1973 (16 U.S.C. 1536), as amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants, and the preservation of the ecosystems on which they depend. The Act is administered by the USFWS and, for salmon and other marine species, by the National Oceanic and Atmospheric Administration (NOAA). Section (7a) requires federal agencies to ensure that the actions they authorize, fund, and carry out do not jeopardize endangered or threatened species or their critical habitats.

BPA requested and received a list of potential threatened and endangered species that could occur in the ROW (USFWS letter dated August 2, 2007). Species' lists for Bonneville and Bingham Counties were also downloaded from the USFWS web site (http://www.fws.gov/idaho/agencies/Countybycounty.htm) on July 12, 2007, and reconfirmed on December 4, 2007. A No Effect Determination Memorandum was then prepared with the determinations presented in Table 4-1.

TABLE 4-1
Wildlife and Vegetation Species Determinations

Species	Status	Determination
Canada Lynx (*Lynx canadensis*)	Threatened; MIS	No Effect
Yellow-Billed Cuckoo (*Coccyzus americanus*)	Candidate	No Effect
Ute Ladies'-Tresses (*Spiranthes diluvialis*)	Threatened	No Effect
Utah Valvata (*Valvata utahensis*)	Endangered	No Effect

Potential impacts to threatened and endangered plant and animal species are discussed in Chapter 3 in the Vegetation and Wildlife sections (no threatened or endangered fish species are present in the vicinity of the ROW).

The Fish and Wildlife Conservation Act of 1980 (16 U.S.C. 2901 et seq.) encourages federal agencies to conserve and promote the conservation of nongame fish and wildlife species and their habitats. Mitigation measures designed to conserve wildlife and their habitat are listed in Chapter 3 in the Vegetation and Wildlife sections.

The Migratory Bird Treaty Act implements various treaties and conventions between the United States and other countries, including Canada, Japan, Mexico, and the former Soviet Union, for the protection of migratory birds (16 U.S.C. 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989). Under the Act, taking, killing, or possessing migratory birds or their eggs or nests is unlawful. Most species of birds are classified as migratory under the Act, except for upland and nonnative birds.

The proposed project could potentially impact birds through collisions with power lines and habitat removal. Potential impacts to migratory birds are discussed in the Wildlife Section in Chapter 3.

Executive Order 13186 was issued on January 17, 2001. It directs each federal agency that is taking action that may negatively impact migratory bird populations to work with the USFWS to develop an agreement to conserve those birds. The protocols developed by this consultation are intended to guide future agency regulatory actions and policy decisions; renewal of permits, contracts, or other agreements; and the creation of or revisions to land management plans. This order also requires that the environmental analysis process include effects of federal actions on migratory birds. On August 3, 2006, the USFWS and the U.S. Department of Energy signed a Memorandum of Understanding (MOU) to complement the Executive Order. BPA,

as part of the Department of Energy, would work cooperatively in accordance with the protocols of the MOU.

4.3 Water Resources

The Clean Water Act (33 U.S.C. 1251 et seq.) regulates discharges into Waters of the U.S. The ROW includes both wetlands and Waters of the U.S.

Section 402 of the Clean Water Act authorizes stormwater discharges associated with industrial activities under the National Pollutant Discharge Elimination System (NPDES). For Idaho, EPA has a Construction General Permit (CGP) authorizing federal facilities to discharge storm water from construction activities disturbing land of 1 acre or more into Waters of the U.S., in accordance with various set conditions. BPA would comply with the appropriate conditions for this project, such as issuing a Notice of Intent (NOI) to obtain coverage under the EPA CGP, and preparing and implementing a Storm Water Pollution Prevention (SWPP) plan.

Clean Water Act Section 401 certification is required for any permit or license issued by a federal agency for any activity that may result in a discharge into waters of the state to ensure that the proposed project will not violate state water quality standards. This water quality certification is part of the 1974 Clean Water Act, which allows each state to have input into projects that may affect its waters (rivers, streams, lakes, and wetlands). This not only protects the public at large, but also protects lands adjacent to projects from damage (thereby also protecting landowners' rights and investments). DEQ is responsible for issuing Section 401 certifications in Idaho. Any Section 401 certification in Idaho also ensures that the project will comply with water quality improvement plans developed for affected water bodies and that the project will not adversely impact water quality impaired streams (streams that already do not meet water quality standards).

Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into Waters of the U.S. The basic premise of Section 404 is that dredged or fill material cannot be discharged into water if the nation's waters would be significantly degraded or if a feasible alternative exists that is less damaging to the aquatic environment.

Dredge and fill activities are controlled by a permit process administered by the U.S. Army Corps of Engineers. Activities that are regulated under this program include fills for development, water resource projects (such as, dams), infrastructure development (such as, highways), and other water related construction activities. At this time, BPA would apply for Section 404 permits for one culvert and one ford crossing of Taylor Creek.

4.4 Floodplain and Wetland Protection

The U. S. Department of Energy mandates that impacts to floodplains and wetlands be assessed and alternatives for protection of these resources be evaluated in compliance with Floodplain/Wetlands Environmental Review Requirements and Federal Executive Orders 11988 (Floodplain Management: May 24, 1977; 42 F.R. 26951) and 11990 (Protection of Wetlands: May 24, 1977; 42 FR 26961). In accordance with these regulations, BPA has prepared an assessment of impacts of the Proposed Action on floodplains and wetlands.

Wetland management, regulation, and protection is addressed in several sections of the Clean Water Act, including Sections 401, 402, and 404, as well as a combination of other state and Federal laws. Other laws include the Coastal Zone Management Act, the critical areas ordinances of local governments, the Endangered Species Act, Historic Preservation Act, Rivers and Harbors Act, and the Wild and Scenic Rivers Act.

Evaluation of project impacts on wetlands and floodplains are discussed briefly below and in more detail in Sections 3.2, Vegetation, and 3.5, Water Resources and Fisheries.

4.4.1 Wetlands

Large stands of forested wetlands dominated by narrowleaf cottonwood occur along the SFSR downstream of the project area. Shrub wetland and riparian areas occur along Fall Creek and other perennial and intermittent drainages, including Tex Creek, Taylor Creek, and Willow Creek. Emergent marsh wetlands are common along seep areas and channels, especially areas that get storm water runoff and high water flows near the east end of the ROW. The proposed action has been sited to avoid wetlands to the maximum extent practicable, including relocation of transmission structures either back or ahead on line to avoid wetlands (see Table 2-2). BPA also would implement appropriate mitigation to avoid, minimize, and compensate for any wetland impacts (see Section 3.2.3). Construction, operation, and maintenance of the project is not expected to significantly affect the long-term existence, quality, or natural functioning of wetlands.

4.4.2 Floodplains

The reconstructed transmission line would cross the floodplains of the Palisades Creek, the SFSR, Fall Creek, Willow Creek, and the main Snake River. The Palisades Creek floodplain is crossed between structures 4/7 and 4/8, and about 400 feet of an existing access road would be in the floodplain. The SFSR floodplain is crossed between structures 8/6 and 8/8 and structure 8/7 and about 600 feet of existing access road is within the 100-year floodplain. The Fall Creek floodplain is crossed between structures 13/8 and 13/9, 17/3 and 17/6, and 18/8 and 19/2. Structures 13/8, 17/4, 17/5, 17/8 through 18/6, 19/1, and numerous sections of

existing access roads are within this floodplain. Willow Creek is crossed between structures 31/4 and 31/5, with about 600 feet of existing access road within this floodplain. Structures 47/6 through 49/6, all access roads to these structures, and the Goshen Substation are within the 100-year floodplain of the Snake River. Construction of the project within these floodplains is not expected to increase the risk of flooding or flood damage because all of the roads and structures already exist and the small amount of improvement to existing access roads would not cause floodplain capacity to be decreased significantly.

4.5 Cultural Resources

Regulations established for the management of cultural resources include the following:

- Antiquities Act of 1906 (16 U.S.C. 431-433)
- Historic Sites Act of 1935 (16 U.S.C. 461-467)
- Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470 et seq.), as amended
- Archaeological Data Preservation Act (ADPA) of 1974 (16 U.S.C. 469 a-c)
- Archaeological Resources Protection Act (ARPA) of 1979 (16 U.S.C. 470 et seq.), as amended
- Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001 et seq.)
- Executive Order 13007 Indian Sacred Sites

For this project, BPA has undertaken the Section 106 consultation process with the Idaho SHPO, the Advisory Council on Historic Preservation, and the affected Native American Tribes. For this project, the Blackfeet Tribe, the Duck Valley–Shoshone Paiute Tribes, the Nez Perce Tribe, the Shoshone Bannock Tribe, and the Northwestern Band of the Shoshone Nation were consulted. Letters were sent to all of the Tribes on May 14, 2007, introducing the project and notifying the Tribes of public meetings. On July 11, 2007, a letter was sent to the Tribes initiating consultation under Section 106. A technical meeting was held with the Shoshone Bannock Tribe on May 30, 2007, at the Fort Hall Reservation. The Tribe was notified before the survey took place in summer 2007. On January 25, 2008, the cultural resource survey report was sent to the SHPO for review and concurrence and the Tribes for review. The Cultural Resources Section in Chapter 3 describes historic and cultural resources that were found along the new and existing ROW and access roads. It also includes BPA's determinations of effect for each site and recommendations for treatment of several sites. Determinations were coordinated

with the C-TNF and BLM archaeologists before the report was sent to SHPO and the Tribes for review. No comments were received from the Tribes.

The Idaho SHPO concurred with all but one of BPA's determination of eligibility findings for the cultural resources documented for this project. Consultation on NRHP eligibility for this site continues. BPA's project Determination of Effect for NHRP-eligible sites is found in Section 3.10. The SHPO recommends complete avoidance of all sites eligible or potentially eligible for listing on the NRHP. Since complete avoidance is not possible for all sites, mitigation measures would be implemented for affected sites.

4.6 USFS and BLM Planning and Program Consistency

4.6.1 USFS

The existing ROW is located within the Targhee Administrative Unit of the C-TNF. In 2000, the Caribou National Forest and the Targhee National Forest were officially combined. However, the Caribou National Forest is managed pursuant to the 2003 Revised Forest Plan, and the Targhee National Forest is managed pursuant to the 1997 Revised Forest Plan. Primary activities that occur on C-TNF lands include logging, recreation activities, and grazing. C-TNF Goals, Objectives, and Standards and Guidelines that are applicable to the Proposed Action include the following:

Lands Goal 1. A well-planned system of reliable and technically feasible energy corridors is provided to serve existing and future regional and local energy needs, compatible with other resource needs and goals. These corridors may be either designated or non-designated.

Lands Goal 2. The National Forest System lands set aside for utility corridors are minimized to reduce fragmentation and minimize acres allocated for that use.

Lands Standards. Allow for essential access for repair and maintenance of facilities within energy corridors.

Lands Guidelines. Proponents of new facilities within existing corridors, and new corridor routes, must demonstrate clearly that the proposal is in the public interest, and that no other reasonable alternative exists to public land routing.

The U. S. Forest Service Lands Goals, Standards, and Guidelines all relate to the use of energy corridors for existing and future transmission lines. Implementation of the proposed action would be consistent with the Forest Service's intent to minimize the use of additional USFS land outside of designated or non-designated corridors to energy transmission and distribution because the proposed action would be aligned along an existing transmission line alignment (it is a replacement of an existing line).

4.6.2 BLM

The ROW crosses BLM lands that are managed pursuant to the 1995 Medicine Lodge Resource Management Plan (Plan). BLM lands crossed by the ROW are classified as Moderate Use and are managed for multiple uses including mineral and energy exploration and development, timber production, grazing, forage, and cover for wildlife, dispersed recreation, and fire suppression. Utility and transportation corridor development may be permitted based on consideration of the following criteria: type of and need for facility proposed, conflicts with other resource values and uses, including potential values and uses, and availability of alternatives and/or mitigation measures. Applicants will be encouraged to locate new facilities within existing corridors to the extent possible (BLM 1985).

Implementation of the proposed action would be compatible with the BLM's other existing land uses in the area, and with BLM's multiple use management of the land. It would also be consistent with the BLM's allowance for utility development because there is a demonstrated need for the proposed action (it is a replacement of an existing line), and the proposed action would be aligned along an existing transmission line alignment, which would minimize project effects on undisturbed lands.

4.7 State, Area-wide, and Local Plan and Program Consistency

Though as a federal agency, BPA is not required to comply with state and local land-use approvals or permits, BPA strives to meet or exceed the substantive standards and policies of state and local plans and programs to the maximum extent practical.

4.7.1 Bonneville County

The ROW crosses land in Bonneville County that is designated All Agricultural (A-1) and Recreational-Forestry (R-F) by the County (Lenderink, pers. comm. 2007). The Bonneville County 1994 Comprehensive Plan includes the following relevant goals:

- Permit compatible uses in areas surrounding public facilities.
- Protect the viability of Bonneville County's agricultural industry by limiting potential conflict between agriculture and other land uses.
- Maintain property values and provide a secure basis for investments in business, industry, and housing by requiring the mitigation of potential nuisances and adopting standards to ensure that neighboring land uses are reasonably compatible (Bonneville County 1994).

In addition, the Bonneville County Comprehensive Plan Community Facilities Item #21 indicates that the County should encourage the preservation of historic

and scenic areas, critical game management areas, recreation areas, and open space (Bonneville County 1994).

Bonneville County's land use goals emphasize that land uses should be compatible; agricultural land uses should remain viable; and that historic, scenic, critical game management, recreation, and open space areas should be preserved. Implementation of the proposed action would be consistent with those goals because the proposed action is the replacement of an existing transmission line, with the proposed action being constructed along the same alignment as the existing line. This would minimize effects on undisturbed land and other land uses.

4.7.2 Bingham County

The ROW crosses land that is designated Natural Resources (NR) by Bingham County (Davis, pers. comm. 2008). The Bingham County 2005 Comprehensive Plan recognizes the importance of agricultural land uses and natural resources. The Plan includes the following goals that are applicable to the Proposed Action:

- Compatibility of various land and natural resources use is to be considered with the avoidance of conflicting uses.
- The need to protect farm operations from the adverse impacts of urban and suburban development.
- Adequately conserve and balance the natural resources of Bingham County with population growth and the protection of the lifestyle that makes the county an attractive place to live.
- Provide current level of service and plan for expanded public services, facilities, and utilities to assure adequate capacities needed to meet the demand of an increasing population (Bingham County 2005).

In addition, the Bingham County Comprehensive Plan Community Design Goal is to enhance entrance corridors, conserve natural and historic features, protect scenic vistas, and enhance social, economic, and physical aspects of the county to meet the needs of county residents while maintaining property values. Policies in support of that goal are as follows:

- Encourage visually attractive and aesthetically pleasing development in the community.
- Adequately landscape and buffer agriculture, commercial and industrial operations, as well as residential developments, thus making a positive contribution to a well-planned place to live.
- Improve the visual characteristics of the county by establishing and enforcing location standards and setback requirements and preserving locations of visual corridors.

- Protect the visual character of the county through the location of cell phone towers, power transformers, and telephone facilities to less visible areas whenever possible (Bingham County 2005).

Bingham County's land use goals emphasize the compatibility of various land uses and the protection of farm operations, minimizing effects on natural resources, with the intent of providing adequate utility service. Implementation of the proposed action would be consistent with those goals because the proposed action is the replacement of an existing transmission line, with the proposed action being constructed along the same alignment as the existing line. This would minimize effects on undisturbed land and natural resources, while continuing to provide a necessary utility service to the area.

4.8 Environmental Justice

In February 1994, Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, was released to federal agencies. This order states that federal agencies shall identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Minority populations are considered members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic if the minority population of the affected area exceeds 50 percent, or is meaningfully greater than the minority population in the general vicinity of project. The proposed project has been evaluated for potential disproportionately high environmental effects on minority and low-income populations and none were identified (see the Socioeconomics Section in Chapter 3).

4.9 Noise

The Noise Control Act of 1972, as amended (42 U.S.C. 4901 et seq.), declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare. The Act further states that federal agencies are authorized and directed, to the fullest extent consistent with their authority under federal laws administered by them, to carry out the programs within their control in such a manner as to further this policy. As described in Section 3.14, Noise, the proposed project would have low to moderate noise impacts primarily of a temporary nature, and mitigation measures are identified to further reduce noise impacts.

4.10 Health and Safety Laws

As part of the transmission line design, BPA seeks to comply with Federal Aviation Administration (FAA) procedures. Final locations, types, and heights of structure

would be submitted to the FAA for the project. The information includes identifying structures taller than 200 feet above ground (no structures would be above 200 feet) and listing all structures within prescribed distances of airports listed in the FAA airport directory. General BPA policy is to follow FAA recommendations for airway marking and lighting.

Federal Communications Commission (FCC) regulations require that transmission lines be operated so that radio and television reception would not be seriously degraded or repeatedly interrupted and that interference is mitigated. While neither the Proposed Action or the No Action Alternative are expected to increase electromagnetic interference above existing levels, complaints about electromagnetic interference would be investigated.

The Spill Prevention, Control and Countermeasures Act (SPCCA), Title III of the Superfund Amendments and Reauthorization Act, and the Resource Conservation and Recovery Act (RCRA) Program potentially apply to the proposed project, depending on the exact quantities and types of hazardous materials stored onsite. Regulations would be enforced by Idaho Department of environmental Quality (DEQ). In addition, development of a Hazardous Materials Management Plan in accordance with the Uniform Fire Code (UFC) may be required by the local fire district. Small amounts of hazardous waste may be generated (paint products, motor and lubricating oils, herbicides, solvents, etc.) during construction, operation, and/or maintenance**.** These materials would be disposed of according to state law and RCRA requirements.

The Safe Drinking Water Act (42 U.S.C. Section 200f et seq.) protects the quality of public drinking water and its source. It does not cover private drinking water sources such as the Papoose Creek Spring. The proposed project would not affect any sole source aquifers or other critical aquifers, or adversely affect any surface water supplies.

4.11 Air Quality

The Clean Air Act as revised in 1990 (PL 101-542, 42 U.S.C. 7401) requires EPA and states to carry out programs intended to ensure attainment of National Ambient Air Quality Standards (NSAAQS). Air quality impacts of the proposed project would be very low, localized, and temporary, as discussed in the Air Quality Section in Chapter 3.

Chapter 5

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Appendix A
Public Involvement

Appendix A

Public Involvement

Persons and Agencies Consulted and Public Comments

The project mailing list includes interested or affected landowners; tribes; local, state, and federal agencies; utilities; public officials; interest groups; businesses; special districts; libraries and the media. They have directly received or have been given instructions on how to receive all project information made available so far, and they will have an opportunity to review the EA. Letters to and comments from the public are also included in this appendix.

Federal Agencies

Idaho House of Representatives—District 2	USDOI Bureau of Land Management
Idaho U.S. Senators	USDOI Bureau of Reclamation
USDA Forest Service—Caribou Targhee National Forest	U. S. Army Corps of Engineers

State Agencies

Idaho Department of Fish and Game	Idaho Public Utility Commission
Idaho Department of Transportation	Idaho Office of the Governor
Idaho Department of Water Resources	Idaho Department of Environmental Quality
Idaho Representatives—Districts 01B, 26A, 28A, 28B, 32A, 32B, 33A, 33B, 34B, and 35A	Idaho State Senator Offices—Districts 06, 28, 32, and 33

Local Agencies

City of Shelley—Planning and Zoning Commission	County of Bingham—Planning and Zoning Commission
City of Irwin	County of Bingham—Districts 1, 2, and 3
City of Swan Valley	County of Bonneville—Districts 1, 2, and 3

Tribes

Blackfeet Tribe	Shoshone Bannock Tribes
Northwestern Band of the Shoshoni Nation	Shoshone-Paiute Tribes of the Duck Valley Reservation
Nez Perce Tribe	

Utilities

Idaho Public Utilities Commission

Libraries

Idaho Falls Public Library

Idaho State University-Idaho Falls

Depository Libraries

Albertson College of Idaho Library

Idaho State University Library

Boise State University Library—Government Document

Lewis-Clark State College

University of Idaho Law Library

University of Idaho Library—Regional

Interest Groups

Harker Family Trust

Karla W. Burtenshaw Living Trust

Julia C. Hurst Family Trust

Keith M. Olsen Family Trust

Daniel W. Richards Family Trust

Bertha M. Schwieder Trust

AMDG

Association of Idaho Cities

Bitter Properties

Blatter Farms

Family LTD Partnership

Green Valley ranch

Hi Willow Ranch Corporation

Hoffman Investments LLC

Idaho Association of Counties

Idaho Conservation League

Idaho Rivers United

Idaho Wildlife Federation

INEEL Oversight Program

Judy's Ida-Mon Ranches

KSH LTD Partnership

Little Lost River Land & Cattle

Lodge at Palisades Creek Inc

McKenzie Law Offices PLLC

Natural River Project

PL Byrd Marital Ded Family Trust

Palisade Park Owners Association

PMB 196

S&S Farms Inc

Sierra Club

Snake River Estates LLC

T & N Properties LLC

Taylor Mountain Holdings

Wayne Leasing

Western Watersheds Project

Landowners

D. Boschae
D. Bowman
R. Bradford
D. Bronson
D. Brown
J. Caras
L. Carroll Sr.
J. Chick
R. Christensen
T. Christensen
D. Clark
B. Cook
R. Crisp
V. Croft
J. Darvel
D. Denning
T. Dent
D. Dickerson
J. Draper
E. Elkington
K. Elkington
W. Fleming
K. Gottschalk
C. Harkbarth
E. Halter
G. Hansen
M. Harker
S. Hart
B. Hatch
S. Hawkins
B. Hill
R. Hill
B. Hillman
B. Hincks
D. Hincks
S. Hook
D. Humeston
R. Huskey
J. Ira
B. Jacobson
D. Jacobson
R. Jacobson
D. Jorgensen
A. Judy
I. Judy
J. Kimbro
C. King
R. Lacuran
E. Larsen
G. Lavar
J. Maddox
O. Martinez
S. Masher
B. Mazur
T. Merrel
H. Merrell
D. Metzger
T. Millwee
J. Motes Jr.
B. Palmer
D. Philbrick
S. Piram
K. Poulsen
M. Prist
R. Riegler
T. Rinde
S. Schmidt
J. Schmitt
B. Schwieder
H. Schwieder
D. Seargeant
B. Simmons
W. Snall
R. Sollis
G. Stromberg
M. Thompson
T. Thompson
R. Thurston
R. Tweedy
M. Urrutia
S. Van Noy
J. Verson
S. Volla
C. Weeks
J H Weeks
M. Weeks
T. Weiss
M. Whisman
M. Wilcox
S. Wilts
D. Zouras

Department of Energy

Bonneville Power Administration
P.O. Box 61409
Vancouver, WA 98666-1409

TRANSMISSION SERVICES

October 29, 2007

In reply refer to: TEP-TPP-3

To landowners interested in the Palisades-Goshen 115-kV transmission line rebuild:

Last spring, the Bonneville Power Administration notified landowners along the Palisades-Goshen transmission line of its plans to rebuild the Palisades-Goshen line. During further design and review of this project, BPA has recognized a need to inform you as well. While the line may not be on your property, your property may provide access to the project. You may have already been contacted by BPA about permission to enter your property to access the transmission line.

The enclosed materials will provide you with information about the project. If you have further questions, please call (800) 622-4519. Additional information is also available at *www.transmission.bpa.gov/PlanProj/Transmission_Projects/.*

Thank you for your cooperation in this effort.

Sincerely,

/s/ Mark Korsness, October 29, 2007

Mark Korsness
Project Manager

Enclosures:
Map
Project announcement letter
Field work notification

Department of Energy

Bonneville Power Administration
P.O. Box 61409
Vancouver, WA 98666-1409

TRANSMISSION SERVICES

May 14, 2007

In reply refer to: TEP-TPP-3

To parties interested in the Palisades-Goshen 115-kV Transmission Line Rebuild Project:

Bonneville Power Administration's Palisades-Goshen 115-kilovolt transmission line is in need of pole replacements and other upgrades in order to improve its reliability and accommodate future load growth in the area. The line extends from Palisades Dam in eastern Idaho about 52 miles west to the Goshen Substation south of Idaho Falls, Idaho. (See enclosed map.) This letter describes the proposal, outlines our schedule, provides information about public meetings and explains how you can contact BPA with additional comments, questions or concerns.

Background
BPA proposes to rebuild the Palisades-Goshen line to ensure continued safe and reliable transmission service to your area. The line's condition has gradually deteriorated due to exposure to the elements and normal wear and tear. BPA has performed routine maintenance on the line as required, but the majority of the wood poles and cross arms are part of the original structure built in 1949. If nothing is done, the existing poles will continue to deteriorate until they fail and collapse.

In addition, there is a need to address load growth in the area served by the Palisades-Goshen line. Due to expected future growth, BPA needs to rebuild the line using a 230-kV structure so that the line could be operated at a voltage higher than 115-kV in the future. Although BPA studies have indicated that loads requiring a higher voltage may not materialize until 2027, BPA believes that it is more cost-effective to rebuild now using a 230-kV structure to accommodate these future loads.

Proposal
The proposal includes replacing all existing 115-kV structures with 230-kV structures. The conductor (wires) may also be replaced. The new structures would be about five feet taller and eight feet wider than the existing structures, and for the most part, would be located in the same place as the existing structures. The first two miles of line out of Palisades Dam would be relocated off very steep terrain closer to the highway. In one location, a structure would be relocated slightly to move the line away from a residence. About 25 miles of access roads would be improved and about a half mile of new access road would be built. Some ground vegetation would be cleared for access roads.

Public meetings
As part of the environmental analysis process, we would like your comments on the proposal. Several members of the project team will be available to take comments, discuss concerns, and answer any questions you may have about the proposal at one of two public meetings.

Wednesday, May 30, 2007
5 – 7 p.m.
Shelley High School
570 W. Fir Street, Shelley, Idaho

Thursday, May 31, 2007
5 – 7 p.m.
Swan Valley Elementary
3389 Highway 26, Irwin, Idaho

Schedule
BPA will analyze the potential environmental impacts of the proposal beginning in June. The information we gather in our environmental analysis will be published in a preliminary environmental assessment that will be available for review and comment later this year. Once we have completed the environmental review, BPA will decide whether and how to proceed with the project. If BPA decides to proceed, construction would likely begin in 2008.

Other ways to comment
If you cannot attend one of the meetings, you can still comment in several ways. Comments may be submitted online at *www.bpa.gov/comment*, via e-mail to *comment@bpa.gov*, via mail to: Bonneville Power Administration, Public Affairs Office - DKC-7, P.O. Box 14428, Portland, OR, 97293-4428, or faxed to (503) 230-3285. You also may call us toll free at (800) 622-4519. All comments will be posted in their entirety on BPA's Web site at *www.bpa.gov/corporate/public_affairs/Comment_Listings/*. Please reference the Palisades-Goshen project with your comment. Comments received by June 15, 2007, will be incorporated into our environmental studies.

For more information
Additional information is available at *www.transmission.bpa.gov/PlanProj/Transmission_Projects/*. If you have further questions about this proposal, please call me toll free at (800) 622-4519, directly at (360) 619-6326; or send an e-mail to *makorsness@bpa.gov*.

Thank you for your interest in our work and we hope to see you at one of the meetings.

Sincerely,

/s/ Mark Korsness, 5/14/ 2007

Mark Korsness
Project Manager

Enclosures:
Map
Comment form

BONNEVILLE POWER ADMINISTRATION

Proposed Palisades-Goshen Transmission Line Rebuild Project

"I'd like to tell you . . . "

1. Please have your environmental studies look at:

Erosion possibilities from construction traffic

2. I need more information about:

Right of ways?
Entering private property thru fenced property?

Would B.P.A. be willing to install and furnish Gates to this private property?

3. I have these other comments:

I still have photo markers left on my private property that were installed last's oct. They need to be removed.

Please put me on your project mailing list. (You are already on the mailing list if you have received mailed notices.)

Name Boyd Schwieder

Zip 83401

BONNEVILLE POWER ADMINISTRATION

Proposed Palisades-Goshen Transmission Line Rebuild Project

"I'd like to tell you . . . "

TEP-TPP-3

1. Please have your environmental studies look at:
I would like the environmental studies to look at the possibity of enviroamental damage to Papose Creek Spring. This spring supplies drinking water to homes.

2. I need more information about:

3. I have these other comments: I also want to know what damage will be done in getting to the transmission lines, and will the damage be restored and or compensated for?

Please put me on your project mailing list. (You are already on the mailing list if you have received mailed notices.)

Name

Address

City

Zip 84404

Comment on **Palisades-Goshen Transmission Line Rebuild**
View open comment periods on http://www.bpa.gov/comment

I attended the public meeting in Shelley on May 30, but all of my concerns could not be answered since detailed design for the project is not complete. My sole concerns are with pole placement. Pole set 49/3 should remain in the same location. It is essentially on the property line between me and my neighbor to the east. If it is moved east, the southern pole will be needlessly into my neighbor's field. If it is moved west, the northern pole will interfere with the field road we both use. Pole set 49/4 should be moved nine feet west. The current location is a problem because the southern pole is too close to my driveway and interferes with taking wider farm equipment through the driveway. When the southern pole spacing is widened by four feet, this pole will be two feet closer to my driveway and will make the problem significantly worse. Moving the pole set nine feet west will put the northern pole in a dike used for ornamental plantings used to separate the farm and yard. This will minimize its interference with both farm and yard. This change will also move the southern pole far enough west of the driveway to eliminate any driveway use interference. If the final design calls for changes in pole locations from those described in my comments above, I want to be consulted prior to installation so final pole placement minimizes interference with my use of my property

Brent Palmer
Shelley ID 83274

Rec: 6/15/07
PGR-005

Concerning the Palisades-Goshen Rebuild Project

There are some issues concerning the power pole placement on our farms that we want you to address as you are planning the rebuild project. When these lines were put in, it was before modern day irrigation systems existed. Now with circular pivot irrigation these power poles are in the way of our pivot irrigation systems.

We understand that you are planning on rebuilding the smaller of the two lines running through our farms. Our first proposal and preference would be that you would relocate some poles on the larger line as well as the smaller line to accommodate the current irrigation systems. Proposal 1 image attached

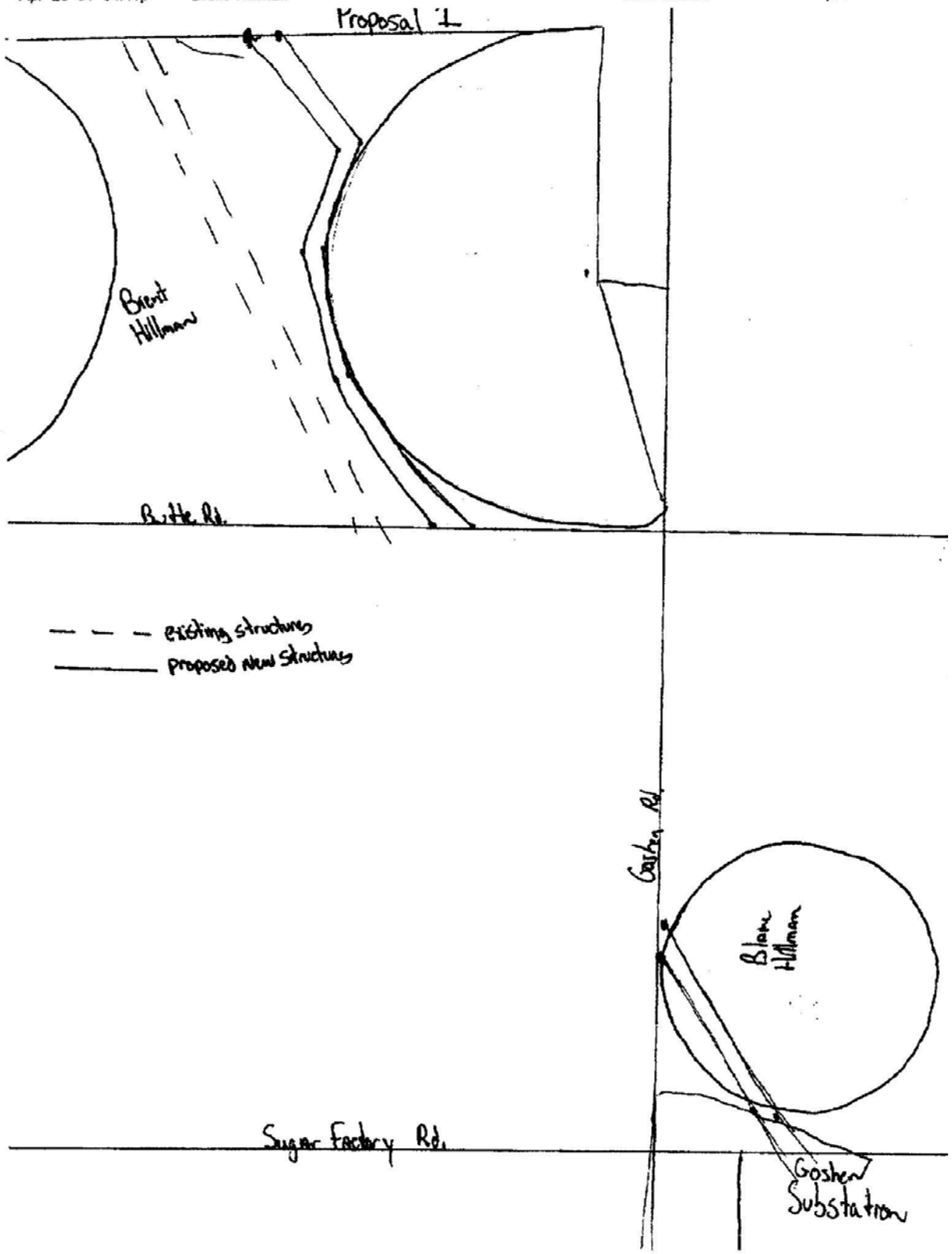
If Proposal 1 is absolutely impossible, Proposal 2 would have the new poles line up with the larger poles so that the irrigation systems would at least be able to irrigate more of the ground that the existing structure would make us waste. Proposal 2 attached

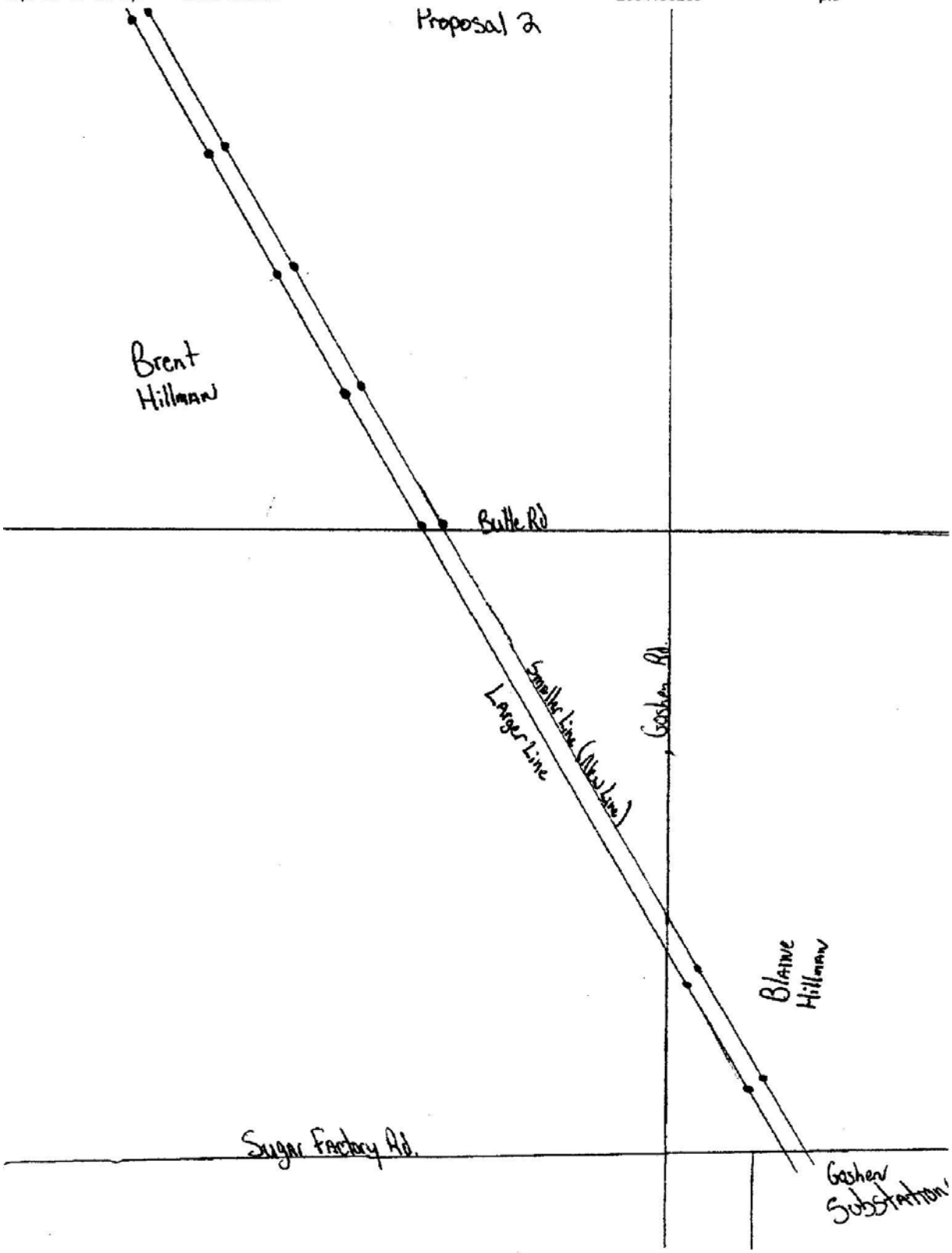
On the Blaine Hillman farm there are already in existence a center pivot irrigation structure that could be better utilized by better pole placement. On he Brent Hillman Farm on Butte Rd. there will be built a new center pivot irrigation system by April 2008. While we are currently designing that system and you are currently designing your power line we would like to work together with you to make a better plan. We would like to be able to have exact coordinates of these new poles to be able to incorporate into our irrigation design as soon as possible.

Our crops will be harvested by September 30, 2007 and be ready for access to rebuild the lines until April 1, 2008 when the next crops will be planted.

As this is farm ground and farming is our livelihood we would appreciate your cooperation on this project.

Sincerely,
Brent Hillman Blaine Hillman


Proposal 1
Brent Hillman
Britt Rd.
existing structures
proposed new structures
Gosben Rd.
Blain Hillman
Sugar Factory Rd.
Gosben Substation


Proposal 2
Brent Hillman
Butte Rd
Gosher Rd.
Sprawling Line (New Line)
Larger Line
Blaine Hillman
Sugar Factory Rd.
Gosher Substation

Bonneville Power Administration
Palisades-Goshen transmission line rebuild
Shelley and Irwin Idaho public meetings
May 30-31, 2007

Need to keep promises to reseed & gravel (also crop damage, especially CRP lands) and any other premises made to landowners. Follow-through.

Concerned about new line being closer to house.

Can pole placement be in a new place our property?

Can BPA fix gates?

You'll pretty much do what you like.
Poles are looking pretty bad, they need to be replaced.

Concerned about affects on CRP payments if BPA goes in & disturbs the land.

Wants to know about easements on his property, wants copy of documents.

Don't want new poles in farm property.

Leave structures where they are (others? 34/4) or maybe more a few short distance. No new structures. Wants copies of BPA rights.

Leave structures where they are.

Structure 49/4 move out of yard… 40 feet West? 49/3 Keep where it is.

Kill weeds around poles after rebuild. 49/5 - could go to east – 49/6 -7? Don't worry on BPA property. Place new towers to accommodated irrigation.

Structures 48/3 – 48/7 Place new towers to accommodate irrigation (Fall 07?).

Structures 6/3 – 6/5 Concerned about culverts in ditches. BPA to acquire rights on new drive ways. Land will be subdivided. Want towers in same spots. 9/6 – 10/2… if BPA acquires A/R rights, who maintains roads? Improve existing roads. Might want old wood poles.

Appendix C
Impact Ratings

Appendix C

Impact Ratings

Impact Ratings for Vegetation and Wetlands

A **high impact** would be expected where one or more of the following would occur:

- A unique, high quality, or entire native plant community would be permanently removed.
- One or more populations of protected plant species would suffer losses that result in decreased viability.
- Removal of vegetation would result in the need for regulatory protection of one or more plant species currently not protected.
- One or more classified noxious weeds would be introduced from outside the area and become established.
- Disturbance of wetland hydrology, wetland vegetation, or wetland soils is extensive and wetland functions are permanently lost or impaired beyond recovery.

A **moderate impact** would be expected where one or more of the following would occur:

- A native plant community would be fragmented or partially permanently removed and/or a unique, high quality native plant community would be temporarily disturbed.
- Protected plant species would be affected minimally and recover quickly.
- Removal of vegetation would not result in the need for regulatory protection of one or more plant species.
- Many classified noxious weeds already established in the vicinity would colonize disturbed sites.
- Disturbance of wetland hydrology, vegetation, or soils is slight (small portions of wetlands are permanently filled) or temporary (as from temporary road fill) and wetland functions would be modestly impaired.

A **low impact** would be expected where one or more of the following would occur:

- Part of a native plant community would be temporarily disturbed.
- No protected plant species would be affected.

- A few classified noxious weeds already established in the vicinity would colonize disturbed sites.
- Disturbance of wetlands is temporary and affects only small patches of wetland vegetation that may be crushed or cut and small areas of wetland soils that may be compacted and wetland functions are temporarily and slightly impaired.

There would be no impact if vegetation remains undisturbed, no noxious weeds would be spread or introduced, or wetlands or directly adjacent uplands are not altered or disturbed, although transmission lines may span or run adjacent to wetlands.

There would be no impact if vegetation remains undisturbed, no noxious weeds would be spread or introduced, or wetlands or directly adjacent uplands are not altered or disturbed, although transmission lines may span or run adjacent to wetlands.

Impact Ratings for Wildlife

A **high impact** would be expected where one or more of the following would occur:

- Habitat, essential for a particular species, is permanently destroyed.
- Protected wildlife species are killed, injured, or permanently disturbed.
- Wildlife mortality or injury results in the need for regulatory protection.

A **moderate impact** would be expected where:

- Development of new and improvement of existing access roads and two-tracks results in off-highway vehicle (OHV) use of the areas that are not presently used by humans
- Habitat, essential for a particular species, is temporarily destroyed.
- Protected species are temporarily disturbed.
- Wildlife mortality or injury does not result in the need for regulatory protection.
- Noxious weeds spread onto newly disturbed sites following construction and/or because of human use of access roads
- Noise and human activity from construction that causes disturbance and displacement during breeding or nesting seasons

A **low impact** would be expected where:

- Development of new and improvement of existing access roads and two-tracks does not result in OHV use of the areas that are not presently.
- Habitat, essential for a particular species, is temporarily disturbed.

- Protected species are not affected.
- Temporary disturbances to wildlife occur.
- Temporary reductions in prey populations/food resources occur.
- Noise and human activity from construction that causes disturbance and displacement during non-breeding seasons

There would be **no impact** when wildlife remains undisturbed, and there is no reduction in habitat or prey populations or food resources.

Impact Ratings for Geology and Soils

A **high impact** to soils would be expected where:

- Clearing, grading, excavation, compaction of soils, and culvert or ditch repair and development leads to long-term accelerated erosion, decreased infiltration and productivity, an increase in storm water runoff and accumulation of sediment offsite.

A **moderate impact** to soils would be expected where:

- Clearing, grading, excavation, compaction of soils, and culvert or ditch repair and development leads to a temporary increase in storm water runoff.
- Erosion is limited to erosion via shallow channels at a few sites, and most sediment is intercepted before flowing offsite.

A **low impact** to soils would be expected where:

- Clearing, grading, excavation, and compaction of soils are minimal and lead to little or no storm water runoff.
- Erosion of slopes is limited to minor sheet erosion and occasional small channels; erosion and sedimentation levels would remain near present levels during and following construction.

No impact would be expected where there is no clearing, compaction, or other soil disturbance.

Impact Ratings for Water Resources and Fish

There would be a **high impact** where:

- A water body that supports fish, wildlife habitat, or human uses would be extensively altered, in and beyond the project area, so as to affect its uses or integrity.

- State or federal chronic ambient water quality criteria (AWQC) probably would be exceeded for weeks or longer in a large portion of the water body.

There would be a **moderate impact** where:

- A water body that supports fish, wildlife habitat, or human uses would be altered only locally (within the project area) so as to affect its uses or integrity.
- There is a possible short-term alteration of water quality, such as exceeding federal or state AWQC, which is confined to the local project area.

There would be a **low impact** where:

- A water body that supports fish, wildlife habitat, or human uses would be slightly altered only locally (part of the project area) so as to affect its uses or integrity.
- Normal background water quality parameters would be altered without exceeding federal or state AWQC.

There would be **no impact** when surface water, groundwater, and aquatic habitat are unaffected by construction activities or operation and maintenance of the transmission line.

Impact Ratings for Recreation

Impacts would be **high** if:

- Acquisition of new right-of-way and access roads and installation of new towers outside of existing electrical transmission corridors would be required, precluding existing or planned recreation uses.
- Access to an established recreation area is precluded.
- Noise and dust would be created and/or traffic would be disrupted throughout most of a year (six months or more) or multiple years so that recreation activities are interrupted by construction activities.
- The project would be inconsistent with the USFS Recreation Opportunity Spectrum (ROS) designations of the land upon which the transmission line would cross.
- The project would conflict with goals, policies, standards, or guidelines in USFS, BLM, or County Plans.

Impacts would be **moderate** if:

- Acquisition of new right-of-way and access roads and installation of new towers outside of, but immediately adjacent to, existing electrical transmission corridors would be required, precluding existing or planned recreation uses.
- Acquisition of new right-of-way and access roads and installation of new towers outside of existing electrical transmission corridors would be required, but would allow continued existing or planned recreation uses.
- Noise and dust would be created and/or traffic would be disrupted for five months or less so that recreation activities are interrupted by construction activities.

Impacts would be **low** if:

- No acquisition of new right-of-way and access roads would be required, and the project would require rebuilding or replacement of existing towers or the installation of new towers only within the existing right-of-way, resulting in minimal interruption of existing or planned recreation uses.
- Noise and dust would be created and/or traffic would be disrupted for brief periods over the short-term so that recreation activities are minimally interrupted by construction activities.

No impact would occur if:

- The project would not interfere with the existing or future recreation activities in the area.
- The project would be consistent with the USFS Recreation Opportunity Spectrum (ROS) designations of the land upon which the transmission line would cross.

The project would be consistent with goals, policies, standards, or guidelines in USFS, BLM, or County Plans.

Impact Ratings for Transportation/Traffic

Impacts would be **high** if:

- Acquisition of new right-of-way for access roads would be required.
- A hazard would be created from clearances of the conductors over public/private roads to those who would be using the roads under the transmission lines.
- The project would generate construction-related or operation-related traffic in any given location for three years or more that would result in significant traffic congestion and or traffic hazards.

- The project would interfere with existing plans that the County or Idaho Transportation Department (ITD) would have for transportation projects in the area.

Impacts would be **moderate** if:

- The project would generate construction-related or operation-related traffic in any given location for one year to three years that would result in significant traffic congestion and or traffic hazards.

Impacts would be **low** if:

- The project would generate construction-related or operation-related traffic in any given location for less than one year that would result in significant traffic congestion and or traffic hazards.

No impact would occur if:

- No acquisition of new right-of-way for access roads would be required.
- The project would not generate construction-related or operation-related traffic in any given location that would result in significant traffic congestion and or traffic hazards.
- The project would not interfere with existing plans that the County or Idaho Transportation Department (ITD) would have for transportation projects in the area.

Impact Ratings for Land Use

Impacts would be **high** if:

- Acquisition of new right-of-way and installation of new towers outside of existing electrical transmission corridors would be required, precluding existing or planned use of land in an area not previously directly affected by the presence of electrical transmission lines.
- Residences would be displaced.
- Transmission lines would be removed from an existing corridor and rebuilt on another corridor.
- Noise and dust would be created and/or traffic would be disrupted throughout most of a year (six months or more) or multiple years so that normal land use activities are interrupted by construction activities.
- Land ownership is changed so that the land would be unavailable for current land uses.

- The project would interfere with existing plans that the County would have for projects in the area.
- The project would conflict with goals, policies, standards, or guidelines in USFS, BLM, or County Plans.
- More than 5 acres of prime farmland would be impacted.

Impacts would be **moderate** if:

- Acquisition of new right-of-way and installation of new towers outside of, but immediately adjacent to, existing electrical transmission corridors would be required, precluding existing or planned use of land in an area already affected by the presence of electrical transmission lines.
- Acquisition of new right-of-way and installation of new towers outside of existing electrical transmission corridors would be required, but would allow continued existing or planned use of land in an area not previously directly affected by the presence of electrical transmission lines.
- Transmission lines would be removed from an existing right-of-way, but the vacated land would still be encumbered by adjacent transmission facilities.
- Noise and dust would be created and/or traffic would be disrupted for five months or less so that normal land use activities are interrupted by construction activities.
- Land ownership is changed so that the current land uses continue for a short time, but planned land uses would be implemented in the near term.
- Between 1 and 5 acres of prime farmland would be affected.

Impacts would be **low** if:

- The project would occupy only existing right-of-way, and would require rebuilding or replacement of existing towers or the installation of new towers only within the existing right-of-way.
- Noise and dust would be created and/or traffic would be disrupted for brief periods over the short-term so that normal land use activities are minimally interrupted by construction activities.
- Land ownership is changed, but current land uses essentially continue with minor modifications, and future land uses are speculative.
- The right-of-way is maintained in its present location, thereby restricting future land use changes.
- Less than 1 acre of prime farmland would be affected.

No impact would occur if:

- The project would not interfere with the existing or future land use or road plans or land use in the area.
- The transmission line clearances met the state and local government clearance requirements for overhead power lines.

The project would be consistent with goals, policies, standards, or guidelines in USFS, BLM, or County Plans.

Impact Ratings for Visual Quality

Impacts would be **high** if:

- The transmission line right-of-way would become the dominant feature or focal point of the view.
- A large number of sensitive viewers would see the transmission line right-of-way in the foreground and middle-ground of the view.
- The transmission line would be sited within a designated scenic area or would be visible from a designated scenic highway.
- The project would conflict with visual resource management designations of the USFS or BLM.

The project would conflict with goals, policies, standards, or guidelines in USFS, BLM, or County Plans.

Impacts would be **moderate** if:

- The transmission line right-of-way would be visible in the view but would not be the dominant feature.
- A moderate number of sensitive viewers would see the transmission line right-of-way in the middle-ground of the view.

Impacts would be **low** if:

- The transmission line right-of-way would be somewhat visible but not evident in the view.
- Few sensitive viewers would see the transmission line right-of-way because it would be screened, or would be viewed in the middle-ground or background of the view.

No impact would occur if:

- The right-of-way would be isolated, screened, not noticed in the view, or only seen from a background view or further away.
- No visually sensitive resources would be affected.
- No sensitive viewers would have views of the transmission line right-of-way.
- The project would be consistent with goals, policies, standards, or guidelines in USFS, BLM, or County Plans.

Impact Ratings for Cultural Resources—To be revised following Idaho SHPO comments on the Technical Report

A **high** impact would occur if:

- Activities related to the construction operation, or maintenance of the proposed project adversely affected a historic resource eligible for listing in the National Register of Historic Places (NRHP) by directly or indirectly altering any of the characteristics of the resource in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association and adverse effects could not be mitigated.

A **moderate** to **low** impact would occur if:

- NRHP-eligible historic resources are adversely affected, but it is determined through the Section 106 consultation process that impacts would be reduced through the use of mitigation measures or avoidance.

No impacts would occur if a known historic resource would not be affected directly or indirectly by construction, operation, or maintenance of the proposed project; or, if resources are present, the project is modified to ensure there would be no adverse effects to cultural resources, as concurred by the SHPO through the Section 106 consultation process.

Impact Ratings for Socioeconomics and Environmental Justice

Impacts would be **high** if:

- A long-term (three years or more) increase (i.e., benefits) or decrease (i.e., impacts) in jobs or spending in the counties would occur.
- A long-term (one year or more) impact on access to a particular business or residence would occur.
- A long-term (one year or more) demand for hotel rooms, motel rooms, and/or RV sites would be created.

- A long-term (three years or more) increase or decrease in population would occur.
- An influx of construction workers to the counties would occur that would place a significant burden on the local communities' abilities to provide services, or providing such services would cost these communities a significant amount of money.
- A long-term (one year or more) disproportionately high and adverse human health or environmental impact on minority and/or low-income populations would occur.

Impacts would be **moderate** if:

- A moderate-term (one year to three year) increase (i.e., benefits) or decrease (i.e., impacts) in jobs or spending in the counties would occur.
- A moderate-term (three months to one year) impact on access to a particular business or residence would occur.
- A moderate-term (three months to one year) demand for hotel rooms, motel rooms, and/or RV sites would be created.
- A moderate-term (one year to three year) increase or decrease in population would occur.
- A moderate-term (three months to one year) disproportionately high and adverse human health or environmental impact on minority and/or low-income populations would occur.

Impacts would be **low** if:

- A short-term (less than one year) increase (i.e., benefits) or decrease (i.e., impacts) in jobs or spending in the counties would occur.
- A short-term (up to three months) impact on access to a particular business or residence would occur.
- A short-term (up to three months) demand for hotel room, motel rooms, and/or RV sites would be created.
- A short-term (less than one year) increase or decrease in population would occur.
- A short-term (up to three months) disproportionately high and adverse human health or environmental impact on minority and/or low-income populations would occur.

No impact would occur if:

- No increases or decreases in jobs or spending in the counties would occur.

- No impacts to a business or residence's access would occur.
- No demand for lodging, including hotels, motels, or RV sites, would be created.

No disproportionately high and adverse human health or environmental impact on minority and/or low-income populations would occur.

Impact Ratings for Noise

Noise impacts would be **moderate** in the following situations:

- Noise was below BPA standards, but residences or business were affected.

Noise impacts would be **low** in the following situations:

- Noise was at or below BPA standards and residents or businesses were temporarily disturbed.

There would be **No** impacts in the following situations:

- Noise was at or below State/BPA standards and no residences or business were affected.

Impact Ratings for Public Health and Safety including Electric and Magnetic Fields

A **high** impact would create one or more of these outcomes:

- A hazard would be created from clearances of the conductors over public/private roads to those who would be using the roads under the transmission lines.

A **moderate** impact would create one or more of these outcomes:

- The new line location could pose a new health or safety risk.
- The new line location alters pre-existing activities on or near the right-of-way.

A **low** impact would create one or more of these outcomes:

- The line location could pose a new health or safety risk, but it would not produce a change in activities on or near the right-of-way.

Impact Ratings for Air Quality

A **high** impact would create one or more of these outcomes:

- A widespread reduction in air quality that could pose a probable risk to human health and safety, and would violate an established air quality standard.

A **moderate** impact would create one or more of these outcomes:

- A localized reduction in air quality on a temporary basis that could create a possible but unlikely risk to human health and safety, and would not violate an air quality standard.

A **low** impact would create one or more of these outcomes:

- Minor increases in emissions of pollutants would occur on a temporary basis, air quality would not be perceptibly affected, effects would be confined to the immediate vicinity of the project, and health and safety risks would be unlikely.

There would be **no impact** when no increases in emissions of pollutants would occur during construction or operation/maintenance.

BONNEVILLE POWER ADMINISTRATION
PO BOX 3621 PORTLAND, OREGON 97208-3621

DOE/BP-3869 April 2008