
ATTACHMENT K-2
RIGHT-OF-WAY CLEARING ASSESSMENT

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Boardman to Hemingway Transmission Line Project



*1221 West Idaho Street
Boise, Idaho 83702*

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ACRONYMS AND ABBREVIATIONS

ASL	above sea level
AUM	Animal Unit Month
BLM	Bureau of Land Management
EFSC	Energy Facility Siting Council
GIS	Geographic Information System
IPC	Idaho Power Company
kV	kilovolt
NAIP	National Agriculture Imagery Program
NWSTF	Naval Weapons Systems Training Facility
OAR	Oregon Administrative Rule
ODF	Oregon Department of Forestry
ODOE	Oregon Department of Energy
ODSL	Oregon Department of State Lands
OPUC	Public Utility Commission of Oregon
Project	Boardman to Hemingway Transmission Line Project
ROW	Right of Way
TVES	Terrestrial Visual Encounter Survey
USFS	U.S. Forest Service

Agency Review Process

The agency review process outlined in this section aligns with the OAR 345-025-0016 agency consultation process applicable to monitoring and mitigation plans.

To afford an adequate opportunity for applicable local, state and federal agencies to review the draft plan prior to finalization and implementation, and any future plan amendments, the certificate holder shall implement the following agency review process.

Step 1: [Certificate Holder's Update of Draft Plan or Future Plan Amendment](#): The certificate holder may develop one Right of Way Clearing Assessment to cover all construction activities for the entire facility; or, may develop individual plans per county, segment or phase, as best suited for facility construction. Based on the draft Right of Way Clearing Assessment included as Attachment K-2 of the Final Order on the ASC, the certificate holder shall update the draft plan(s) based on facility design and construction plans. If the plan(s) are amended following finalization, the certificate holder shall clearly identify and provide basis for any proposed changes.

Step 2: [Certificate Holder and Department Coordination on Appropriate Review Agencies and Agency Review Conference Call\(s\)](#): Prior to submission of the updated draft plan, or any future amended plans, the certificate holder shall coordinate with the Department's Compliance Officer to identify the appropriate federal, state and local agencies to be involved in the plan review process. Once appropriate federal, state and local agency contacts are identified by the Department and certificate holder, the Department's Compliance Officer will initiate coordination between agencies to schedule review/planning conference call(s). The Department and certificate holder may agree to schedule separate conference calls per county.

The intent of the conference call(s) are to provide the certificate holder, or its contractor, an opportunity to describe details of the updated draft or amended plan; and, agency plan review schedule. Agencies may provide initial feedback on requirements to be included in the plan during the call, or may provide written comments during the 14-day comment period. The Department will request that any comments provided be supported by an analysis and local, state or federal regulatory requirement (citation).

The certificate holder may coordinate with appropriate review agencies, in advance of or outside of the established agency review process; however, this established agency review process is necessary under OAR 345-025-0016 and may result in more efficient plan finalization and amendment if managed in a consolidated process, utilizing the Department's Compliance Officer as the lead Point of Contact.

Step 3: [Agency Review Process](#): Either with, or prior to, the agency conference call(s), the certificate holder shall distribute electronic copies of the draft, or future amended, plan(s) requesting that the Department coordinate agency review comments within 14-days of receipt, or as otherwise determined feasible. Following the 14-day agency review period, the Department will consolidate comments and recommendations into the draft, or amended, plan(s), using a Microsoft Word version of the plan provided by certificate holder. Within 14-days of receipt of the agency review comments, the certificate holder shall provide an updated final version of the plan, incorporating any applicable regulatory requirements, as identified during agency review or must provide reasons supporting exclusion of recommended requirements. Final plans will be distributed to applicable review agencies by the Department, including the certificate holder's assessment of any exclusions of agency recommendations, and a description of their opportunity for dispute resolution.

Step 4: Dispute Resolution: If any review agency considers the final, or amended, plan(s) not to adhere to applicable state, federal or local laws, Council rules, Council order, or site certificate condition or warranty, the review agency may submit a written request of the potential violation to the Department's Compliance Officer or Council Secretary, requesting Council review during a regularly scheduled Council meeting. The Council would, as the governing body, review the violation claim and determine, through Council vote, whether the claim of violation is warranted and identify any necessary corrective actions.

1.0 INTRODUCTION

Idaho Power Company (IPC) is proposing to construct, operate, and maintain a high-voltage electric transmission line between Boardman, Oregon, and the Hemingway Substation in southwestern Idaho as an extension of IPC's electric transmission system. The Project consists of approximately 296.6 miles of electric transmission line, with 272.8 miles located in Oregon and 23.8 miles in Idaho. The Project includes 270.8 miles of single-circuit 500-kilovolt (kV) transmission line, removal of 12 miles of existing 69-kV transmission line, rebuilding of 0.9 mile of a 230-kV transmission line, and rebuilding of 1.1 miles of an existing 138-kV transmission line into a new right-of-way (ROW).

This ROW Clearing Assessment provides an assessment of forested lands in the Project area, including existing farm and forestry practices adjacent to forested lands and any impacts to those practices that may occur as a result of the construction and operation of the Project, in support of Exhibit K of IPC's Application for a Site Certificate with the Oregon Department of Energy (ODOE) for the Energy Facility Siting Council (EFSC) review. The ROW Clearing Assessment identifies all forested lands and associated farm and forest practices within the site boundary and surrounding lands within 500 feet of the site boundary. It describes the timber harvesting and associated activities that are required to prepare the rights of way to construct and subsequently maintain the Project. And it describes the impacts the Project will have on the relevant farm and forest practices within the forested lands.

As described in Exhibit B, the typical ROW width for the 500-kV portion of the Project will be 250 feet. In forested areas, the ROW width may extend up to 300 feet to allow for maintenance of danger trees, while in other areas, the ROW width will be narrower to facilitate avoidance of resources or land owner or agency requests. Specific areas where the ROW width will vary include the following:

- While crossing the Naval Weapons Systems Training Facility (NWSTF) Boardman, the 500-kV line will use the existing 69-kV line 90-foot ROW. The existing 90-foot ROW will not be widened.
- The new ROW width for the single-circuit 230-kV rebuild portion will be up to 125 feet. The existing 230-kV ROW will be widened to 250 feet to facilitate placement of the 500-kV line.
- The new ROW width for the 1.1 miles of 138-kV rebuild will be 100 feet. The existing 138-kV ROW will be widened from 100 feet to 250 feet to accommodate placement of the 500-kV line.

The ROW width for Project roads will vary between 10 and 14 feet. For new primitive roads, the ROW width will be 10 feet. For new bladed roads, the ROW will be 14 feet. For existing road with substantial modification and existing roads with no substantial modification, the ROW width will be 14 feet. In areas of steep terrain, ROW width for roads may need to wider (up to 35 feet).

The site-specific required ROW width will be determined and finalized during the final design of the Project.

2.0 APPLICABLE RULES

Oregon Administrative Rule (OAR) 660-006-0025(4)(q) provides that transmission lines may be allowed in Goal 4 Forestlands provided the following requirements under OAR 660-006-0025(5) are met:

- (a) The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands;*

(b) The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel; and

(c) A written statement recorded with the deed or written contract with the county or its equivalent is obtained from the land owner that recognizes the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in subsections (4)(e), (m), (s), (t) and (w) of this rule.

3.0 ANALYSIS

3.1 Analysis Area

The analysis area for Exhibit K is the Site Boundary and one-half mile from the Site Boundary (see Second Amended Project Order, Table 2). For purposes of this ROW Clearing Assessment, IPC analyzed the Project's operational area, which is a 125-foot buffer on each side of the transmission line centerline (250-foot-wide corridor),¹ the construction footprint of all Project features outside of the centerline corridor, and a 15-foot buffer each side (30-foot width) of proposed new roads (the "Forested Lands Analysis Area").

3.2 Maps of Forested Lands

The forested portion of the transmission line corridor is relatively contiguous and extends from east of Pendleton, Oregon, near Dead Man's Pass (mile 79 on the Project) to just east of La Grande, Oregon, at mile 120. The remainder of the transmission line corridor traverses prairie or agricultural lands, with only scattered patches of trees. The analysis presented in this ROW Clearing Assessment focuses on the contiguous forested area between Pendleton and La Grande.

Detailed maps of the forested lands affected by the Project are provided in Exhibit BB, Attachment BB-1, Appendix A Estimated Forest Disturbance Map Book. Figures 1 through 3 below provide an overview and details of the Project location.

¹ While IPC may need to extend the ROW width up to 300 feet in certain forested areas to allow for maintenance of danger trees, those circumstances will be limited and the ROW will typically be 250 feet in most forested areas. Therefore, the 250-foot ROW width used by IPC to define the Forest Lands Analysis Area provides the best representation of the typical impact area.

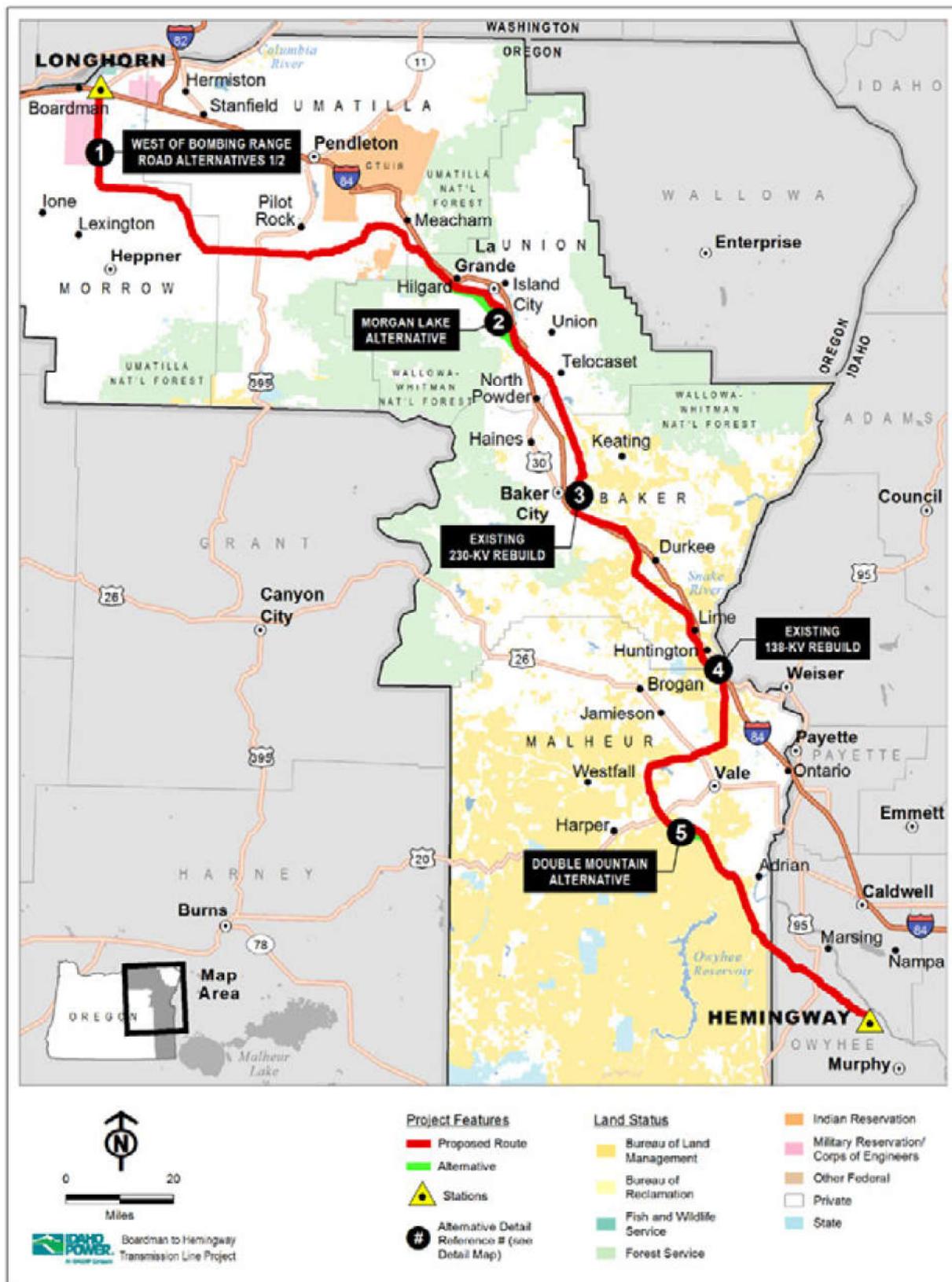


Figure 1. Location Map

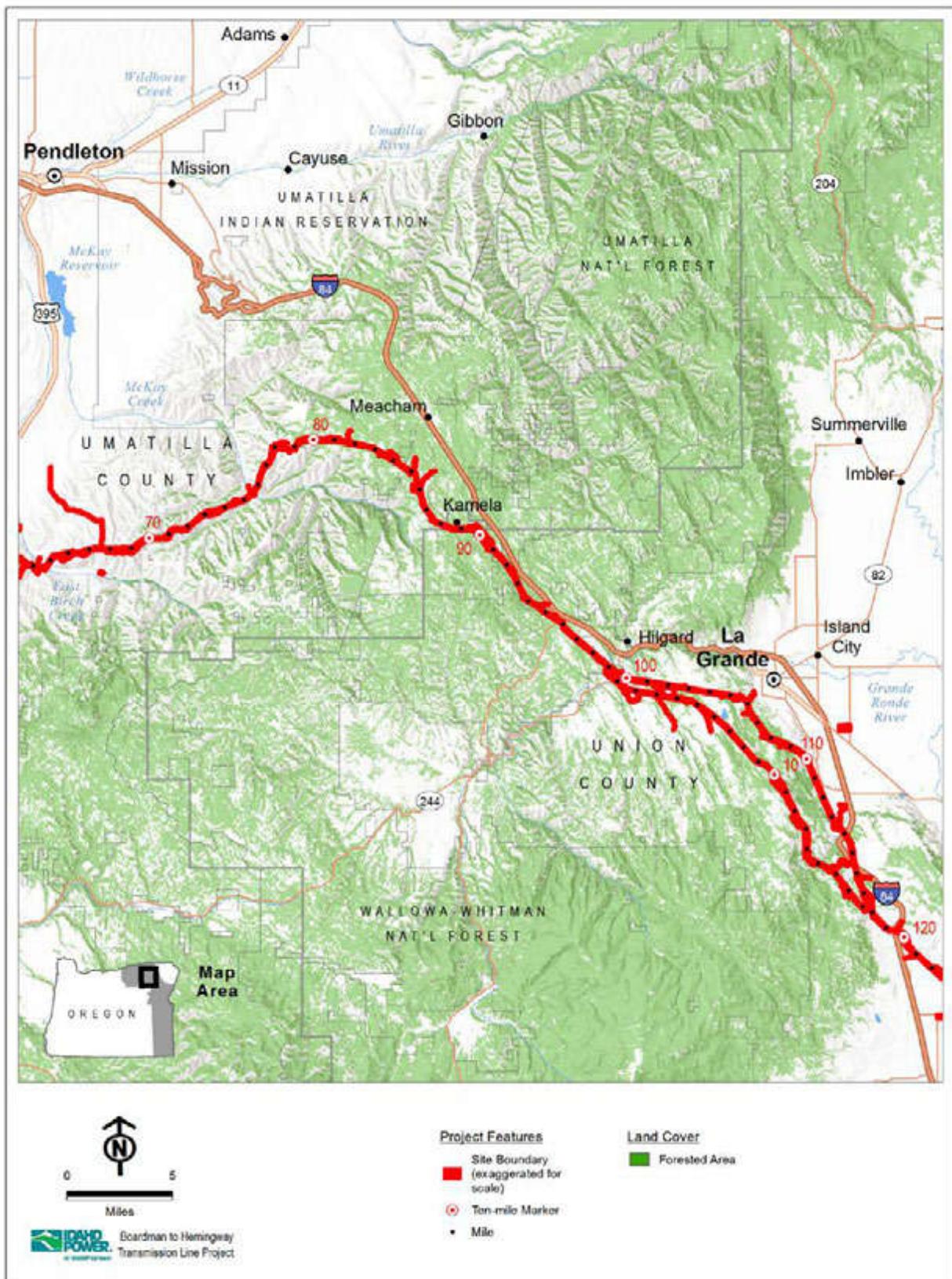


Figure 2. Portion of Site Boundary in Forested Land

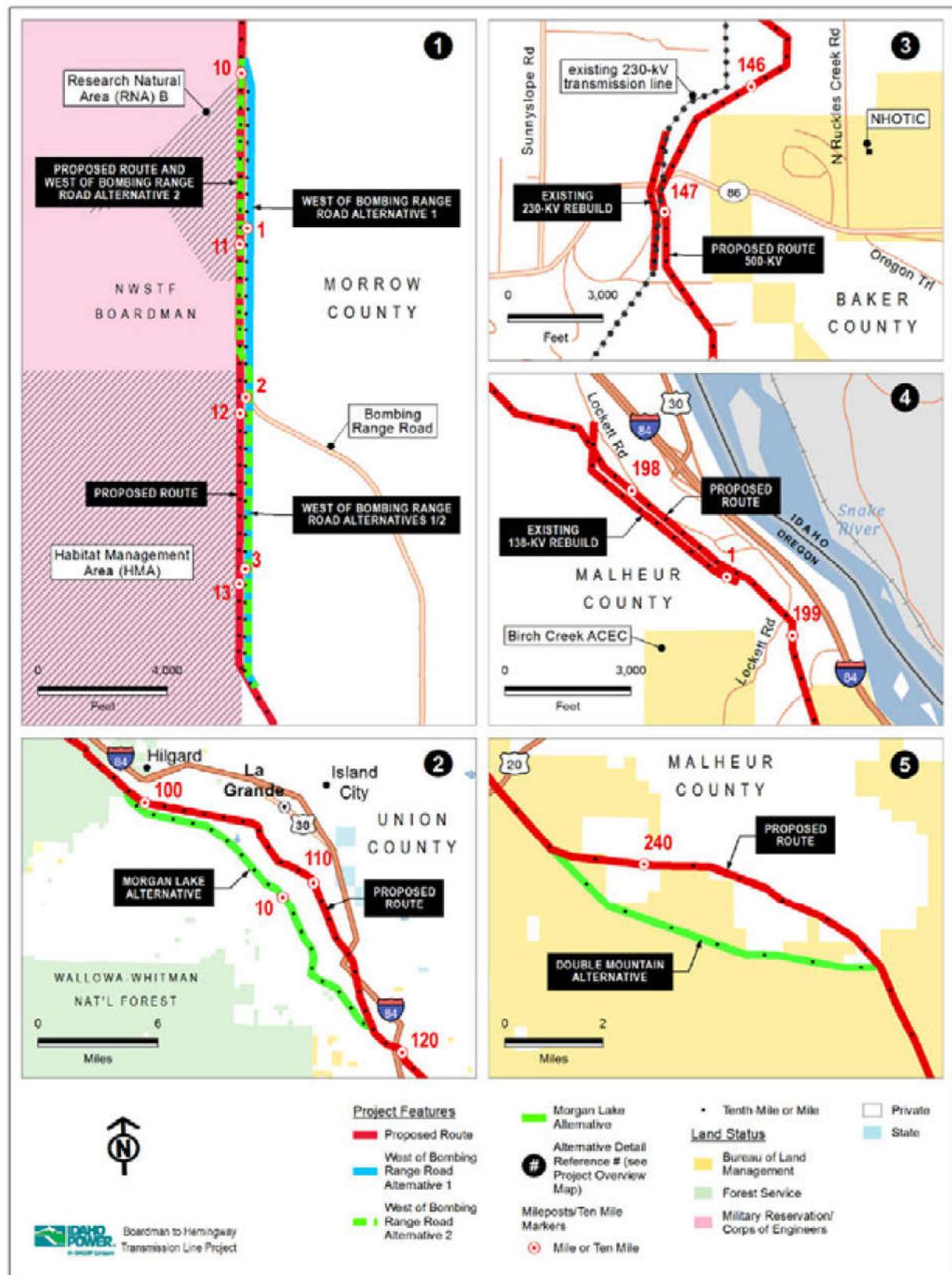


Figure 3. Detail of Alternatives and 230-kV and 138-kV Rebuilds

3.3 Methods

IPC identified existing forestry use areas by a combination of ground survey and aerial photo interpretation using 2013 National Agriculture Imagery Program (NAIP) aerial photography.

The certified forester verified (ground-truthed) the presence and typing of forested land versus the other land uses that are not forestry.

The baseline forest cover data were field collected using the Terrestrial Visual Encounter Survey (TVES) method across the Project area. One of the goals of the TVES was to define the ecological systems (forest cover types) within the Project Boundary and describe those systems with a “habitat category.” The habitat category code given to each forest cover type depended on the presence of forest cover in the field, along with the species and size of trees encountered in the forest cover type. Where right-of-entry was denied to acquire TVES survey data, IPC reviewed aerial photography and habitat categorization values assigned to adjacent polygons during TVES to assign a forest cover type classification and habitat category to areas of no access.

Data from the ground surveys were then mapped using an ArcGIS application on the aerial imagery layer with the transmission line route overlain.

To field verify the ground and aerial imagery assessments and determine the logging systems necessary to harvest timber on the corridor, IPC’s certified forester did reconnaissance of the forested portion of the Forested Lands Analysis Area.

In December 2016, IPC mailed landowner survey questionnaires to owners of forested parcels in the Project area. Of the 60 surveys mailed out, IPC received 19 responses. IPC reviewed the survey responses to confirm the results of the field surveys and geographic information system (GIS) surveys.

The resulting forest and non-forest acreages in this analysis were derived from the ArcGIS mapping of the forest cover types. Range and pasture lands were segregated from the forest lands. There was no tilled cropland on this portion of the Project.

3.4 Analysis

3.4.1 Baseline

3.4.1.1 Forest Cover Types

The forest cover in the Forested Lands Analysis Area transitions from a shrub-steppe plant community on either side of the forested lands assessment area to an upland forest community with at least two forest zones including:

- *Abies grandis* zone (Grand fir) (58%); and
- *Pinus ponderosa* zone (Ponderosa pine) (37%).

The Grand fir forest zone dominates the study route. This zone includes Douglas-fir (*Pseudotsuga menziesii*) and other species. The Ponderosa pine zone also includes lodgepole pine (*Pinus contorta*) and other species, with mixed transitional zones across the broad ridge tops and valleys of the forested portion of the transmission line corridor. The forest transitions are due mainly to changes in elevation, soil type and aspect. In some cases, they may be influenced by or due to fire, land management activity, or other some other disturbance.

The forest cover was stratified across the study area by species composition size and density for the purpose of description. The forest cover types cross all of the above zones. Table 1 summarizes the forest cover types and approximate acreage in the Forested Lands Analysis Area.

Table 1. Summary of Analysis Area by Land Ownership and Forest Cover Type

County	Landowner	Forest Cover Type	Forested Acres
Umatilla	Private	Forested Other	32
Umatilla	Private	Douglas-fir/Mixed Grand fir	160
Umatilla	Private	Ponderosa Pine	55
Union	BLM	Douglas-fir/Mixed Grand fir	5
Union	Private	Forested Other	14
Union	Private	Douglas-fir/Mixed Grand fir	175
Union	U.S. Forest Service (USFS)	Douglas-fir/Mixed Grand fir	77
Union	Private	Ponderosa Pine	157
Union	USFS	Ponderosa Pine	101
Forested Acreage			776
Range - Non-Forest Acreage			473
Total Area of Corridor			1,249

The forest within the corridor is predominantly small sawtimber (74%), with lesser acres of pole-sized trees (20%) and reproduction (6%). The balance (473 acres) is non-forest (rangeland) acreage. Table 2 describes the stand size classes of the forest cover within the Forested Land Analysis Area.

Table 2. Forested Areas by Stand Size Classes and Stocking Class Across the Analysis Area

Stocking Class	Stand Size Classes ¹				Sum	Percentage
	Reprod 1 to 4"	Poles 5 to 8"	Small Sawtimber 9 to 20"	Non-Forest		
	Acres					
Rangeland				473	473	37.9%
<10% Stocking	1	48	7		56	4.5%
10-39%	44	61	115		220	17.6%
40-69%		39	267		306	24.5%
>70%		10	184		194	15.5%
Sum	45	158	573	473	1,249	100.0%
% of Total ROW Area	3.6%	12.7%	45.9%	37.9%	100.0%	

¹ There were no stands with 21"+ average stand DBH (diameter at 4.5 feet above the groundline).

3.4.1.2 *Land Ownership*

The forested area of the Project is predominantly (85.3%) privately held land surrounded by federal lands including the Umatilla National Forest, the Wallowa-Whitman National Forest, and the Bureau of Land Management (BLM).

Table 3. Land Ownership within the Analysis Area

Landowner	Acreage	%
Private	1,066	85.3%
U.S. Forest Service	178	14.3%
BLM	5	<1%
Sum	1,249	

3.4.1.3 *Farm and Forest Practices*

Forestry is the predominant land use in the Forested Lands Analysis Area, most of which appears to be managed for long-term forest management. Over 62 percent of the corridor is classified as forest land with the balance being rangeland. Some lands are used for both forestry and grazing as well as recreation. There is no tilled cropland within the 776 acres of the Forested Lands Analysis Area, and only 473 acres of rangeland, which includes a very small acreage of managed pastureland.

3.4.1.4 *Topography*

The Forested Lands Analysis Area of the Project transitions from the shrub-steppe zone at about 3,000 feet above sea level (ASL) to a high of about 4,500 feet ASL in the forest zone. The proposed corridor crosses a broad, gently rolling ridge top (summit) crossing over the Grande Ronde River and a number of smaller, seasonal streams and normally dry drainages. The slopes are gentle, ranging from 0 to 30 percent, and occasional slopes that are steep for short distances, up to 70 percent. With the exception of the small number of short, steep slopes, timber harvesting operations will be ground-based.

3.4.1.5 *Soils*

The underlying parent material in the study area is Columbia River Basalt. It is capped by dark brown fine sandy loams or silt loam soils with a depth of 0.5 to 1 meter. Occasional areas of cobbly silt loams occur. These are well-drained soils that support year-round timber harvesting, but may be wet following significant rain events. Existing permanent roads may need to be surfaced with gravel. Temporary roads may support light use during dry season without gravel. It is not uncommon for roads to have only seasonal use (called summer roads) with no gravel surfacing in this area.

3.4.1.6 *Aspect*

The aspects in the rolling hills of the Project area are quite variable. Where northerly and easterly aspects occur, they are typically forested. Harsh, steep southerly exposures tend to be less densely stocked with trees or support rangeland vegetation. Soils tend to be thinner, with more rock, and lower in tree productivity on the south and sometimes the west facing slopes.

3.5 Project Activities Potentially Affecting Forested Lands

3.5.1 Right of Way Clearing

3.5.1.1 Timber Felling for Construction and Maintenance Hazard Trees

The timber on the right of way corridor will be directionally felled using mechanized machines on the lesser slopes, with oversized trees and trees on steeper slopes being directionally hand-felled. Trees outside the ROW within one site potential tree height of the wire zone (150 feet) that could be hazardous to the new transmission line will be cut by the feller-buncher if it can reach the tree, or hand-felled if the machine cannot reach the tree.

- **Feller-buncher:** Most trees on the right of way where slopes are 35 percent and less can be felled with a feller-buncher. This is a tracked machine with a felling head on a short boom. Trees are cut above the root flare and placed in turns (piles) for the skidder or shovel to yard to the landing. Disturbance of vegetation and soil compaction is low since the machine normally only passes over the ground once or twice as it moves from tree to tree. Understory vegetation may be uprooted as the machine turns, however many shrubs will simply resprout from roots or broken stems and resume growth. Use of the feller-buncher improves yarding efficiency since trees are placed in piles, eliminating the skidder's need to accumulate individual trees.
- **Hand-falling:** Used on slopes or where trees are too large to be cut with a feller-buncher. The upper size limits varies by type of machine and the head, with the upper limit that a feller-buncher can cut normally being in the range of 22 to 28 inches diameter. On slopes, the hand falling operations typically fall the timber parallel to the slope to avoid breakage. In some cases, it will be beneficial to fell the timber at an angle toward the right of way center to facilitate access for yarding by the shovel. This may causes some loss of timber volume, but will minimize site disturbance.

3.5.1.2 Ground Based Logging

The majority of the timber harvesting on the Project will be suitable for ground-based timber harvesting systems. Where slopes exceed 35 percent, directional felling of timber into the ROW coupled with the long-reach of a shovel (38-42 feet in many cases and sometimes add a long choker), timber can be removed without the need to use a cable harvesting system. A ground based system typically includes a feller-buncher, skidder or grapple cat, a shovel, and a log processor.

- **Rubber-tired skidder:** These are articulated 4-wheel-drive machines equipped with a grapple on the back, a blade on the front, and a cable winch. They are used for yarding individual trees or turns (piles) of trees or logs to the landing. They are fast and often used when yarding distances are long, such as on a new power line corridor. Yarding distances are normally limited to 1,000 to 1,200 feet. The machines are kept on skid trails to limit vegetation disturbance and soil compaction, leaving the skid trails only to back up to piles of trees or logs. Soil compaction on the skid trails can be high, but normally returns to pre-logging levels in approximately 6 years depending on the soil type and level of compaction. In some cases, ripping skid trails coupled with waterbarring and erosion control seeding when necessary will speed the restoration of soil productivity. The rubber-tired skidder will likely be used on most portions of the corridor that has slopes less than 35 percent.
- **Grapple cat:** The grapple cat is a high-tracked dozer with a grapple on the back, a blade on the front and a winch on the back. While much slower than the rubber-tired skidder,

the grapple cat can access turns and pull more logs, with less ground pressure and soil compaction than the rubber-tired machine. Yarding distances are normally less than a rubber-tired machine due to the slower nature of the machine. This may require the use of more landings.

- **Shovel:** Shovel logging is normally limited to about 2 tree lengths on either side of the logging road or skid trail. This tracked machine, with its reach of 38 to 42 feet simply reaches out and grabs the felled trees or piles of trees and drags them the length of its reach. It normally requires 2 or 3 “throws” to get the trees/logs to the edge of the road. For distances greater than 300 feet or so, the skidder or grapple cat is normally used. The shovel is a tracked machine with low ground pressure. Soil disturbance is typically low and understory vegetation is normally broken down, but most is not uprooted, so it will recover and continue to grow. Soil compaction is low since the machine is low ground pressure, and is not going back over its tracks more than once or twice. This machine is also used on the landing to sort logs and load the log trucks.
- **Log processor:** A log processor is a computer-based head that dangles off the boom of a log shovel. It normally has two saws, and is used to remove branches, buck log butts flush, measure log lengths and diameters, and buck the top of the log at the appropriate length. The processor head is mounted on the end of the boom of a log shovel. It can be used to fell timber, but is less efficient than a feller-buncher.

3.5.1.3 *Cable-Based Logging Systems*

There will be short slopes where ground based mechanized felling and yarding cannot be used. In these cases cable yarding systems will need to be used to remove the timber from the slope. Small, mobile cable yarding systems will be used since log size and log volumes in each area will be small.

Using a cable yarding system, the butt end of the tree or log is suspended with the tree top or small end of the log touching the ground as it is pulled up or down the slope. On short slopes, understory vegetation disturbance will be minimal, as will soil disturbance. Little to no soil compaction will occur. On longer slopes, yarding “trails” will develop as multiple trees or logs are yarded up the hill. The understory vegetation is often scarified in these narrow “trails,” with intact vegetation between the trails.

A cable setting will normally include timber that is hand-felled, the trees or logs are yarded with the yoder or a small high-lead tower, a shovel with processor head on the landing to make the logs, and shovel on the landing. In some cases, trucks may be loaded with the shovel with processor head, though this is less efficient. Given the small volumes, it is likely that the shovel with the processor will be used to load the logs to avoid use of another machine.

- **Yoder:** This cable harvesting system gets its name because it is a combination of a log loader (shovel) and a yarder. The log loader is equipped with drums and cables that with the boom extended can provide adequate lift to cable yard trees and logs on short slopes. It is also faster and easier to set up than the normal high lead cable yarding system. Given the small acreage and short slopes in this project, along with the availability of these machines in Oregon, this will likely be the machine of choice to complete the cable yarding.
- **High Lead:** Small high-lead towers are also available with truck mounts. These shorter towers can be set up quickly and since they are truck mounted, can be easily moved from site to site. The height of the towers varies, but these machines are available in many sizes. Availability is less certain since some of the new machines are just being

put into service. There will be no need for the larger yarding towers or helicopters for yarding logs.

3.5.1.4 Log Landing Locations

Log landing locations will depend on the type of logging system that is in use. Typically on ground based harvest systems, landings will be spaced no more than 2,000 feet apart along the right of way when rubber-tired skidders are used. If the right of way is being shovel logged, the logs are thrown to the logging road at the center of the right of way, skidded to a landing, or loaded directly onto log trucks from the road edge.

Where a cable system is required, the tower will be situated at the top or base of the slope and logs will be yarded to that point, and then loaded on a log truck. These landing locations, logging system, and other decisions will be made during preparation of the written logging plan for the Forest Practices permit applications.

After harvest, landing restoration will occur. The logging debris at the landing will be haystacked and burned during the appropriate season. Burning permits will be required and are obtained from the Oregon Department of Forestry (ODF) for private lands and public lands other than U.S. Forest Service (USFS). Pile burning in USFS lands will be permitted by that agency.

3.5.2 Road Construction, Repair, and Use

The level of improvement and maintenance required on existing logging roads used to access the right of way depends on the easement agreement with the landowner as well as regulatory requirements and engineering needs. If these existing logging roads do not meet standards required in OAR Chapter 629, Division 625, then they will need to be improved to meet this road standard. Roads improved to support log hauling and other forest practices will be satisfactory for line construction activity. All roads used in the project will be assessed, and prescriptions prepared for improvement of the vegetation clearances on the road shoulders, and for surface, drainage, culverts and water protection needs. Necessary repair or erosion control work will then be done in the appropriate season prior to the start of operations.

Similar to road improvement, new road construction will meet the OAR Chapter 629, Division 625 road construction standards. Standards on USFS lands will be similar to ODF standards. Roads constructed for the logging operations will be used for line construction as well.

Following construction, all roads are expected to be used for future maintenance and inspection of the transmission line, vegetation management access, and line maintenance. Roads will be seeded with erosion control seed mix and mulched as necessary at the end of operations, or when otherwise necessary. Waterbars or other water control structures will be installed as needed after line construction is complete, but will be designed to allow pick-ups to traverse the structure for patrol and maintenance access.

Erosion control seeding, mulching, straw wattles, and other erosion control measures will be completed according to the schedule of activity in the prescription for the work. For newly constructed road, all measures will be completed during construction. For log landings and road betterment after logging, then the erosion control measures will be completed after logging, log hauling, and slash abatement activity is completed.

3.5.2.1 Existing Access Roads

Harvested logs will likely be delivered to La Grande and Elgin, Oregon, to the east of the forested zone. The timber harvesting operations will utilize Interstate 84, state highways, and improved and unimproved county roads. These roads will support the operations with no

easements, additional fees, or maintenance required. USFS and private roads, both existing and newly constructed will likely require easements, road-use fees, and require betterment before and at the end of the logging and line construction.

3.5.2.2 New Access Roads

- Logging roads and standards for construction are detailed in the Oregon Forest Practices regulations Division 625: Road Construction and Maintenance. All new road construction must meet these requirements.
- Maintenance during operations: Once an existing logging road is improved at the start of the operations, little additional work will need to be done to maintain the road during operations. Newly constructed roads often will normally require additional rock during the operations to patch or repair fills or soft spots in the road surface.
- Post-harvest betterment: An assessment of the road conditions will be made at the end of the line construction operations, and necessary repairs made.
- Post-harvest put-to-bed: Logging roads that are intending to be temporary to facilitate logging, but are not to be used for line construction will be put-to-bed. This includes grading to smooth ruts, installation of water bars where required, and seeding with an erosion control seed mix. Mulching may be necessary on slopes. In most cases, these roads will be used for line construction and maintenance of the line and vegetation in the future, and will be left in a condition that can be accessed with a line truck, a pick-up, or at the least, an all-terrain vehicle.
- Post-harvest abandonment: If any roads require post-harvest or post-construction abandonment, the surface of the road is scarified, waterbars are installed, the road is seeded with an erosion control seed mix, and mulched as required. Care will be used in decision making—do not abandon roads that are necessary for patrol and line maintenance. Abandonment procedures will follow Oregon Forest Practices regulations.

3.5.3 Slash Abatement

The abatement of slash will be similar across all public and private land ownerships and will comply with OAR Chapter 629, Division 615.

- Logging operations
 - Pile and burn: Landings and fuel concentrations
 - Treatment of slash is required for protection of adjacent lands from the risk of fire and to minimize the potential for materials to enter a stream.
 - Filing of a “smoke management plan” (OAR 629-048-0001) and obtaining a burn permit for landing or pile burning may be required. Special restrictions for the pile size and site will be provided on the burn permit.
 - Mower mastication: This option may be used where slash (fuel) loads are moderate to heavy. A brush mower is used to break up fuel concentrations and cause them to be in contact with the soil. This will cause increased moisture content of the fuel and speeds decomposition, while reducing the fire hazard. The typical machine used for mower mastication includes a small track loader such as a Takeuchi equipped with a Fecon type mowing head on the front. This machine would be used in gentle topography. A second type of machine would be an excavator equipped with a “Slashbuster” or “Fecon” type head. Either machine will work, with the track loader being the faster machine where terrain

permits. Both machines can be used to mow non-merchantable brush that has a projected mature height of over 15 feet. The disturbance with the tracks of either machine is similar to a log loader. The mowing operation breaks down the logging slash and cuts understory shrubs that are intermingled. These shrubs typically restock the right of way quickly.

- Lop and scatter: This slash abatement method is typically used where fuel loads are light, or on slopes too steep for mowers. The branches are lopped by hand into lengths of 3 feet or shorter using chainsaws, so that they lay on the soil surface or close to the soil surface. Downed wildlife logs are similarly cut, usually in longer length, but so the log is on the soil surface to facilitate decay.
- Forest, but no logging operations: In forest cover types that are sparse or young, with no merchantable logs and thus no logging, tall growing tree and brush species will be hand slashed or mowed using either the track loader with the mower head, or the larger excavator with a mowing head (described above), or on steeper slopes the slash will be treated by hand using lop and scattering methods.
 - Mowing: In most cases, the mower will follow the logging operations to mow undesirable brush and break up fuel concentrations. Stump heights of the mowed material are typically 6 inches or so, but may be higher if rocks, larger stumps, uneven soil surface, or other materials prevent mowing lower. Soil disturbance will be minimized with these mowing operations to prevent creating a seedbed for pioneer tree species (all are incompatible with power lines) and invasive weeds. Where fuel concentrations are high, piling and burning will likely be the slash abatement practice of choice.
 - Lop and scatter: Used on steeper slopes in areas where slash is light, or slopes too steep for the mowing machines.
 - Pile and burn: To be used in logged areas where fuel concentrations are moderate to heavy and contiguous. The slash will be piled with the log shovel for burning at the appropriate time.
 - Chipping of slash: To be used only in residential settings or road crossings where other treatments methods are not appropriate.

3.6 Potential Impacts to Forested Lands

3.6.1 Impacts to Surrounding Forestry Practices

Installation of a new corridor with electrical transmission lines has the potential to impact the operations on adjacent forest and farming operations. In this case, the farming activity mostly appears to be grazing, in addition to the forestry operations. The following are potential impacts to the current land use practices associated with the logging operations for the new transmission corridor and associated with permanent removal of large trees from the ROW:

- During construction of the Project the entire ROW will be cleared of trees and tall shrubs. It is not possible to safely “feather-cut” the trees within the ROW. Doing so would also eliminate much of the timber value of the trees. After initial clearing, a wire-border zone method will be used during maintenance of the ROW in forested and woodland habitats to control tall vegetation and to ensure adequate ground-to-conductor clearances (Figure 4). This method results in two zones of clearing and revegetation: the wire zone and the border zone. The wire zone includes the linear area along the ROW located under the wires as well as the area extending approximately 10 feet outside of the outermost

phase-conductor. After initial clearing, vegetation in the wire zone will be maintained to consist of native grasses, legumes, herbs, ferns, shrubs, and other low-growing vegetation that remain under approximately 5 feet tall at maturity. The border zone is the linear area along each side of the ROW extending from the edge of the wire zone to the edge of the ROW. Vegetation in the border zone will be maintained to consist of tall shrubs or short trees (up to approximately 25 feet high at maturity), grasses, and forbs. These cover plants along the border zone benefit the ROW by competing with and excluding undesirable plants. No clearing will be conducted in areas where the height of mature trees will not come within 50 feet of the wires (e.g., a canyon or ravine crossing with high ground clearance at mid-span). Minimum clearance values are affected by circuit voltage, terrain, span length, ruling span length, conductor size and tension, anticipated wind conditions, and structure framing parameters. Exhibit P1, Attachment P1-4 illustrates specifications for the wire-border zones under varying site conditions.

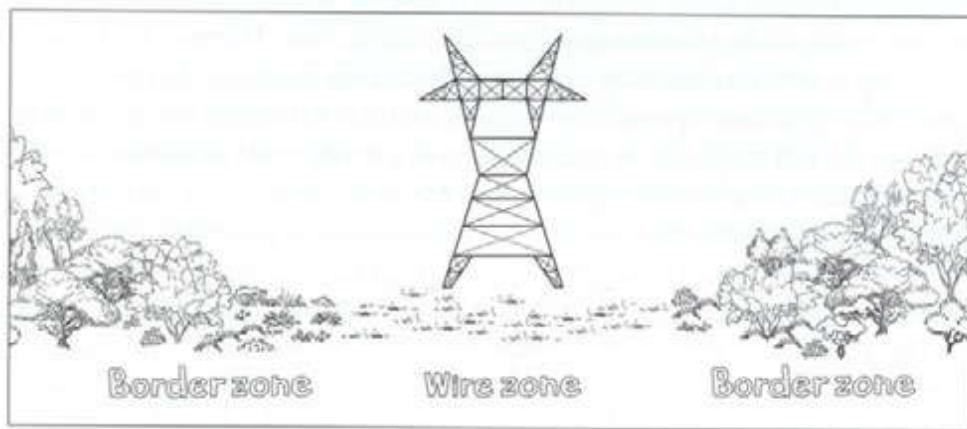


Figure 4. Wire Zone-Border Zone Illustration for Vegetation Management on Transmission Rights of Ways (Source: Miller 2014)

- The vegetation on the new corridor will be grasses, forbs, shrubs, and small trees. It is well documented that wildlife usage of a powerline corridor increases dramatically with creation of new vegetation including pioneer tree and shrub species (Bramble 1992; Yahner 2001, 2004). Songbirds, small and large mammals, and other wildlife usage will benefit from the diverse and layered vegetation growing on the powerline corridor.
- Future timber harvesting operations of trees within a site potential tree height² (150 feet) of the power line will have a higher risk factor. IPC may need to provide timber harvesting assistance for removal of trees within the minimum approach distances for non-qualified electrical workers. Often this is necessary for only select edge trees, however if the entire right of way is cleared and the line situated in the center, then forestry logging operators will have adequate clearances and be able to cut the timber safely.

² Site-potential tree height (150 feet) was determined from the GAP data. The USFS and BLM (1997) indicated that site potential tree height in the forested areas of the Project is 150 feet in areas considered to be "Moist Forest" and 120 feet in "Dry Forest." The GAP data and associated analysis sorted vegetation types into forest, which include all class designated as having trees, "non-forest" were all types classified as not having trees (e.g. shrubs/grasses or wetlands), "mixed" indicates that the area adjacent (within 150 feet of the stream) to the stream that included some area of forest and non-forest vegetation types.

- There may be some loss in tree volume along the new edges of the Project ROW, since windthrow of some edge trees is inevitable due to exposure from tree removal on the corridor and sunburn/decay often occurs to newly exposed bark.
- The risk of wildfire may be increased since powerlines are an incendiary source if a tree falls on the lines, or there is an equipment failure. Following the guidelines of the Project's vegetation management plan (Exhibit P1, Attachment P1-4) will reduce the potential for an increase in wildfire as a result of the Project.
- Additional roads allow access to more area for authorized and unauthorized users of the land. Risk of wildfire, dumping, timber theft, and vandalism may increase, but not significantly. Strategic placement of gates will help to control this potential increased risk (see Exhibit B, Attachment B-5, Section 2.3 Access Control).
- Roads constructed for logging and line construction access could prove useful to the underlying landowner, reducing necessary road construction on their part for their forestry operations.
- Well-maintained powerline corridors can serve as a fire break in the case of a wildfire, or may provide a strategic point of wildfire defense due to increased access and lack of aerial fuels within the ROW
- For discussion regarding impacts of ROW clearing on wildlife, please see Exhibits P1, P2, and P3.

3.6.2 Impacts to Surrounding Agricultural Operations

For discussion of impacts to surrounding agricultural operations, please see discussion of impacts to rangeland in the Agricultural Lands Assessment, Attachment K-1.

3.7 Permits Required for Impacts

3.7.1 Timber Harvest

For timber harvesting on federal lands, IPC will need a temporary special use permit from the USFS along with a timber settlement agreement outlining how the USFS timber will be harvested (e.g., marking boundaries, removal techniques authorized, valuation methods, and payment requirements). The Special Use Authorization permit and Timber Settlement Agreement will be obtained directly from USFS and should not be included in and governed by the site certificate.

For timber harvesting on non-federal lands, IPC will need to obtain the following permits from, or provide the following notification to, ODF:

- Permit to Operate Power Driven Machinery, required for any forestry operations involving power driven machinery inside or within one-eighth of one mile of a forest protection district;
- Burn Permit, required for slash burning on all ODF protected lands during fire season;
- Notification of Operation, required before beginning certain activities on forest lands, including timber harvesting and road construction; and
- Notice of an Alternate Practice, required if forestlands will be converted to a use not compatible with maintaining forest tree cover.

Each of the above ODF permits and notifications will be obtained directly from ODF and should not be included in and governed by the site certificate.

3.7.2 Hydraulic Permits

ODF regulates forest-practices stream-crossings under OAR Chapter 629, Division 625. Additionally, ODFW provides guidance on fish passage for forest-practices stream-crossings through ODFW's Forest Practices Technical Note Number 4, Fish Passage Guidelines for New and Replacement Stream Crossing Structures. Finally, certain stream-crossings will require a Oregon Department of State Lands (ODSL) removal-fill permit and U.S. Army Corps of Engineers Clean Water Act Section 404 Dredge and Fill Permit (see Exhibit J). Compliance with the ODF, ODFW, and ODSL regulatory processes and permit requirements is governed by and included in the EFSC site certificate. The U.S. Army Corps of Engineers' Section 404 Permit is outside EFSC jurisdiction and not included in the site certificate.

3.7.3 Forest Road Easements

Haul roads used to move forest products over private and public lands will require separate easements or road use agreements. These easements or agreements typically are acquired and paid for based on the board foot volume hauled across the road, and include stipulations that the roads are left in as good or better condition compared with the condition of the road prior to the use. For new roads over private or public lands, the condition of the road after the project is complete will need to be negotiated with the landowner. In most cases, the roads will be stabilized or put-to-bed, but still kept in a condition to provide pick-up or line truck access for patrols and maintenance of the line.

4.0 MINIMIZATION AND MITIGATION OF IMPACTS TO FORESTED LANDS

The conversion of the forested portions of the Project ROW to a powerline corridor is permanent, since tall growing trees are not compatible with transmission of power. A ROW and will be negotiated on private lands by means of a negotiated settlement, and payment will be based on a certified appraisal. Prior to any construction, IPC or its agent, together with the landowner and/or the landowner's designee (which may include employees, tenants, or other representatives), will strive to schedule activities to minimize impacts to forest practices.

4.1 Efforts to Minimize and Mitigate Impacts to Forested Lands During Logging Operations and Construction of the Project

4.1.1 Logging Best Management Practices

Due to the gently sloping nature of the topography across most of the forested area and since most land uses currently are long-term forest management, there will be limited restrictions to logging operations. Some restrictions that are likely to impact logging operations include:

- Seasonal restrictions
 - Fire season – typically the late summer and early fall time period brings restrictions on the hours of operation for timber harvesting, the need for water trailers or trucks on site, the need for fire watches after operations, and in some cases all spark emitting operations are shut down.
 - Freeze-thaw conditions may limit road use during the spring, but the duration is normally short. Use of a road during the spring thaw will cause significant damage and reconstruction costs.
- Wildlife habitat restrictions – IPC has proposed the following restrictions to address potential impacts to wildlife habitat that may impact forestry activities (see Exhibit P1,

Section 3.5.4, Section 3.5.5, and Attachment P1-4, Appendix A, Section 2.2; Exhibit P3, Sections 3.5.4 and 3.5.5; Exhibit Q, Section 3.5.1):

Fish and Wildlife Condition 10: During construction, the site certificate holder shall not conduct ground-disturbing activities within elk or mule deer winter range between December 1 to March 31. Upon request by the site certificate holder, the department may provide exceptions to this restriction. The site certificate holder's request must include a justification for the request, including any actions the site certificate holder will take to avoid, minimize, or mitigate impacts to elk and mule deer in the relevant area.

Fish and Wildlife Condition 12: During construction, the site certificate holder shall not conduct ground-disturbing activities within the following timeframes and spatial buffers surrounding occupied nests of certain raptor species. Upon request by the site certificate holder, the Department may provide exceptions to this restriction. The site certificate holder's request must include a justification for the request, including any actions the site certificate holder will take to avoid, minimize, or mitigate impacts to the raptor and its nest.

Nesting Species	Spatial Buffers (radius around nest site):	Temporal Restrictions
Bald eagle	0.5 mile	January 1 to August 15
Golden eagle	0.5 mile	February 1 to August 15
Ferruginous hawk	0.50 mile	March 15 to August 15
Flammulated owl	0.25 mile	March 1 to August 15
Great gray owl	0.25 mile	March 1 to August 15
Northern goshawk	0.5 mile	May 1 to August 15
Peregrine falcon	0.25 mile	January 1 to July 1
Prairie falcon	0.25 mile	March 15 to July 1
Red-tailed hawk	300 to 500 feet	March 1 to August 15
Swainson's hawk	0.25 mile	April 1 to August 15
Western burrowing owl	0.25 mile	April 1 to August 15

Fish and Wildlife Condition 13: During construction, if the site certificate holder will be conducting ground-disturbing activities during the migratory bird nesting season between April 1 and July 15, the site certificate holder shall conduct, as applicable, biological surveys for native, non-raptor bird species nests on all portions of the site boundary a maximum of 7 days prior to ground-disturbing activities, regardless of whether those portions have been previously surveyed. If the site certificate holder identifies a native, non-raptor bird species nest, the site certificate holder shall submit to the department for its approval a notification addressing the following:

- Identification of the native, non-raptor species observed;
- Location of the nest; and
- Any actions the site certificate holder will take to avoid, minimize, or mitigate impacts to the nest.

Fish and Wildlife Condition 14: During construction, if the roost of a State Sensitive bat species is observed during the biological surveys set

forth in Fish and Wildlife Conditions 1, 2, or 3, the site certificate holder shall submit to the department for its approval a notification addressing the following:

- a. Identification of the State Sensitive bat species observed;*
- b. Location of the roost; and*
- c. Any actions the site certificate holder will take to avoid, minimize, or mitigate impacts to the roost.*

Fish and Wildlife Condition 15: *During construction, the site certificate holder shall flag the following environmentally sensitive areas as restricted work zones:*

- a. State protected plant species;*
- b. Wetlands and waterways that are not authorized for construction impacts;*
- c. Areas with active spatial and seasonal restrictions; and*
- d. Category 1 habitat.*

The site certificate holder shall submit a mapset showing the location of environmentally sensitive areas and restricted work zones to the department for its approval. The site certificate shall make the mapset available to all construction personnel.

Fish and Wildlife Condition 16: *During construction, the site certificate holder shall employ a speed limit of 25 miles per hour on facility access roads, unless the applicable land-management agency or landowner has designated an alternative speed limit.*

Fish and Wildlife Condition 28: *During operation, the site certificate holder shall conduct all work in compliance with the final Vegetation Management Plan referenced in Fish and Wildlife Condition 5.*

- Riparian – Critical areas, buffers, and other restrictions
 - Stream crossings – In some cases, it will not be possible to maintain timber (tall growing tree species) in stream buffers on powerline corridors due to necessary clearance requirements as described above. Crown reduction may be possible for some tall growing conifer trees, but is not desirable for deciduous trees.
 - Slash created in a stream buffer will be removed to prevent smothering of desirable shrubs, grass and forb species. However, the degree of removal will be limited to 80 percent or less, to provide habitat for wildlife and to restore nutrients to the forest floor. Removal of trees and slash from buffers will be done using cable yarding systems or with equipment sitting outside of the required buffer unless other provisions are made with the regulatory authority. All desirable understory vegetation in the buffer will be protected as much as possible. Breaking branches or stems on shrub species is not a serious concern, since all will likely resprout and produce viable, new growth. This new growth is often preferred forage for wildlife species.

4.1.2 Survey Marking of Access and ROW Clearing Limits – Flagging and Painting

It is important to be consistent in initial survey staking and flagging across the entire project. This will limit the potential for confusion on the part of a logging or line contractor that results in violations of the permits. The following are the suggested color flagging for the survey work.

- Property lines – Fluorescent pink
- Road centerlines – Pink/black striped
- Clearing limits/ right of way corridor delineation – Fluorescent orange
- Critical area delineation – Fluorescent blue
- Log landing delineation – Pink/Black striped and Orange (double flagging)
- Off-ROW hazard tree designation – Orange aerospot tree marking paint with a dot at eye level and a dot on the stump. If tree is hard to spot from new ROW due to brush, hang orange/black striped flagging at edge of right of way.

4.1.3 Hazardous Materials during Logging

Logging operations use motor fuel, hydraulic oil, and lubricants in all of the equipment on the logging side. As the equipment moves around the logging unit, there is potential for leakage during operation and refueling, or repairs and maintenance. The logging operations are required to observe the ODF regulations regarding hazardous materials (OAR Chapter 629, Division 620 – Chemical and other Petroleum Product Rules). These rules will be observed across all land ownerships.

4.1.4 Forest Herbicides

Treatment of brushy or tall growing tree species that have a mature height of over 5-25 feet is necessary to tailor the right of way to low growing, compatible plant species. This improves the safety of the powerline by reducing outages and their potential to cause fires, reduces entries by vegetation management crews that potentially could cause disturbance of plant communities, wildlife and soils.

- Stump treatments – deciduous tree species that are mowed or handcut on a right of way need to be treated with an approved herbicide to prevent resprouting. This allows desirable low growing shrubs and other plants to colonize that growing space, providing long-term weed control. Stump treatments are typically applied using a backpack sprayer equipped with a Spraying Systems 5500 wand and a Y-3 tip. The product typically used is Garlon 4 Ultra mixed at 25 percent herbicide with 75 percent canola oil or a refined mineral oil. Pathfinder II, a similar formulation that is ready-to-use could also be used. Within 10 feet of a stream or other type of water, the product of choice is Garlon 3A mixed 50 percent herbicide with water and applied to the cambial region of the freshly cut stump. Rodeo could also be used at the same formulation with water.
- Low Volume Foliar – foliar applications are typically used where undesirable stem densities are light to moderate (less than 300 stems/acre). The applications are made during the growing season when the deciduous tree species are in full leaf. Applications in late May or June are preferred, when the waxy cuticle on the leaves or needles of conifers is less well developed. The formulation used depends on the species and will be developed in the prescriptions that are site specific.

- High Volume Foliar – where undesirable tree or brush species are moderate to dense (more than 300 stems/acre), the use of high volume foliar applications are prescribed. This could be from a tank on a truck, skidder, farm tractor or other 4x4 rig. The applications could be made using a handgun or with a boomless nozzle system. Target trees or brush are normally shorter than 8 feet tall for this application. Where taller trees occur, they are typically cut or mowed prior to a stump treatment. The formulations will be developed during the prescriptive phase of the right of way management plan on a site specific basis.

4.1.5 Fire Protection during Logging Operations

Forest fire control rules are included in OAR 629. All logging operations shall be required to comply with these regulations. The activities to comply with include, but are not limited to:

- Fire equipment requirements on the landing which include observation of current industrial fire precaution levels, the required tools for the type of operation, no smoking while in an operation area, and fire watch when required.
- Treatment of slash for protection of adjacent lands from the risk of fire and to minimize the potential for materials to enter a stream.
- Filing of a “smoke management plan” (OAR 629-048-0001) and obtaining a burn permit for landing burning. Special restrictions for the pile size and site will be provided on the burn permit.

4.1.6 Existing Access Road Protection

- Improvement – Existing farm or graveled logging roads used for log hauling and line construction may require improvement as per Oregon Forest Practices Act - OAR 629-625-0600, and depending on the road use agreement with the landowner.
- Maintenance – Best Management Practices are detailed in *The Forest Practices Notes* (No. 4, 1999 – ODF).
- Post-harvest betterment – the responsibility for betterment depends on the easement or road-use agreement with the landowner. However, as a rule, the road will be left in as good or better condition as it was when use was started. Improvement of gravel roads to meet forest practices standards will speed turn-around times for log delivery, while reducing wear and tear on equipment.

This maintenance may include cleaning of ditches and culverts, grading to eliminate potholes, wash boarding and to improve surface drainage, daylighting to assist in melting of ice and snow and drying of the surface, and mowing road shoulders to improve visibility and safety.

4.1.7 Logging Worker Safety

Safety on all logging operations is regulated by the Oregon Occupational Safety and Health Administration for all employees.

- OAR Chapter 437, Division 7 covers forest activities. This division has guide books related to all aspects of these logging operations.
- A logging safety plan will be required for each operator as per OAR Chapter 437, Division 7.
- Where the corridor crosses electrical distribution or transmission facilities of other utilities, these operations need to be in compliance with regulations related to working

around electrical lines. These regulations are addressed in the following code: OAR 436-007-0230 and OSHA 1910.266 and 1910.269.

4.1.8 Erosion Control

The highest potential for erosion from these operations is from the roads. Road construction and maintenance is regulated by Oregon Forest Practices regulations (OAR Chapter 629, Division 625) or the USFS. The greatest potential for erosion outside of the roads is on landings. Properly managed logging jobs have low potential soil erosion outside of the roads and landings.

4.2 Efforts to Minimize and Mitigate Impacts to Forested Lands During Operation of the Project

During operation of the Project, IPC expects to access the forest portion of the Project infrequently, approximately once a year for routine inspection and maintenance. IPC will perform vegetation maintenance as needed and will ensure removal of danger trees. Upon request by a timber harvest operator adjacent to the Project, IPC will provide timber harvesting assistance for removal of trees on the edge of the right of way within the minimum approach distances for non-qualified electrical workers. IPC will use gates to minimize the risk of unauthorized access to access roads in forested lands (see Exhibit B, Attachment B-5, Section 2.3 Access Control).

5.0 HELICOPTOR USE IN THE PROJECT FORESTRY OPERATIONS

The topography in the Forested Lands Analysis Area is flat to gently rolling with short sections of slopes up to 70 percent. Ground-based timber harvesting systems are expected to be used for the entire operations including shovel, tracked and rubber-tired skidders, and cable yarding (on the slopes greater than 30 percent). No helicopter logging is anticipated.

If any helicopter use is required, then the landings will all be within the logged corridor, and the helicopters will operate from the "light duty fly yards" planned for use during line construction. The forest cover type analysis includes all of the light duty fly yards.

The use of helicopters whether for logging or line construction will have no impacts to the forestry or rangeland use on the lands adjacent to the Project in the short or long term. No ROW maintenance operations will utilize helicopters after the initial construction is complete. Helicopters will be used annually for patrols of the line.

6.0 FOREST ZONES CONDITIONAL USE CRITERIA

Under OAR 660-006-0025(4)(q), a "new electric transmission line with right of way widths of up to 100 feet as specified in ORS 772.210" is a "conditional use," meaning a use allowed on Goal 4 forest lands subject to certain conditions. The Project's compliance with the three conditional use siting criteria for forest lands provided in OAR 660-006-0025(5) is discussed below.

OAR 660-006-0025(5): A use authorized by section (4) of this rule may be allowed provided the following requirements or their equivalent are met. These requirements are designed to make the use compatible with forest operations and agriculture and to conserve values found on forest lands: (a) The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands;

The Agricultural Lands Assessment, Attachment K-1, analyzes in detail the accepted farm practices in the area surrounding the Project and the potential impacts of the Project on the

same. Within the forested portion of the Project, the agricultural uses of the land are almost exclusively range uses. Only a very small area of managed pasture exists on one ownership, and no tilled cropland occurs. Potential impacts of the Project on farming practices include temporary (construction) and permanent (operational) disturbances, as well as the indirect impacts associated with these disturbances and the type of agricultural use disturbed. Indirect impacts may include changes in the pattern of land use, population density, or growth rate, and the related effects of those changes on agriculture. IPC will take certain minimization and mitigation actions to address potential impacts to agriculture, including but not limited to restoring land to its former condition, compensating landowners for damages and/or impacts to agricultural operations caused as a result of Project construction, micro-siting the towers to avoid agricultural areas, instituting weed control measures, preventing soil erosion, and other measures (see Attachment K-1, Section 7.3). The Project, taking into account measures to minimize or mitigate impacts, will not force a significant change in, or significantly increase the cost of, accepted farming practices in the areas surrounding the Project in forest lands.

Potential impacts to existing forestry practices resulting from the logging operations for the new transmission corridor and associated with permanent removal of trees from the ROW include: land on the corridor may need to be converted from forestry to agriculture; future timber harvesting operations of trees within a tree length of the power line will have a higher risk factor; there may be some loss in tree volume along the new edges of the power line corridor; the risk of wildfire may be increased; new roads may allow access to more area for authorized and unauthorized users of the land.

In some areas, the transmission line will separate blocks of forestland, which has the potential to impact access or the ability of landowners to perform forest practices. Where possible, IPC has attempted to locate the transmission line corridor along the boundaries of parcels to minimize fragmentation. Additionally, IPC will consult with landowners regarding micrositing and will consider landowner input to the extent practicable, thus further reducing impacts. In some cases, landowner access may be improved through IPC's improvements to roads or development of new access roads.

Future timber harvesting operations of trees in the immediate vicinity of the transmission line (and particularly within a site potential tree length (150 feet) of the transmission line) may present greater risk in harvest activities, and in such circumstances, IPC may need to provide timber harvesting assistance for removal of trees. In such cases, IPC will work with landowners to ensure safe tree removal along the ROW.

To further address potential impacts to forestry practices on surrounding lands, IPC will implement certain minimization and mitigation measures, such as seasonal access restrictions; wildlife habitat restrictions; riparian area protections; herbicide best management practices; fire protection; and erosion control. The Project, taking into account measures to minimize or mitigate impacts, will not force a significant change in, or significantly increase the cost of, accepted forestry practices in the areas the Project in forest lands.

OAR 660-006-0025(5)(b): The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel; and

IPC plans to design, construct, and operate the Project to minimize the risks of fire hazard.

During design IPC will comply with design codes that prevent fire hazards including Public Utility Commission of Oregon (OPUC) Construction Standards, the National Electric Safety Code requirements pertaining to the prevention of fire hazards related to outdoor public utility

installations and the National Fire Protection Association Uniform Fire Code Handbook guidance related to the clearance of brush and vegetative growth in and around transmission lines.

During construction, IPC and its contractor will maintain an active program of worker training, strict requirements for smoking, equipment standards, fueling, road management, assistance in fire-fighting, and following restricted operations during high risk periods.

During operation of the Project, IPC will maintain coordination with the ODF and USFS for state and federal lands, respectively, and local fire protection agencies. Routine maintenance of roads and ROWs in forested areas will reduce the risk that combustible materials could come into contact with the conductors and ignite a fire. Transmission line protection and control systems will be incorporated into the system and are designed to detect faults (such as arcing from debris contacting the line) and will rapidly shut off power flow (in 1/60th to 3/60th of a second) if arcing is detected.

Accordingly, the Project will not significantly increase fire suppression costs or significantly increase risks to fire personnel and this criterion is met.

OAR 660-006-0025(5)(c): A written statement recorded with the deed or written contract with the county or its equivalent is obtained from the land owner that recognizes the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in subsections (4)(e), (m), (s), (t) and (w) of this rule.

This subsection is not applicable to the Project as a use authorized under subsection (4)(q) (new electrical transmission line). Rather, OAR 660-006-0025(5)(c) applies only to uses authorized under subsections (4)(e) (private parks and campgrounds), (m) (reservoirs and water impoundments), (s) (home occupations), (t) (hardship dwellings) and (w) (private fishing accommodations) of this rule.

7.0 COUNTY COSTS OF THE PROJECT WITHIN THE FORESTED LANDS ANALYSIS AREA

Forest lands in Umatilla County cover 715,000 acres (35%) of the 2,058,00 land base (Oregon Forest Resources Institute 2013). Conversion of 245.6 acres of forestland to agriculture or range, removes only 0.0034 percent of this land base, which will not be lost but will still be productive for agricultural and range use. The economic impact to forest sector jobs in Umatilla County is approximately \$120,000, again partially offset by agriculture or rangeland uses after the conversion.

Union County has 899,000 acres (69%) of forest land out of a total land area of 1,303,000 acres. Conversion of 530.1 acres to agriculture or range is a loss of 0.00059 percent of the forest land base, but again, the lands will still have value and be productive as agriculture or range lands. The economic impact to forest sector jobs in Union County is approximately \$97,000, which will be partially offset by agriculture or range land uses after the conversion.

8.0 CONCLUSIONS

The Forested Lands Analysis Area includes approximately 1,249 acres of forest and range lands; however, the forested acreage subject to permanent impact by conversion is substantially less (approximately 776 acres). Based on the results of the forested lands survey and analysis of the potential impacts and efforts to minimize and mitigate for project impacts, the Project will

not cause (1) a substantial change in accepted forest or farm practices; or (2) a significant increase in the cost of accepted forest or farm practices on either lands to be directly impacted by the Project or on surrounding lands devoted to farm use.

9.0 REFERENCES

Best Management Practices - Integrated Vegetation Management, International Society of Arboriculture, Champaign, IL (2d. Ed. 2014).

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