

3.18 AGRICULTURE

This section addresses potential impacts from the Proposed Route and Route Alternatives during construction, operation, and decommissioning. The section analyzes the potential impacts the Project's activities could have on prime farmland, livestock grazing, crop production, lands enrolled in the Conservation Reserve Program (CRP), and dairy farms. Electrical effects on agricultural operations are summarized here and described in more detail in Section 3.21 – Electrical Environment.

3.18.1 Affected Environment

This section discusses those aspects of the environment that could be affected by the Project. It starts with a discussion of the Analysis Area considered, identifies the issues that have driven the analysis, and characterizes the existing conditions within the Analysis Area.

The Project would be located across a landscape where land is primarily used for rangeland and pasture and other agricultural purposes, with an occasional town, city, or other urbanized or developed area. The eastern portion of the Project (Segments 1, 2, and 3) would be located in lands generally characterized by open rangeland and pasture. Moving west, the Project would cross steeper terrain with more forested lands (Segments 4, 5, and 7). Farther west (Segments 6 through 10), the Project would cross the Snake River Plain, which is characterized by agricultural crop production, as well as areas of urban development. Figure 3.17-1 shows generalized land use in the areas that would be crossed by the Proposed Route and Route Alternatives.

Land in farms accounted for almost half of the total land area in Wyoming in 2007, 22 percent of Idaho, and 8 percent of Nevada. In Wyoming counties, land in farms as a share of total land area ranged from 13 percent (Lincoln County) to 87 percent (Converse County). In Idaho, this share ranged from 15 percent (Lincoln County) to 74 percent (Owyhee County), with land in farms accounting for 19 percent of the land in Elko County, Nevada (Table 3.4-6). Average farm sizes ranged from 110 acres in Canyon County, Idaho, to 7,570 acres in Carbon County, Wyoming.

3.18.1.1 Analysis Area

The Analysis Area for impacts on agriculture consists of an area 500 feet on each side of the Proposed Route and Route Alternatives and 25 feet on each side of the centerline for access roads that extend outside this area and includes the areas needed for new or expanded substations as well as temporary facilities such as staging areas and fly yards. The majority of this Analysis Area, about 83 percent, is rangeland and pasture, with land used for crop production (irrigated or dryland farming) accounting for another 10 percent of the total Analysis Area.

Agricultural land use within the Analysis Area for Segments 1E, 1W, 2 and 3 is almost entirely rangeland and pasture. Rangeland and pasture is also the dominant land use in the Analysis Area segments in Idaho (Segments 4 [part], 5, 7, 8, 9, and 10), but land along these segments is also cultivated for crops (Table 3.18-1).

Table 3.18-1. Agricultural Land Use in the Analysis Area

Segment	Analysis Area Total (Acres)	Total Agricultural Use		Rangeland and Pasture		Irrigated Farming		Dryland Farming	
		Acres	Percent of Analysis Area	Acres	Percent of Analysis Area	Acres	Percent of Analysis Area	Acres	Percent of Analysis Area
1E	26,953	25,107	93	25,095	93	11	–	–	–
1W	19,752	18,019	91	18,005	91	14	–	–	–
2	17,304	16,649	96	16,649	96	–	–	–	–
3	6,858	6,507	95	6,507	95	–	–	–	–
4	50,980	45,673	90	43,975	86	681	1	1,017	2
5	20,096	17,055	85	11,855	59	1,070	5	4,130	21
7	51,086	46,982	92	37,717	74	3,406	7	5,859	11
8	28,942	28,149	97	23,491	81	4,658	16	–	–
9	41,875	41,196	98	37,985	91	3,197	8	14	–
10	4,081	3,893	95	2,009	49	1,866	46	18	–

Acreages are rounded to the nearest acre.

Source: GIS vegetation coverages

Segment 4 is approximately 86 percent rangeland and 4 percent cropland. The Analysis Area for Segment 5 consists of approximately 59 percent rangeland and 26 percent cropland.

The Analysis Area for Segment 7 consists of approximately 72 percent rangeland and 19 percent cropland. The irrigated cropland in Segment 7 occurs predominantly south of Burley and at scattered locations east and west of the Deep Creek Mountains. Burley is located in the Mini-Cassia area, which consists of Minidoka and Cassia Counties, and includes some of the best agricultural land in the region.

The Analysis Area for Segment 8 is primarily rangeland (81 percent), with cropland accounting for an additional 16 percent. Irrigated agriculture is found mostly in the first 40 miles from the Midpoint Substation and the last 25 miles before Hemingway Substation.

The Analysis Area for Segment 9 is mainly rangeland (91 percent) with approximately 8 percent used for crop production. There are three areas of extensive agriculture in this segment, near the proposed Cedar Hill Substation, west of Castleford, and between Grandview and Bruneau.

The Analysis Area for Segment 10 is approximately 49 percent rangeland and 46 percent cropland. In the vicinity of Jerome and from Eden south to the Cedar Hill Substation, the entire Analysis Area is irrigated agricultural lands with scattered farms and residences. From Jerome north, the area is mostly rangeland with some crop production.

3.18.1.2 Issues to be Analyzed

The following agriculture-related issues were brought up by the public during public scoping (Tetra Tech 2009a), raised by federal and state agencies during scoping and agency discussions, or are issues that must be considered as stipulated in law or regulation.

- How much agricultural land would be impacted, and what the effects would be;

- What the effects on livestock grazing would be from construction and operations of the transmission line;
- Whether there would be a loss of prime farmland;
- What the impacts would be to agricultural production including equipment operation and aerial spraying;
- Whether there would be a disruption to dairy operations and other types of CAFOs;
- How the transmission line would interfere with crop dusting; and
- Whether the transmission line would cause electronic interference with agricultural equipment.

3.18.1.3 Regulatory Framework

Prime farmland – Prime farmland is a land use classification used by the USDA (7 CFR Part 657.5) for lands that contain soils with the best physical and chemical characteristics for production of food, feed, forage, fiber, and oilseed crops. In addition to the FLPMA and the CWA, federal legislative acts addressing the management and protection of prime farmland include the Farmland Protection Policy Act (1984); EO 11752 (1973); EO 11988 (1973); Secretary of Agriculture Memorandum 1827; and Department Regulation 9500-3 for prime farmland, rangeland, and forest land.

Livestock grazing – Grazing on public lands is subject to the guidelines included in the various RMPs, MFPs, and Forest Plans that these lands are managed under. Grazing allotments are managed under grazing Allotment Management Plans, which are agreements developed between the rancher and the agency. Each Allotment Management Plan determines how many head of livestock may graze on the land, where they can go, how often, and for how long. Grazing allotments typically contain a mix of public, private, and state lands, which are grazed as a single unit, and can vary considerably in size. Grazing allotments in the BLM Kemmerer FO planning area, for example, range from 7 acres to 470,680 acres, with an average size of 10,149 acres (BLM 2008c).

In Wyoming, the Office of State Lands and Investment (OSLI) maintains a Farm Loan program that was established by the State Legislature in 1921 to provide long-term real estate loans to Wyoming's agricultural operators and includes loans to livestock owners to enhance and restore livestock numbers within the state.

Crop production – In Idaho the Idaho Department of Agriculture has crop regulations related to seed quality and standards. None of these regulations relate to transmission lines and their facilities or land use related to cropland.

Crop spraying – Aviation is regulated by the Federal Aviation Administration (FAA). Crop dusting is exempt from FAA aviation requirements regarding ground clearance. Aerial application of pesticides and herbicides in the Analysis Area is regulated by Idaho and Wyoming. None of these regulations apply to transmission lines or their facilities, except requirements for towers over 200 feet to be lit at night. None of the Gateway West structures would be that tall.

USDA Conservation Programs – The USDA Farm Service Agency (FSA) is authorized to provide monetary and technical support to private landowners who reserve agricultural lands for protection of wildlife, wildlife habitat, and wetlands. Contracts are made with landowners to set aside acreage for the reserve programs. The set-asides consist of leases that limit land use to the conservation purposes established within the programs. These programs include the CRP, the Grassland Reserve Program, and the Wetlands Reserve Program; these program acreages are combined and treated as agricultural land for the purposes of analysis and referred to as “CRP” lands for the remainder of this section. These CRP lands are not presently used for agriculture, but would likely revert to agricultural use if they were not part of one of the CRP programs.

Dairy farms – Management of dairy animals is regulated in Idaho by the Idaho Department of Agriculture. None of these regulations applies to transmission lines or facilities near dairy farms. There are no dairy farms in the Analysis Area in Wyoming.

Protection of agriculture – Several of the counties that would be crossed by the proposed Project have comprehensive plans that advocate protection of agriculture from development but none specifically prohibits conversion of farmland to other uses. Some of these comprehensive plans also include objectives to enforce “Right to Farm” laws and to encourage protection of agricultural lands. A list and brief description of the county and city comprehensive plans that apply to lands within the Analysis Area is provided in Section 3.17 – Land Use and Recreation (see Section 3.17.2.1).

3.18.1.4 Methods

Data on agricultural use in the Analysis Area were obtained from various sources, including aerial photographic interpretation and the vegetation mapping prepared for this project (Tetra Tech 2009b). These data were used to determine the types of agricultural land use within the Analysis Area. Potential impacts were evaluated using GIS based on projected construction and operations disturbance areas by Proposed Route Segment and Route Alternative. As noted above, the Analysis Area used to characterize and assess impacts to agriculture consists of the area within 500 feet of the centerline of the Proposed Route and Route Alternatives and 25 feet on each side of the centerline for access roads that extend outside this area.

CRP data for landowners in the Analysis Area were provided by the FSA. The 2008 Food, Conservation and Energy Act (Section 1619) prevents disclosure of specific information about individual landowners or the programs they participate in. The FSA was, however, able to use information provided by the Proponents on the route locations and provide an analysis of miles of CRP land crossed by segment.

This analysis also includes a literature review that was conducted to determine likely effects of stray voltage on dairy operations and agricultural equipment operations. Contacts were made with representative farmers and ranchers to determine the importance of crops crossed. Additional information on field induction and stray voltage is presented in Section 3.21 – Electrical Environment.

In cases where the analysis of impacts identified potential impacts, Proponent-proposed measures to reduce impacts were reviewed for sufficiency. Where those measures were determined to be insufficient, additional measures were identified.

3.18.1.5 Existing Conditions

Rangeland in the Analysis Area occurs on both publicly managed and private lands. Cropland in the Analysis Area is primarily in private ownership and includes annually cultivated or rotated cropland, land in perennial field crops, improved pasture, hayfields, and hay meadows. Cropland is divided for the purposes of analysis into irrigated cropland and dryland farming (see Table 3.18-1). Some private land in Idaho is managed as CRP lands. As noted above, CRP lands are treated as agricultural land for the purposes of this analysis.

Prime Farmland

According to the NRCS, prime farmland is defined as land that contains soils with the best physical and chemical characteristics for production of food, feed, forage, fiber, and oilseed crops, which have not already been targeted for urban development or water storage. Prime farmland has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. The NRCS identifies soil mapping units that qualify as prime based on specific soil criteria. Soil mapping units may be classified as prime farmland under current conditions or as prime farmland if certain qualifying conditions exist on the site (e.g., “prime farmland if irrigated,” “prime farmland when protected from flooding,” etc.). In such cases, if the qualifying conditions do not exist, then the unit is considered “not prime.” For this analysis, “prime farmland with no restrictions,” “prime farmland when irrigated,” and “prime farmland when drained” are included in the definition and estimated acres of prime farmland.

The NRCS STATSGO database was used to evaluate the location of prime farmland in the Analysis Area for impacts on agriculture. Approximately 19 percent of the Analysis Area is classified as prime farmland by NRCS. No prime farmland was identified in the Wyoming part of the Analysis Area. All of the Proposed Route segments in Idaho cross prime farmland, with prime farmland ranging from 27 percent to 41 percent of Segments 5, 7, 8, 9, and 10 (Table 3.18-2).

Table 3.18-2. Prime Farmland within the Analysis Area by Segment

Segment	Total Analysis Area Acreage ^{1/}	Prime Farmland Acreage	Percent of Analysis Area by Segment
4	50,980		
5	20,096	8,215	41
7	51,086	20,115	39
8	28,942	7,759	27
9	41,875	13,795	33
10	4,081	1,436	35

1/ Note that the Total Analysis Area and Prime Farmland acreages shown here are different to those identified in Table 3.15-1 in Section 3.15 – Soils because the Analysis Area for Soils is a 1-mile corridor. The Analysis Area for Agriculture is primarily the area within 500 feet of the proposed transmission line centerline (see Section 3.18.1.1). As a result, the share of the Analysis Area that is Prime Farmland also differs slightly between the two tables. Acreages are rounded to nearest acre.

Livestock Grazing

Livestock grazing occurs on both publicly managed and private lands. Rangeland and pasture are the dominant land uses in the Analysis Area, and comprise 82.5 percent of the total Analysis Area. The percent of land within the Analysis Area used for livestock grazing (rangeland and pasture) by segment ranges from 59 percent for Segment 5 to about 96 percent for Segment 2 (Table 3.18-1).

The Analysis Area includes lands that are part of BLM- and Forest Service-managed grazing allotments, as well as Idaho and Wyoming state lands that are leased for grazing. BLM and Forest Service allotments typically include a mixture of public, private, and state lands. The BLM Rawlins FO planning area, for example, includes 582 grazing allotments that contain 6.6 million acres, of which slightly more than half (52.9 percent) are BLM-managed lands. Other land ownerships include other federal lands (0.8 percent), state land (5.3 percent), and private land (40.9 percent) (BLM 2008a). Grazing allotments can vary considerably in size. Allotments in the Rawlins FO planning area, for example, range in size from 20 acres to 291,954 acres of public land. In the BLM Kemmerer FO planning area, to take another example, grazing allotments range from 7 acres to 470,680 acres (BLM 2008c).

BLM and Forest Service grazing allotments that are within the Analysis Area are listed by name by segment in Table 3.18-3. This table also identifies Idaho and Wyoming grazing leases by number.

Crop Production

Crop production in the Analysis Area includes annually cultivated or rotated cropland, land in perennial field crops, improved pasture, hayfields, and hay meadows. Crop production occurs in the Idaho portion of the Analysis Area and is divided for the purposes of analysis into irrigated cropland and dryland farming (see Table 3.18-1).

Irrigated cropland includes cropland irrigated using pivot, wheel and hand line, and flood irrigation systems. Irrigated land may have existing subsurface drainage systems (drain tiles) and surface irrigation ditches. Irrigated cropland comprises 6 percent of total land use in the Analysis Area, with the majority of this land located along Segments 5, 7, 8, 9, and 10 (Table 3.18-1). Crops grown in irrigated fields in the Analysis Area include spring wheat, winter wheat, barley, sugar beets, corn, and alfalfa hay.

Dryland farming does not involve any type of irrigation. Dryland farmed acres in the Idaho portion of the Analysis Area are typically used to grow grains or hay. No dryland farming was identified in the Wyoming portion of the Analysis Area (Table 3.18-1). The share of the Analysis Area in Idaho used for dryland farming by segment ranges from less than 1 percent for Segments 9 and 10 to 21 percent for Segment 5 (Table 3.18-1).

Crop Spraying

Crop spraying is used to apply fertilizer, fungicides, or pesticides during growing season. Crop spraying is most common in the Idaho portion of the Analysis Area, especially along Segments 7, 8, 9, and 10. Aerial crop spraying is supported by a

Table 3.18-3. Grazing Allotments within the Analysis Area by Segment

Segment	BLM Allotment (Range)	Forest Service Allotment	Grazing Lease (Idaho)	Grazing Lease (Wyoming)
1E	Antelope Springs, Bailey Atkinson, Banner Mountain, Bar M Mountain, Bates Benchmark, Bates Creek, Bell-otte Ranch, Burnett Creek, Carlin Ranch, Curry Creek, Davidson Creek, Deer Creek, Deer Creek 2, Dodge Creek Ranch, Ellis Block, Grasshopper, Green Creek, Hay Draw, Hess Draw, Ice Cave Mountain, James Atkinson, Ken Atkinson, Little Medicine, Moss Agate, Mud Gulch, Mud Springs, Mule Creek, Mule-rogers Cr., North Area, Pinto Creek, Red Butte, River Pasture, Robbers Roost, Robbins, Rock Creek, Rock Creek Lakes, Rogers Creek, Sheep Creek, Slate Ridge, Smith Creek, Snowshoe Creek, Sommers, Spruce Cr/bates U, Sullivan, T.b. North Area, Tatman Original, Taylor, Texas Creek, Thornton Place, Three D's & T, Twentymile Draw, Twentytwo Mile, V R, Vandiver Ditch, Warren George, West Little Medic, Wlx	Bates Creek, Boxelder, Curry Creek, Indian Flat, Rock Creek, Sagebrush, Texas Creek		1-7087, 1-7093, 1-7209, 1-7258, 1-7309, 1-7360, 1-7394, 1-7542, 1-7867, 1-7938, 1-7942, 1-8043, 1-8118, 1-8119, 1-8124, 1-8203, 1-8230, 1-8277, 1-8385, 1-8505, 1-8532, 1-8623, 3-7218, 3-7282, 3-7339, 3-7434, 3-8035, 3-8138, 3-8701
1W(a)	Antelope Springs, Banner Mountain, Bates Benchmark, Bates Creek, Big Muddy, Deer Creek 2, Ellis Block, Hess Draw, Ice Cave Mountain, Mine, Moss Agate, Red Butte, Smith Creek, Spruce Cr/bates U, Sullivan, Thorton Place, V R, West Little Medic	Bates Creek, Sagebrush		1-7209, 1-7334, 1-7394, 1-8277, 1-8323, 1-8343, 1-8505, 3-7282, 3-8138
1W(c)	Antelope Springs, Banner Mountain, Bates Benchmark, Bates Creek, Deer Creek 2, Ellis Block, Ice Cave Mountain, Mine, Moss Agate, Smith Creek, Sullivan, V R	Bates Creek, Sagebrush		1-7209, 1-7394, 1-8277, 3-7282, 3-7434, 3-8138
2	Chace Block, Daley Ranch, Dana Block North, Dana Meadows Sout, Echo Springs, Ellis Block, Lazy Y S Ranch, Medicine Bow, North Walcott, Pass Creek Ridge, Quealey Block, Riner, Sixteen Mile, South Wamsutter			3-6999, 3-7585, 3-7597, 3-7697, 3-7953, 3-8027, 3-8610
3	G.L., North Laclede, South Red Desert, South Wamsutter, Tipton			3-6918

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Table 3.18-3. Grazing Allotments within the Analysis Area by Segment (continued)

Segment	BLM Allotment (Range)	Forest Service Allotment	Grazing Lease (Idaho)	Grazing Lease (Wyoming)
4	Beaver Creek, Border Summit-1, Boyd Hollow, Carter Lease, Chausse, Christy Canyon, Commissary, Cow Hollow, Coyote Springs, Cumberland Flats, Cumberland/uinta, Dempsey Basin, Downata Hot Springs, East Fork, East Willow Creek, Elkol, Erwin Creek, Fish Creek, Goblin Gulch, Granger Lease, Hassett, Hoodoo, Leefe, Left Hand Fork Marsh Creek, Lost Creek, Lund Draw, Mammoth Hollow, Mayfield, North Creek, Pegram, Pine Creek, Poison Creek, Pole Creek, Pomeroy Basin, Quakenasp Canyon, Quealy Reservoir, Rock Creek, Rocky Knoll, Ryan Creek, Sage, Seedskadee, Sheep Creek Hills-1, Sheep Creek Hills-2, Slate Creek, Slide Rock, Smithsfork, South Lake, Stockton Creek-1, Sublette Canyon, Thatcher Hill-1, Thatcher Hill-3, Tom Goure, Trail Creek, Twin Creek, West Mound Valley, West Of Rocky Knoll, West Willow Creek, Wilkinson Creek, Sheep Creek Hills-1, Sheep Creek Hills-2	Lago C & H, North Can S & G, Rock Springs (BLM Admin)		3-6910, 3-6949, 3-6953, 3-7053, 3-7134, 3-7225, 3-7620, 3-7722, 3-7738, 3-7972, 3-8104, 3-8502, Su-583
5	Anderson, Baker Canyon, Bear Hollow, Big Canyon, Big Onion, Borah, Cedar Mountain, Dairy Creek, East Fork, Ford Road-1, Freeway, Hermitsville, Indian Springs, Knox Canyon, North Bull Canyon, Peak, Pleasantview, Sawmill Canyon, Stewart Canyon, Timber, Windmill, Wiregrass Reservoir		G8550, G9185, G9706	
7	Artesian-kidd, Baker Canyon, Big Bend, Big Canyon, Big Creek, Big Onion, Bridge, Bruce Bedke-private, Buckhorn-churchill, Callahan, Cassia Creek, Cavanaugh, Cedar Mountain, Cedarville, Chapin, Churchill Tracts, Churchill-mullen, Churchill-poulton, Cld Springs, Clear Creek, Cold Springs, Critchfield-individual, Dairy Creek, Dairy Springs, Dale Pierce - Basalt, Dale Pierce - No Mans Land, Densmore Creek, Dry Creek, East Fork, Elba C & H, E-y Flat, Ford Road-1, Ford Road-2, Goose Creek Group, Goose Creek-mullen, Goose Creek-ward, Gulley, Houtz Canyon, Howe Peak, Isolated Tr-kunkel, Jim Sage, Johnson Creek, Junction Seeding, Karl E. Bedke-gse Ck, Knox Canyon, Kunau, Lunch Creek, Marchant-goose Creek, Marion Group, Martin-goose Creek, Middle Hill, Narrows Seeding, North Bull Canyon, North Cotterel, Peak, Pickett-wake, Pine Knob,	Big Creek C & H, Cold Springs C & H, Deadline, Elba C & H, Goose Creek C & H, Pothole/bedke C & H, Rock Creek C & H, Sublett C & H, Tunnel Hill C & H	G700033, G7041, G7322, G7356, G7360, G7506, G7512, G7685, G7733, G8077, G8550, G9571	

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Table 3.18-3. Grazing Allotments within the Analysis Area by Segment (continued)

Segment	BLM Allotment (Range)	Forest Service Allotment	Grazing Lease (Idaho)	Grazing Lease (Wyoming)
	Pleasantview, Point Allotment, Pothole/bedke C & H, Raft River, Ridge, Rocky Hollow, South Bull Canyon, South Lake Fork, Sparks Basin, Squaw Joe Isolated, State Line, Stewart Canyon, Strevell, Table Mountain, Timber, Uncle Ike Creek, View, Warm Springs, Warr-pickett, Water Canyon, Western Stockgrowers, Whitnah, Windmill, Wiregrass Reservoir, Yale			
8	101, Black Mesa, Bowns Creek, Camp 1, Clover Creek, Common, Con Shea, Cornell, Davis Mtn, Ditto Creek, Double Anchor Ffr, East Reynolds Creek, Emigrant Crossing, Goodtime, Hagerman Group, Hammett #1, Hammett #4, Hardtrigger, Indian, Indian Creek Ffr, Junction, King Hill, King Hill Canyon, Little Canyon, Martha Avenue, Melba Seeding, Mountain Home Subunit, Mud Springs, North Cold Springs, Pioneer, Plateau, Poleline, Rabbit Creek/peters Gulch, Sand Bt, Seven Mile, Shoestring Ct, Shoestring Sp, South Cold Springs, Sunnyside Spring/fall, Sunnyside Winter, Thompson, Wendell Ct, West Pioneer		G600044, G6005, G6009, G6326, G6383, G6532, G6535, G6710, G7148, G7315, G7459, G7551, G7600, G7603, G7746, G7748	
9	Artesian-kidd, Battle Creek, Black Mesa, Browns Gulch, Bruneau Arm, Bruneau Hill, Buhl Group-berger, Chattin Hill, Cheatgrass, Con Shea, Devil Creek Balanced Rock, Diamond Basin, East Castle Creek, East Reynolds Creek, Ellis Tews-berger, Fossil Butte, Griff, Hagerman Group, Hardtrigger, Hart Creek, Hub Butte-western Sg, Isolated Tr-kunkel, Joyce Ffr, Kerr-berger, Kinyon, Kubic, Lilly Grade, Little Three Island, Loughmiller, Lower Saylor Creek, Martens Bros.-berger, Noh Field, North Balanced Rock, Northwest, Rabbit Creek/peters Gulch, Red Mountain, Ridge, Roseworth Point, Salmon Tract-u2, Saylor Creek/north Three Island, Silver City, Sinker Butte, Squaw Joe Isolated, Sunnyside Winter, Thompson, Three Island, Twin Butte, Vinson Wash, West Castle, West Castle Creek, West Saylor Creek, Western Stockgrowers, Whitehorse/antelope, Yahoo		G600007, G600035, G6152, G6190, G6255, G6410, G6466, G6634, G6636, G6652, G7056, G7128, G7631	
10	Camp 1, Milner Plot, N Milner, S Milner			

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network of controlled airports and secondary airstrips. The quantity of farmed land receiving aerial crop spraying is unknown. As a result, the following analysis assumes that any dryland or irrigated farmland could receive aerial spraying. Airstrips within 3 miles of the Proposed Route and Route Alternatives are identified in Section 3.19.1.5.

CRP Lands

CRP is a popular USDA set-aside program that encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filterstrips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing may be provided to establish the vegetative cover practices.

Contact with the FSA indicated that there are no CRP lands within the Wyoming portion of the Analysis Area. The FSA did, however, identify CRP lands that would be crossed by three of the proposed segments in Idaho. Estimated miles of CRP land that would be crossed range from 6.1 miles for Segment 4 to 25.6 miles for Segment 7 (Table 3.18-4).

Table 3.18-4. CRP Lands crossed by Segment (miles)

Segment Number	Total Segment (miles)	CRP (miles)	Percent of Total Segment
4	203.0	6.1	3
5	54.6	18.4	34
7	118.1	25.6	22

Mileages are rounded to tenths of a mile and therefore may not sum exactly.

Dairy Farms

The detailed mapping conducted by Tetra Tech (2009b) grouped dairy operations and feed lots with other commercial agricultural operations. These areas are identified as CAFOs for the purposes of this analysis. Three of the proposed segments would cross CAFOs, Segments 7, 9, and 10, with each segment crossing less than 1 mile of land identified as part of a CAFO. Estimated distances of CAFO land crossed range from 0.2 mile for Segment 9 to 0.5 mile for Segment 10.

3.18.2 Direct and Indirect Effects

This section is organized to present effects to agricultural resources from construction, then operation, followed by decommissioning activities for the proposed Project. Route Alternatives are analyzed in detail below in Section 3.18.2.3. There is a Design Variation involving use of two single-circuit structures proposed by the Proponent for Segments 2, 3, and 4 (see Section 2.2 for details), which is analyzed below in Section 3.18.2.4, and a Structure Variation that is analyzed in Section 3.18.2.5. The Proponents have also proposed a Schedule Variation, analyzed in Section 3.18.2.6, in which one of the two single circuits to be constructed in Segments 2, 3, and 4 and a portion of Segment 1W would be built on an extended schedule with the second circuit to begin construction approximately 2.5 years after completion of the first circuit.

Mitigation measures or EPMs are presented in detail within this section only if it is the first time they have been discussed in Chapter 3; all other measures are referenced or

summarized. A comprehensive list of all Proponent-proposed EPMs and Agency-required mitigation measures can be found in Table 2.7-1 of Chapter 2.

Plan Amendments

Proposed amendments are summarized in Table 2.2-1 of Chapter 2 and detailed in Appendices F and G. Amendments are needed to permit the Project to cross various areas of BLM-managed and NFS lands. Effects described for areas requiring an amendment in order for the Project to be built would only occur if the amendment were approved. Amendments that alter land management designations could change future use of these areas. No amendments specific to agriculture are proposed for the Project and no impacts to agriculture resulting from approving the amendments beyond the impacts of the project are anticipated.

3.18.2.1 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed, operated, or decommissioned. There would be no Project-related impacts to agriculture.

3.18.2.2 Effects Common to All Action Alternatives

Construction

Short-term disruption of farming activities along the ROW could occur locally during construction. However, with implementation of the agricultural mitigation measures identified below in the Agricultural Construction Mitigation Plan section, impacts are expected to be minimal. Viewed in terms of agricultural operations in the potentially affected counties, the total estimated Project-related construction disturbance represents a small share of the 17 million acres of land in farms in the 21 potentially affected counties and is unlikely to noticeably affect overall agricultural production and employment in any of the affected counties. The Proponents do, however, recognize that construction of the proposed Project could have detrimental impacts on farms and have stated that they would negotiate damage-related issues, such as temporary reductions in the acreage available for cultivation, with affected farmers during the easement acquisition process.

Prime Farmland

Direct impacts to prime farmland would primarily result from the construction-related soil disturbance expected to occur at tower locations, work areas, staging areas, wire pulling/splicing locations, substation sites, regen sites, and access roads. Potential soil impacts to prime farmland from transmission line construction include soil erosion, disruption of drainage patterns, mixing of topsoil and subsoil, potential loss of topsoil, and soil compaction. Acres of prime farmland soils that would be temporarily disturbed during construction are identified in Table D.15-1 in Appendix D. The reclamation measures presented in Appendix C-2 would be used to keep prime farmland soil losses to a minimum. Areas not also used for operations would be reclaimed as soon as possible following construction.

Most prime farmland in the Analysis Area is privately owned and actively cultivated. Potential impacts to cropland common to all action alternatives are discussed below under crop production.

Livestock Grazing

Construction could affect livestock grazing by temporarily reducing forage and displacing livestock. In addition, increased dust in areas adjacent to construction sites could reduce forage palatability. Construction could also affect grazing in locations where new access roads provide additional access for both humans and livestock. This type of additional access could result in harassment of livestock by humans, or allow livestock to access areas they were previously unable to access. This may occur, for example, if an access road crosses a ravine that livestock had previously not been able to cross, or if a fence is cut or a gate left open. Construction crews would be required to maintain all fences and gates to allow normal activities to occur as much as possible. Mitigation measures identified by the Agencies also include the installation of temporary fences and gates as needed to control livestock and public access in coordination with affected landowners.

- AGRI-5 Maintain landowner and tenant access across construction areas for farm equipment and livestock to fields isolated by construction activities and install temporary fences and gates across the construction area.

Transmission line construction is linear in nature with periods of intense activity separated by relatively long intervals of little or no activity. Disturbance in any one area would, however, generally last for most of one construction season, given that there are several sequential steps required. In some situations, disturbance may begin in one season and, due to weather or timing restrictions, not be completed until the next year. During intense construction periods some areas currently used for livestock grazing would be temporarily off limits.

Potential impacts to livestock grazing from construction are presented below for the Proposed Route and Route Alternatives in terms of temporary reductions of forage and expressed in acres. In all cases, the potentially affected acres represent a small share of the total acres used for livestock grazing within the Analysis Area and surrounding area, and would result in relatively small temporary reductions in AUMs. An AUM is the amount of forage required to sustain one cow for one month. Data available for Wyoming identify AUM ratios for BLM-managed and State lands of 0.11 AUM per acre and 0.28 AUM per acre, respectively (BLM 2008a; Wyoming OSLI 2009).

Certain state and federal programs provide financial assistance to agricultural operations as incentives to promote agriculture. The Wyoming OSLI has indicated that if some lands become off-limits to grazing during construction they may need to change scheduled payments to agricultural lessees (Parks 2010). Other potential economic impacts related to livestock grazing are discussed in Section 3.4 – Socioeconomics.

Crop Production

Construction could affect crop production by temporarily reducing the area available for cultivation. Temporary construction-related impacts would depend on the type of crop, the season, and whether the land was in use or fallow. Without proper coordination

between the Proponents and farm operators, impacts associated with ingress and egress to the ROW, damage to irrigation systems, timing notification, segregation and protection of topsoil, and compaction could be potentially significant.

The effects to farming operations could also result in impacts outside the areas where soil would be disturbed as part of construction activities. These effects could include damage to or loss of crops, decreases in crop yield, restrictions to farm vehicle access or aerial spraying operations, and disruption of drainage and irrigation systems. These types of potential effects are difficult to quantify and would likely be determined through negotiation with landowners. As a result, the affected acres analyzed in this section refer to areas where the soil would be directly disturbed by the Project, and do not include other areas that might be indirectly affected. These types of additional potential impacts are assumed for the purposes of analysis to be proportional to the direct estimated impacts based on surface disturbance. Potential economic impacts related to cropland are discussed in Section 3.4 – Socioeconomics.

Crop Spraying

Construction of the transmission line could reduce the area of crops that could be treated by aerial spraying. Transmission towers or construction cranes could interfere with the flight paths of aerial applications. This potential effect would vary, depending on the location of tall structures relative to crop planting patterns, the presence of other tall structures, and the comfort level of the individual pilot. Aerial spraying is also sometimes used to control large-scale insect infestations on public and private land. The short-term inability to use aerial spraying could reduce productivity and cause economic effects to farming or rangeland operations. The presence of construction workers could also delay applications.

CRP Lands

The Power County Task Force (2010) has expressed concern that the proposed Project would result in CRP lands being removed from the CRP. The Agencies recommend that the Proponents address this concern by consulting with the FSA and landowners to determine if construction would affect the CRP status of the land or if special construction or revegetation techniques would be necessary.

AGRI-18 Consult with the FSA and landowners to determine if construction would affect the CRP status of the land currently enrolled in CRP or if special construction or revegetation techniques would be necessary.

The FSA Handbook for the Agricultural Resource Conservation Program for State and County Offices (USDA 2008, p. 12-8) provides the following guidance:

Following is the procedure for continuing CRP-1 on land being used by public utilities for installing gas lines, pipes, cable, telephone poles, etc., materials used by an entity of the State for road building or Federally funded pipeline projects.

CRP-1's may be continued without reduction in payment if:

- *the participant gives COC [the County Committee] details of proposed use, including length of use*
- *COC authorizes the use*
- *NRCS or TSP [Technical Service Provider] certifies usage will have minimal effect, such as:*
 - *erosion is kept to a minimum*
 - *minimum effect on wildlife and wildlife habitat*
 - *minimum effect on water and air quality*
- *the participant restores cover, at the participant's expense, to disturbed land in timeframe set by COC.*

Note: No payment reduction will be made for compensation received by the participant from the public agency.

NRCS or TSP will determine whether the disturbance will have an adverse effect on the land. If NRCS or TSP determines that public use will have an adverse effect on CRP acreage, affected acreage shall be terminated and refunds assessed.

When landowners sign a CRP Contract (for a set term) they agree to refund payments received, plus applicable interest, and pay liquidated damages if the contract is not upheld. Payments received in this context include the contract payments for the duration of the contract, as well as any cost-sharing payments. Liquidated damages are equivalent to 25 percent of the rental rate per acre multiplied by the number of acres subject to the CRP contract. Rental rates per acre are based on the average cash rental rate, or equivalent, per acre for dryland cropland at the time the contract is signed. Average cash rental rates per acre for dryland cropland in Idaho were \$60 per acre in 2010 (USDA 2010b).

If the Project were to result in lands being removed from the CRP program, the amount that would be due to the FSA per acre for land removed from the CRP would vary depending on the length of time the land in question had been in the program and the amount of cost-sharing payments received. The Power County Task Force (2010) stated that one of their members had the FSA calculate the liquidated damages for removing 18 acres from the CRP and damages were estimated to be \$9,834. Assuming that liquidated damages are equivalent to 25 percent of the rental rate (see above), this suggests a per acre value of approximately \$2,185, which is substantially higher than the current average of \$60, and may in fact represent the total amount that could be owed: a refund of all payments received plus interest, as well as liquidated damages.

In addition to financial penalties, if lands were removed from the CRP contract, future income that would otherwise be generated from that contract would also be lost. The economic costs to private agricultural landowners that would be incurred if the Project resulted in land being removed from the CRP would be mitigated by the Proponents on

a case-by-case basis, most likely through negotiated terms of easements between the landowner and the Proponents.

Agricultural Construction Mitigation Plan

The Proponents' proposed Framework Reclamation Plan for Construction Activities (Appendix C-2) identifies measures that would help reduce potential impacts to agricultural operations. For the purposes of analysis and mitigation, agricultural land is defined as annually cultivated or rotated cropland, land in perennial field crops, improved pasture, hayfields, and CRP land. EPMs proposed by the Proponents that would mitigate potential impacts to agriculture include REC-13, REC-18, REC-21, and OM-29. These EPMs are addressed in Section 3.6 – Vegetation (REC-13), Section 3.9 – Wetlands and Riparian Areas (REC-18, REC-21), and Section 3.11 – Special Status Wildlife and Fish Species (OM-29).

In addition, the Agencies have identified the following measures as means to substantially reduce impact. Implementation of an effective agricultural mitigation plan would help reduce or eliminate impacts.

- AGRI-1 Provide for a qualified Agricultural Specialist to assist construction planning, construction, restoration, post-construction monitoring, and follow-up restoration.
- AGRI-2 Maintain an active program of liaison with landowners and tenants, including specific points of contact whose responsibilities shall include pre-construction inventory, notices, complaint resolution, damage assessment, and negotiation and compensation.
- AGRI-3 Establish procedures for determining ingress and egress routes with landowners and tenants, protection methods for off-ROW roads over agricultural lands and on ROW pads, including methods such as geotextile matting to segregate temporary rock fill.
- AGRI-4 Establish the location of temporary roads to be used for construction purposes through negotiation with the landowner, with existing farm lanes or two tracks as preferred temporary access roads. Restore temporary access roads to pre-construction condition and leave temporary access roads intact through mutual agreement with the landowner and tenant unless located in flood areas or drainage hazard areas, or otherwise restricted by federal, state, or local regulations.
- AGRI-5 Maintain landowner and tenant access across construction areas for farm equipment and livestock to fields isolated by construction activities and install temporary fences and gates across the construction area, as necessary, to facilitate agricultural operations.
- AGRI-6 Protect topsoil by stripping and segregating topsoil in the disturbance area on agricultural lands unless negotiated differently with the landowner or tenant. Prevent segregated topsoil from being mixed with cut-and-fill materials, rock, construction debris, excavated materials, or other subsoil.

- AGRI-7 Restrict the operation of vehicles and heavy equipment, or take other appropriate action, so that deep rutting does not result in mixing of topsoil and subsoil on excessively wet soils on the portion of the construction work area in agricultural land where the topsoil is not stripped.
- AGRI-8 Protect irrigation operations and drain tiles by: 1) contacting landowners and tenants to identify the location of irrigation systems and wells, identified underground irrigation water pipes, well systems, and drain tiles that intersect the construction area; 2) repairing disrupted irrigation and drain tile systems as soon as possible; 3) maintaining the flow of irrigation water during construction or coordinating a temporary shutoff with affected parties; and 4) compensating affected parties for crop losses that result from irrigation and drain tile system interruptions due to construction.
- AGRI-9 Protect agricultural lands from dewatering activities by pumping into a constructed energy-dissipating structure that shall minimize damage to adjacent agricultural land, drainage systems, and crops.
- AGRI-10 Restore affected agricultural land to the pre-construction condition or provide compensation.
- AGRI-11 Decompaction of exposed subsoil before topsoil replacement shall be accomplished utilizing an agricultural subsoiler or other appropriate implement. After decompaction and prior to topsoil replacement, a disc or harrow shall be utilized, as necessary, to smooth the subsoil surface.
- AGRI-12 Following final grading and topsoil replacement in agricultural lands, deep tillage shall be used to relieve soil compaction in construction areas or the Proponents shall test soils for compaction at regular intervals. Where soil compaction is tested, construction areas shall be compared to adjacent areas not disturbed by construction.
- AGRI-13 Decompact agricultural lands where topsoil has not been removed by using a non-inversion, deep-tillage agricultural subsoiler specifically designed for soil decompaction and designed to minimize surface disturbance and the mixing of subsoil with topsoil.
- AGRI-14 Existing range improvements that are damaged or modified during construction shall be repaired. Additionally, temporary fences and gates shall be removed after construction if requested by landowner or land-management agency.
- AGRI-15 If a dairy farm reports problems with stray voltage, complete a free, on-site investigation and determine the level of voltage and fix any problems resulting from the transmission line to less than 1 volt.
- AGRI-16 Align the transmission line to avoid the CAFO approximately 14.5 miles east of the proposed Cedar Hill Substation if this route is approved.
- AGRI-17 Realign the transmission line route during final design to avoid affecting any CAFOs.

AGRI-18 Consult with the FSA and landowners to determine if construction would affect the CRP status of the land currently enrolled in CRP or if special construction or revegetation techniques would be necessary.

According to the Wyoming OS LI, any agricultural construction plan on Wyoming state land should be approved by the Wyoming OS LI (Parks 2010).

Operations

As noted with respect to construction impacts common to all action alternatives, the total estimated Project-related operations disturbance represents a small share of the 17 million acres of land in farms in the 21 potentially affected counties and is unlikely to noticeably affect overall agricultural production and employment in any of the affected counties. The Proponents have stated, however, that they recognize that construction of the proposed Project has the potential to have detrimental impacts on farms and would negotiate damage-related issues, such as reductions in the acreage available for cultivation, with affected farmers during the easement acquisition process.

ROWs for transmission line facilities on private agricultural lands would be obtained in fee simple or perpetual easement by the Proponents. The effect that a transmission line easement may have on agricultural property values is a damage-related issue that would be negotiated between the landowner and Proponents during the fee simple or easement acquisition process. The easement acquisition process is designed to provide fair compensation to the landowner for the right to use the property for transmission line construction and operation. The easement value in theory is equal to the difference in value of the affected property before and after easement acquisition and construction of the proposed facilities. Property values are discussed in more detail in Section 3.4 – Socioeconomics.

Prime Farmland

Reclamation after construction would reduce long-term effects to prime farmland. Estimated acres of prime farmland soils that would be disturbed during Project operations are identified by segment in Table D.15-2 in Appendix D. Impacts to prime farmland during Project operations would primarily be related to those areas that would be occupied by tower structures and not available for agricultural use. The prime farmland soils under those structures would no longer be available for agricultural use.

Livestock Grazing

During Project operations, rangeland and pasture occupied by support structures, substations, regeneration stations, or access roads would no longer be available for grazing. As discussed above with respect to construction, the estimated acres of lands used for livestock and grazing that would be permanently affected by the Proposed Route and Route Alternatives represent a small share of the total acres used for livestock grazing within the Analysis Area and surrounding area, and would result in relatively small temporary and permanent reductions in AUMs.

Long-term impacts to private grazing landowners or public land grazing permittees would need to be mitigated, likely through negotiated terms of land leases or easements. In some cases, the acres of individual grazing allotments contracted through the Forest Service or BLM may need to be reduced. Other operations and maintenance activities would not affect livestock grazing.

Crop Production

During Project operations, croplands occupied by support structures, substations, regeneration stations, or access roads would no longer be available for crop production. Crop production that involves mechanical irrigation, automated farming methods, or farming equipment with large spans (up to 100 feet) could also be adversely affected by the placement of overhead conductors and support structures. Production costs increase in cases where farmers have to divert their equipment around structures, make additional passes, take additional time to maneuver, reconfigure surface drainage, skip acres, or re-treat acres. Micrositing the transmission line should allow the Proponents to avoid crossing most fields and reduce the potential for this type of disruption. If crossing a field is necessary, structures would be placed on the outside edges of the field or parallel to the rows, and diagonal field crossings would be avoided where possible.

Structures located near the edge of a field may prevent equipment from reaching the edge of the field, as shown in the case of an existing transmission line crossing through pivot irrigation field approximately 8 miles west of Midpoint Substation in Figure 3.18-1. However, in most cases the structures can be located strategically to allow existing pivots to continue to operate without adverse effects.



Figure 3.18-1. Transmission Line Structures Located along the Edge of a Center Pivot Irrigation Field, Approximately 8 Miles West of the Midpoint Substation

Note: The black arrows indicate the structure locations.

Figure 3.18-2 shows the Proponents' proposed structure locations through an area of existing center pivots in Cassia County. In this case, impacts would occur to several small pivots while the larger pivots would be able to continue to operate. There is additional loss of production when structures are set close enough to the edge of a field so that farm equipment cannot fit between the structure and the edge of the field.



<p>0 1,000 2,000 Feet</p>	<p>Legend</p> <ul style="list-style-type: none"> ● Proposed Tower Location — Transmission Line (Design Centerline) <p>see Appendix A Figure A-10 for overview of area</p>	<p>Gateway West Transmission Line Project Idaho, Wyoming, Nevada</p> <p>Example of Transmission Line Layout (Segment 7)</p> <p>FIGURE 3.18-2</p>
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Structures that cross a field diagonally may also affect the efficient use of some large equipment (Figure 3.18-3). Potential economic impacts to crop production are discussed in Section 3.4 – Socioeconomics.

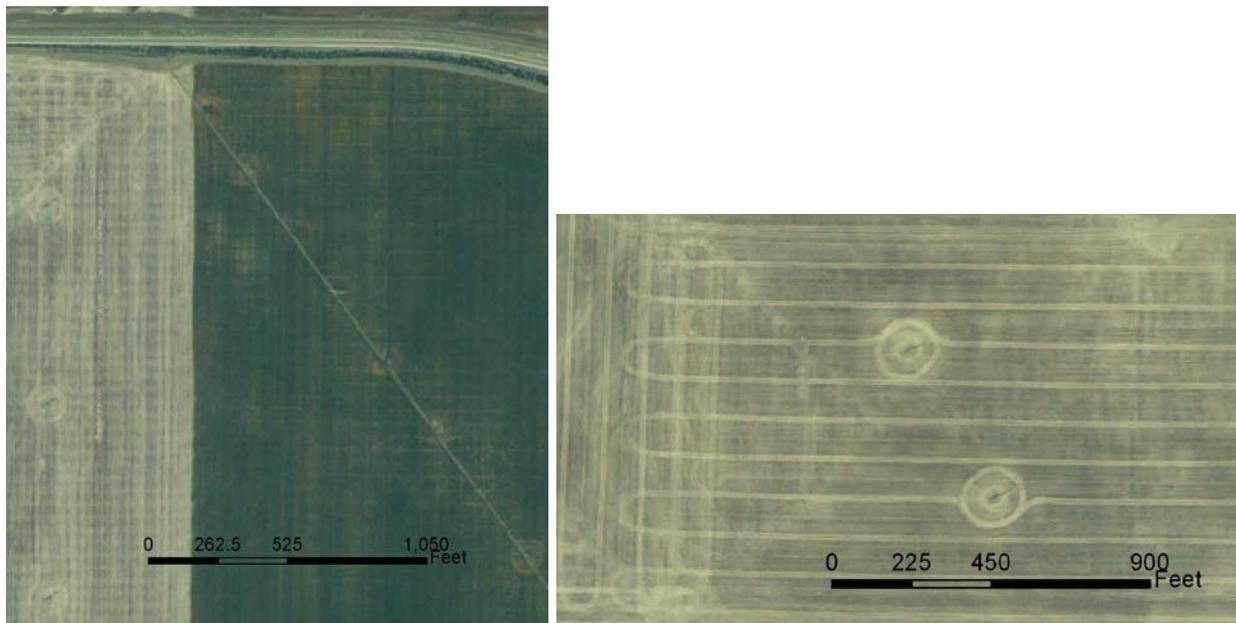


Figure 3.18-3. Transmission Line Structures Crossing Dryland Farming at a Diagonal and Structures in Line with the Rows

GPS Interference – Concern has been expressed by the Power County Task Force (2010) that the proposed transmission line could interfere with irrigation guidance systems and GPS guidance systems used to guide tractors during planting, cultivation, and harvesting. The comment notes that reports indicate that presence of an electric transmission line can affect the accuracy of GPS systems, leading to them being “off” by 1½ to 4½ feet. If this were to occur, the resulting inefficiencies could result in wasted fuel, increased labor costs, and under- or over-fertilizing resulting in reduced productivity (Power County Task Force 2010).

The Proponents report that they do not specifically track reports of interference with GPS tractor navigation systems; however, these systems are widely used in the Magic Valley area of Idaho, which is crossed by several existing transmission lines, with voltages up to 500 kV. The Proponents report that while users of these systems have expressed concerns about the possibility of interference from powerlines, no specific instances have been reported (IPC 2010).

GPS accuracy can be affected by many factors including atmospheric conditions, satellite constellation, and geometry; the design, quality, and position of the GPS antennas and receivers; signal interference; and multipath. Of these factors, a transmission line and its structures could conceivably contribute to signal interference and multipath. Signal interference occurs when other signals at the same frequency as the satellite signal are present. Multipath occurs when objects such as buildings or

parts of the tractor itself reflect the GPS satellite signal so that the satellite signal arrives at the receiver later than it would have if it had followed a straight line from the satellite.

A study commissioned by the Electric Power Research Institute (EPRI) found that signal interference from transmission line structures is “unlikely” based on the design of GPS receivers and their ability to separate the GPS signal from background noise (Silva and Olsen 2002). Another study compared the accuracy of Real-Time Kinematic GPS receivers at different locations with respect to transmission lines and towers (Gibblings et al. 2001). This study concluded that multipath from transmission towers could result in GPS system initialization errors (i.e., the system reports the wrong starting location) 1.1 percent to 2.3 percent of the time. This study also reported that the GPS system software was able to identify and correct these initialization errors within the normal startup time. This study reported initialization errors due to electromagnetic radiation from energized overhead transmission lines when the GPS receiver was located outside the vehicle, but concluded that “most, if not all of this effect can be eliminated by shielding the receiver and cables.” Placing the receiver inside the vehicle used in the study reduced the bad initializations.

The potential for the proposed Project to result in electromagnetic interference to GPS and other communication systems is discussed further in Section 3.21 – Electrical Environment.

Irrigation System Electrolysis – The Power County Task Force (2010) also raised a concern that the location of electric transmission lines near irrigation systems speeds the electrolysis and degradation of those systems, so that they have to be repaired more often and replaced more frequently than they would if the transmission lines were not present.

Electrolysis is a process in which direct current (DC) voltage is deliberately applied from an external power source to combinations of materials and electrolytes in order to produce an otherwise non-spontaneous electrochemical reaction or to accelerate a spontaneous electrochemical reaction. Electrolysis is used in some metal plating processes and to separate hydrogen and oxygen from water. The proposed transmission line would operate using AC voltage and current, which does not produce or accelerate these reactions.

Given the nature of the expressed concern, it is possible that the process the Task Force is referring to is galvanic corrosion. Galvanic corrosion is a spontaneous electrochemical reaction that can occur when a single material such as an aluminum pipe is placed in different electrolytes along its length, or when different materials, such as brass and galvanized steel, are physically in contact with each other and placed in a single electrolyte such as condensation on a cold water pipe and its associated valves. This process will occur whether or not a transmission line is present and is not influenced by the presence of the AC electrical system.

DC voltage is, however, deliberately applied to many underground metallic pipelines to counter the effects of galvanic corrosion. These galvanic protection systems can produce DC voltages between different points on nearby metallic structures, which can accelerate the galvanic corrosion reaction in these structures, as described above.

Electric transmission towers do not utilize these active galvanic corrosion suppression systems; however, in some instances pipeline ROWs are located close to transmission line ROW, which may give the impression that accelerated galvanic corrosion is due to the presence of the transmission line.

Induced Current – Another concern raised by the Power County Task Force (2010) relates to voltage causing shocks to humans. The Task Force contends that many farmers and farm workers are reluctant to work on irrigation systems near transmission lines because of the history and potential for shock from stray voltage.

This concern, as described in the comment, appears to relate to the voltage that may be present between the earth and some object as a result of the electric field around a transmission line. This is sometimes described as an induced voltage. The Proponents have received reports of shocks from fences near transmission lines. In these cases the fences were electric fences that were insulated from the earth. Persons working on the insulated fence wire could in some instances experience a shock when they contacted the fence wire. This phenomenon is due to the fact that the fence wire is insulated from the earth, while being surrounded by an electric field. Similar shocks can be experienced when contacting vehicles or irrigation pivots located close to a transmission line. The shock is similar to a static shock.

The National Electric Safety Code (NESC) addresses this issue, limiting the steady-state current that can flow between an object and the earth near a transmission line to 5 milliamperes (mA). This is considered to be a safe level. In the cases where this has been reported to Proponents, engineers have responded by checking the voltage at the fence or other object to ensure that the 5 mA limit is not exceeded and then providing suggestions to the customer on ways to eliminate the issue while working on their equipment. This issue is well understood and can be mitigated with proper grounding of the equipment or structure. The transmission line clearances are designed to prevent the 5 mA limit described above from being exceeded at objects such as vehicles with rubber tires that would be difficult to ground.

The potential for the proposed Project to result in field induction—induced current and nuisance shocks—is discussed further in Section 3.21 – Electrical Environment.

Crop Spraying

Crop dusting is most common in the Idaho portion of the Analysis Area. A field can receive up to 5 to 10 applications per year depending on the type of crop and preferences of individual operators. Aerial spraying can involve dry applications (usually fertilizer) and liquid applications of fungicides and pesticides. While there are several different makes of crop-spraying aircraft, a typical product load weighs approximately 275 to 300 pounds with an effective range of 25 to 30 miles. To improve efficiency, satellite landing strips are used to resupply the aircraft and reduce “dead time.” Spraying operations occur during both daylight and nighttime conditions, depending on the time of season, with nighttime operations occurring when bees are pollinating crops during daylight hours.

Pilots typically spray with the aircraft 8 to 15 feet above the ground level, with the greater height occurring when crops are taller. Taking into account height above

ground, size of the aircraft and the nose-down flying angle, the maximum height of the tail of the aircraft is approximately 20 to 25 feet above the ground surface. The presence of a transmission line could result in increased risk to crop duster pilots or others on the ground. Larger transmission lines like those proposed as part of this Project are typically easier to see than smaller-voltage lines and provide enough clearance between the ground and maximum sag of the conductors to allow pilots to fly under. The presence of a transmission line could also affect spray coverage. Spray is applied at a downward angle to reduce over-spray and, as a result, areas immediately adjacent to the towers could receive less product than desired.

The extent of the farmed land in the Analysis Area that currently receives aerial crop spraying is unknown, but this type of spraying is most likely to occur in areas where crops are grown, and to a much lesser degree, in areas of range where herbicides and insecticides are applied to control noxious weeds and insects such as crickets. As a result, the miles of croplands and range in each segment and alternative are an indication of the potential risk posed by the Proposed Route and each Route Alternative.

The National Transportation Safety Board (NTSB 2008) maintains a database of aviation accidents. This database indicates that over a 6-year period, from January 1, 2003 to December 19, 2008, nationwide, there was a total of 484 agriculture-related accidents investigated, of which 49 (10 percent) were fatal. Most of these accidents were related to electrical power lines, but not all of them were. Some were related to telephone wires, other aerial wires, or guy wires on other utility poles. The investigation reports reviewed do not specify the type of transmission line that was involved, but considering details such as the height from the ground, the number of lines in one location, and visibility, these reports suggest that smaller lines are much more involved in aviation accidents than the 230-kV and 500-kV lines proposed for the Gateway West Project.

During the 6 years evaluated, there were 68 accidents that involved overhead wires and 9 (13 percent) were fatal. Twelve of the aircraft involved were helicopters, the rest were airplanes. One was a helicopter that started to crash and hit a powerline on the way down. None of the overhead wire-related accidents occurred in Wyoming; three occurred in Idaho (Midvale, Teton, and Caldwell), none of which were fatal. None of these accidents occurred within the Analysis Area identified for agriculture.

The recent history of past aviation accidents near the Analysis Area suggests that approximately one agricultural aviation accident related to overhead wires could occur within the Analysis Area every 5 years (not necessarily from the Gateway West Project). The Gateway West Project would, however, be larger and more visible than smaller overhead lines, and, therefore, higher and likely to be more visible to pilots. As noted above, based on past national data, approximately 13 percent of agricultural aviation accidents associated with overhead wires could be expected to be fatal (NTSB 2008).

According to the Power County Task Force (2010), aerial applicators and farmers who currently work near existing lines, smaller than those proposed for the Gateway West Project, have stated that pilots are very reluctant to even fly in the vicinity of transmission lines. These applicators and farmers have expressed concern that this

reluctance would be increased with respect to the Gateway West Project because of the relatively large size of the structures, and, as a result, aerial applicators could refuse to apply on fields near, bordered by, or containing structures and lines. This type of scenario, the Power County Task Force notes, would be more likely to occur in cases where the proposed transmission line crosses a field at an odd angle. Farmers have indicated that an inability to aerially apply would result in increased costs, reduced efficiency, unnecessary over application or under application, damaged crops from field application, and overall lower crop yields (Power County Task Force 2010). Potential economic impacts identified by the Task Force are discussed in Section 3.4 – Socioeconomics.

Idaho Power's existing electric transmission system, which includes lines in Power and Cassia Counties, the counties where most concerns have been expressed with respect to potential impacts to agricultural operations, includes 1,162 total miles of 230-kV lines and 576 total miles of 345-kV lines, with a combined total of 513 miles (411 miles of 230-kV and 102 miles of 345-kV lines) located over crop or pasture land. In addition, Idaho Power operates 1,209 miles of smaller-voltage lines (36 miles of 161-kV, 480 miles of 138-kV, 416 miles of 69-kV, and 277 miles of 46-kV lines) that cross crop or pasture land. Idaho Power reports that it has not received any complaints regarding the impact of these existing transmission lines and structures on the aerial application of agricultural chemicals.

Herbicide spraying for weed control along the transmission line ROW could affect organic farmers; however, the requirement to coordinate with the landowner when determining which treatments to use should reduce the risk that organic crops would be adversely affected.

CRP Lands

As noted with respect to construction, the Agencies recommend that the Proponents consult with the FSA and landowners to determine if construction would affect the CRP status of the land or if special construction or revegetation techniques would be necessary. If the Project were to result in lands being removed from the CRP, the economic costs to private agricultural landowners would be mitigated by the Proponents on a case-by-case basis, most likely through negotiated terms of easements between the landowner and the Proponents.

CAFOs

CAFOs, including dairy farms, could be subjected to stray voltage during Project operations. Stray voltage in this context refers to a phenomenon that is primarily of concern in wet environments, such as a dairy barn or feedlot. Stray voltage occurs when an animal makes contact with a metal object that is at a different electrical potential than another point in contact with the animal, i.e., the nearby ground or earth. This may occur when there is poor grounding or bonding of the metal object to the earth and the electrical ground. Most often, this arises from electrical equipment on the farm and local electrical wiring, not because of the operation of nearby transmission lines. Metal fences or large metal objects adjacent to, running parallel to, or passing under the proposed Gateway West transmission lines may develop a different potential than the surrounding ground if not properly grounded. Most cows would need a current of 3 to 4

volts before behavioral changes could be noticed. More than 4 volts is needed before the most sensitive cows resist drinking water (Lefcourt 1991).

Idaho has established rules for the measurement of stray current or voltage (IDAPA 31.61.001.002), which apply to dairy producers, public utilities, and anyone measuring or remediating stray current or voltage in Idaho. Wyoming does not have these types of rules.

Appendix C-4 describes routine maintenance activities. The plan is not specific with respect to routine measures to ensure that stray voltage concerns are resolved quickly. The Agencies have, therefore, identified the additional mitigation measure AGRI-15 as a means to substantially reduce impact.

Decommissioning

Project facilities would be removed at the end of the operational life of the transmission line. Conductors, structures, and related facilities would be removed. Foundations would be removed to below the ground surface level. Post-operations decommissioning of the transmission line would cause similar levels of disturbance and disruption as construction. However, once reclamation is complete, areas would be restored to the prior condition.

3.18.2.3 Proposed Route and Alternatives by Segment

This section evaluates the impacts of the Proposed Route and the differences between the Proposed Route and Route Alternatives on prime farmland, livestock grazing, crop production, CRP lands, and dairy farms.

Segment 1E

Segment 1E, as proposed, would link the Windstar and Aeolus Substations in south-central Wyoming with a 100.6-mile 230-kV single-circuit transmission line. Twenty acres of the expansion of Windstar and Aeolus Substations and 0.5 acre for one regeneration site are attributed to Segment 1E. Alternative 1E-A is a 16.1-mile alternative along the north end of Segment 1E, which was the Proponents' initial proposal before moving the Proposed Route at the suggestion of local landowners to avoid the more settled area around Glenrock. Alternative 1E-B is 21.4 miles longer than the Proposed Route but is being considered by the Proponents because it would avoid a Wyoming-designated sage-grouse core area to the east. The BLM has required the consideration of Alternative 1E-C, which parallels Segment 1W 230-kV lines into the Aeolus Substation (see Appendix A, Figure A-2).

Prime Farmland

There is no prime farmland in Segment 1E (Table 3.18-2).

Livestock Grazing

Approximately 25,095 acres or 93 percent of the Analysis Area for Segment 1E is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 983 acres of rangeland and pasture (Table 3.18-5), with an estimated 248 acres permanently disturbed (Table 3.18-6). Alternatives 1E-A and 1E-C would disturb less rangeland than the comparison portion of the Proposed

Route.¹ Alternative 1E-B would disturb more rangeland than the Proposed Route (Tables 3.18-5 and 3.18-6).

Table 3.18-5. Agricultural Land Disturbed during Construction – Segment 1E

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	1,084	983	1	–
Proposed – Comparison Portion for Alternative 1E-A	208	196	–	–
Alternative 1E-A	124	118	–	–
Proposed – Comparison Portion for Alternative 1E-B	388	371	–	–
Alternative 1E-B	727	710	–	–
Proposed – Comparison Portion for Alternative 1E-C	825	748	1	–
Alternative 1E-C	326	297	–	–

Acres are rounded to nearest acre.

Table 3.18-6. Agricultural Land Disturbed during Operations – Segment 1E

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	281	248	–	–
Proposed – Comparison Portion for Alternative 1E-A	51	46	–	–
Alternative 1E-A	39	36	–	–
Proposed – Comparison Portion for Alternative 1E-B	88	83	–	–
Alternative 1E-B	164	160	–	–
Proposed – Comparison Portion for Alternative 1E-C	215	191	–	–
Alternative 1E-C	97	89	–	–

Acres are rounded to nearest acre.

Crop Production

Cropland within the Analysis Area for Segment 1E is limited to an estimated 11 acres of irrigated cropland (Table 3.18-1). An estimated 1 acre of irrigated cropland would be temporarily disturbed during construction under the Proposed Route and Route Alternatives 1E-A and 1E-B (Table 3.18-5). This land would not be disturbed under Alternative 1E-C.

CRP Lands

There are no CRP lands within the Analysis Area for Segment 1E (Table 3.18-4).

Dairy Farms

No dairy farms or CAFOs were identified within the Analysis Area for Segment 1E.

Segment 1W

Segment 1W is composed of two parts, Segment 1W(a) and 1W(c), both of which would consist of a new 230-kV line for part of their length and a reconstruction of an existing 230-kV line for the remaining part. Segment 1W(a) would be about 76.5 miles long, and would extend from the Windstar Substation to the Aeolus Substation. Segment 1W(c) would be about 70.6 miles long, and would extend from the Dave Johnston Power Plant

¹ The portion of the Proposed Route that starts and ends at the same nodes as the Route Alternative.

to the Aeolus Substation. Alternative 1W-A is a 16.2-mile alternative located near the town of Glenrock, which was the Proponents’ initial proposal before moving the Proposed Route at the suggestion of local landowners in order to avoid the more settled area around Glenrock. Twenty acres of the proposed expansion at the Windstar and Aeolus Substations are attributed to Segment 1W(a) and 3 acres of the expansion at the Heward Substation and 17 acres of the expansion at the Windstar and Aeolus Substations are attributed to Segment 1W(c). There are no Route Alternatives proposed south of that point (see Appendix A, Figure A-2).

Prime Farmland

There is no prime farmland in Segment 1W (Table 3.18-2).

Livestock Grazing

Approximately 18,005 acres or 91 percent of the Analysis Area for Segment 1W is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route for Segment 1W(a) would temporarily disturb an estimated 578 acres of rangeland and pasture (Table 3.18-7), with an estimated 165 acres permanently disturbed (Table 3.18-8). Alternative 1W-A would temporarily disturb approximately 68 acres less than the comparison portion of the Proposed Route, and permanently disturb 5 acres less.

Construction of Segment 1W(c) would temporarily disturb an estimated 746 acres of rangeland and pasture (Table 3.18-7), with an estimated 129 acres permanently disturbed (Table 3.18-8).

Table 3.18-7. Agricultural Land Disturbed during Construction – Segment 1W

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed 1W(a) – Total Length	621	578	–	–
Proposed – Comparison Portion for Alternative 1W-A	210	197	–	–
Alternative 1W-A	136	129	–	–
Proposed 1W(c) – Total Length	811	746	–	–

Acres are rounded to nearest acre.

Table 3.18-8. Agricultural Land Disturbed during Operations – Segment 1W

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed 1W(a) – Total Length	182	165	–	–
Proposed – Comparison Portion for Alternative 1W-A	47	42	–	–
Alternative 1W-A	40	37	–	–
Proposed 1W(c) – Total Length	144	129	–	–

Acres are rounded to nearest acre.

Crop Production

Segments 1W(a) and 1W(c) would cross less than 0.1 acre of irrigated farmland.

CRP Lands

There are no CRP lands within the Analysis Area for Segment 1W (Table 3.18-4).

Dairy Farms

No dairy farms or CAFOs were identified within the Analysis Area for Segment 1W.

Segment 2

Segment 2, as proposed, would link the Aeolus and Creston Substations in southeast Wyoming with two 500-kV circuits on one structure. One circuit would be operated at 230 kV during the initial phase of the Project. Its total proposed length is 96.7 miles. Fifty-two acres of the expansion of the Aeolus Substation and the construction of the Creston Substation and 0.5 acre for one regeneration site are attributed to Segment 2. There are three Route Alternatives, two of which are near the community of Fort Fred Steele. Alternative 2A at 28.4 miles long is being considered by the BLM because it remains in the WWE corridor nearer the town and the state historic site, and Alternative 2B, at 6.2 miles, is closer to the community than the comparison portion of the Proposed Route and was the initially proposed route before the Proponents responded to local suggestions and relocated the Proposed Route farther to the south. Alternative 2C is a 24.4-mile alternative located north of Hanna, Wyoming. It is being evaluated at the recommendation of the Wyoming Governor’s office to follow a utility corridor approved by that office for minimizing effects to sage-grouse (see Appendix A, Figure A-3).

Prime Farmland

There is no prime farmland in Segment 2 (Table 3.18-2).

Livestock Grazing

Approximately 16,649 acres or 96 percent of the Analysis Area for Segment 2 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 1,472 acres of rangeland and pasture (Table 3.18-9), with an estimated 377 acres permanently disturbed (Table 3.18-10). Alternative 2A would disturb more acres of rangeland and pasture than the comparison portion of the Proposed Route; Alternatives 2B and 2C would disturb less (Tables 3.8-9 and 3.10-10).

Table 3.18-9. Agricultural Land Disturbed during Construction – Segment 2

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	1,540	1,472	–	–
Proposed – Comparison Portion for Alternative 2A	397	387	–	–
Alternative 2A	445	425	–	–
Proposed – Comparison Portion for Alternative 2B	104	101	–	–
Alternative 2B	79	73	–	–
Proposed – Comparison Portion for Alternative 2C	368	359	–	–
Alternative 2C	315	307	–	–

Acres are rounded to nearest acre.

Crop Production

There is no irrigated cropland or dryland farming within the Analysis Area for Segment 2 (Table 3.18-1).

CRP Lands

There are no CRP lands within the Analysis Area for Segment 2 (Table 3.18-4).

Table 3.18-10. Agricultural Land Disturbed during Operations – Segment 2

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	400	377	–	–
Proposed – Comparison Portion for Alternative 2A	74	72	–	–
Alternative 2A	90	84	–	–
Proposed – Comparison Portion for Alternative 2B	16	16	–	–
Alternative 2B	18	17	–	–
Proposed – Comparison Portion for Alternative 2C	77	74	–	–
Alternative 2C	52	49	–	–

Acres are rounded to nearest acre.

Dairy Farms

No dairy farms or CAFOs were identified within the Analysis Area for Segment 2.

Segment 3

Segment 3, as proposed, would link the Creston and Anticline Substations in southeast Wyoming with two 500-kV circuits on one structure. One circuit would be operated at 230 kV during the initial phase of the Project. Its total proposed length between those two substations is 46.7 miles. Sixty-nine acres of the construction of the Anticline and Creston Substations are attributed to Segment 3. Segment 3 would also link the Anticline and Jim Bridger Substations with a 4.3-mile 230-kV line and a 5.5-mile 345-kV line and includes the 10-acre expansion of the Jim Bridger 345-kV Substation. There are no alternatives proposed along this segment (see Appendix A, Figure A-4).

Prime Farmland

There is no prime farmland in Segment 3 (Table 3.18-2).

Livestock Grazing

Approximately 6,507 acres or 95 percent of the Analysis Area for Segment 3 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route for this segment would temporarily disturb an estimated 811 acres of rangeland and pasture, with an estimated 204 acres permanently disturbed. There are no alternatives to the Proposed Route for this segment.

Crop Production

There is no irrigated cropland or dryland farming within the Analysis Area for Segment 3.

CRP Lands

There are no CRP lands within the Analysis Area for Segment 2 (Table 3.18-4).

Dairy Farms

No dairy farms or CAFOs were identified within the Analysis Area for Segment 3.

Segment 4

Segment 4, as proposed, would link the Anticline Substation near the Jim Bridger Power Plant in southwestern Wyoming with the Populus Substation in Idaho with two 500-kV circuits on one structure. Its total proposed length is 203 miles. Eighty-nine acres of the construction of the Anticline Substation and the expansion of the Populus Substation and 1.5 acres for three regeneration sites are attributed to Segment 4. It has six Route Alternatives in the middle portion of its route but the first 52 miles to the east and the last 61 miles to the west (in Idaho) do not have any Route Alternatives. The middle section of the Proposed Route is 90.2 miles long, and its Route Alternatives vary from 85 to 102 miles long. These alternatives were proposed by the Wyoming Governor’s office (4A, paralleling the existing 345-kV lines throughout); by the BLM Kemmerer FO (4B through 4E, including edits from various cooperating agencies), with the intent to avoid impacts to cultural resources to the extent practical; and by the Proponents (4F, attempting to avoid impacts to cultural resources while still remaining north of the existing lines) (see Appendix A, Figures A-5 and A-6).

Prime Farmland

There is no prime farmland in Segment 4 (Table 3.18-2).

Livestock Grazing

Approximately 43,975 acres or 86 percent of the Analysis Area for Segment 4 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 2,294 acres of rangeland and pasture (Table 3.18-11), with an estimated 541 acres permanently disturbed (Table 3.18-12). Alternatives 4A through 4F would all disturb more rangeland and pasture than the comparison portion of the Proposed Route (Tables 3.18-11 and 3.18-12).

Table 3.18-11. Agricultural Land Disturbed during Construction – Segment 4

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	2,822	2,294	50	108
Proposed – Comparison Portion for Alternative 4A,B,C,D,E,F	1,228	1,089	5	–
Alternative 4A	1,247	1,149	7	–
Alternative 4B	1,480	1,362	15	22
Alternative 4C	1,474	1,398	3	–
Alternative 4D	1,502	1,391	12	22
Alternative 4E	1,491	1,415	3	–
Alternative 4F	1,258	1,145	19	–

Acres are rounded to nearest acre.

Table 3.18-12. Agricultural Land Disturbed during Operations – Segment 4

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	649	541	7	16
Proposed – Comparison Portion for Alternative 4A,B,C,D,E,F	262	234	2	–
Alternative 4A	276	255	2	–
Alternative 4B	347	323	3	3
Alternative 4C	340	323	1	–

Table 3.18-12. Agricultural Land Disturbed during Operations – Segment 4 (continued)

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Alternative 4D	355	330	3	3
Alternative 4E	344	327	1	–
Alternative 4F	279	257	3	–

Acreages are rounded to nearest acre.

Crop Production

Approximately 681 acres or 1 percent of the Analysis Area for Segment 4 is irrigated cropland, and approximately 1,017 acres or 2 percent is used for dryland farming (Table 3.18-1). Approximately 50 acres of irrigated cropland and 108 acres of dryland farming would be temporarily disturbed during construction (Table 3.18-11), with 7 acres of irrigated cropland and 16 acres of dryland farming permanently disturbed (Table 3.18-12). Alternatives 4A, 4B, 4D, and 4F would temporarily and permanently disturb more irrigated farmland than the comparison portion of the Proposed Route; Alternatives 4C and 4E would disturb slightly less. In all cases the difference in temporary disturbance would be less than 15 acres and the difference in permanent disturbance would be about 1 acre (Tables 3.18-11 and 3.18-12). Alternatives 4B and 4D would temporarily and permanently disturb more dryland farming than the comparison portion of the Proposed Route; Alternatives 4A, 4C, 4E, and 4F would disturb the same amount as the comparison portion (i.e., zero acres).

CRP Land

Estimates provided by the FSA indicate that the Proposed Route for this segment would cross an estimated 6.1 miles of land enrolled in CRP (Table 3.18-4). This land is entirely located along the Idaho portion of this segment, and west of the Route Alternatives. None of the Route Alternatives would cross CRP land.

The Agencies recommend that the Proponents work with the FSA and landowners to determine potential impacts to the continued participation of the affected land in the CRP (AGRI-18).

Dairy Farms

No dairy farms or CAFOs were identified within the Analysis Area for Segment 4.

Segment 5

Segment 5, as proposed, would link the Populus and Borah Substations with a 54.6-mile single-circuit 500-kV line. Forty-four acres of the expansion of the Populus and Borah Substations are attributed to Segment 5. There are five Route Alternatives including two proposed by the BLM to avoid the Deep Creek Mountains (5A and 5B, 8 miles and 19 miles longer than the comparison portion of the Proposed Route), one preferred by Power County that crosses the Fort Hall Indian Reservation (5C, 6 miles shorter than the comparison portion of the Proposed Route), one originally proposed by the Proponents (5D, 2 miles shorter than the comparison portion of the Proposed Route but located within more agricultural lands), and one proposed by Power County as an

alternative approach to the Borah Substation (5E, 0.5 mile shorter than the comparison portion of the Proposed Route) (see Appendix A, Figure A-7).

Prime Farmland

Approximately 8,215 acres or 41 percent of the Analysis Area for Segment 5 is prime farmland (Table 3.18-2). Approximately 400 acres of prime farmland would be temporarily disturbed during construction of the Proposed Route, and 54 acres would be permanently disturbed (Tables D.15-1 and D.15-2 in Appendix D). Alternatives 5A and 5B would result in more disturbance of prime farmland than the comparison portion of the Proposed Route, Alternatives 5C and 5D would disturb less, and Alternative 5E would temporarily disturb less prime farmland during construction, but would result in slightly more permanent disturbance during Project operations.

Livestock Grazing

Approximately 11,855 acres or 59 percent of the Analysis Area for Segment 5 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 596 acres of rangeland and pasture (Table 3.18-13), with an estimated 119 acres permanently disturbed (Table 3.18-14). Alternatives 5A and 5B would temporarily and permanently disturb more rangeland and pasture than the comparison portion of the Proposed Route; Alternatives 5C, 5D, and 5E would disturb less. Differences in permanent disturbance to rangeland and pasture would range from 12 acres less under Alternative 5D to 22 acres more under Alternative 5B (Table 3.18-14).

Table 3.18-13. Agricultural Land Disturbed during Construction – Segment 5

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	979	596	69	141
Proposed – Comparison Portion for Alternatives 5A,B	439	247	15	70
Alternative 5A	552	357	1	101
Alternative 5B	681	436	7	192
Proposed – Comparison Portion for Alternative 5C	589	350	6	96
Alternative 5C	432	330	–	68
Proposed – Comparison Portion for Alternative 5D	409	253	35	56
Alternative 5D	364	154	48	67
Proposed – Comparison Portion for Alternative 5E	136	69	30	13
Alternative 5E	102	50	26	1

Acres are rounded to nearest acre.

Table 3.18-14. Agricultural Land Disturbed during Operations – Segment 5

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	175	119	7	15
Proposed – Comparison Portion for Alternative 5A,B	73	42	1	9
Alternative 5A	87	51	–	13
Alternative 5B	99	64	2	23
Proposed – Comparison Portion for Alternative 5C	94	54	–	10
Alternative 5C	56	42	–	7

Table 3.18-14. Agricultural Land Disturbed during Operations – Segment 5 (continued)

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Comparison Portion for Alternative 5D	63	43	2	5
Alternative 5D	53	31	2	8
Proposed – Comparison Portion for Alternative 5E	24	17	2	1
Alternative 5E	24	16	2	–

Acreages are rounded to nearest acre.

Crop Production

Approximately 1,070 acres or 5 percent of the Analysis Area for Segment 5 is irrigated cropland, and approximately 4,130 acres or 21 percent is used for dryland farming (Table 3.18-1). Approximately 69 acres of irrigated cropland and 141 acres of dryland farming would be temporarily disturbed during construction (Table 3.18-13), with 7 acres of irrigated cropland and 15 acres of dryland farming permanently disturbed (Table 3.18-14). The proposed alternatives would temporarily and permanently disturb similar amounts of irrigated cropland as the comparison portions of the Proposed Route. The alternatives would also disturb similar amounts of dryland farming with the exception of Alternative 5B, which would temporarily and permanently disturb approximately twice as much dryland farming as the comparison portion of the Proposed Route (Tables 3.18-13 and 3.18-14).

Power County, which is participating as a cooperating agency in the Gateway West Project, has made recommendations with respect to route preferences for Segment 5 (Alternatives 5C and 5E), as noted above. In addition, the Power County Task Force (2009c) has provided an assessment of the potential economic impacts of the proposed Project on different types of agricultural land in Power and Cassia Counties, Idaho. This assessment is discussed in Section 3.4 – Socioeconomics.

CRP Land

Estimates provided by the FSA indicate that the Proposed Route for this segment would cross an estimated 18.4 miles of land enrolled in CRP (Table 3.18-15). Alternatives 5A, 5B, 5D, and 5E would all cross slightly more miles of CRP land than the comparison portions of the Proposed Route, ranging from 0.7 mile more to 4.8 miles more under Alternatives 5E and 5B, respectively (Table 3.18-15).

Table 3.18-15. CRP Lands Crossed by Segment 5

Segment or Alternative	Total Length (miles)	CRP Lands (miles)
Proposed – Total Length	54.6	18.4
Proposed – Comparison Portion for Alternative 5A,B	25.3	6.5
Alternative 5A	33.7	9.5
Alternative 5B	44.4	11.3
Proposed – Comparison Portion for Alternative 5C	33.2	5.5
Alternative 5C	26.1	2.5
Proposed – Comparison Portion for Alternative 5D	19.4	5.6
Alternative 5D	17.5	6.5
Proposed – Comparison Portion for Alternative 5E	5.8	0.3
Alternative 5E	5.3	1.0

Acreages are rounded to nearest acre.

The Agencies recommend that the Proponents work with the FSA and landowners to determine potential impacts to the continued participation of the affected land in the CRP (AGRI-18).

Dairy Farms

No dairy farms or CAFOs were identified within the Analysis Area for Segment 5.

Segment 6

Segment 6 is an existing transmission line linking the Borah and Midpoint Substations; it is now operated at 345 kV but would be changed to operate at 500 kV. This segment has no Route Alternatives. Existing support structures would be used and impacts would be limited to within approximately 0.25 mile from each substation to allow for moving the entry point into the substation to the new 500-kV bay. Thirty-one acres of the expansion of the Borah and Midpoint Substations are attributed to Segment 6. Changes in the two substations would allow it to be operated at 500 kV (see Appendix A, Figure A-8).

Installation of these structures would temporarily and permanently disturb an estimated 55 acres. Approximately 75 percent or 41 acres of this total would be rangeland and pasture. No irrigated cropland or dryland farming would be affected.

Segment 7

Segment 7, as proposed, would link the Populus and Cedar Hill Substations with a 118.1-mile single-circuit 500-kV line. Forty-two acres of the expansion of the Populus and the construction of the Cedar Hill Substations and 1 acre for two regeneration sites are attributed to Segment 7. In addition to the Proposed Route, which is principally on private lands, Route Alternatives have been proposed by the BLM to avoid the Deep Creek Mountains (7A and 7B, which are 5 miles and 11 miles longer than the comparison portion of the Proposed Route), by local landowners (7C, 7D, 7E, 7F, and 7G, which all represent minor adjustments proposed to address local issues), by local landowners to avoid private agricultural lands (7I or the State Line Route, which is 55 miles longer than the Proposed Route and would require 0.5 acre for an additional regeneration site), and by the Proponents to avoid the State Line Route (7H, which is 10 miles longer than the Proposed Route). Alternative 7J, which is a variant of the State Line Route also proposed by local landowners, would not terminate at the Cedar Hill Substation. This alternative, referred to as the Rogerson Alternative, would require a different substation be constructed near a 345-kV existing transmission line (approximately 24 miles southwest of the Cedar Hill Substation; see Appendix A, Figure A-9). The tables and discussion in this document compare 7J (202 miles) with the corresponding portion of Segment 7/9 (118.1 miles of Segment 7 and 25.8 miles of Segment 9, for a total of 143.9 miles). All other Segment 7 alternatives are compared to Segment 7 of the Proposed Route (118.1 miles) only.

Prime Farmland

Approximately 20,115 acres or 39 percent of the Analysis Area for Segment 7, is prime farmland (Table 3.18-2). Approximately 1,077 acres of prime farmland would be temporarily disturbed during construction of the Proposed Route, and 108 acres would be permanently disturbed (Tables D.15-1 and D.15-2 in Appendix D). Alternatives 7A, 7B, 7D, and 7G would result in more disturbance to prime farmland during construction than the comparison portions of the Proposed Route; Alternatives 7A and 7B would also

result in more permanent disturbance. Permanent disturbance under Alternatives 7D and 7G would be similar to the comparison portions of the Proposed Route.

Alternatives 7C, 7E, 7F, 7H, and 7I would result in less disturbance to prime farmland during construction than the comparison portions of the Proposed Route. Alternatives 7C, 7F, 7H, and 7I would also result in less permanent disturbance. Permanent disturbance under Alternative 7E would be similar to the comparison portion of the Proposed Route.

Livestock Grazing

Approximately 37,717 acres or 74 percent of the Analysis Area for Segment 7 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 953 acres of rangeland and pasture (Table 3.18-16), with an estimated 132 acres permanently disturbed (Table 3.18-17). Alternatives 7A through 7J would all temporarily disturb more rangeland during construction than the comparison portions of the Proposed Route (Table 3.18-16). Alternatives 7C through

Table 3.18-16. Agricultural Land Disturbed during Construction – Segment 7

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	1,799	953	381	369
Proposed – Comparison Portion for Alternative 7A,B	498	278	9	141
Alternative 7A	617	375	22	113
Alternative 7B	745	455	12	233
Proposed – Comparison Portion for Alternative 7C	288	167	39	80
Alternative 7C	289	214	8	63
Proposed – Comparison Portion for Alternative 7D	112	71	35	2
Alternative 7D	125	84	36	1
Proposed – Comparison Portion for Alternative 7E	67	52	14	–
Alternative 7E	78	64	12	–
Proposed – Comparison Portion for Alternative 7F	201	131	41	25
Alternative 7F	169	137	2	27
Proposed – Comparison Portion for Alternative 7G	48	41	7	–
Alternative 7G	72	55	17	–
Proposed – Comparison Portion for Alternative 7H,I	1,799	953	381	369
Alternative 7H	2,111	1,672	94	164
Alternative 7I	2,727	2,273	95	163
Proposed– Comparison Portion 7/9 for Alternative 7J ^{1/}	2,224	1,268	468	369
Alternative 7J	3,157	2,721	95	163

Acres are rounded to nearest acre.

1/ Alternative 7J connects with Segment 9 approximately 25.8 miles west of the proposed Cedar Hill Substation, which is the western terminus of Segment 7 and the beginning point for Segment 9. This table compares 7J (202 miles) with the corresponding portion of Segment 7/9 (118.1 miles of Segment 7 and 25.8 miles of Segment 9, for a total of 143.9 miles). All other Segment 7 alternatives are compared to Segment 7 of the Proposed Route (118.1 miles) only.

Table 3.18-17. Agricultural Land Disturbed during Operations – Segment 7

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Farming	Dryland Farming
Proposed – Total Length	231	132	42	40
Proposed – Comparison Portion for Alternative 7A,B	46	24	–	13
Alternative 7A	96	53	3	14
Alternative 7B	99	63	2	23
Proposed – Comparison Portion for Alternative 7C	36	25	4	7
Alternative 7C	28	21	1	5
Proposed – Comparison Portion for Alternative 7D	11	9	2	–
Alternative 7D	13	10	2	–
Proposed – Comparison Portion for Alternative 7E	6	5	1	–
Alternative 7E	8	8	–	–
Proposed – Comparison Portion for Alternative 7F	27	16	5	4
Alternative 7F	24	18	1	4
Proposed – Comparison Portion for Alternative 7G	6	4	2	–
Alternative 7G	6	3	2	–
Proposed – Comparison Portion for Alternative 7H,I	231	132	42	40
Alternative 7H	340	259	24	17
Alternative 7I	451	370	22	16
Proposed – Comparison Portion 7/9 for Alt. 7J ^{1/}	294	175	60	40
Alternative 7J ^{1/}	511	435	22	16

Acres are rounded to nearest acre.

1/ Alternative 7J connects with Segment 9 approximately 25.8 miles west of the proposed Cedar Hill Substation, which is the western terminus of Segment 7 and the beginning point for Segment 9. This table compares 7J (202 miles) with the corresponding portion of Segment 7/9 (118.1 miles of Segment 7 and 25.8 miles of Segment 9, for a total of 143.9 miles). All other Segment 7 alternatives are compared to Segment 7 of the Proposed Route (118.1 miles) only.

7G would permanently disturb similar amounts of rangeland and pasture as the Proposed Route. Alternatives 7A and 7B would permanently disturb 29 and 39 acres more than the Proposed Route, respectively. Alternatives 7H, 7I, and 7J would permanently disturb 126, 238, and 260 acres of rangeland and pasture more than their comparison portions of the Proposed Route, respectively (Table 3.8-17).

Crop Production

Approximately 3,406 acres or 7 percent of the Analysis Area for Segment 7 is irrigated cropland, and approximately 5,859 acres or 11 percent is used for dryland farming (Table 3.18-1). Construction of the Proposed Route would temporarily disturb 381 acres of irrigated cropland and 369 acres of dryland farming (Table 3.18-16), with 42 acres of irrigated cropland and 40 acres of dryland farming permanently disturbed (Table 3.18-17). The Proposed Route would be located north of an airstrip proposed by Tugaw Ranches, which could affect future crop spraying activities. Potential mitigation for impacts to this proposed airstrip is discussed in Section 3.17 – Land Use and Recreation.

Alternatives 7H and 7I would temporarily disturb substantially less irrigated cropland and dryland farming during construction than the comparison portion of the Proposed Route, with each alternative affecting one-quarter as many irrigated acres as the comparison portion of the Proposed Route and less than half as many dryland acres (Table 3.18-16). This would also be the case with Alternative 7J, which would affect less than one-quarter as many irrigated acres and less one-half as many dryland acres. Permanent impacts under these alternatives would also be lower than the Proposed

Route, but estimated permanent disturbance under the Proposed Route is low, and the difference between the comparison portion of the Proposed Route and Alternatives 7H, 7I, and 7J would be 18 acres, 20 acres, and 38 acres, respectively (Table 3.18-17).

The differences in estimated temporary disturbance between the other alternatives to the Segment 7 Proposed Route are much less, with the largest difference being the impact to dryland farming under Alternative 7B, which would temporarily impact 92 acres more than the comparison portion of the Proposed Route (Table 3.18-16). Permanent impacts to irrigated cropland and dryland farming under Alternatives 7A through 7G would be similar to those estimated for the comparison portion of the Proposed Route (Table 3.18-17).

As noted above with respect to Segment 5, the Power County Task Force (2009c) has provided an assessment of the potential economic impacts of the proposed Project on different types of agricultural land in Power and Cassia Counties, Idaho. This assessment is discussed in Section 3.4 – Socioeconomics.

CRP Land

Estimates provided by the FSA indicate that the Proposed Route for this segment would cross an estimated 25.6 miles of land enrolled in CRP (Table 3.18-18). Alternatives 7A, 7B, and 7C would cross slightly more miles of CRP land than their comparison portions of the Proposed Route. The miles of CRP land crossed would be similar to the Proposed Route under the other alternatives (Table 3.18-18). Information on the miles of Alternative 7J that would cross CRP land has been requested from the FSA and will be added to Table 3.18-18 upon receipt.

Table 3.18-18. CRP Lands Crossed by Segment 7

Segment or Alternative	Total Length (Miles)	CRP Lands (Miles)
Proposed – Total Length	118.1	25.6
Proposed – Comparison Portion for Alternatives 7A,B	35.2	12.5
Alternative 7A	38.0	14.6
Alternative 7B	46.4	16.8
Proposed – Comparison Portion for Alternative 7C	20.1	1.0
Alternative 7C	20.3	4.0
Proposed – Comparison Portion for Alternative 7D	6.2	0.4
Alternative 7D	6.8	0.2
Proposed – Comparison Portion for Alternative 7E	3.8	–
Alternative 7E	4.5	–
Proposed – Comparison Portion for Alternative 7F	10.5	0.8
Alternative 7F	10.8	0.2
Proposed – Comparison Portion for Alternative 7G	3.1	–
Alternative 7G	3.2	–
Proposed – Comparison Portion for Alternatives 7H, I	118.1	13.8
Alternative 7H	127.5	13.6
Alternative 7I	173.4	13.7
Proposed – Comparison Portion 7/9 for Alternatives 7J ^{1/2/}	143.9	TBD ^{2/}
Alternative 7J ^{1/}	202.1	TBD ^{2/}

Mileages are rounded to tenths of a mile.

1/ Alternative 7J connects with Segment 9 approximately 25.8 miles west of the proposed Cedar Hill Substation, which is the western terminus of Segment 7 and the beginning point for Segment 9. This table compares 7J (202 miles) with the corresponding portion of Segment 7/9 (118.1 miles of Segment 7 and 25.8 miles of Segment 9, for a total of 143.9 miles). All other Segment 7 alternatives are compared to Segment 7 of the Proposed Route (118.1 miles) only.

2/ Information on the miles of Alternative 7J that would cross CRP land has been requested from the FSA and will be added to Table 3.18-18 upon receipt.

The Agencies recommend that the Proponents work with the FSA and landowners to determine potential impacts to the continued participation of the affected land in the CRP (AGRI-18).

Dairy Farms

The Proposed Route for Segment 7 would cross 0.4 mile of CAFO. Alternative 7I would cross 0.2 mile of CAFO. In this preliminary layout, two intermediate pivots would be affected. To substantially reduce impacts, the Agencies recommend that the Proponents realign the Proposed Route during final design to avoid these and other potentially affected CAFOs (AGRI-17).

Segment 8

Segment 8, as proposed, would link the Midpoint and Hemingway Substations. This 131-mile single-circuit 500-kV transmission line would stay north of the Snake River until crossing through the SRBOP parallel to an existing 500-kV transmission line before ending at the Hemingway Substation. Thirteen acres of the expansion of the Midpoint Substation and 0.5 acre for a regeneration site are attributed to Segment 8. There are five Route Alternatives: 8A, which follows the WWE corridor but crosses the Snake River and I-84 twice (while the Proposed Route would stay north of this area); 8B and 8C, which represent the old routes originally proposed by the Proponents but that have now been changed to avoid the cities of Kuna and Mayfield, respectively; 8D, which represents a small revision involving a rebuild of the existing transmission line to move both away from the National Guard Maneuver Area; and 8E, which was proposed by the BLM in order to avoid crossing the Halverson Bar nonmotorized portion of the Guffey Butte-Black Butte Historical Area (see Appendix A, Figure A-10).

Prime Farmland

Approximately 7,759 acres or 27 percent of the Analysis Area for Segment 8 is prime farmland (Table 3.18-2). Approximately 447 acres of prime farmland would be temporarily disturbed during construction of the Proposed Route, and 109 acres would be permanently disturbed (Tables D.15-1 and D.15-2 in Appendix D). Alternative 8A would result in less disturbance to prime farmland than the comparison portion of the Proposed Route; Alternative 8B would result in more disturbance. Alternative 8C would result in more temporary disturbance to prime farmland during construction than the comparison portion of the Proposed Route, but would not have any permanent impacts on prime farmland during Project operations. The construction and operations impacts of Alternative 8D on prime farmland would be approximately equal to the impacts of the comparison portion of the Proposed Route.

Livestock Grazing

Approximately 23,491 acres or 81 percent of the Analysis Area for Segment 8 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 1,861 acres of rangeland and pasture (Table 3.18-19), with an estimated 219 acres permanently disturbed (Table 3.18-20). Alternatives 8B and 8C would temporarily disturb 190 acres and 27 acres of rangeland and pasture less than the Proposed Route, respectively; Alternative 8E would temporarily disturb 195 acres more than the comparison portion of the Proposed Route (Table 3.18-19).

Alternative 8B would permanently disturb 24 fewer acres than the comparison portion of the Proposed Route; Alternative 8E would permanently disturb 17 more acres than the comparison portion (Table 3.18-20). The amount of rangeland and pasture temporarily and permanently disturbed under the other alternatives would be similar to that disturbed by the Proposed Route (Tables 3.18-19 and 3.18-20).

Table 3.18-19. Agricultural Land Disturbed during Construction – Segment 8

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Cropland	Dryland Farming
Proposed – Total Length	2,121	1,861	219	–
Proposed – Comparison Portion for Alternative 8A	813	613	188	–
Alternative 8A	823	626	182	–
Proposed – Comparison Portion for Alternative 8B	753	705	29	–
Alternative 8B	778	515	213	–
Alternative 8B – Comparison Portion for Alternative 8C	138	136	–	–
Alternative 8C	138	109	12	–
Proposed – Comparison Portion for Alternative 8D	123	118	–	–
Alternative 8D	142	126	12	–
Proposed – Comparison Portion for Alternative 8E	98	87	9	–
Alternative 8E	285	282	–	–

Table 3.18-20. Agricultural Land Disturbed during Operations – Segment 8

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Cropland	Dryland Farming
Proposed – Total Length	246	219	16	–
Proposed – Comparison Portion for Alternative 8A	99	80	15	–
Alternative 8A	102	84	14	–
Proposed – Comparison Portion for Alternative 8B	87	80	–	–
Alternative 8B	69	55	9	–
Proposed – Comparison Portion for Alternative 8C	15	15	–	–
Alternative 8C	16	15	–	–
Proposed – Comparison Portion for Alternative 8D	19	16	–	–
Alternative 8D	15	12	2	–
Proposed – Comparison Portion for Alternative 8E	10	9	–	–
Alternative 8E	27	26	–	–

Acres are rounded to nearest acre.

Crop Production

Approximately 4,658 acres or 16 percent of the Analysis Area for Segment 8 is irrigated cropland (Table 3.18-1). There is no dryland farming within the Analysis Area. Approximately 219 acres of irrigated cropland would be temporarily disturbed during construction (Table 3.18-19), with 16 acres permanently disturbed (Table 3.18-20). Alternative 8B would temporarily disturb 185 acres of irrigated cropland more than the comparison portion of the Proposed Route (Table 3.18-19). Permanent disturbance to irrigated cropland would be similar to the Proposed Route under all four alternatives, with the largest difference, 9 acres, associated with Alternative 8B (Table 3.18-20).

CRP Lands

There are no CRP lands within the Analysis Area for Segment 8 (Table 3.18-4). The FSA has been contacted to confirm that Alternative 8E would not cross CRP land. This section will be updated following receipt of this information.

Dairy Farms

The Segment 8 Proposed Route would not cross any CAFOs. Alternative 8A would cross approximately 0.2 mile of CAFO. Alternative 8D would cross approximately 0.1 acre of CAFO. The Agencies recommend that the Proponents realign the transmission line to avoid CAFOs if Alternatives 8A or 8D are selected (AGRI-17).

Segment 9

Segment 9, as proposed, would link the Cedar Hill and Hemingway Substations with a 161.7-mile single-circuit 500-kV transmission line which skirts the Jarbidge and Owyhee Military Operating Areas to the north, then follows the WWE corridor just north of the Saylor Creek Air Force Range, passing through Owyhee County before entering into the Hemingway Substation. Fifteen acres of the construction of the Cedar Hill Substation and 1 acre for two regeneration sites are attributed to Segment 9. There are eight Route Alternatives proposed, including 9A, which was the Proponents' Proposed Route until moving to avoid the Hollister area; 9B, which is being considered by the BLM because it follows the WWE corridor and parallels existing utility corridors; 9C, which was the Proponents' Proposed Route until moving to avoid the Castleford area; and 9D and 9E, proposed by the Owyhee County Task Force, that cross more public lands north and south of the Proposed Route, respectively, than the Proposed Route. Most of Alternative 9D would be within the SRBOP. Alternatives 9F, 9G, and 9H were proposed to avoid crossing the nonmotorized area south of C.J. Strike Reservoir. Alternatives 9G and 9H provide an alternate route location south of Alternative 8E (see Appendix A, Figure A-11).

Prime Farmland

Approximately 13,795 acres or 33 percent of the Analysis Area for Segment 9 is prime farmland (Table 3.18-2). Approximately 891 acres of prime farmland would be temporarily disturbed during construction of the Proposed Route, and 100 acres would be permanently disturbed (Tables D.15-1 and D.15-2 in Appendix D). Alternatives 9A, 9B, 9C, and 9D would result in more temporary and permanent disturbance to prime farmland than the comparison portions of the Proposed Route. Alternative 9E would result in less disturbance to prime farmland than the comparison portion of the Proposed Route during construction, and similar permanent disturbance.

Livestock Grazing

Approximately 37,985 acres or 91 percent of the Analysis Area for Segment 9 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 2,240 acres of rangeland and pasture (Table 3.18-21), with an estimated 311 acres permanently disturbed (Table 3.18-22). Alternatives 9A, 9D, 9E, 9F, and 9H would temporarily disturb more acres of rangeland and pasture than the Proposed Route, with net increases in temporary disturbance ranging from 16 acres under Alternative 9A to 257 acres under Alternative 9E (Table 3.18-21).

Table 3.18-21. Agricultural Land Disturbed during Construction – Segment 9

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Cropland	Dryland Farming
Proposed – Total Length	2,664	2,240	356	–
Proposed – Comparison Portion for Alternative 9A	117	100	–	–
Alternative 9A	133	116	3	–
Proposed – Comparison Portion for Alternative 9B	823	759	45	–
Alternative 9B	814	599	193	13
Proposed – Comparison Portion for Alternative 9C	238	226	–	–
Alternative 9C	272	200	62	–
Proposed – Comparison Portion for Alternative 9D–H	953	731	199	–
Alternative 9D	811	770	19	–
Alternative 9E	1,001	989	3	–
Alternative 9F	969	828	109	–
Alternative 9G	844	794	26	–
Alternative 9H	977	832	111	–

Acreages are rounded to nearest acre.

Table 3.18-22. Agricultural Land Disturbed during Operations – Segment 9

Segment or Alternative	Acres Disturbed by Segment			
	Total	Rangeland and Pasture	Irrigated Cropland	Dryland Farming
Proposed – Total Length	358	311	34	–
Proposed – Comparison Portion for Alternative 9A	15	13	–	–
Alternative 9A	18	16	1	–
Proposed – Comparison Portion for Alternative 9B	121	118	–	–
Alternative 9B	85	71	12	–
Proposed – Comparison Portion for Alternative 9C	26	24	–	–
Alternative 9C	28	25	1	–
Proposed – Comparison Portion for Alternative 9D–H	106	87	13	–
Alternative 9D	80	74	2	–
Alternative 9E	134	132	1	–
Alternative 9F	93	81	7	–
Alternative 9G	83	76	3	–
Alternative 9H	96	82	8	–

Acreages are rounded to nearest acre.

Alternatives 9B and 9C would temporarily disturb 160 acres and 26 acres less rangeland and pasture than the comparison portions of the Proposed Route, respectively (Table 3.18-21).

Permanent disturbance to rangeland and pasture relative to the comparison portions of the Proposed Route would range from 47 acres less under Alternative 9B to 45 acres more under Alternative 9E (Table 3.18-22).

Crop Production

Approximately 3,197 acres or 8 percent of the Analysis Area for Segment 9 is irrigated cropland, with less than 20 acres used for dryland farming (Table 3.18-1). Construction of the Proposed Route would temporarily disturb 356 acres of irrigated cropland (Table 3.18-21), with 34 acres permanently disturbed (Table 3.18-22). Alternatives 9A, 9B, and 9C would temporarily disturb more irrigated cropland than the comparison portion of the Proposed Route, with estimated net increases ranging from 3 acres under

Alternative 9A to 148 acres under Alternative 9B (Table 3.18-21). Alternatives 9D, 9E, 9F, 9G, and 9H would disturb fewer acres of irrigated cropland than the comparison portion of the Proposed Route during construction, ranging from 88 acres to 196 acres less (Table 3.18-21). Permanent disturbance to irrigated cropland relative to the comparison portion of the Proposed Route would range from 12 acres less under Alternative 9E to 12 acres more under Alternative 9B (Table 3.18-22).

The Grindstone Airport is within 500 feet of Alternative 9B. The location of this alternative within proximity to an airstrip could have impacts on crop-spraying activities. Potential impacts to crop spraying are described in the Effects Common to All Action Alternatives section above.

CRP Lands

There are no CRP lands within the Analysis Area for Segment 9 (Table 3.18-4). The FSA has been contacted to confirm that Alternatives 9F, 9G, and 9H would not cross CRP land. This section will be updated following receipt of this information.

Dairy Farms

Segment 9 of the Proposed Route would not cross any CAFOs. Alternatives 9B and 9C would each cross less than 0.1 mile of CAFO. The Agencies recommend that the Proponents realign the transmission line to avoid CAFOs if Alternatives 9B or 9C are selected (AGRI-17).

Segment 10

Segment 10, as proposed, would link the Cedar Hill and Midpoint Substations with a 33.6-mile single-circuit 500-kV line, following a WWE corridor for most of its distance. Twenty-eight acres of the expansion of the Midpoint Substation and of the construction of the Cedar Hill Substation are attributed to Segment 10. There are no Route Alternatives proposed along this segment (see Appendix A, Figure A-12).

Prime Farmland

Approximately 1,436 acres or 35 percent of the Analysis Area for Segment 10 is prime farmland (Table 3.18-2). Approximately 145 acres of prime farmland would be temporarily disturbed during construction of the Proposed Route, and 13 acres would be permanently disturbed (Tables D.15-1 and D.15-2 in Appendix D).

Livestock Grazing

Approximately 2,009 acres or 49 percent of the Analysis Area for Segment 10 is rangeland and pasture (Table 3.18-1). Construction of the Proposed Route would temporarily disturb an estimated 253 acres of rangeland and pasture, with an estimated 37 acres permanently disturbed.

Crop Production

Approximately 1,866 acres or 46 percent of the Analysis Area for Segment 10 is irrigated cropland, with less than 20 acres used for dryland farming (Table 3.18-1). Construction of the Proposed Route would temporarily disturb 266 acres of irrigated cropland, with 33 acres permanently disturbed.

CRP Lands

There are no CRP lands within the Analysis Area for Segment 10 (Table 3.18-4).

Dairy Farms

The Segment 10 Proposed Route would cross 0.6 mile of CAFOs. The Proponents should realign the transmission line to avoid CAFOs on either the Proposed Route or Alternative 8A (AGRI-17).

3.18.2.4 Design Variation

A Design Variation is being considered that would consist of constructing two single-circuit lines in Segments 2 through 4 instead of a single double-circuit line (which is the design assessed above). The disturbance footprint of the two single-circuit towers is greater than that of the double-circuit tower, in part because the requested ROW would be wider, but also because helicopter-assisted construction could be implemented in these areas due to the lighter weight of the towers, which would require additional fly yards. The additional ROW space and the fly yards would cause additional temporary disturbance during construction. Across Segments 2, 3, and 4, the additional disturbance of the single-circuit tower alternative ranges from 25 to 30 percent greater than the comparable portions of the double-circuit tower disturbance under the proposed design. The two single circuits require more ground disturbance, but would be designed and constructed to the same standards as the Proposed Action. The Design Variation would require two mobilizations rather than one.

Construction under the Design Variation alternative would, therefore, result in greater ground disturbance and disruption to agricultural operations than the single tower option. This is discussed further in the following sections. Permanent ground disturbance would be the same under the Design Variation and single tower options.

Segment 2

Construction of the Design Variation for Segment 2 would temporarily disturb 428 acres more than the single tower option, with the majority (98 percent) of this additional disturbance affecting rangeland and pasture. No irrigated cropland or dryland farming would be affected by the Proposed Route or Route Alternatives for this segment. Increases in disturbed acres under Alternatives 2A and 2B would be similar to those under the Proposed Route. Construction of the Design Variation version of Alternative 2C would disturb approximately 30 fewer acres than the Proposed Route.

Segment 3

Construction of the Design Variation for Segment 3 would temporarily disturb 217 acres more than the single tower option, with the majority (97 percent) of this additional disturbance affecting rangeland and pasture. No irrigated cropland or dryland farming would be affected.

Segment 4

Construction of the Design Variation for Segment 4 would temporarily disturb 839 acres more than the single tower option, with the majority (81 percent) or 678 acres of this additional disturbance affecting rangeland and pasture. The Design Variation would

also temporarily impact an additional 50 acres of irrigated cropland and 36 acres of dryland farming.

Alternatives 4A through 4F would all temporarily disturb more additional rangeland and pasture under the Design Variation than the comparison portion of the Proposed Route, with net increases ranging from 29 acres under Alternative 4F to 122 acres under Alternative 4C. Alternative 4A would temporarily affect the same amount of additional irrigated cropland as the Proposed Route. Alternatives 4B to 4E would temporarily affect from 11 to 13 acres less irrigated cropland than the Proposed Route; Alternative 4F would affect 12 acres more. Additional temporary impacts to dryland farming would be the same as for the Proposed Route under Alternatives 4A, 4C, 4E, and 4F, with the other alternatives (Alternatives 4B and 4D) affecting an additional 12 acres.

3.18.2.5 Structure Variation

The proposed guyed Structure Variation would add four guy wires about 140 feet long from a point about 100 feet up in each tower to four guy anchors spaced in a square around the tower (Appendix B, Figure B-6). This would not change the amount of disturbance during construction or operations appreciably. These structures would not be used in actively farmed areas, adjacent to public roads, or in rural development areas. As a result, there would be no appreciable difference in impact on agriculture from the use of this Structure Variation when compared to the use of self-supporting lattice towers.

3.18.2.6 Schedule Variation

The Schedule Variation uses the two single-circuit Design Variation described above but extends construction over a longer timeframe. Initially, only one of the eventual two single-circuit lines would be constructed, with the second to be constructed at a later date. The Schedule Variation proposes that the first single-circuit transmission line in Segments 2, 3, and 4 would be built as soon as a ROW grant is issued, but that the second line would not begin construction until late 2018. This would mean nearly 2 years between the end of construction for the first line and the beginning of construction for the second line. Any staging areas and fly yards that had been used for the first stage would have been revegetated after construction was complete and would have to be cleared again. There would be two sets of construction disturbances adding movement, noise, and dust to the area of construction in two instances in any given area. The Schedule Variation would subject agricultural operations in Segments 2, 3, and 4 and the Route Alternatives to the effects of inconvenience, potential damage to facilities, and harassment of livestock, as described for the Proposed Route, twice instead of one time during construction.

3.18.3 Mitigation Measures

To minimize or avoid impacts on agriculture, the Proponents have stated that they will implement EPMs Project-wide, as outlined in this section (identified above) and in Appendix C.

In addition, the Agencies have identified the following measures as a means to substantially reduce impact. The Agencies recommend that the Proponents incorporate these measures into their EPMS and apply them Project-wide.

- AGRI-1 Provide for a qualified Agricultural Specialist to assist construction planning, construction, restoration, post-construction monitoring, and follow-up restoration.
- AGRI-2 Maintain an active program of liaison with landowners and tenants, including specific points of contact whose responsibilities shall include pre-construction inventory, notices, complaint resolution, damage assessment, and negotiation and compensation.
- AGRI-3 Establish procedures for determining ingress and egress routes with landowners and tenants, protection methods for off-ROW roads over agricultural lands and on ROW pads, including methods such as geotextile matting to segregate temporary rock fill.
- AGRI-4 Establish the location of temporary roads to be used for construction purposes through negotiation with the landowner, with existing farm lanes or two tracks as preferred temporary access roads. Restore temporary access roads to pre-construction condition and leave temporary access roads intact through mutual agreement with the landowner and tenant unless located in flood areas or drainage hazard areas, or otherwise restricted by federal, state, or local regulations.
- AGRI-5 Maintain landowner and tenant access across construction areas for farm equipment and livestock to fields isolated by construction activities and install temporary fences and gates across the construction area, as necessary, to facilitate agricultural operations.
- AGRI-6 Protect topsoil by stripping and segregating topsoil in the disturbance area on agricultural lands unless negotiated differently with the landowner or tenant. Prevent segregated topsoil from being mixed with cut-and-fill materials, rock, construction debris, excavated materials, or other subsoil.
- AGRI-7 Restrict the operation of vehicles and heavy equipment, or take other appropriate action, so that deep rutting does not result in mixing of topsoil and subsoil on excessively wet soils on the portion of the construction work area in agricultural land where the topsoil is not stripped.
- AGRI-8 Protect irrigation operations and drain tiles by: 1) contacting landowners and tenants to identify the location of irrigation systems and wells, identified underground irrigation water pipes, well systems, and drain tiles that intersect the construction area; 2) repairing disrupted irrigation and drain tile systems as soon as possible; 3) maintaining the flow of irrigation water during construction or coordinating a temporary shutoff with affected parties; and 4) compensating affected parties for crop losses that result from irrigation and drain tile system interruptions due to construction.

- AGRI-9 Protect agricultural lands from dewatering activities by pumping into a constructed energy-dissipating structure that shall minimize damage to adjacent agricultural land, drainage systems, and crops.
- AGRI-10 Restore affected agricultural land to the pre-construction condition or provide compensation.
- AGRI-11 Decompaction of exposed subsoil before topsoil replacement shall be accomplished utilizing an agricultural subsoiler or other appropriate implement. After decompaction and prior to topsoil replacement, a disc or harrow shall be utilized, as necessary, to smooth the subsoil surface.
- AGRI-12 Following final grading and topsoil replacement in agricultural lands, deep tillage shall be used to relieve soil compaction in construction areas or the Proponents shall test soils for compaction at regular intervals. Where soil compaction is tested, construction areas shall be compared to adjacent areas not disturbed by construction.
- AGRI-13 Decompact agricultural lands where topsoil has not been removed by using a non-inversion, deep-tillage agricultural subsoiler specifically designed for soil decompaction and designed to minimize surface disturbance and the mixing of subsoil with topsoil.
- AGRI-14 Existing range improvements that are damaged or modified during construction shall be repaired. Additionally, temporary fences and gates shall be removed after construction if requested by landowner or land-management agency.
- AGRI-15 In the event a dairy farm reports problems with stray voltage, complete a free, on-site investigation and determine the level of voltage and fix any problems resulting from the transmission line to less than 1 volt.
- AGRI-16 Align the transmission line to avoid the CAFO approximately 14.5 miles east of the proposed Cedar Hill Substation if this route is approved.
- AGRI-17 Realign the transmission line route during final design to avoid affecting any CAFOs.
- AGR-18 Consult with the FSA and landowners to determine if construction would affect the CRP status of the land currently enrolled in CRP or if special construction or revegetation techniques would be necessary.