



SUZANNE PRINSEN
Direct (503) 595-3927
suzanne@mrg-law.com

April 7, 2023

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Filing Center
P.O. Box 1088
201 High Street S.E., Suite 100
Salem, OR 97308-1088

Re: Docket No. PCN 5 – In the Matter of Idaho Power Company’s Petition for Certificate of Public Convenience and Necessity.

Attention Filing Center:

Attached for filing in the above-referenced docket is Idaho Power Company's Surrebuttal Testimony and Exhibits of Michael Ottenlips (Idaho Power/2400-2403).

Please contact this office with any questions.

Thank you,

Suzanne Prinsen
Legal Assistant

Attachments

DOCKET PCN 5 - CERTIFICATE OF SERVICE

I hereby certify that on April 7, 2023 Idaho Power Company's Surrebuttal Testimony of Michael Ottenlips was served by USPS First Class Mail and Copy Center to said person(s) at his or her last-known address(es) as indicated below:

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La Grande, OR 97850
(541) 663-0725
copiespluslg@yahoo.com

DATED: April 7, 2023

/s/ Suzanne Prinsen

Suzanne Prinsen
Legal Assistant

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

DOCKET PCN 5

In the Matter of)
)
IDAHO POWER COMPANY'S)
)
PETITION FOR A CERTIFICATE OF)
PUBLIC CONVENIENCE AND)
NECESSITY.)
_____)

**IDAHO POWER COMPANY
SURREBUTTAL TESTIMONY
OF
MICHAEL OTTENLIPS**

APRIL 7, 2023

Exhibit List

- Idaho Power/2401, Excerpts from Exhibit P1 of the ASC
- Idaho Power/2402, Excerpts from Exhibit P2 of the ASC
- Idaho Power/2403, Excerpts from Exhibit P3 of the ASC

1 **Q. Please state your name and business address.**

2 A. My name is Michael Ottenlips. My employer is Tetra Tech, and my business address is
3 3380 Americana Terrace, Suite 201 Boise, ID 83706.

4 **Q. Are you the same Michael Ottenlips that previously filed Reply Testimony in this**
5 **matter?**

6 A. Yes.

7 **Q. What is the scope and purpose of your Surrebuttal Testimony?**

8 A. In this testimony, I will respond to assertions raised in the rebuttal testimonies of Susan
9 Geer and Michael McAllister relating to Idaho Power Company's ("Idaho Power" or the
10 "Company") surveys of the Boardman to Hemingway Transmission Line Project ("B2H" or
11 "Project") site in Union County, particularly focusing on habitat surveys and the biological
12 surveys for rare species.

13 **Q. Have you previously testified on the topic of Idaho Power's surveys of Project**
14 **routes in Union County?**

15 A. Yes. In my Reply Testimony, I discussed Idaho Power's intensive surveys of the route
16 segment in Union County for which the Company seeks a certificate of public convenience
17 and necessity—the Morgan Lake Alternative.¹ I also discussed a desktop survey that I
18 conducted of an alternative route that Idaho Power has not proposed, the Glass Hill
19 Alternative.²

20 **Q. Please summarize your testimony.**

21 A. In their rebuttal testimonies, Ms. Geer and Mr. McAllister take issue with several
22 statements I made in my Reply Testimony regarding surveys of the route options in Union
23 County. I address in this Surrebuttal Testimony several of the challenges that the

¹ Reply Testimony and Exhibits of Michael Ottenlips (Idaho Power/1200, Ottenlips/6-11) (Feb. 21, 2023).

² Idaho Power/1200, Ottenlips/10-11.

1 intervenors raise regarding Idaho Power's surveys of the Morgan Lake Alternative and the
2 desktop survey of the Glass Hill Alternative, with particular focus on the surveys of the
3 segments of the Project near Twin Lake and Winn Meadow.

4 I. INDIRECT IMPACTS

5 **Q. What issues did Ms. Geer and Mr. McAllister raise regarding indirect impacts?**

6 A. Ms. Geer and Mr. McAllister assert that the desktop surveys I conducted did not
7 adequately consider indirect impacts outside the site boundary.³

8 **Q. What is a direct impact in comparison with an indirect impact?**

9 A. As described in Exhibit P-1 of Idaho Power's Energy Facility Siting Council ("EFSC" or
10 "Council") Application for Site Certificate ("ASC"), direct impacts in relation to fish and
11 wildlife habitat are defined as the impacts that will have an adverse effect upon species
12 habitat or individuals, and that will occur at the same, or in close proximity to, time and
13 place.⁴ Direct impacts may be permanent or temporary.⁵ Indirect impacts are defined as
14 the impacts that will have an adverse effect upon fish and wildlife habitat or individuals,
15 and that will occur later in time or in a different place than the Project activities.⁶ Indirect
16 impacts may be permanent or temporary.⁷ Permanent impacts will exist for the entire life
17 of the Project.⁸ Temporary impacts are those impacts that will last for a time less than the
18 life of the Project.⁹

19 **Q. Did Idaho Power analyze both direct and indirect impacts to habitat in the ASC?**

20 A. Yes. Direct and indirect impacts were analyzed in Exhibit P1 of the ASC,¹⁰ as well as

³ Rebuttal Testimony and Exhibits of Susan Geer (Susan Geer/200, Geer/5) (Mar. 20, 2023); Susan Geer/200, Geer/21.

⁴ Idaho Power/2401, Ottenlips/13 (Excerpts from Exhibit P1 of the ASC).

⁵ Idaho Power/2401, Ottenlips/13.

⁶ Idaho Power/2401, Ottenlips/29.

⁷ Idaho Power/2401, Ottenlips/29.

⁸ Idaho Power/2401, Ottenlips/29.

⁹ Idaho Power/2401, Ottenlips/29.

¹⁰ See generally Idaho Power/2401, Ottenlips/7-55.

1 Exhibit P2 (sage-grouse habitat)¹¹ and Exhibit P3 (elk habitat).¹²

2 **Q. What is the site boundary for B2H?**

3 A. The site boundary is defined as “the perimeter of the site of a proposed energy facility, its
4 related or supporting facilities, all temporary laydown and staging areas and all corridors
5 and micro-siting corridors proposed by the applicant.”¹³ A detailed description of the site
6 boundary and construction disturbance area is provided in the Final Order, pages 52 to
7 56, but in brief, the B2H site boundary encompasses the following facilities in Oregon: the
8 500 kilovolt transmission line right-of-way, proposed 20-acre switching station (Longhorn),
9 communication station sites of less than ¼-acre each; permanent access roads for the
10 Proposed Route, including new roads and existing roads requiring substantial
11 modification, and multi-use areas and pulling and tensioning sites of which four will have
12 light-duty fly yards within the pulling and tensioning sites.¹⁴

13 **Q. Is there any additional context you would like to provide regarding why your
14 testimony would not have addressed indirect impacts outside the site boundary?**

15 A. Yes. The scope of my testimony was limited to a discussion of the habitats identified in
16 Idaho Power’s surveys of the area within the site boundary for the Project, as well as a
17 desktop comparison of the three primary routes proposed in Union County. As it relates
18 to Idaho Power’s surveys, the scope of those surveys was defined by the EFSC analysis
19 area, and for the Fish and Wildlife Habitat Standard the analysis area was limited to the
20 area within the site boundary.¹⁵ Accordingly, Idaho Power did not specifically survey

¹¹ See generally Idaho Power/2402 (Excerpts from Exhibit P2 of the ASC).

¹² See generally Idaho Power/2403 (Excerpts from Exhibit P3 of the ASC).

¹³ OAR 345-001-0010(31)

¹⁴ Idaho Power/2401, Ottenlips/2-3.

¹⁵ Idaho Power’s Supplement to Petition for CPCN, Attachment 1 (Final Order) at 348 of 10603 (Oct. 7, 2022) [hereinafter, "Final Order"].

1 outside the site boundary unless directed to by EFSC (for example, raptor nest surveys
2 extended beyond the site boundary).¹⁶

3 **Q. Did EFSC review Idaho Power’s analysis of direct and indirect habitat impacts in its**
4 **review of the Company’s ASC?**

5 A. Yes. It is my understanding that EFSC considered Idaho Power’s analysis of direct and
6 indirect impacts to fish and wildlife species, including the specific analyses for sage grouse
7 and elk, and concluded that Idaho Power had demonstrated compliance with EFSC’s Fish
8 and Wildlife Habitat Standard.¹⁷

9 **II. TESTIMONY REGARDING TWIN LAKE**

10 **Q. What is Twin Lake?**

11 A. Twin Lake is a small lake located entirely within the boundaries of Morgan Lake Park.

12 **Q. Ms. Geer asserts that your testimony describing surveys of Twin Lakes is**
13 **“misleading” because you stated that no Project component is located within**
14 **Morgan Lake Park.¹⁸ How do you respond?**

15 A. Ms. Geer is incorrect. As I previously explained, no Project component and no portion of
16 the Project site is located within Morgan Lake Park.¹⁹

17 **Q. On what basis does Ms. Geer suggest that the Project is sited within Morgan Lake**
18 **Park?**

19 A. Ms. Geer testifies that she “observed survey markers” within Morgan Lake Park.²⁰
20 Ms. Geer suggests that Idaho Power was “confused, because there is a fence line cutting
21 diagonally across this corner of the park” but the fence “is not the property line.”²¹

¹⁶ Idaho Power/2401, Ottenlips/4.

¹⁷ Final Order at 371, 409 of 10603.

¹⁸ Susan Geer/200, Geer/5.

¹⁹ Final Order at 42 of 10603.

²⁰ Susan Geer/200, Geer/5.

²¹ Susan Geer/200, Geer/5.

1 **Q. Ms. Geer suggests that Idaho Power’s surveyors were “confused” by a fence line**
2 **cutting across the park that is inside the park boundary.²² Did Idaho Power rely on**
3 **fence lines to demarcate property boundaries in its surveys?**

4 A. No, Idaho Power did not. Idaho Power was surveying the Project site, not the property
5 boundaries. Surveyors used GPS equipment in their surveys to identify the Project site
6 and would not have relied on fences to identify the Project’s site boundary or the property
7 boundaries in the area surveyed.

8 **Q. Ms. Geer also suggests that you inappropriately limited your testimony to**
9 **discussion of direct impacts to Twin Lake.²³ How do you respond?**

10 A. As described above, consistent with the EFSC requirements, Idaho Power surveyed the
11 entire area within the site boundary to identify potential habitat impacts.²⁴ To the extent
12 Ms. Geer suggests that Idaho Power must also survey for indirect wildlife impacts, I am
13 not an attorney but this would appear to be a legal issue. My understanding is that Idaho
14 Power will address legal issues in its post-hearing brief.

15 **Q. Ms. Geer asserts that, even if the Project is located outside Morgan Lake Park, the**
16 **Project may impact Twin Lake because the hillside near where the Project is**
17 **proposed is “steep” and “is wet, with a spring emerging.”²⁵ Has Idaho Power**
18 **assessed potential impacts to wetland and non-wetland water features within the**
19 **site boundary for the Project in this area?**

20 A. Yes. My understanding is that Idaho Power analyzed wetland and non-wetland water
21 features identified within the analysis area during the EFSC process based on a
22 combination of survey and desktop data, and EFSC included several conditions in the Site

²² Susan Geer/200, Geer/5.

²³ Susan Geer/200, Geer/5.

²⁴ Final Order at 348 of 10603 (“The analysis area for the Fish and Wildlife Habitat standard includes all areas within the site boundary[.]”).

²⁵ Susan Geer/200, Geer/5.

1 Certificate ensuring that Idaho Power complete needed surveys for these features and
2 provide mitigation for any impacts.²⁶ Specifically, due to access limitations, the Final Order
3 contemplates that Idaho Power will complete wetlands surveys prior to constructing a
4 phase or segment of the Project. In the Final Order, the Council stated:

5 As discussed in Section III.D., Survey Data Based on Final Design
6 and Site Access, the Council's review process requires several
7 types of survey data, including wetland delineation report
8 information. This information is typically provided to the Department
9 based on field surveys conducted once site access is granted and
10 upon final design. As noted at the beginning of this section, the
11 applicant explains the phased approach to collect and submit the
12 additional survey data to the Department and the Oregon
13 Department of State Lands (DSL). To ensure that additional
14 wetland delineation reports are submitted to the Department and to
15 DSL prior to any construction activities on any unsurveyed parcels
16 within the site boundary the Council adopts the below condition.
17 Removal-Fill Condition 1 also includes stipulations to ensure that,
18 prior to construction, the Department receives a copy of the DSL
19 Letter of Concurrence associated with the wetland delineation
20 reports submitted by the applicant for a phase or segment of the
21 facility.²⁷

22 The Removal-Fill Condition 1 referenced above provides that Idaho Power will complete
23 surveys and obtain concurrence from DSL before constructing any segment or phase of
24 the Project:

25 Removal-Fill Condition 1: The certificate holder shall:

26 a. Prior to construction of a phase or segment of the facility, submit
27 updated electronic wetland delineation report(s) to the Department
28 and to the Oregon Department of State Lands. All wetland
29 delineation report(s) submitted to the Oregon Department of State
30 Lands shall follow its submission and review procedures.

31 b. Prior to construction of a phase or segment of the facility, the
32 Department must receive a Letter of Concurrence issued by the
33 Oregon Department of State Lands referencing the applicable
34 wetland delineation for the phase or segment of the facility.

²⁶ Final Order at 708-715 of 10603.

²⁷ Final Order at 710-711 of 10603.

1 **Q. Based on these commitments, did the Council conclude that the Project would**
2 **comply with applicable law governing removal and fill activities in wetlands?**

3 A. While I am not a lawyer, it is my understanding that EFSC concluded that—taking into
4 account the condition described above and other related conditions and mitigation—the
5 Project would comply with Oregon’s laws governing removal or fill of wetlands, and that
6 the DSL should issue a removal-fill permit for the Project.²⁸

7 **Q. Ms. Geer also testifies that Morgan Lake Park provides habitat for Columbia spotted**
8 **frog and sandhill crane.²⁹ Did Idaho Power survey for these species?**

9 A. While I did not personally survey for those species, my understanding is that Idaho
10 Power’s contractor, Tetra Tech conducted surveys for sandhill cranes and Columbia
11 spotted frog because both are state-sensitive species.³⁰ No Columbia spotted frogs were
12 identified in those surveys—however, it bears noting that Idaho Power’s surveys would
13 not have included the habitat *within* Morgan Lake Park because the site boundary for the
14 Project does not overlap with Morgan Lake Park.³¹ Additionally, while I did not survey for
15 sandhill cranes, my understanding is that sandhill cranes were identified in Idaho Power’s
16 baseline habitat surveys.³²

17 **Q. Are you aware of any site certificate conditions addressing sandhill cranes?**

18 A. While not specific to sandhill cranes, my understanding is that Idaho Power’s Site
19 Certificate will require the Company to implement an Avian Protection Plan as part of
20 EFSC’s Fish and Wildlife Condition 10. This condition requires consultation with ODFW
21 (and potentially adaptive management) in the event of identification of avian mortalities
22 causally linked to the Project, as described below:

²⁸ Final Order at 729 of 10603.

²⁹ Susan Geer/200, Geer/5.

³⁰ Idaho Power/2401, Ottenlips/4, 6.

³¹ Final Order at 384 of 10603.

³² Idaho Power/2401, Ottenlips/4.

1 **Fish and Wildlife Condition 10:** The certificate holder shall
2 construct the transmission line to avian-safe design standards,
3 consistent with the certificate holder's Avian Protection Plan (Idaho
4 Power 2015) as provided in Attachment P1-9 of the Final Order on
5 the ASC. Within 30 days of identification of avian fatalities within the
6 site boundary, where predicted causal factor is electrocution or
7 collision, the certificate holder shall report the species name and
8 location identified (Milepost) and shall consult with ODFW and the
9 Department on retrofit technologies or other adaptive management
10 strategy to minimize fatality risk.³³

11 **III. TESTIMONY REGARDING WINN MEADOW**

12 **Q. Ms. Geer also responds to your Reply Testimony regarding Winn Meadow.³⁴ What**
13 **concerns does Ms. Geer raise?**

14 A. Ms. Geer testifies that Winn Meadow extends beyond the National Wetland Inventory
15 ("NWI")-mapped wetlands, and for that reason a desktop analysis of the NWI-mapped
16 feature does not adequately assess the habitat located there.

17 **Q. As background, why did you discuss the NWI-mapped feature in Winn Meadow?**

18 A. As I explained in my Reply Testimony, the Project route "passes near Winn Meadow" and
19 no Project component is located within the NWI-mapped wetland feature at Winn
20 Meadow.³⁵

21 **Q. On what basis does Ms. Geer assert that the Project will impact Winn Meadow?**

22 A. Ms. Geer testifies that obligate wetland plants extend beyond the mapped feature, and
23 therefore the wetland itself also extends beyond the mapped feature.³⁶

24 **Q. Please provide an explanation of the location of the Project relative to Winn**
25 **Meadow.**

³³ Final Order at 376 of 10603.

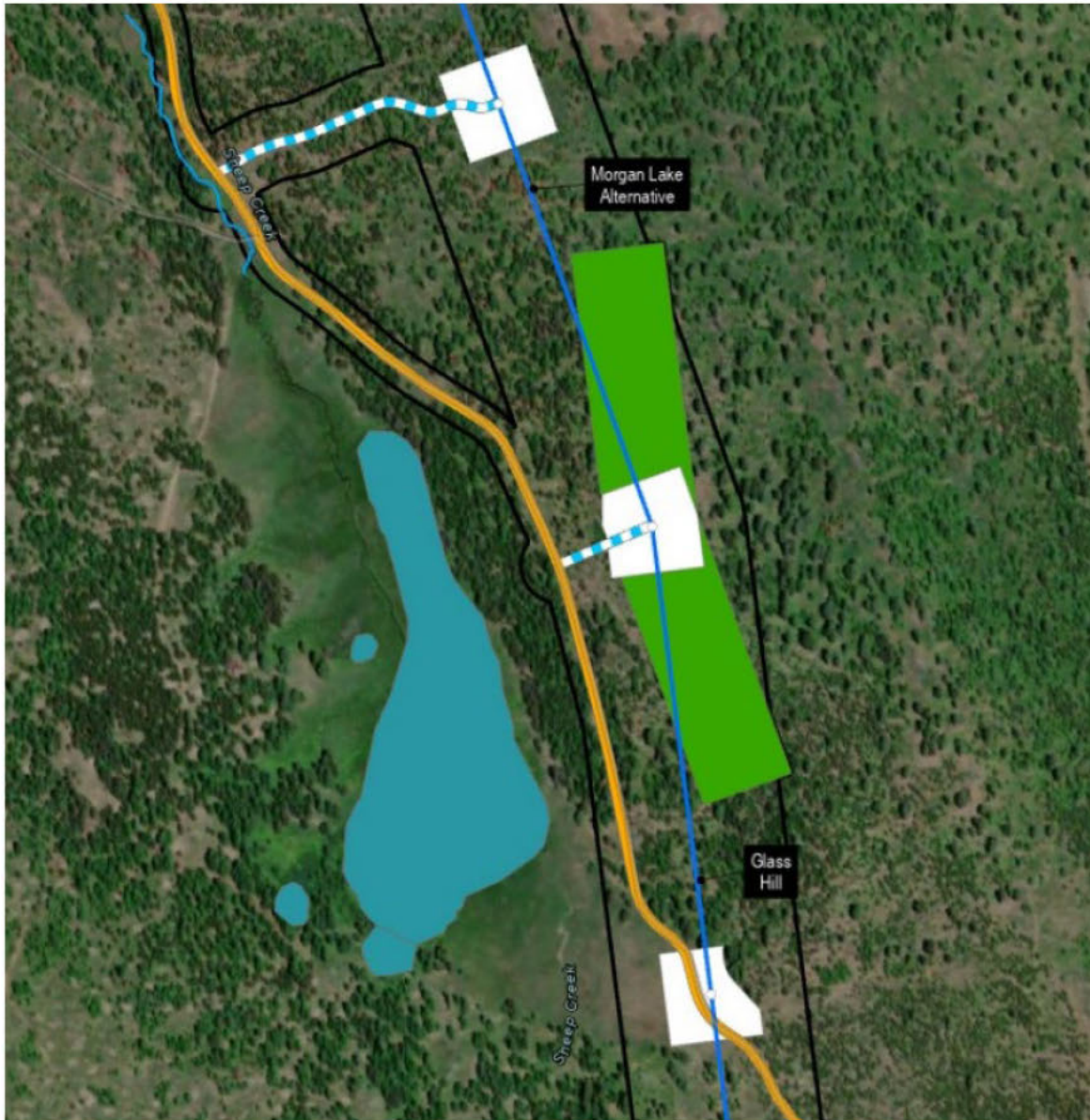
³⁴ Susan Geer/200, Geer/6.

³⁵ Idaho Power/1400, Ottenlips/7.

³⁶ Susan Geer/200, Geer/6.

- 1 A. The Project features near Winn Meadow include transmission towers, an existing road,
2 and new roads. These features can be seen in Figure 1 below, which was also included
3 in my Reply Testimony.

Figure 1. Project Features in Proximity to Winn Meadow/NWI Delineated Wetland



- 4 In Figure 1, the transmission structure work areas are shown in white, the existing road is
5 in orange, and the new roads necessary for the Project are shown in blue and white
6 stripes.

1 **Q. Are wetland indicative plants present near the Project features near Winn Meadow?**

2 A. As shown in Figure 1, the transmission structures are located upland from Winn Meadow,
3 and the plants located within the route for the transmission line are generally indicative of
4 a drier biome. Figure 2 below is a photograph of the vegetation at the location of the
5 transmission structure closest to Winn Meadow. No wetland indicative plants were
6 identified within the segment of the transmission line corridor near Winn Meadow.

Figure 2. Vegetation Near Transmission Structure Closest to Winn Meadow



7 However, an existing road that Idaho Power proposes to substantially improve as part of
8 the Project parallels Sheep Creek, an intermittent stream that drains into Winn Meadow.
9 It is possible that some wetland plants may be present within the channel of Sheep Creek.
10 A photograph of the segment of Sheep Creek near the existing road is included below as
11 Figure 3.

Figure 3. Channel of Sheep Creek within Site Boundary



1 **Q. Does the presence of wetland-indicative plants suggest that these areas may**
2 **include wetlands?**

3 A. I am not a wetlands expert, and am not providing an opinion on the geographic extent of
4 Winn Meadow as part of my Surrebuttal Testimony.

5 **Q. Even assuming for the sake of argument that there may be some additional wetland**
6 **areas beyond the NWI-mapped wetland, would this impact compliance with**
7 **Oregon’s removal-fill laws?**

8 A. No, it is my understanding that it would not. As I said above, although I am not a lawyer,
9 the Final Order explains that wetland features within the Project site were analyzed in the
10 EFSC proceedings—or will be analyzed through additional surveys—and based on that

1 analysis and mitigation commitments, EFSC concluded the Project would comply with
2 Oregon's laws governing removal or fill of wetlands and non-wetland water features.³⁷

3 **Q. Ms. Geer also testifies that the property surrounding Winn Meadow, the Rice Glass**
4 **Hill Natural Area, may provide habitat for Douglas clover, white-headed**
5 **woodpecker, and Columbia spotted frog.³⁸ Did Idaho Power survey for these**
6 **species?**

7 A. I am not aware of any surveys for Douglas clover, because I do not know of any applicable
8 EFSC standard that would require an applicant to identify that species. However, my
9 understanding is that Idaho Power surveyed for white-headed woodpecker and Columbia
10 spotted frog in its baseline habitat surveys.³⁹ As I discussed above, Idaho Power did not
11 identify Columbia spotted frogs in those surveys.⁴⁰ Similarly, Idaho Power did not observe
12 any White-headed woodpecker in its baseline habitat surveys either.⁴¹

13 **Q. Ms. Geer's expert witness, Mr. McAllister, testifies that your surveys "consisted of**
14 **searching for noxious weeds and federally listed plant species only in the Project**
15 **boundary" and did not consider "plant community types and their relative**
16 **ecological rarity or value."⁴² Is Mr. McAllister's statement accurate?**

17 A. No. We also surveyed for state-listed plant species, as EFSC requires. However,
18 Mr. McAllister is correct that, consistent with EFSC's standard, Idaho Power surveyed the
19 area within the site boundary for the Project.⁴³

20 **Q. Does this conclude your testimony?**

21 A. Yes, it does.

³⁷ Final Order at 729 of 10603.

³⁸ Susan Geer/200, Geer/14.

³⁹ Idaho Power/2401, Ottenlips/5-6.

⁴⁰ Final Order at 384 of 10603.

⁴¹ Idaho Power/2401, Ottenlips/5.

⁴² Susan Geer/200, Geer/23.

⁴³ Final Order at 348 of 10603.

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Surrebuttal Testimony of Michael Ottenlips

Exhibit 2401

Excerpts from Exhibit P1 of the ASC

April 7, 2023

Exhibit P1 Fish and Wildlife Habitat and Species

Boardman to Hemingway Transmission Line Project



1221 West Idaho Street
Boise, Idaho 83702

Mark Stokes, Project Leader
(208) 388-2483
mstokes@idahopower.com

Zach Funkhouser, Permitting
(208) 388-5375
zfunkhouser@idahopower.com

Application for Site Certificate

September 2018

survey. Surveys must be performed by qualified survey personnel during the season or seasons appropriate to the detection of the species in question. The applicant must also include in Exhibit P its habitat categorization and tables depicting the estimated temporary and permanent impacts, broken down by habitat categories.

If particular fish and/or wildlife habitat or state sensitive species are identified within the analysis area that could be adversely affected as a result of the proposed facility, the applicant shall include description of the nature, extent and duration of potential adverse impacts and a description of any proposed mitigation measures. Fish and Wildlife Habitat Mitigation Policy (OAR Chapter 635, Division 415) classifies six habitat categories and establishes a mitigation goal for each category. The applicant for a site certificate must identify the appropriate habitat category for all areas affected by the proposed facility and provide the basis for each category designation, subject to ODFW review. The applicant must show how it would comply with the habitat mitigation goals and standards by appropriate monitoring and mitigation. ODFW rules OAR 635-140-0000 through 635-140-0025 are applicable to EFSC's review process in Oregon Sage-grouse habitat. The applicant shall apply ODFW identified sage-grouse core, low density, and general habitat. Development actions must be mitigated by the applicant for both direct and indirect adverse impacts to sage-grouse and their habitats. Pursuant to OAR 635-415-0025(7), the applicant is exempt from fulfilling the avoidance test contained in OAR 635-140-0025 Policy 2, subsections (a), (b), (c) and (d)(A).

As a result of the access timing issues for this proposed facility, it is recommended the applicant provide proposed site certificate conditions for the Council's consideration related to requirements for the applicant to complete all unfinished surveys within the project's site boundary prior to construction. The proposed site certificate conditions shall also address submittal requirements for reporting future survey results, adjustment of previously calculated impact areas (if necessary), and the applicant's proposed approach to document approval of final results by agencies or the Council prior to commencing construction activities.

(Second Amended Project Order, Section III(p)).

3.0 ANALYSIS

3.1 Analysis Area

The analysis area for Exhibit P1 includes all areas within the Site Boundary, which is defined as "the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas, and all corridors and micro-siting corridors proposed by the applicant" (OAR 345-001-0010(55)). The Site Boundary encompasses the following facilities in Oregon:

- The Proposed Route, consisting of 270.8 miles of new 500-kilovolt (kV) electric 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;
- Four alternatives that each could replace a portion of the Proposed Route, including the West of Bombing Range Road Alternative 1 (3.7 miles), West of Bombing Range Road Alternative 2 (3.7 miles), Morgan Lake Alternative (18.5 miles), and Double Mountain Alternative (7.4 miles);
- One proposed 20-acre station (Longhorn Station);

- Ten communication station sites of less than ¼-acre each and two alternative communication station sites;
- Permanent access roads for the Proposed Route, including 206.3 miles of new roads and 223.2 miles of existing roads requiring substantial modification, and for the alternative routes including 30.2 miles of new roads and 22.7 miles of existing roads requiring substantial modification; and
- Thirty temporary multi-use areas and 299 pulling and tensioning sites of which four will have light-duty fly yards within the pulling and tensioning sites.

The Project features are fully described in Exhibit B and the Site Boundary for each Project feature is described in Exhibit C, Section 3.5, Table C-24. The location of the Project features and the Site Boundary is outlined in Exhibit C. Additionally, within the analysis area, IPC has identified existing roads requiring no substantial modification (not a related or supporting facility), including 38 miles for the Proposed Route and 5 miles for the alternative routes.

3.2 Surveys

OAR 345-021-0010(1)(p)(A): A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey.

This section discusses the biological field surveys performed for the Project. The Revised Final Biological Survey Work Plan (Attachment P1-2) contains the agency comments regarding the plan and survey protocols, as well as IPC's responses to these comments (i.e., describing how any concerns by the agencies were addressed).

After consultation with applicable federal and state agencies, IPC determined that field surveys and data collection for the Project would be conducted via a phased study approach, which utilized three phases (see Attachment P1-2).¹ During Phase 1 (i.e., the initial desktop review), IPC compiled existing biological information relevant to the analysis area. In Phase 2, IPC undertook comprehensive field survey efforts specific to the analysis area for the Project. Phase 3 surveys include preconstruction surveys and surveys of previously unsurveyed areas.

The term "special status species" used in this exhibit includes federally-listed and state-listed threatened and endangered (T&E) species as well as those species designated as sensitive by the Bureau of Land Management (BLM) and United States Forest Service (USFS), as well as the USFS Management Indicator Species, as defined in the Revised Final Biological Survey Work Plan (see Attachment P1-2). Although the focus of this Exhibit is State Sensitive Species and fish and wildlife habitats, special status species as defined above are occasionally referenced in this Exhibit as they relate to Project siting, biological surveys, and avoidance and minimization measures that also apply to State Sensitive Species and fish and wildlife habitats. State-listed T&E species are addressed in Exhibit Q.

A detailed description of the biological field surveys performed for the Project is provided in Section 3.2.4 below.

¹ The original dates of the phased survey effort proposed in the Revised Final Biological Survey Work Plan (i.e., Attachment P1-2) do not always directly correspond to the dates in which these surveys were actually conducted; many of the surveys outlined in the Revised Final Biological Survey Work Plan were conducted earlier (i.e., in an earlier year) than proposed in Attachment P1-2. See Table P1-1 for a list of dates in which surveys were completed.

Common Name Scientific Name	Oregon Status	Habitat Requirements	Found within the Analysis Area ¹	Likely Use of the Analysis Area / General Impacts
Ferruginous hawk <i>Buteo regalis</i>	SC (CP), S (BM, NBR)	High-desert sagebrush and bunchgrass prairies, canyon shrublands, desert playa, agricultural fields, and pastureland.	This species was identified during surveys in Morrow, Umatilla, Baker, and Malheur counties. Eleven historic records (1978-1986) within the analysis area in Malheur County. Five individuals were recorded within the analysis during surveys in Malheur County.	Confirmed presence within the analysis area. Disturbances during nesting.
American peregrine falcon <i>Falco peregrinus anatum</i>	S (NBR)	Various landscapes including mountains, river corridors, marshes, lakes, coastlines, and cities. In a natural setting, peregrines breed on cliffs, cut banks, and in trees.	No database records or survey observations.	Could potentially breed in analysis area. Disturbance during nesting.
Great gray owl <i>Strix nebulosa</i>	S (BM)	Deciduous or coniferous forests up to 9,000 feet elevation interspersed with bogs, muskets, or meadows that support rodent prey.	No database records. Three observations and no nests were observed during surveys in Union County.	Confirmed presence within the analysis area. Likely utilizes the analysis area year-round. Habitat loss through forest removal and fragmentation. Potential disturbances to nesting attempts in adjacent habitats.
Flammulated owl <i>Otus flammeolus</i>	S (BM)	Cool, dry, mid-elevation forests with limited understory and high densities of insect prey.	No database records. Seven observations and no nests were observed during surveys in Union County.	Confirmed presence within the analysis area. Likely utilizes the analysis area year-round. Habitat loss through forest removal and fragmentation. Potential disturbances to nesting attempts in adjacent habitats.
Western burrowing owl <i>Athene cunicularia hypugea</i>	S (NBR), SC (BM, CP)	Variety of arid and semiarid environments with well drained soils, level to gentle slopes, and short vegetation with a high percentage of bare ground.	Four ORBIC records from 1980-1992 (three in Malheur County and one in Morrow County). One GeoBOB record in Baker County. Nine individuals and two burrows recorded during surveys (four in Baker County and five in Malheur County).	Breeds in analysis area. Disturbances during nesting.
Common nighthawk <i>Chordeiles minor</i>	S (CP)	Habitat generalists; nest in open areas with little cover.	No database records. During field surveys, 47 individuals were recorded with observations in every county.	Confirmed presence within the analysis area. Disturbances during nesting.
Mountain quail <i>Oreortyx pictus</i>	S (NBR)	Shrublands 2,300–9,800 feet elevation, occasionally forests, woodlands, and riparian areas.	No database records or survey observations.	Could potentially be present in the analysis area year-round. Disturbances during nesting.
Long-billed curlew <i>Numenius americanus</i>	S (BM, NBR) SC (CP)	Short- and mixed-grass prairies with flat to rolling topography.	Two ORBIC records of individuals and nesting areas (Morrow and Union counties), including the Boardman Bombing Range where there were 300-400 nesting pairs estimated from 1995 to 1997. A total of 142 observations with one nest recorded during field surveys in Morrow, Umatilla and Malheur counties. Most of the survey records were within Malheur County (117 observations).	Breeds in analysis area. Disturbances during nesting.
Upland sandpiper <i>Bartamia longicauda</i>	SC (BM)	Obligate grassland species found in native prairies with little bare ground, 3,400–5,060 feet elevation.	No database records or survey observations.	Could potentially breed in analysis area. Disturbances during nesting.
American White Pelican <i>Pelecanus erythrorhynchos</i>	S (NBR)	Typically found near large bodies of water during the breeding season, such as the Columbia River and Malheur National Wildlife Refuge.	No database records. Eleven individuals observed during surveys in Malheur County.	Confirmed presence within the analysis area. The analysis area does not contain breeding habitat; however, this species may cross through the analysis area during long migratory flights.
Greater sandhill crane <i>Antigone Canadensis tabida</i>	S (NBR)	Open prairies, grasslands, and wetlands. Outside of the breeding season, they often roost in deeper water of ponds or lakes. Migrating and wintering individuals often forage in agricultural fields, especially stubble or disked fields where grain crops have been harvested.	No database records. Five individuals observed during surveys in Union County.	Confirmed presence within the analysis area. Could potentially breed in or travel through analysis area. Habitat loss and disturbances during nesting and migration could result in displacement and nest failure, and transmission lines could result in collisions.

Common Name Scientific Name	Oregon Status	Habitat Requirements	Found within the Analysis Area ¹	Likely Use of the Analysis Area / General Impacts
White-headed woodpecker <i>Picoides albolarvatus</i>	SC (BM)	Open ponderosa pine or mixed-conifer forests dominated by ponderosa pine and containing snags, sometimes in riparian wetlands.	No database records or survey observations.	Could potentially be present in the analysis area year-round. Removal of snags. Disturbances during nesting.
Lewis's woodpecker <i>Melanerpes lewis</i>	SC (BM, CP)	Open ponderosa pine woodlands, riparian areas dominated by cottonwood, or logged or burned pine forest.	Two ORBIC records within Baker and Union counties. Nine observations and one nest found during surveys (one in Union County and eight observations and a nest cavity in Baker County).	Breeds in analysis area. Disturbances during nesting.
American three-toed woodpecker <i>Picoides dorsalis</i>	S (BM)	Mature forests dominated by spruce (<i>Picea</i> spp.), fir, and lodgepole pine, often recently burned.	No database records. Four survey observations, but no nests found during surveys (Union County).	Found in the analysis area year-round. Removal of snags. Disturbances during nesting.
Black-backed woodpecker <i>Picoides arcticus</i>	S (BM)	Boreal and montane coniferous forests, recently burned and containing many dead trees.	No database records. Three observations, but no nests found during surveys in Union County.	Found in the analysis area year-round. Removal of snags. Disturbances during nesting.
Pileated woodpecker <i>Dryocopus pileatus</i>	S (BM)	Dense, mature mixed-conifer forests with large-diameter trees, snags, and logs for nesting and foraging.	No database records. 20 observations, but no nests found during surveys (2 in Umatilla County, 16 in Union County, and 1 in Baker County).	Found in the analysis area year-round. Removal of snags and downed wood. Disturbances during nesting.
Olive-sided flycatcher <i>Contopus cooperi</i>	S (BM)	Montane mixed-conifer forests interspersed with natural openings up to 7,000 feet elevation; require prominent perches for singing and flycatching.	No database records. 14 observations were recorded during surveys (three in Umatilla County and 11 in Union County).	Confirmed presence within the analysis area. Likely breeds in analysis area. Disturbances during nesting.
Willow flycatcher <i>Empidonax traillii</i>	S(NBR)	Moist, shrubby areas with standing or running water.	No database records. Five individuals were recorded during surveys (one in Umatilla, three in Union, and one in Baker counties).	Confirmed presence within the analysis area. Likely breeds in analysis area. Disturbances during nesting.
Loggerhead shrike <i>Lanius ludovicianus</i>	S (BM, CP)	Open areas with short vegetation and hunting perches, for example juniper-mountain mahogany woodlands, shrub-steppe, agricultural fields, and pastureland.	No database records. Twenty individuals were recorded during surveys (1 in Morrow County, 10 in Baker County, and 9 in Malheur County).	Confirmed presence within the analysis area. Likely breeds in analysis area. Disturbances during nesting.
Sagebrush sparrow <i>Artemisiospiza nevadensis</i>	SC (CP)	Big sagebrush and other shrub species 3–6 feet high with open areas in between.	No database records. Six individuals were recorded during surveys (one in Union, three in Baker, and two in Malheur counties).	Confirmed presence within the analysis area. Likely breeds in analysis area. Disturbances during nesting.
Grasshopper sparrow <i>Ammodramus savannarum perpallidus</i>	S (CP)	Moderately open, unfragmented grasslands with patches of bare ground, sometimes with light cover of shrubs.	One ORBIC record in Morrow County on the Boardman Bombing Range. A total of 159 individuals were recorded during surveys in Morrow, Umatilla, Union, Baker, and Malheur counties.	Confirmed presence within the analysis area. Likely breeds in analysis area. Disturbances during nesting.
Bobolink <i>Dolichonyx oryzivorus</i>	S (BM, NBR)	Historically tall- and mixed-grass prairie; today, also agricultural fields and pastureland.	1988 ORBIC record of a colony with 14 males in Union County. No observations during surveys.	Could potentially breed in analysis area. Disturbances during nesting.
Reptiles and Amphibians				
Northern sagebrush lizard <i>Sceloporus graciosus</i>	S (CP)	Big sagebrush and antelope bitterbrush with small perches such as rocks or logs, and burrows of other animals.	No database records. Nine individuals unidentifiable to subspecies were recorded during surveys (one in Baker County and eight in Malheur County).	Found in the analysis area year-round (hibernates during winter). Alterations to sagebrush habitats.
Western painted turtle <i>Chrysemys picta bellii</i>	SC (BM, CP)	Requires slow-moving and shallow water, including streams, canals, slough, small lakes, and ponds. Prefers water bodies with surface or emergent vegetation.	No database records or survey observations.	Could potentially be present in the analysis area year-round.
Western toad <i>Anaxyrus boreas</i>	S (BM, NBR)	Lakes, rivers, streams, and wetlands during breeding; variety of grassland, shrubland, woodland, and forests at other times of year.	No database records. Two individuals were recorded in Umatilla County during surveys.	Confirmed presence within the analysis area. Could potentially be present in the analysis area year-round (hibernates during winter). Alterations to wetland habitats or hydrology.
Rocky Mountain tailed frog <i>Ascaphus montanus</i>	S (BM)	Cold, rocky streams at 3,600–7,000 feet elevation.	No database records or survey observations.	Could potentially be present in the analysis area year-round.

Common Name Scientific Name	Oregon Status	Habitat Requirements	Found within the Analysis Area ¹	Likely Use of the Analysis Area / General Impacts
Columbia spotted frog <i>Rana luteiventris</i>	SC (BM, NBR)	Areas near bodies of slow-moving water including lakes, ponds, sluggish streams, and marshes.	No database records or survey observations.	Could potentially be present in the analysis area year-round. Alterations to wetland habitats or hydrology.
Fish				
Bull Trout <i>Salvelinus confluentus</i>	SC (BM)	During birth, rearing, and spawning: cold freshwater streams with abundant low silt pools and riffles, or lakes for rearing. Spawning migration: streams with free passage.	ORBIC record in the Grande Ronde River and its tributaries. Current literature states that this species does occur in streams or drainages within the analysis area.	Present in the analysis area year-round. Sedimentation, blockage of fish movement, and reduced riparian function.
Columbia Basin Rainbow Trout <i>Oncorhynchus mykiss / gairdneri</i> ³	S (BM), SC (BM CP)	Cool streams with clean, well oxygenated water.	Species present in streams within the analysis area (based on existing databases).	Present in the analysis area year-round. Sedimentation, blockage of fish movement, and reduced riparian function.
Middle Columbia River Summer Steelhead <i>Oncorhynchus mykiss</i>	SC (BM, CP)	During birth, rearing, and spawning: cool to cold freshwater streams with abundant low silt pools and riffles. Migration: streams with free passage. Adulthood: ocean.	ORBIC record in Birch Creek and its tributary, Stewart Creek, and in Meacham Creek and its tributaries, all of which are tributaries to the Umatilla River. Current literature states that this species does occur in streams or drainages within the analysis area.	Present in the analysis area. Sedimentation, blockage of fish movement, and reduced riparian function.
Lower Snake River Basin Summer Steelhead <i>Oncorhynchus mykiss</i>	S (BM)	During birth, rearing, and spawning: cool to cold freshwater streams with abundant low silt pools and riffles. Migration: streams with free passage. Adulthood: ocean.	ORBIC record in Ladd Creek, Rock Creek and its tributaries, Dry Creek and its tributaries, and Whiskey Creek, all of which are tributaries to the Grande Ronde River. Current literature states that this species does occur in streams or drainages within the analysis area.	Present in the analysis area. Sedimentation, blockage of fish movement, and reduced riparian function.
Pacific Lamprey <i>Entosphenus tridentata</i>	S (CP)	During birth, rearing, and spawning: freshwater streams. Migration: streams with free passage. Adulthood: ocean.	No database records or survey observations.	Could potentially be present in the analysis area year-round. Sedimentation, blockage of fish movement, and reduced riparian function.
Western Brook Lamprey <i>Lampetra richardsoni</i>	S (BM, CP)	Riffles and side channels for spawning, silty backwater habitats for rearing.	No database records or survey observations.	Could potentially be present in the analysis area year-round (dormant in stream substrate during winter). Sedimentation, blockage of fish movement, and reduced riparian function.

SC = State Sensitive Critical; S = State Sensitive ; BM = Blue Mountains; CP = Columbia Plateau; NBR = Northern Basin and Range

¹ Oregon Status from ODFW (2016).

² Based on results of Project-specific surveys, as well as the databases discussed in Section 3.2.1 (e.g., ORBIC data).

³ For clarity of distribution, the Columbia Basin rainbow trout and two summer steelhead Species Management Units were separated from the common name category of: "Steelhead – Summer/ Columbia Basin Rainbow Trout" from the designation in Oregon Status report (ODFW 2016).

3.5 Potential Impacts to Fish and Wildlife

OAR 345-021-0010(1)(p)(F): A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (B) and species identified in (D) that could result from construction, operation and retirement of the proposed facility.

3.5.1 Project Features within Fish and Wildlife Habitat

3.5.1.1 Category 1 Habitat

Raptor Nests

The Project will not destroy or remove any active raptor nests during the breeding season. If nest removal must occur for construction purposes, IPC will perform the removal outside of the breeding season. See Fish and Wildlife Condition 12 (Section 4.0) for species-specific raptor breeding seasons.

Washington Ground Squirrel Colonies

There is no Category 1 WAGS habitat within the analysis area based on the surveys performed to date. Final design of the Project will avoid all Category 1 WAGS habitat identified during pre-construction surveys. Exhibit Q contains Threatened and Endangered Species Condition 1, which ensures impacts to Category 1 WAGS habitat are avoided.

3.5.1.2 Category 2 Habitat

Table P1-6 identifies, for the Proposed Route and the alternative routes, the Project features that will occur in each of the Category 2 habitats with the exception of elk winter range, which is addressed in Exhibit P3.

Table P1-6. Project Features in Category 2 Habitat

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
Proposed Route						
Mule deer winter range	178.7	153.5	156.7 ¹	MUA BA-03 MUA BA-04 MUA BA-05 MUA BA-06 MUA MA-01 MUA MA-04 MUA MA-06 MUA MA-07 MUA MA-08 MUA MA-09 MUA MO-04 MUA MO-05 MUA UM-02 MUA UM-03	CS BA-01 CS BA-02 CS MA-03 CS UM-01 CS UN-01 CS UN-02	LDFY BA-01 LDFY MA-01 LDFY MA-02

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
				MUA UM-04 MUA UM-05 MUA UM-06 MUA UN-02 MUA UN-03		
Bighorn sheep herd range	0.9	0.8	0	None	None	None
WAGS potential use areas	3.4	1.0	0.5	None	None	None
Fish-bearing streams	0.2	0	0	MUA UM-02	None	None
Other habitat based on vegetation type	3.0	2.0	0	MUA BA-01 MUA UM-02	None	None
Morgan Lake Alternative						
Mule deer winter range	15.3	13.8	11.1 ¹	MUA UN-02	CS UN-02 ALT	None
Bighorn sheep herd range	0	0	0	None	None	None
WAGS potential use areas	0	0	0	None	None	None
Fish-bearing streams	0.03	0	0	None	None	None
Other habitat based on vegetation type	0.8	0.3	0	None	None	None
Double Mountain Alternative						
Mule deer winter range	0.2	0.8	0	MUA MA-06	None	None
Bighorn sheep herd range	0	0	0	None	None	None
WAGS potential use areas	0	0	0	None	None	None
Fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	0	0	0	None	None	None

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
West of Bombing Range Road Alternative 1						
Mule deer winter range	0	0	0	None	None	None
Bighorn sheep herd range	0	0	0	None	None	None
WAGS potential use areas	0.3	0.3	0	None	None	None
Fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	0	0	0	None	None	None
West of Bombing Range Road Alternative 2						
Mule deer winter range	0	0	0	None	None	None
Bighorn sheep herd range	0	0	0	None	None	None
WAGS potential use areas	0.3	0.3	0	None	None	None
Fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	0	0	0	None	None	None

¹ The current footprint of existing roads is considered a Category 6 habitat (see Table P1-7); the mileage represents the miles of Category 6 existing roads within each habitat.

Comm. Station = communication station; LDFY = light-duty fly yard; MUA = multi-use area

3.5.1.3 Category 3 Habitat

Table P1-7 identifies, for the Proposed Route, the Project features that will occur in each of the Category 3 habitats, except for elk summer range which is addressed in Exhibit P3.

Table P1-7. Project Features in Category 3 Habitat

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
Proposed Route						
Mule deer summer range	36.8	20.4	44.2 ¹	MUA UM-07 MUA UN-04	CS BA-02 CS MA-03 CS UM-02	LDFY UM-01
Non-fish-bearing streams	0.1	0.02	0	MUA MA-02	None	None
Other habitat based on vegetation type	30.5	15.5	0	MUA BA-01 MUA MA-02 MUA MA-05 MUA UM-03 MUA UM-04	None	None
Morgan Lake Alternative						
Mule deer summer range	7.8	4.5	9.3 ¹	None	None	None
Non-fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	1.9	0.5	0	None	None	None
Double Mountain Alternative						
Mule deer summer range	0	0	0	None	None	None
Non-fish-bearing streams	0.01	0	0	None	None	None
Other habitat based on vegetation type	1.5	1.2	0	MUA MA-05	None	None
Fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	0	0	0	None	None	None
West of Bombing Range Road Alternative 1						
Mule deer summer range	0	0	0	None	None	None

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
Non-fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	0	0	0	None	None	None
West of Bombing Range Road Alternative 2						
Mule deer summer range	0	0	0	None	None	None
Non-fish-bearing streams	0	0	0	None	None	None
Other habitat based on vegetation type	0.4	0.01	0	None	None	None

¹ The current footprint of existing roads is considered a Category 6 habitat (see Table P1-7); the mileage represents the miles of Category 6 existing roads within each habitat.

Comm. Station = communication station; LDFY = light-duty fly yard; MUA = multi-use area

3.5.1.4 Category 4, Category 5, and Category 6 Habitat

Table P1-8 identifies, for the Proposed Route and the alternative routes, the Project features that will occur in each of the Category 4, Category 5, and Category 6 habitats. All Category 4 and Category 5 habitats are categorized as such based upon vegetation characteristics alone and are completely outside of the wildlife habitat overlays presented in Section 3.3.2. Category 6 habitat includes agricultural and developed areas that can be within one of the wildlife habitat overlays, but the category is not modified based on ODFW guidance (ODFW 2015b)

Table P1-8. Project Features in Category 4, 5, and 6 Habitats

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
Category 4	14.1	9.8	0	MUA BA-02 MUA MA-02 MUA UM-04	None	None
Category 5 ¹	21.3	15.5	0	MUA MA-02 MUA MA-03 MUA MA-07 MUA MO-01 MUA MO-02	CS-MA-02	None

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
Category 6 ¹	20.0	13.9	223.2	MUA BA-01 MUA BA-02 MUA BA-03 MUA BA-04 MUA BA-06 MUA MA-01 MUA MA-02 MUA MA-03 MUA MA-04 MUA MA-05 MUA MA-06 MUA MA-07 MUA MA-08 MUA MA-09 MUA MO-01 MUA MO-03 MUA MO-05 MUA UM-01 MUA UM-02 MUA UM-03 MUA UM-04 MUA UM-05 MUA UM-06 MUA UM-07 MUA UN-02 MUA UN-03 MUA UN-04	CS MA-01 CS MA-02	LDFY MA-02 LDFY UM-01
Morgan Lake Alternative						
Category 4	0	0	0	None	None	None
Category 5	0	0	0	None	None	None
Category 6	0.1	0	15.9	MUA UN-02	None	None
Double Mountain Alternative						
Category 4	1.3	1.1	0	None	CS MA-02 ALT	None
Category 5	4.3	8.1	0	None	None	None
Category 6	0	0	5.0	MUA MA-05 MUA MA-06	None	None
West of Bombing Range Road Alternative 1						
Category 4	0.6	0.5	0	None	None	None
Category 5	1.7	1.3	0	None	None	None
Category 6	1.2	0.3	1.1	None	None	None
West of Bombing Range Road Alternative 2						
Category 4	1.1	0.3	0	None	None	None
Category 5	1.1	0.6	0	None	None	None

Habitat	Transmission Line (miles)	New Access Roads (miles)	Existing Roads Requiring Substantial Modification (miles)	MUAs (list by name)	Comm. Stations (list by name)	LDFYs (list by name)
Category 6	0.8	0.4	0.8	None	None	None

¹ The Longhorn Station is not included in this table, but is sited within Category 5 and Category 6 habitat. Comm. Station = communication station; LDFY = light-duty fly yard; MUA = multi-use area

3.5.2 Duration of Impacts

Impacts may be permanent or temporary. Permanent impacts are defined as those impacts that will exist for the entire life of the Project. Temporary impacts are those impacts that will last for a time less than the life of the Project. The duration of temporary impacts to habitat will vary by vegetation type. For example: the recovery period for agricultural areas that were directly disturbed could be as short as 1 to 3 years; grasslands and herbaceous wetlands generally recover within 3 to 7 years; shrublands may require 30 to 100 years to recover (with the longer recovery periods associated with disturbances in mature sage-brush habitats located in arid regions or for specific sage-brush species, e.g., *Artemisia tridentata* ssp. *wyomingensis*); and forested and woodland areas could take anywhere from 50 to many hundreds of years to reach preconstruction conditions (depending on the condition of the area prior to construction). Arid sites with naturally sparse vegetation, as well as those with saline or alkaline soils, shallow soils, compacted soils, or areas that have a high erosion potential may be difficult to restore and could require special techniques or repeated revegetation efforts by IPC. IPC will restore temporary impacts consistent with the Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). IPC is proposing compensatory mitigation for temporary impacts to Category 2, 3, and 4 habitat to address the duration of the lost habitat functionality during reclamation. IPC is not proposing compensatory mitigation for temporary impacts to Category 5 and 6 habitat as set forth in the Fish and Wildlife Habitat Mitigation Plan (HMP; Exhibit P1, Attachment P1-6).

3.5.3 Direct Impacts

Direct impacts are defined as the impacts that will have an adverse effect upon species habitat or individuals, and that will occur at the same, or in close proximity to, time and place. Direct impacts may be permanent or temporary.

3.5.3.1 Permanent Direct Impacts

Table P1-9 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project’s potential permanent direct impacts to fish and wildlife and their habitat.

Table P1-9. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Permanent Direct Impacts to Fish and Wildlife and Their Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Permanent direct impacts from vegetation clearing (transmission line, communication stations, and access roads)	Permanent direct	Construction, Operation	Life of the Project	Quantified based on construction dimensions	Permanent direct impacts from vegetation clearing will be mitigated as set forth in the Fish and Wildlife Habitat Mitigation Plan (Attachment P1-6); permanent direct impacts from vegetation clearing in forest lands in particular will be minimized as set forth in the Vegetation Management Plan (Attachment P1-4).
Direct mortality	Permanent direct	Construction, Operation	Life of the Project	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	IPC will establish speed limits on Project roads, where possible; IPC will implement seasonal and spatial restrictions described in proposed conditions of site certificate subject to variance; IPC will construct the Project to APLIC standards; avian mortality related to the transmission line will be addressed through avian-safe design measures.

Permanent Direct Impacts from Vegetation Clearing

Vegetation clearing to accommodate Project features required for operation will result in permanent direct impacts to fish and wildlife habitat through habitat loss. Permanent loss of habitat will occur within the operations disturbance areas for transmission structures, the

Longhorn Station, communication stations, and access roads; the dimensions of these areas are summarized in Exhibit C, Section 3.4.

With respect to the permanent direct impacts from access road construction and modification, details on road construction activities and methods, including types of improvements to existing roads and projected traffic volumes, are provided in Exhibit B, Attachment B-5 (Road Classification Guide and Access Management Plan), Exhibit U, and Attachment U-2 (Traffic and Transportation Management Plan). Access to construction sites will require both improvements to existing unpaved roads, as well as construction of new access roads. For existing roads that require substantial modification, proposed repair and/or construction activities will increase the width of the existing road prism, change the existing road alignment, use materials inconsistent with the existing road surface, and/or change the existing road profile, as well as meet additional criteria detailed in Exhibit B, Attachment B-5. New roads proposed to be constructed include both primitive and bladed roads. Primitive roads, commonly called a “two-track” or “overland travel” roads, will be created by direct vehicle use with little or no grading. Bladed roads will be constructed using heavy equipment and designed to support vehicular traffic; bladed road features typically include cuts and/or fills to construct a smooth travel surface and manage surface water drainage.

IPC will provide mitigation for permanent direct impacts resulting from construction and installation of Project features as set forth in the draft HMP (Exhibit P1, Attachment P1-6). IPC proposes the following conditions in the site certificate providing that IPC will finalize the draft Fish and Wildlife HMP and provide mitigation commensurate with the same:

Fish and Wildlife Condition 7: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Fish and Wildlife Habitat Mitigation Plan.*

a. The final Fish and Wildlife Habitat Mitigation Plan shall include the following, unless otherwise approved by the department:

- i. The areas that were surveyed for biological resources;*
- ii. The location of all facility components and related and supporting facilities;*
- iii. The areas that will be permanently and temporarily disturbed during construction;*
- iv. The protective measures described in the draft Fish and Wildlife Habitat Mitigation Plan in ASC Exhibit P1, Attachment P1-6; and*
- v. The results of the biological surveys referenced in Fish and Wildlife Condition 1 and Fish and Wildlife Condition 2.*

b. The final Fish and Wildlife Habitat Mitigation Plan shall address the potential habitat impacts through mitigation banking, an in-lieu fee program, development of mitigation projects by the certificate holder, or a combination of the same.

i. To the extent the certificate holder shall develop its own mitigation projects, the final Habitat Mitigation Plan shall:

- 1. Identify the location of each mitigation site, including a map of the same;*
- 2. Identify the number of credit-acres that each mitigation site will provide for the certificate holder;*
- 3. Include a site-specific mitigation management plan for each mitigation site that provides for:*
 - A. A baseline ecological assessment;*
 - B. Conservation actions to be implemented at the site;*

- C. An implementation schedule for the baseline ecological assessment and conservation actions;
 - D. Performance measures;
 - E. A reporting plan; and
 - F. A monitoring plan.
- ii. To the extent the certificate holder shall utilize a mitigation bank or in-lieu fee program, the final Habitat Mitigation Plan shall:
- 1. Describe the nature, extent, and history of the mitigation bank or in-lieu fee program; and
 - 2. Identify the number of credit-acres that each mitigation site will provide for the certificate holder.
- c. Oregon's Elk Mitigation Framework shall be used to calculate the amount of elk habitat compensatory mitigation required for the facility.
- d. The final Fish and Wildlife Habitat Mitigation Plan may be amended from time to time by agreement of the certificate holder and the department. Such amendments may be made without amendment to the site certificate. The Council authorizes the department to agree to amendments of the plan and to mitigation actions that may be required under the plan; however, the Council retains the authority to approve, reject, or modify any amendment of the plan agreed to by the department.

Fish and Wildlife Condition 20: During construction, the certificate holder shall commence implementation of the conservation actions set forth in the final Fish and Wildlife Habitat Management Plan referenced in Fish and Wildlife Condition 7.

Fish and Wildlife Condition 3: Prior to construction, the certificate holder shall conduct a one-year traffic study in elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat). The certificate holder shall submit the traffic study to the department for its approval.

Fish and Wildlife Condition 24: During the third year of operation, the certificate holder shall provide to the department a report demonstrating that fish and wildlife habitat mitigation shall be commensurate with the final compensatory mitigation calculations.

- a. The final calculations shall be based on the as-constructed facility.
- b. Oregon's Elk Mitigation Framework shall be used to calculate the amount of elk habitat compensatory mitigation required for the facility, and the information from the pre- and post-construction traffic studies shall be used in the calculation.

Regarding forest lands in particular, permanent clearing will occur along the transmission line right-of-way (ROW) where necessary to meet reliability standards to protect the line from vegetation encroachments and hazards. A wire-border zone method will be used during maintenance of the ROW to control vegetation and to ensure adequate ground-to-conductor clearances (see Attachment P1-4, Vegetation Management Plan). This method results in two zones of clearing and revegetation. The wire zone includes the linear area along the ROW located under the wires as well as the area extending 10 feet outside of the outermost phase-conductor. After initial clearing, vegetation in the wire zone would be managed to remain under 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 would be maintained to consist of tall shrubs or short trees (up to 20 feet high at maturity), grasses, and forbs. These cover plants along the border zone benefit the ROW by competing with and excluding undesirable

plants. During operations, vegetation growth will be monitored and managed on a routine cyclical clearing schedule (i.e., every 3 to 6 years) to maintain the wire-border zone objectives. In addition, hazard trees (i.e., trees that pose a risk of falling onto conductors, structures, or Project personnel) would be removed as needed. Maintenance efforts will be conducted around project structures and communication sites.

To ensure the protective measures set forth in the draft Vegetation Management Plan in Attachment P1-4 are incorporated into the final plan (unless otherwise approved by ODOE) and to ensure compliance with the final Vegetation Management Plan, IPC proposes that the Energy Facility Siting Council (EFSC or Council) include the following conditions in the site certificate:

Fish and Wildlife Condition 5: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Vegetation Management Plan. The protective measures described in the draft Vegetation Management Plan in ASC Exhibit P1, Attachment P1-4, shall be included as part of the final Vegetation Management Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 18: *During construction, the certificate holder shall conduct all work in compliance with the final Vegetation Management Plan referenced in Fish and Wildlife Condition 5.*

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

Direct Mortality

Traffic-Related Mortality

Direct mortality to fish and wildlife individuals may occur as a result of collisions with Project-related vehicles during construction or operation of the Project. IPC expects this risk to be very low, as most species will likely avoid the work sites. However, species or individuals that are less mobile or less sensitive to these disturbances could be directly threatened by construction activities. For example, species living underground, injured individuals, fish at stream crossings, and nesting birds may not be able to avoid construction equipment, and as a result, would be vulnerable to direct mortality. The risk of traffic-related direct mortality can be avoided or minimized by having Project vehicles reduce their speed to a level sufficient to anticipate and avoid striking fish and wildlife individuals. Accordingly, to avoid or minimize direct mortality to fish and wildlife, IPC proposes the following conditions in the site certificate establishing speed limits on access roads when applicable:

Fish and Wildlife Condition 16: *During construction, the 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 26: *During operation, the 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.*

Additionally, vehicle-wildlife collisions on Project access roads can be substantially reduced through controlling use of such roads. IPC will implement access control as set forth in the draft

Road Classification Guide and Access Control Plan (Exhibit B, Attachment B-5). Access control may involve fencing, gates, barriers, and/or signage as preferred by the landowner while maintaining effectiveness. To avoid or minimize indirect impacts related to access roads with respect to species that may be particularly sensitive to vehicle access (i.e., elk and sage-grouse), consistent with the Road Classification Guide and Access Control Plan, IPC proposes that the Council include the following conditions in the site certificate providing that access control will be pursued where possible:

Fish and Wildlife Condition 27: *During operation, the certificate holder shall employ access control on facility access roads within elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat), subject to approval by the applicable land-management agency or landowner.*

Electrocution-Related Mortality

Concerns have been raised regarding the risk of bird electrocutions (especially raptors) along electrical lines. However, the risk of avian mortalities occurring as a result of electrocutions is negligible for extra high-voltage transmission lines. This is because a bird would need to contact two phases of the line simultaneously to be electrocuted and the spacing between phases of the Project's transmission lines is much larger than the wing span of any North American bird. Therefore, electrocution due to the transmission line is not considered likely. Even so, IPC is committed to designing and constructing the Project to avoid or minimize direct mortality to avian species by following practices set forth in IPC's Avian Protection Plan and certain other avian protection guidelines. IPC recommends that the Council adopt the following condition regarding the same:

Fish and Wildlife Condition 22: *During construction, the certificate holder shall construct the transmission line to avian-safe design standards consistent with the certificate holder's Avian Protection Plan (Idaho Power 2015).*

3.5.3.2 Temporary Direct Impacts

Table P1-10 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential temporary direct impacts to fish and wildlife and their habitat.

Table P1-10. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Temporary Direct Impacts to Fish and Wildlife and Their Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Temporary direct impacts from vegetation clearing (construction areas)	Temporary direct	Construction	Construction through re-vegetation	Construction area dimensions	Temporary direct impacts from vegetation clearing will be mitigated as set forth in the Reclamation and Revegetation Plan (Attachment P1-3) and the Fish and Wildlife Habitat Mitigation Plan (Attachment P1-6).
Retirement	Temporary direct	Retirement	Retirement	Similar to construction related impacts	Similar to construction-related impacts

Temporary Direct Impacts from Vegetation Clearing

To provide for construction-related activities and installation of certain Project features, vegetation may be temporarily cleared within the Project’s ROW. In most areas, IPC will have a 250-foot-wide ROW in which to construct the 500-kV portions of the transmission line and a 100-foot-wide ROW to construct the 138-kV portions of the line. Temporary vegetation clearing activities encompass the entire footprint of pulling and tensioning sites, multi-use areas, and light-duty fly yards. Temporary clearing activities will also occur around the perimeter of permanent Project features including transmission structures, the Longhorn station, communication stations, and access roads. Areas cleared for construction activities, and not encompassed by permanent Project features or not needed for normal transmission line operation and maintenance will be reclaimed through measures described in IPC’s Reclamation and Revegetation Plan (Attachment P1-3). To ensure the protective measures set forth in the draft Reclamation and Revegetation Plan are incorporated into the final Reclamation and Revegetation Plan (unless otherwise approved by ODOE) and to ensure compliance with the final Reclamation and Revegetation Plan, IPC proposes that the Council include the following conditions in the site certificate providing for the same:

Fish and Wildlife Condition 4: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Reclamation and Revegetation Plan. The protective measures described in the draft Reclamation and Revegetation Plan in ASC Exhibit P1, Attachment P1-3, shall be included and implemented as part of the final Reclamation and Revegetation Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 17: *During construction, the certificate holder shall conduct all work in compliance with the final Reclamation and Revegetation Plan referenced in Fish and Wildlife Condition 4.*

Habitat that is cleared for construction will be restored and the duration of the impact will not exceed the life of the Project; thus, clearing vegetation followed by restoration constitutes a temporary impact to habitat. While restoration of certain habitat (e.g., forestlands) can take decades and restoration could span generations of wildlife, those impacts are considered temporary because they will last less than the life of the Project which is expected to be in place indefinitely. To the extent compensatory mitigation is required for temporary impacts, IPC will address the temporal loss of habitat functionality as set forth in the Fish and Wildlife HMP (Attachment P1-6).

Retirement

Retirement of the Project would involve activities and equipment similar to those that would be used during construction. Therefore, potential impacts on fish and wildlife habitat during retirement of the Project would be similar to the temporary impacts described for construction. Specific mitigation requirements to address impacts incurred during retirement of the Project will be addressed in the retirement plan, which must describe the activities necessary to restore the site to a useful, non-hazardous condition, as described in OAR 345-027-0110(5) (see Retirement and Financial Assurances Condition 4).

3.5.3.3 Quantifying Direct Impacts

Table P1-11 lists the acres of impact that will occur to fish and wildlife habitat as a result of the Proposed Route, including acres of impact to each ODFW habitat category and habitat type. Table P1-12 lists the same information for the Alternatives. The total acreage of impacts that will occur during construction, prior to restoration, is equal to the sum of the temporary and permanent impacts reported in this table. Note that the temporary impacts listed in Table P1-11 will vary in duration depending on vegetation type as described above; mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

Table P1-11. Direct Impacts to Fish and Wildlife Habitat from the Proposed Route

ODFW Category	Habitat Type	Acres Disturbed ¹	
		Temp	Perm
2	Agriculture ²	95.0	10.6
	Bare Ground Cliffs Talus	2.0	0.3
	Douglas Fir/ Mixed Grand Fir	5.9	159.6
	Ponderosa Pine	0.3	247.2
	Western Juniper / Mountain Mahogany Woodland	0.6	129.3
	Ephemeral Stream ³	0.3	0.0
	Intermittent Stream ³	0.6	0.3
	Perennial Stream ³	0.1	0.1
	Ponds and Lakes ³	0.0	0.0
	Herbaceous Riparian	0.0	0.1
	Introduced Riparian	0.0	–
	Riparian Woodland and Shrubland	0.5	0.4
	Desert Shrub	15.3	2.7
	Introduced Upland Vegetation	577.0	90.5
	Native Grasslands	475.3	87.8
	Shrub-steppe with Big Sage	801.3	133.2
	Shrub-steppe without Big Sage	121.9	19.9
	Aquatic Bed Wetland ³	0.0	0.0
Emergent Wetland ³	1.7	0.4	
Forested Wetland ³	0.0	0.0	

ODFW Category	Habitat Type	Acres Disturbed ¹	
		Temp	Perm
	Scrub-Shrub Wetland ³	25.2	–
	Category 2 Subtotal	2,123.1	882.7
3	Agriculture	10.1	0.8
	Bare Ground Cliffs Talus	0.3	0.1
	Douglas Fir/ Mixed Grand Fir	3.3	320.8
	Forested-Other	0.0	48.3
	Ponderosa Pine	12.6	88.9
	Ephemeral Stream ²	0.0	0.0
	Intermittent Stream ²	0.2	0.1
	Perennial Stream ²	0.1	0.0
	Ponds and Lakes ²	0.1	–
	Herbaceous Riparian	5.3	0.1
	Introduced Riparian	0.0	0.0
	Riparian Woodland and Shrubland	0.1	0.0
	Desert Shrub	18.1	0.8
	Introduced Upland Vegetation	63.6	0.6
	Native Grasslands	59.8	4.9
	Shrub-Steppe with Big Sage	167.6	22.5
Shrub-Steppe without Big Sage	3.2	1.2	
	Category 3 Subtotal	312.4	29.9
4	Intermittent Stream ²	0.0	0.0
	Desert Shrub	20.9	0.2
	Native Grasslands	2.7	0.9
	Shrub-Steppe with Big Sage	129.1	21.5
	Shrub-Steppe without Big Sage	12.6	3.5
		Category 4 Subtotal	165.3
5	Introduced Upland Vegetation	323.0	40.8
	Shrub-Steppe with Big Sage	6.3	2.4
		Category 5 Subtotal	329.3
6	Agriculture	253.2	44.1
	Developed	57.3	215.7
		Category 6 Subtotal	310.5

Notes: "Temp" = temporary impacts. "Perm" = permanent impacts.

A "0.0" indicates a value less than 0.1, while a "–" indicates a null or zero value.

¹ Numbers may not sum exactly due to rounding.

² Category 2 agriculture habitat type includes areas that appear to be in CRP within elk or mule deer winter range.

³ The acres of wetlands and waters reflect the occurrence of wetlands and waters presented in Exhibit J. The acres of stream habitats (ephemeral, intermittent, and perennial) presented in this table were quantified using the stream data from Exhibit J; habitat categorization of streams is based on the fish presence determination as detailed in Attachment P1-7B. This table is not intended to inform the analysis of impacts to fish because the methodologies differ; please refer to the discussion on impacts to fish species in Exhibit P1 and Exhibit Q for more detail.

Table P1-12. Direct Impacts to Fish and Wildlife Habitat from the Alternatives

ODFW Category	Habitat Type	Acres Disturbed ¹							
		West of Bombing Range Road Alternative 1		West of Bombing Range Road Alternative 2		Morgan Lake Alternative		Double Mountain Alternative	
		Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm
2	Bare Ground Cliffs Talus	-	-	-	-	-	-	2.0	0.5
	Douglas Fir/Mixed Grand Fir	-	-	-	-	12.8	2.8	-	-
	Ponderosa Pine	-	-	-	-	55.3	9.8	-	-
	Ephemeral Stream ²	-	-	-	-	0.0	0.0	-	-
	Intermittent Stream ²	-	-	-	-	-	-	0.0	0.0
	Perennial Stream ²	-	-	-	-	0.0	0.0	-	-
	Herbaceous Riparian	-	-	-	-	0.0	0.0	-	-
	Introduced Upland Vegetation	5.3	0.3	5.3	0.3	3.7	1.0	17.8	0.6
	Native Grasslands	1.0	0.2	1.0	0.2	123.2	15.7	3.7	0.3
	Shrub-Steppe with Big Sage	-	-	-	-	0.2	0.5	0.4	0.2
	Shrub-Steppe without Big Sage	-	-	-	-	10.9	2.1	-	-
	Emergent Wetland ²	-	-	-	-	0.0	0.0	-	-
	Category 2 Subtotal	6.3	0.4	6.3	0.4	206.1	31.9	23.9	1.6
3	Bare Ground Cliffs Talus	-	-	-	-	-	-	0.1	0.0
	Douglas Fir / Mixed Grand Fir	-	-	-	-	29.2	5.6	-	-
	Ponderosa Pine	-	-	-	-	2.2	0.2	-	-
	Ephemeral Stream ²	-	-	-	-	-	-	0.0	0.0
	Intermittent Stream ²	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Desert Shrub	-	-	-	-	-	-	32.4	3.3
	Native Grasslands	0.0	0.0	0.8	0.8	-	-	-	-
	Shrub-Steppe with Big Sage	-	-	-	-	-	-	4.1	0.2
	Category 3 Subtotal	0.0	0.0	0.8	0.8	31.4	5.8	36.6	3.5
4	Native Grasslands	4.2	0.5	4.2	0.5	-	-	-	-
	Shrub-Steppe with Big Sage	-	-	-	-	-	-	15.8	2.5
	Shrub-Steppe without Big Sage	0.7	0.2	2.0	0.7	-	-	-	-
		Category 4 Subtotal	4.9	0.7	6.2	1.2	-	-	15.8
5	Douglas Fir / Mixed Grand Fir					0.0	0.0		
	Introduced Upland Vegetation	13.4	2.5	5.7	1.7	-	-	53.2	14.7
	Shrub-Steppe with Big Sage	-	-	-	-	-	-	4.1	1.6
		Category 5 Subtotal	13.4	2.5	5.7	1.7	0.0	0.0	57.3
6	Agriculture	2.3	0.5	1.5	0.4	-	-	-	-
	Developed	0.1	1.2	0.4	1.1	0.3	15.5	0.1	4.8
		Category 6 Subtotal	2.3	1.6	1.9	1.5	0.3	15.5	0.1

Notes: "Temp" = temporary impacts. "Perm" = permanent impacts.
A "0.0" indicates a value less than 0.1, while a "-" indicates a null or zero value.

¹ Numbers may not sum exactly due to rounding.

² Category 2 agriculture habitat type includes areas that appear to be in CRP within elk or mule deer winter range.

³ The acres of wetlands and waters reflect the occurrence of wetlands and waters presented in Exhibit J. The acres of stream habitats (ephemeral, intermittent, and perennial) presented in this table were quantified using the stream data from Exhibit J; habitat categorization of streams is based on the fish presence determination as detailed in Attachment P1-7B. This table is not intended to inform the analysis of impacts to fish because the methodologies differ; please refer to the discussion on impacts to fish species in Exhibit P1 and Exhibit Q for more detail.

Category 1 Habitat

Raptor nests are within the analysis area and are considered a Category 1 habitat. Although trees or structures with raptor nests are managed as Category 1 habitat, they are not included in the habitat categorization analysis for acres of Category 1 habitat because of their relatively small size on the landscape. To ensure that Category 1 raptor nests and raptor breeding activities are not disturbed by Project activities, the seasonal and spatial restrictions identified in Fish and Wildlife Condition 12 will be applied.

There is potential for Category 1 WAGS habitat to be identified within the analysis area during future surveys. Category 1 WAGS habitat consists of the 785-foot buffer around the outside of the cluster of holes where WAGS are residing and corresponds to a known maximum travel distance of 239 meters as described in Carlson et al. (1980). This distance has been included in other projects, such as the Leaning Juniper II Wind Power Facility (EFSC 2009), as Category 1 habitat because the area within 785 feet of WAGS holes is defined by ODFW as required area for squirrel survival.

IPC has modified the Project location to avoid Category 1 WAGS habitat in the past and will perform WAGS surveys in previously unsurveyed areas to identify Category 1 WAGS habitat for avoidance. WAGS surveys shall be used to complete final design, facility layout, and micrositing of facility components and IPC shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat. To ensure that Category 1 WAGS habitat is avoided, IPC recommends Threatened and Endangered Species Condition 1 (see Exhibit Q, Section 3.5.2).

Category 2 Habitat

Category 2 habitats are the most abundant category type impacted by the Project. The majority of these areas were categorized as Category 2 habitats due to overlap with wildlife habitat layers (Attachment P1-1). Approximately 98 percent of the Category 2 habitat within the analysis area is categorized as Category 2 due to overlap with WAGS habitat, Elk Winter Range, Mule Deer Winter Range, and California Bighorn Sheep Herd Range. The remaining 2 percent of Category 2 habitat (addressed as Other Habitat below) has vegetation conditions that meet the definition of Category 2 habitat as presented in the habitat categorization matrix in Attachment P1-1. A small portion of the 2 percent includes impacts to fish-bearing streams.

The habitat categories presented in Exhibit P1 reflect the inclusion of Elk Winter Range and how it modifies habitats to a Category 2 (except for agriculture and developed habitat types) within the analysis area and direct impact disturbance areas. However, the analysis of direct and indirect impacts to Category 2 Elk Winter Range is presented in Exhibit P3.

Washington Ground Squirrel Area of Potential Use

ODFW describes Category 2 WAGS habitat as an area of potential WAGS use. Category 2 WAGS habitat is the habitat adjacent to a WAGS colony (a colony is defined as a single or cluster of holes as well as the required habitat for squirrel survival), but not occupied by any squirrels either for burrowing or foraging, which is of similar habitat type and quality to the area occupied by WAGS. ODFW provided to IPC further guidance that Category 2 WAGS habitat consists of a 4,921-foot (1.5-km) buffer that extends WAGS Category 2 habitat beyond the Category 1 buffer in continuous habitat. This ODFW guidance is based on the 75th percentile for documented dispersal distances of juvenile male WAGS as reported by Klein (2005).

Direct impacts to Category 2 WAGS habitat are presented in Table P1-13. These impacts occur near Bombing Range Road in Morrow County. Temporary impacts to Category 2 WAGS habitat

in introduced upland vegetation will likely be short-term as these areas have previously been disturbed. The duration of temporary impacts to Category 2 WAGS habitat in native grassland will likely be 3 to 7 years, while temporary impacts to Category 2 WAGS habitat in shrub-steppe without big sage will likely last 30 to 100 years. As described above, the duration of permanent impacts to all Category 2 WAGS habitat is expected to be indefinite as the Project is expected to remain in service in perpetuity (see Exhibit W for details). Mitigation for Category 2 WAGS habitat will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6). Impacts to WAGS and WAGS habitat are also discussed in Exhibit Q.

Table P1-13. Direct Impacts to Category 2 WAGS Habitat

General Vegetation Type	Habitat Type	Acres Disturbed ¹					
		Proposed Route		West of Bombing Range Road Alternative 1		West of Bombing Range Road Alternative 2	
		Temp	Perm	Temp	Perm	Temp	Perm
Shrub/Grass	Introduced Upland Vegetation	10.6	1.9	5.3	0.3	5.3	0.3
	Native Grasslands	9.1	0.7	1.0	0.2	1.0	0.2
Total		19.7	2.7	6.3	0.4	6.3	0.4

¹ Numbers may not sum exactly due to rounding.

Notes: "Temp" = temporary impacts. "Perm" = permanent impacts.

Mule Deer Winter Range

Mule Deer Winter Range is displayed in Figure P1-6 and includes those areas normally occupied by deer from December through April (ODFW 2013a). Direct impacts to Category 2 ODFW Mule Deer Winter Range include both temporary and permanent impacts (Table P1-14). The Category 2 acreages presented in Table P1-14 are a subset of the total Category 2 habitat identified in Tables P1-11 and P1-12. The duration of temporary impacts to Mule Deer Winter Range will vary depending on vegetation type; mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

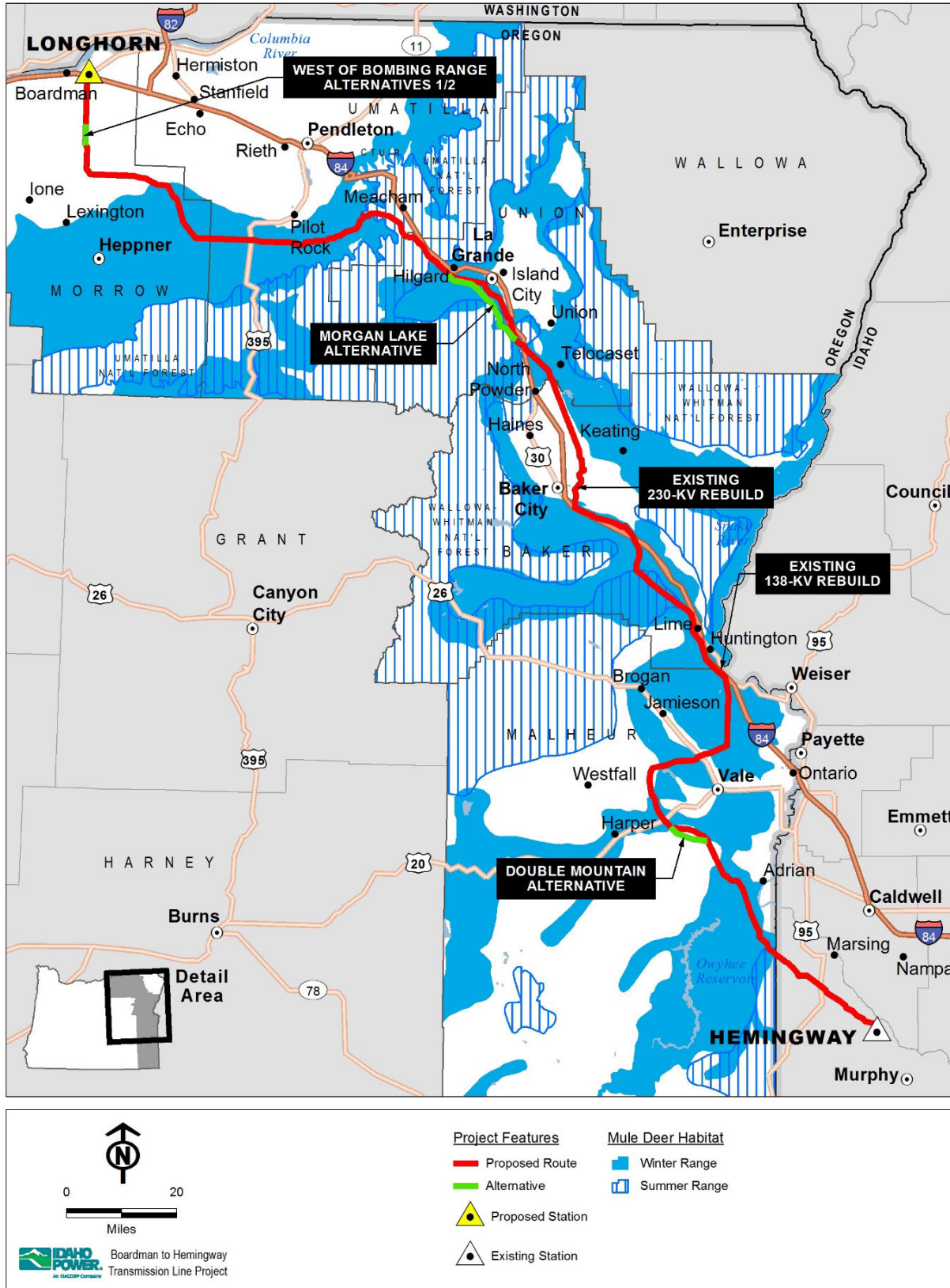


Figure P1-6. Mule Deer Winter Range and Summer Range Habitat

Table P1-14. Direct Impacts to Mule Deer Winter Range and Summer Range

ODFW Habitat Category		Acres Disturbed					
		Proposed Route		Morgan Lake Alternative		Double Mountain Alternative	
		Temp	Perm	Temp	Perm	Temp	Perm
2: Winter Range ¹		2,073.5	878.3	203.5	31.7	23.9	1.6
3: Summer Range ²		288.8	605.8	85.2	15.1	–	–
Overlap of Winter Range and Summer Range ³		154.2	142.6	62.5	10.2	–	–
Total⁴	Category 2 + Category 3 - Overlap	2,208.1	1,341.5	226.2	36.6	23.9	1.6

¹ Winter range includes those areas normally occupied by deer from December through April (ODFW 2013a).

² Summer range as defined in the Mule Deer Habitat of the Western United States (WAFWA 2002)

³ Overlap of Winter Range and Summer Range is where an area of impact occurs within both habitat types. Summer Range and Winter Range are not discrete areas.

⁴ Total = [(Winter Range + Summer Range) – (Overlap of Winter Range and Summer Range)]. Total does not double count acres.

California Bighorn Sheep Herd Range

California Bighorn Sheep Herd Range is displayed in Figure P1-7 and includes those areas occupied year-round by the Burnt River herd (ODFW 2013b). Direct impacts to Category 2 ODFW California Bighorn Sheep Herd Range include both temporary and permanent impacts (Table P1-15). The Category 2 acreages presented in Table P1-15 are a subset of the total Category 2 habitat identified in Tables P1-11 and P1-12. The duration of temporary impacts to California Bighorn Sheep Herd Range will vary depending on vegetation type; mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

Table P1-15. Direct Impacts to California Bighorn Sheep Herd Range

ODFW Habitat Category	Acres Disturbed	
	Proposed Route	
	Temp	Perm
2: Bighorn Sheep Herd Range ¹	1.6	14.2

¹ In Oregon, California bighorn sheep herds are non-migratory and herd ranges generally provide contiguous summer and winter range (ODFW 2003).

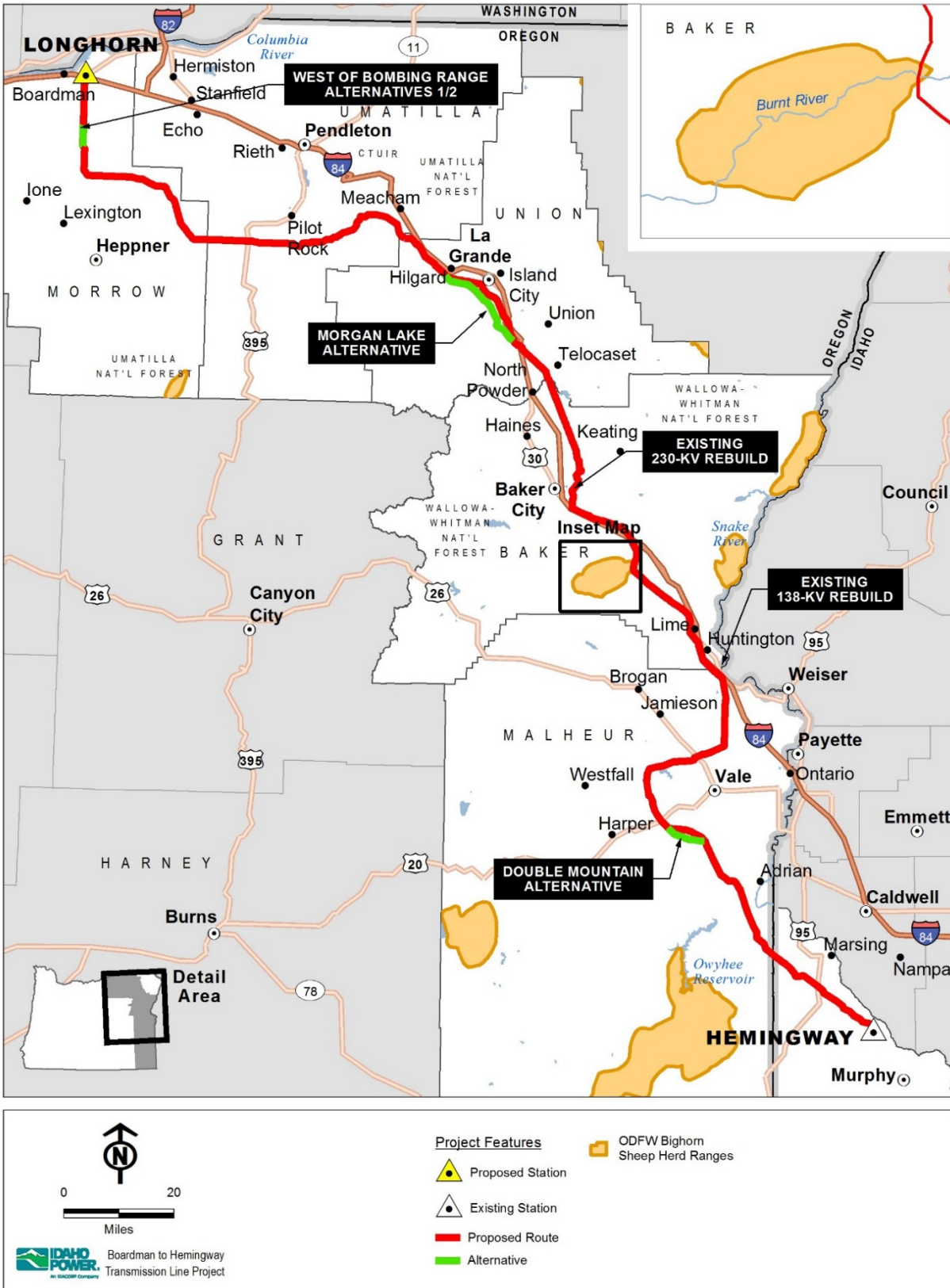


Figure P1-7. ODFW Bighorn Sheep Herd Ranges

Other Category 2 Habitat

The remaining Category 2 habitat meets the definition of Category 2 habitat regardless of whether or not it overlaps Category 2 wildlife ranges. These areas were identified as Category 2 habitat types during TVES surveys based on the vegetation conditions encountered in the field. The Project will result in impacts to approximately 66 acres within these Category 2 habitat types. These habitat types meet the following criteria as defined in Attachment P1-1 (Habitat Categorization Matrix) and were included as Category 2 habitat:

- Douglas Fir/Mixed Grand Fir and Ponderosa Pine – Old forest multi-strata or old forest single strata with diameter at breast height of representative trees that is greater than 21 inches.
- Native Grasslands – In the Columbia Basin, undisturbed habitat dominated by native species with greater than 75 percent ground cover being native, or moderately disturbed habitat where 50 to 75 percent ground cover is native that contains a sagebrush component. Outside of the Columbia Basin, undisturbed habitat dominated by native species with greater than 75 percent ground cover being native.
- Emergent Wetland and Scrub-Shrub Wetland – High quality habitat dominated by native species.
- Fish-bearing Streams – Ephemeral, intermittent, and perennial fish-bearing streams. Fish presence determination is detailed in the Fish Habitat Report in Attachment P1-7B.

Mitigation for Other Category 2 habitat will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

Category 3 Habitat

Approximately 55 percent of Category 3 habitat is categorized as such due to the presence of Elk Summer Range or Mule Deer Summer Range. The remaining 45 percent of Category 3 habitats (addressed as Other Habitat below) directly impacted by the Project were classified based on the vegetation conditions found within the habitat type during TVES surveys through application of the habitat categorization matrix in Attachment P1-1. Summer Range and Winter Range for elk and mule deer are not discrete areas. As a result, where the Category 3 Elk or Mule Deer Summer Range described here overlaps with Category 2 ODFW Elk or Mule Deer Winter Range for each species, only the Category 2 ODFW Winter Range is included in the total impact acreage (Tables P1-11 and P1-12) so areas of overlap are not double counted.

The habitat categories presented in Exhibit P1 reflect the inclusion of Elk Summer Range and how it modifies habitats to a Category 3 (except for agriculture and developed habitat types) within the analysis area and direct impact disturbance areas. However, the analysis of direct and indirect impacts to Category 3 Elk Summer Range is presented in Exhibit P3.

Mule Deer Summer Range

Mule deer summer range is displayed in Figure P1-6. Direct impacts to Category 3 ODFW Mule Deer Summer Range include both temporary and permanent impacts (Table P1-14). The duration of temporary impacts to these habitats will vary depending on vegetation type as described in Section 3.5.2; mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

Other Category 3 Habitat

Other Category 3 habitat occurs within habitat that meets the definition of Category 3 habitat regardless of whether or not it overlaps Elk or Mule Deer Summer Range. These areas were

identified as Category 3 habitat types during TVES surveys based on the vegetation conditions encountered in the field. The Project will result in impacts to approximately 592 acres within these Category 3 habitat types. These habitat types meet the following criteria as defined in Attachment P1-1, Habitat Categorization Matrix, and were included as Category 3 habitat:

- Agriculture – Lands that appear to be enrolled in the Conservation Reserve Program based on vegetation composition and that contain later seral stage vegetation which could provide important habitat for special status wildlife species.
- Bare Ground, Cliffs, and Talus – Cliffs, talus slopes, and rock outcrops that do not contain sensitive raptor nests, or bat hibernacula-colonies.
- Douglas Fir / Mixed Grand Fir and Ponderosa Pine – Understory reinitiation forests with diameter at breast height of representative trees that is between 9 and 20.9 inches.
- Non-Fish-Bearing Streams – Ephemeral, Intermittent, and Perennial non-fish-bearing streams. Fish presence determination is detailed in Attachment P1-7B.
- Herbaceous Riparian – Area consists of a mix of native and non-native plants with a low to moderate level of disturbance.
- Desert Shrub, Shrub-steppe with Big Sage, and Shrub-steppe without Big Sage – Within the Columbia Basin, moderately disturbed habitat with a mix of natives and non-native shrubs with between 25 to 75 percent cover being native. Outside of the Columbia Basin, undisturbed habitat dominated by native species with greater than 75 percent native cover.
- Native Grasslands – In the Columbia Basin, moderately disturbed habitat with a mix of natives and non-natives with between 50 to 75 percent ground cover is native, or highly disturbed habitat with between 15 to 50 percent ground cover is native that contains a sagebrush component. Outside of the Columbia Basin, moderately disturbed habitat with a mix of natives and non-natives with between 50 to 75 percent ground cover is native.

Mitigation for Other Category 2 habitat will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

Category 4, Category 5, and Category 6 Habitat

Category 4, 5, and 6 habitats were classified based solely on the vegetation conditions found within the relevant areas during TVES surveys and were not modified by the overlays related to Categories 1, 2, and 3. Direct impacts to Category 4, 5, and 6 include both temporary and permanent direct impacts (see Table P1-11). The duration of temporary impacts to these habitats will vary depending on vegetation type as described in Section 3.5.2; mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

3.5.4 Indirect Impacts

Indirect impacts are defined as the impacts that will have an adverse effect upon fish and wildlife habitat or individuals, and that will occur later in time or in a different place than the Project activities. Indirect impacts may be permanent or temporary. Permanent impacts will exist for the entire life of the Project. Temporary impacts are those impacts that will last for a time less than the life of the Project. In this section, indirect impacts are discussed but not quantified. Exhibit P2 and Exhibit P3 quantify indirect impacts to sage-grouse and elk, respectively.

3.5.4.1 Permanent Indirect Impacts

Table P1-16 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project’s potential permanent indirect impacts to fish and wildlife and their habitat.

Table P1-16. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Permanent Indirect Impacts to Fish and Wildlife and Their Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Permanent indirect impacts from the transmission line	Permanent indirect	Operation	Life of the Project	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	Permanent indirect impacts from vegetation clearing in forest lands will be minimized as set forth in the Vegetation Management Plan (Attachment P1-4).
Permanent indirect impacts from the access roads	Permanent indirect	Operation	Life of the Project	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	Permanent indirect impacts from the access roads will be mitigated by implementing speed limits, and controlling access on Project roads within certain habitat, subject to approval by the relevant land management agency or landowner.

Note: There is no metric to quantify the indirect impacts to the fish and wildlife species discussed here in Exhibit P1. However, certain indirect impacts are quantifiable for sage-grouse and elk, as discussed in Exhibit P2 and Exhibit P3, respectively.

Permanent Indirect Impacts from the Transmission Line

The permanent loss or alteration of habitats, described above for direct impacts, will result in some limited habitat fragmentation. Habitat fragmentation breaks up contiguous areas of habitat into small patches. Habitat fragmentation will be minimal as most of the Project crosses through low-lying vegetation that will not be permanently cleared. However, vegetative clearing and maintenance in forested/woodland areas (mostly found in the Blue Mountains region) will result in undisturbed forest/woodland patches separated by 250-foot-wide areas around the line. This will result in habitat fragmentation in forested and woodland habitats. Permanent indirect impacts from vegetation clearing in forest lands will be minimized as set forth in the Vegetation Management Plan (Attachment P1-4).

In the low-lying vegetation types (e.g., grasslands and shrublands) that make up most of the habitat crossed by the Project, a species would have to perceive the suspended transmission line itself as an appreciable break in the habitat continuity for habitat fragmentation to have a biological effect. However, the transmission line could be perceived by raptor and raven prey species as a form of habitat fragmentation in low-lying shrub and grassland habitats, due to the

potential for increased predation rates near the line as a result of increased perching opportunities. Based on observations at existing power lines, it is possible that the Project could become an attractant to raptor and ravens for nesting and perching habitats (Gilmer and Wiehe 1977; Knight and Kawashima 1993; Steenhof et al. 1993; Connelly et al. 2004; Manzer and Hannon 2005; Coates and Delehanty 2010). If the Project's transmission line and structures become an attractant to raptors and ravens, and their numbers increase along the Project, this factor coupled with the reduced shrub cover in areas recovering from construction disturbances (i.e., a reduction in hiding cover for small animals) could result in increased predation rates on prey species. This effect would be most prominent where the Project is located in areas that do not contain other tall structures, such as existing transmission lines or trees. Of the 147 miles of the Proposed Route that are not located within 1 mile of an existing line, about 115 miles are located within shrubland/grassland habitats. Of the 10 miles of the Morgan Lake Alternative that are not located within 1 mile of an existing line, about 4 miles are located within shrubland/grassland habitats. Of the 7.4 miles of the Double Mountain Alternative that are not located within 1 mile of an existing line, about 7 miles are located within shrubland/grassland habitats. However, there is no reasonable and acceptable methodology for quantifying permanent indirect impacts from the transmission line on fish and wildlife habitat, other than for elk and sage-grouse, which are addressed in Exhibits P2 and P3, respectively. Therefore, no mitigation is proposed for indirect impacts from the transmission line on fish and wildlife habitat, except for what is set forth in Exhibit P2 and P3.

Permanent Indirect Impacts from the Access Roads

New and substantially modified existing access roads are not expected to act as a barrier to fish and wildlife movement for most species. However, smaller and less mobile wildlife species may perceive the road surface as a barrier to movement due to a lack of hiding cover and prolonged exposure to predators. The introduction of traffic (i.e., motorized on- or off-road vehicles) and the presence of human activity on roads used for the Project potentially will have negative indirect impacts on fish and wildlife. The indirect impacts may include reduced utilization of adjacent habitat, fragmentation of migration corridors, and the associated disruption of breeding and foraging activities. These potential impacts can be substantially reduced through the implementation of a traffic management plan. Accordingly, as discussed above, IPC will implement speed limits and access control to minimize the effects that roads have on fish and wildlife habitat.

3.5.4.2 Temporary Indirect Impacts

Table P1-17 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential temporary indirect impacts to fish and wildlife and their habitat.

Table P1-17. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Temporary Indirect Impacts to Fish and Wildlife and Their Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Temporary indirect impacts from access roads	Temporary indirect	Construction	Construction	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts.	Temporary indirect impacts from access roads will be mitigated by implementing speed limits and controlling access on Project roads within certain habitat, subject to approval by the relevant land management agency or landowner.
Temporary indirect impacts from invasive species	Temporary indirect	Construction	Construction through re-vegetation	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts.	Temporary indirect impacts from invasive species will be avoided, minimized or mitigated as set forth in the Noxious Weed Plan (Attachment P1-5) and Reclamation and Revegetation Plan (Attachment P1-3).

Temporary Indirect Impacts from Access Roads

Construction activities will result in noise, visual disturbance from heavy equipment, traffic and people, fugitive dust dispersing from the immediate construction area, and small amounts of air pollution from construction equipment’s exhaust. Indirect construction impacts may also include an increased risk for the spread or establishment of invasive plant species (which can degrade habitats and exclude native species from areas), and increased access to areas previously inaccessible to the public due to the construction of Project-related roads (which can further degrade habitats as a result of increased human presence). These activities can impact fish and wildlife behavior in areas beyond the Project construction areas. For example, the habitat near

the construction areas may temporarily be unsuitable during the construction period. Noise will likely have the farthest reaching effect (i.e., the effect of noise extends farther from construction sites than that of dust or other disturbances). Ambient noise in forested habitats generally ranges from 25 to 44 decibels (FWS 2006), and is usually lower in open and shrub habitats such as those found along the majority of the analysis area. Some construction activities will likely result in sound levels beyond baseline ambient levels, with a maximum instantaneous predicted noise level of 80 to 90 A-weighted decibels at 50 feet from the work site. These increases in noise will be concurrent with any disturbance associated with the presence of humans and their activities (e.g., dust, visual disturbances, etc.). These disturbances could render habitats unsuitable for a limited period of time, with disturbances ceasing once construction activities have ceased. IPC expects these impacts to be low. Even so, to avoid or minimize these impacts, IPC will implement speed limits and access control on Project roads in elk habitat, where possible.

Invasive Species Temporary Indirect Impacts

The initial clearing of vegetation and resulting soil disturbance during construction could create optimal conditions for the establishment of invasive-plant species. The establishment of invasive-plant species can affect the quality of wildlife habitat through competition with, and the eventual replacement of desirable native plant species (Westbrook 1998). The replacement of native plant species with invasive species can have various environmental effects on wildlife habitat, including changes in fire regime (e.g., increasing the frequency and severity of fires), changes in the nutrient regime of soils (thereby reducing the quality of forage species), increased soil erosion (resulting in additional loss of vegetated areas, as well as sedimentation to aquatic habitats), or reductions in the abundance of important forage species (due to invasive species excluding them from the area). These alterations to habitat quality can extend beyond the area of initial impacts (e.g., fires and/or invasive-plant species can spread to areas far beyond the initial disturbance/ignition). To avoid or minimize the risk of invasive-plant species spread or establishment, IPC will implement the Noxious Weed Plan (Exhibit P1, Attachment P1-5) and Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). IPC proposes that the Council include the following conditions in the site certificate regarding the Noxious Weed Plan:

Fish and Wildlife Condition 6: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Noxious Weed Plan. The protective measures as described in the draft Noxious Weed Plan in ASC Exhibit P1, Attachment P1-5, shall be included and implemented as part of the final Noxious Weed Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 19: *During construction, the certificate holder shall conduct all work in compliance with the final Noxious Weed Plan referenced in Fish and Wildlife Condition 6.*

Fish and Wildlife Condition 29: *During operation, the certificate holder shall conduct all work in compliance with the final Noxious Weed Plan referenced in Fish and Wildlife Condition 6.*

3.5.4.3 Quantifying Indirect Impacts

No standard methods exist to quantify indirect impacts from the Project on fish and wildlife species other than sage-grouse and elk (which have methodologies established by ODFW). Given the unknown and likely variable response to the Project by different wildlife species, IPC will not quantify indirect impacts beyond those calculated for sage-grouse (Exhibit P2) and elk (Exhibit P3).

3.5.5 Potential Direct and Indirect Impacts to State Sensitive Species

This section discusses the potential Project impact to State Sensitive wildlife and fish species, as well as big game (excluding elk), which was identified by ODFW as a site-specific issue of concern. General impacts applicable to all species are described above; this section discusses impacts specific to certain taxa, such as mammals, birds, reptiles/amphibians, and fish. These potential impacts will be avoided or minimized by the measures discussed in Section 3.5.6.

3.5.5.1 Big Game

Big game species with potential to occur within the analysis area include elk, mule deer, bighorn sheep, and pronghorn antelope. Elk are addressed in Exhibit P3. Mule deer are expected to occur within the analysis area within seasonal ranges as described in Section 3.5.3.3 and depicted in Figure P1-6. The Burnt River herd of California bighorn sheep occupies habitat within the Burnt River Canyon between the Bridgeport Valley and the Durkee Valley. Impacts to California Bighorn Sheep Herd Range are described in Section 3.5.3.3 and the location of the Project in relation to California Bighorn Sheep Herd Range is depicted in Figure P1-7. Typical habitat characteristics of bighorn sheep include steep, rugged terrain associated with mountains, canyons, and escarpments (Van Dyke et al. 1983). Pronghorn antelope are associated with sagebrush and grassland steppes of the intermountain and Great Basin regions (Yoakum 1980). ODFW has not delineated important pronghorn habitat for eastern Oregon; therefore, acres of impacts to this species' habitat cannot be described. However, the Project's reduction of native habitat types within the shrub/grass general vegetation type has the potential to impact the species, as described below.

For big game species present during construction, there is a risk of mortality due to wildlife-vehicle collisions; however, the risk of vehicle collisions will be minimized by speed limits imposed on construction vehicles within the analysis area (see Section 3.5.3.1). Displacement of big game from both winter and parturition areas can affect winter survival by causing animals to use energy reserves that are needed to survive the winter. However, appropriate construction timing windows will be applied through seasonal restrictions within elk and mule deer winter range and will minimize the risk of disturbing big game during sensitive periods. IPC proposes that the Council include the following condition in the site certificate in an effort to avoid impacts to big game while on winter range:

Fish and Wildlife Condition 10: *During construction, the 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 certificate holder, the department may provide exceptions to this restriction. The certificate holder's request must include a justification for the request, including any actions the certificate holder will take to avoid, minimize, or mitigate impacts to elk and mule deer in the relevant area.*

The Project crosses through delineated elk and mule deer winter and summer ranges and likely crosses migration routes and calving/fawning areas, and thus Project construction may result in some loss and fragmentation of habitat. Furthermore, ROW clearing for construction in forested/woodland habitats will remove thermal and hiding cover for big game; however, this clearing of vegetation has the potential to benefit big game species in some situations by providing clearings for use in foraging or traveling (Rowland et al. 1983; Stewart et al. 2000). The duration of these permanent impacts to habitat for big game species is expected to be indefinite, although areas cleared within the ROW may provide forage after 3 to 7 years. The duration of temporary impacts to habitat for big game species will vary by vegetation type as described above. Agricultural and disturbed areas will likely recover in 1 to 3 years, grasslands

and herbaceous wetlands will likely recover within 3 to 7 years, shrublands may require 30 to 100 years to recover, and forested and woodland areas could take anywhere from 50 to many hundreds of years to reach pre-construction conditions. Mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

Transmission line structures are not expected to limit the movement or distribution of big game species through fragmentation, as mule deer and pronghorn are expected to readily pass under transmission lines and associated structures. Bighorn sheep utilizing the Burnt River Canyon are unlikely to be affected, as the transmission line will span the canyon and the tower structures are set back from the steep rock escape habitat preferred by bighorn sheep. New and altered existing Project roads are similarly not expected to act as a barrier to big game movement in and of themselves. However, the introduction of traffic (i.e., motorized on or off-road vehicles) and the presence of human activity on roads used for the Project have the potential to negatively impact big game (ODFW 2015b).

Indirect impacts to big game from increased traffic rates may include reduced utilization of habitat, fragmentation of migration corridors, and the associated disruption of important big game life processes. However, these indirect impacts from roads to big game and their habitat can be significantly reduced with the implementation of a traffic management plan and best management practices (BMPs) (ODFW 2015b). IPC will implement access control to minimize the effects that roads have on big game and big game habitat. Access control may involve fencing, gates, barriers, and/or signage as preferred by the landowner while maintaining effectiveness. Specific road segments proposed for access control are described in IPC's Road Classification Guide and Access Control Plan (Exhibit B, Attachment B-5). See Exhibit P3 for further analysis of impacts from access roads on elk.

Although access control will reduce indirect impacts to big game on many Project roads, access control is not proposed for all Project roads and thus some indirect impacts are expected. For a description of which access roads will receive access control, see Exhibit B, Attachment B-5.

3.5.5.2 Small Fur-bearing Mammals

Potential impacts of the Project's construction and operation to State Sensitive small fur-bearers (i.e., pygmy rabbit, white-tailed jackrabbit, Pacific marten, and fisher) are similar to those discussed in Sections 3.5.3 and 3.5.4. During field surveys for the Project, one white-tailed jackrabbit was observed within the analysis area (Table P1-5). No pygmy rabbits, martens, or fishers were observed, although potential habitat for these species occurs indicating there is some potential for the Project to have impacts on the species.

Many small fur-bearers are fossorial animals (i.e., living underground). Construction equipment could result in the crushing of burrows and underground tunnels that could contain small mammals, resulting in direct mortality. The disturbance of soils and loss of vegetative cover can make these species more obvious to predators (i.e., removing hiding cover), thereby indirectly increasing their predation rates. This taxa may also experience a higher predation rate during operation, as they are likely to be a prey source for raptors and ravens that, as discussed in Section 3.5.4.1, could consolidate along the transmission line due to increased perching opportunities.

Temporary impacts to habitat for State Sensitive small fur-bearing mammal species will vary by species and habitat type, and depend on the pre-construction conditions. The duration of temporary impacts to pygmy rabbit habitat will likely last greater than 50 years as they require dense stands of sagebrush. For white-tailed jackrabbits, the grass and forb habitat component will likely recover relatively quickly, within 3 to 7 years, while the shrubs required for winter

forage will likely take over 30 years to establish. As martens and fisher require mature, unfragmented forest, temporary impacts to habitat for this State Sensitive Species are likely to last 50 to many hundreds of years. Mitigation for both temporary and permanent impacts to habitat will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

3.5.5.3 Bats

Impacts to bats were minimized by routing the Project to avoid mines, caves, and known bat hibernacula. However, bats will utilize habitats outside of these structures/areas as well, and the sensitive bat species in the analysis area can utilize trees and snags as habitat. State Sensitive bat species likely to use the analysis area include California myotis, long-legged myotis, hoary bat, silver-haired bat, fringed myotis, spotted bat, pallid bat, and Townsend's big-eared bat (Table P1-5). These species were not observed during Project surveys, although two records from existing databases show the presence of long-legged myotis within the analysis area in ponderosa pine habitat within Union County. If present during construction, impacts may include disturbance at roosts and hibernacula sites, and a reduction in foraging habitat as a result of vegetation removal. In order to minimize disturbance at bat roosts and hibernacula, IPC proposes that the Council include the following condition in the site certificate:

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 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 certificate holder will take to avoid, minimize, or mitigate impacts to the roost.*

Direct mortality during construction is expected to be low, as bats would likely flush from trees and snags during construction. However, flushing of bats from day roosts or maternity colonies could result in the bats using up their bodily energy reserves, exposing themselves to predation, and potentially causing them to permanently abandon a suitable site. If disturbance occurs near winter hibernacula, bats may leave their roost and venture out to find a new one. This could result in mortality of the bats as bodily energy reserves are often low during winter and they may not find another suitable hibernaculum before their reserves are spent; however, all known bat hibernacula were avoided during Project routing so no direct impacts are expected. Disturbance at maternity colonies could have a negative impact if the bats are induced to abandon the colony, as suitable maternity colony structures have specific characteristics and another suitable structure may not exist nearby.

Removal of vegetation, especially around riparian areas, could impact prey abundance for foraging bats. The duration of impacts to riparian habitat that will be removed during construction, but restored following construction (i.e., temporary impacts) will likely be 50 or more years depending on the tree species composition and sensitivity of the habitat to disturbance. Riparian habitats with fast growing tree and shrub species such as willow or alder could recover in less than 50 years, while riparian habitats with slower growing species or located in harsher conditions for plant growth could take hundreds of years to recover. Mitigation for both temporary and permanent impacts to riparian habitat will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

There is a record of a bat mortality resulting from a collision with a transmission line (Dedon et al. 1989), indicating that some adverse impacts could occur during operations. Nevertheless, potential mortalities to State Sensitive bats are expected to be low to non-existent.

3.5.5.4 Avian Species

Twenty-five State Sensitive bird species are likely to use the analysis area, including eight raptor species (Table P1-5). Several State Sensitive avian species were observed during Project surveys, and breeding activity was confirmed for four species within the analysis area: Swainson's hawk, long-billed curlew, burrowing owl, and Lewis' woodpecker.

Impacts to avian species will be similar to the impacts discussed in Sections 3.5.3 and 3.5.4, except that birds might be more sensitive to direct mortality and disturbance during nesting than other species. In order to limit direct mortality and disturbance during nesting, construction activities will be limited to time periods outside of the primary avian breeding period to the extent practical. Similar to construction, maintenance and vegetation management activities during Project operations have the potential to cause direct mortality and disturbance during nesting. IPC will conduct routine line maintenance and vegetation clearing activities outside the breeding season if possible. However, construction and operation activities may need to be performed during the primary avian breeding period, in which case IPC proposes that the Council include the following condition in the site certificate in an effort to avoid impacts to state sensitive raptors and other raptors during the nesting season:

Fish and Wildlife Condition 12: *During construction, the 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 certificate holder, the department may provide exceptions to this restriction. The certificate holder's request must include a justification for the request, including any actions the 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

If vegetation-clearing activities are performed during the primary avian breeding period, direct mortality and disturbance to native, non-raptor migratory bird nesting attempts could occur. To address that possibility, IPC proposes Fish and Wildlife Condition 13, providing IPC will survey for native, non-raptor bird species no more than 7 days prior to ground-disturbing activities if construction will occur during the migratory bird nesting season between April 1 and July 15.

The duration of impacts to habitat for State Sensitive avian species will vary by habitat type. The State Sensitive avian species likely to use the analysis area require a range of habitat types, including grasslands, wetlands, and shrublands, as well as forests and riparian corridors (Table P1-5). As described above, temporary Project impacts to grasslands and herbaceous wetlands will likely last between 3 and 7 years, shrublands may require 30 to 100 years to recover, and forested areas could take anywhere from 50 to many hundreds of years to reach pre-construction conditions. Mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

There is a potential risk of avian collisions with transmission lines or other Project-related structures, which could result in elevated mortality rates for some avian species. A variety of factors influence avian transmission line collisions, such as: configuration and location of transmission lines; the tendency of specific species to collide with transmission lines; and environmental factors such as weather, topography, and habitat (APLIC and FWS 2005). Line placement with respect to other structures and topography can influence the collision rate of avian species at a given transmission line. Collisions usually occur near water or migration corridors, and occur more often during inclement weather. Less agile birds, such as heavy-bodied birds or birds that travel in flocks, are more likely to collide with overhead lines because they lack the ability to quickly negotiate obstacles. IPC has an existing Avian Protection Plan (Attachment P1-9); this plan is in compliance with Avian Power Line Interaction Committee (APLIC) suggested practices, and includes measures that would be taken if avian mortalities are discovered (either as an incidental observation or during routine maintenance and monitoring), and modification and/or additions to the line that can be made if elevated mortalities of avian species are discovered. For example, if collisions are documented, a site-specific evaluation will be conducted and measures to reduce collision hazard will be implemented, such as marking the line by installing bird flight diverters or possibly removing the static line (i.e., overhead ground or optical ground wire) from a specific span (IPC 2008).

The presence of transmission line structures will provide additional nesting and perching opportunities for raptors and ravens as discussed in Section 3.5.4.1. While this may benefit some avian species, it will also have adverse impacts on avian prey species.

3.5.5.5 *Reptiles and Amphibians*

Potential impacts of the Project's construction and operations to State Sensitive reptile and amphibian species will be similar to those discussed in Sections 3.5.3 and 3.5.4 except that they may be more susceptible than other taxa to direct mortality due to some reptile and amphibian species' defense method of remaining still when threatened (i.e., they may not flee from construction equipment). State Sensitive reptile and amphibian species that may be present within the analysis area include the northern sagebrush lizard, western toad, Rocky Mountain tailed frog, northern leopard frog, western painted turtle, and Columbia spotted frog (Table P1-5). These species were not observed during Project surveys, although a sagebrush lizard unidentifiable to subspecies observed during surveys could have been a northern sagebrush lizard. If present during construction and/or operation, direct impacts to State Sensitive reptiles and amphibians may include direct mortality and habitat loss.

The impact of individual mortalities would vary depending on the reproductive strategy of the species and the robustness of the population. Mortality of an individual could have no discernible effect on a large, quickly reproducing population, but could have an effect that lasts generations on a small, vulnerable, or slowly reproducing population such as the northern sagebrush lizard. Most reptiles produce a moderate number of young per year (e.g., a few to a dozen, occasionally two dozen or more), do not reach maturity until their second or third year, and do not always reproduce every year (Storm and Leonard 1995). Amphibians may not

reproduce until their second year, but can lay up to 1,000 eggs. Therefore, both reptiles and amphibians are moderate in their ability to recover from population perturbations such as the death of individuals, but amphibians are likely better able to recover than reptiles due to the greater number of young that they produce. A small population, however, would experience a greater impact than a large one, regardless of the species, due to the number of reproductive individuals remaining after the impact.

The four State Sensitive amphibians and one of the reptiles (western painted turtle) likely to use the analysis area may be affected by impacts to waterbodies. Potential impacts to waterbodies including a description of the duration of impacts, and their effects to aquatic species are addressed in Section 3.5.5.6. The two State Sensitive reptiles and the Western toad may be affected by impacts to terrestrial habitats. As northern sagebrush lizards require shrubs such as big sagebrush and antelope bitterbrush, as well as rocks, logs, or burrows of other animals for perching and hiding, habitat for this species could take 30 to 100 years to recover, both for the shrubs to re-establish and for other animals to burrow into the disturbed soil. Western painted turtles use terrestrial habitat for nesting and hibernation, with nesting habitat being sparsely vegetated with little to no canopy cover within 325 feet of aquatic habitat. Terrestrial habitat for western painted turtles includes shrubland and grassland areas adjacent to waterbodies; temporary disturbance to grasslands will likely last between 3 and 7 years and temporary disturbances to shrublands between 30 and 100 years. Western toads use a variety of grassland, shrubland, woodland, and forest habitats outside of the breeding season; temporary impacts to these habitats will likely last between 3 and 7 years in grasslands, between 30 and 100 years in shrublands, and between 50 and many hundreds of years in woodland and forest habitats. IPC has proposed measures to avoid and minimize impacts to fish and wildlife species, as well as aquatic and terrestrial habitats (see Section 3.5.6). Moreover, the duration of temporary impacts to these habitats will vary depending on vegetation type as described in Section 3.5.2; mitigation will be commensurate with impact duration as described in the Fish and Wildlife HMP (Attachment P1-6).

3.5.5.6 Fish

State Sensitive fish species with potential to occur within the analysis area include Columbia Basin rainbow trout, Lower Snake River summer steelhead, Middle Columbia River summer steelhead, Pacific lamprey, and western brook lamprey. Habitat would vary among these fish species depending on their distribution. Based on results presented in the Fish Habitat Report (Attachment P1-7B), the most complete known distribution for any of the State Sensitive fish species in the analysis area is for the trout and steelhead species. Pacific lamprey and western brook lamprey habitat is not well documented in the analysis area, but would not extend outside of streams known to contain rainbow trout. Therefore, potential impacts to the known rainbow trout habitat are used as a proxy for potential effects to Pacific lamprey and western brook lamprey habitat within the analysis area.

Impacts to State Sensitive fish species and their habitat will occur at locations where the Project either crosses areas that contain fish, at crossings directly upstream of occupied areas (approximately 600 feet upstream⁶), as well as occupied areas that are not directly crossed but which are located adjacent to general soil disturbance and vegetation clearing. The amount of

⁶ Research by Ritter (1984) suggests that noticeable increases in suspended sediment (e.g., over 20 milligrams per liter) would not likely occur within 100 feet downstream for small perennial streams and possibly about 200 feet for large perennial streams. These results from Ritter (1984), as well as other studies, were utilized for streams crossed by transmission lines or roads where actions actually disturb the stream bank or bottom (see further discussion below discussing turbidity and sedimentation potential impacts). Based on these studies, 600 feet was used to evaluate the distance sediment could be transported to or within a fish-bearing stream.

soil disturbance adjacent to waterbodies, as well as the number of waterbody crossings, the types of waterbodies crossed (e.g., intermittent or seasonally dry ephemeral, versus perennial streams), and the methods used to cross these waterbodies (i.e., transmission line spanning waterbodies versus access roads directly crossing them), will affect the type and magnitude of impacts that could occur to fish species and their habitats. Potential Project-related impacts to fish species/habitats could include alterations to LWD input, temperature, suspended sediment, sedimentation, as well as the toxic effect of spills and use of chemicals adjacent to or within waterbodies.

As currently proposed, the transmission line will span 47 fish-bearing streams and 18 roads will cross fish-bearing streams that will require modifications to the road or the stream crossing (Table P1-18). All of these crossings would potentially include Columbia Basin rainbow trout. The occurrence of sensitive species at the crossings (or within 600 feet upstream of the crossing location) is provided in Table P1-18. The fish passage plans and designs for the seven temporary road crossing structures that will require review by the ODFW are provided in Exhibit BB, Attachment BB-3. Of these seven crossings, none of the crossings will require work inside the channel bankfull margins. In addition, there are two road crossings located 600 feet upstream of fish-bearing streams; however, there will be no improvement to the existing crossing structures at these two crossings, as only the roads will be improved. Table P1-18 documents the crossings and associated general soil disturbance and riparian forest vegetation clearing.

Removal of riparian vegetation can have several potential adverse effects to aquatic systems, including an increase in erosion, reduced filtration of run-off, destabilization of stream banks, reduction of stream shade, reduced input of important terrestrial food source (i.e., allochthonous input), and a decrease in the availability of LWD. Riparian vegetation loss will initially occur during construction; however, ongoing vegetation maintenance in forested habitats will result in a permanent loss of taller trees within the analysis area of the transmission line. As the Project crosses through mostly low-lying shrubland vegetation, and forested/woodland habitats are mostly restricted to the Blue Mountains region, removal of trees in riparian areas is expected to be low (see Table P1-18). Furthermore, in areas spanned by the transmission line, trees will not be removed as long as the height of the tree (once mature) will not come within 50 feet of the wires (see Attachment P1-4, Vegetation Management Plan).

Construction of new and improvement of existing access roads across forested riparian areas could also result in removal of trees within the extent of the road bed. These roads will typically consist of a 14- to 16-foot-wide cleared area on flat ground, but may be up to 30 feet wide in some sloping areas to accommodate cut or fill. Of the 18 crossings over fish-bearing streams, 2 will be on new roads, 3 on roads needing 21 to 70 percent improvement, 7 on roads needing 71 to 100 percent improvement, and 6 on existing roads not requiring improvements other than temporary structures at the crossing locations. Due to the limited disturbance, road location, and vegetation type present at each of the 18 crossings, there will be some removal of woody vegetation from riparian areas at 5 of these crossings (see Table P1-18).

Table P1-18. Stream Crossing Characteristics of New or Reconstructed Project Roads and Transmission Lines Containing State Sensitive Trout and Steelhead

Route Name	County	Subbasin Name	Subbasin HUC	Crossing Type	MP ¹	Stream Name		Riparian Habitat Impacts at Crossing			Sensitive Fish Species at Crossing or as indicated within 600 feet Downstream			
						At Crossing Location	Tributary to:	Riparian Vegetation Type ²	Impact to Forested Riparian (acres) ³	Total Soil Impact within 500 feet of Stream (acres) ⁴	Known Habitat Use (excluding rainbow trout)	Columbia Basin Rainbow Trout	Middle Columbia River Summer Steelhead	Lower Snake River Summer Steelhead
Road Crossings⁵														
Proposed Route	Morrow, OR	Ayers Canyon-Butter Creek	170701030907	Road, Existing, 71-100% Improved	34.2	Butter Creek	Umatilla River	Non-forested	0.00	2.71		X		
Proposed Route	Umatilla, OR	West Birch Creek	170701030606	Road, Existing, 71-100% Improved	59.7	West Birch Creek	Birch Creek	Non-forested	0.00	0.73	Spawning/Rearing	X	X	
Proposed Route	Umatilla, OR	Lower East Birch Creek	170701030603	Road, Existing, 71-100% Improved	64.1	California Gulch	East Birch Creek	Mixed	0.02	0.46	Spawning/Rearing	X	X	
Proposed Route	Umatilla, OR	Lower East Birch Creek	170701030603	Road, Existing, 71-100% Improved	64.2	East Birch Creek	Birch Creek	Non-forested	0.00	0.34	Spawning/Rearing	X	X	
Proposed Route	Umatilla, OR	Stewart Creek-Birch Creek	170701030608	Road, Existing, 71-100% Improved	65.9	Ray Creek	Stewart Creek	Non-forested	0.00	0.69		X		
Proposed Route	Umatilla, OR	Wood Hollow-McKay Creek	170701030403	Road, Existing, 71-100% Improved	75.5	Unnamed Stream [1185935454536] (previously Wood Hollow)	McKay Creek	Mixed	0.11	0.40		X		
Proposed Route	Umatilla, OR	Wood Hollow-McKay Creek	170701030403	Road, Existing, 71-100% Improved	75.5	McKay Creek	Umatilla River	Mixed	0.12	0.31		X		
Proposed Route	Union, OR	Coleman Ridge-Grande Ronde River	170601040307	New, Primitive	99.6	Unnamed stream [1182366453311] ⁶	Grande Ronde River	Mixed	NA ⁷	NA ⁷	Spawning/Rearing (Steelhead), Migration (Bull Trout)	X ⁶		X ⁶
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Road, Existing, No Substantial Improvements	102.9	Little Rock Creek ^{8,9}	Rock Creek	Mixed	0.00	0.00	Spawning/Rearing	X		X
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Road, Existing, No Substantial Improvements	102.9	Rock Creek ^{8,9}	Grande Ronde River	Mixed	0.00	0.00	Spawning/Rearing	X		X
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Road, Existing, No Substantial Improvements	103.0	Rock Creek ^{8,9}	Grande Ronde River	Mixed	0.00	0.00	Spawning/Rearing	X		X
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Road, Existing, No Substantial Improvements	103.2	Rock Creek ^{8,9}	Grande Ronde River	Mixed	0.00	0.00	Spawning/Rearing	X		X
Morgan Lake Alternative	Union, OR	Upper Ladd Creek	170601040601	Road, New-Bladed	112.9	Unnamed stream [1180502451927]	Ladd Creek Pickup Ditch	Forested	0.16	0.88		X		
Proposed Route	Union, OR	East Fork Ladd Creek	170601040602	Road, Existing, 21-70% Improved	116.3	Unnamed Stream [1180266452136] (previously Ladd Canyon)	Ladd Creek Pickup Ditch	Mixed	0.07	0.38		X		
Proposed Route	Baker, OR	Powell Creek-Burnt River	170502020603	Road, Existing, 21-70% Improved	173.9	Powell Creek	Burnt River	Non-forested	0.00	0.37		X		
Proposed Route	Baker, OR	Dixie Creek	170502020807	Road, Existing, 21-70% Improved	183.6	Unnamed Stream [1173717444476] (previously Anderson Gulch) ⁶	Dixie Creek	Non-forested	NA ⁷	NA ⁷		X ⁶		
Proposed Route	Baker, OR	Jett Creek-Burnt River	170502020808	Road, New-Bladed	188.4	Goodman Creek ⁹	Burnt River	Non-forested	0.00	0.31		X		
Proposed Route	Baker, OR	Durbin Creek-Burnt River	170502020809	Road, Existing, No Substantial Improvements	190.7	Cavanaugh Creek ^{8,9}	Burnt River	Non-forested	0.00	0.00		X		
Proposed Route	Baker, OR	Benson Creek	170502010205	Road, Existing, No Substantial Improvements	195.4	Benson Creek ^{8,9}	Snake River	Non-forested	0.00	0.97				

Route Name	County	Subbasin Name	Subbasin HUC	Crossing Type	MP ¹	Stream Name		Riparian Habitat Impacts at Crossing			Sensitive Fish Species at Crossing or as indicated within 600 feet Downstream				
						At Crossing Location	Tributary to:	Riparian Vegetation Type ²	Impact to Forested Riparian (acres) ³	Total Soil Impact within 500 feet of Stream (acres) ⁴	Known Habitat Use (excluding rainbow trout)	Columbia Basin Rainbow Trout	Columbia River Summer Steelhead	Lower Snake River Summer Steelhead	Bull Trout
Proposed Route	Owyhee, ID	Hardtrigger Creek	170501030701	Road, Existing, 21-70% Improved	288.9	Hardtrigger Creek	Snake River	Non-forested	0.00	0.43					
Transmission Line Crossings															
Proposed Route	Morrow, OR	Middle Little Butter Creek	170701031002	Transmission Line	27.7	Little Butter Creek	Butter Creek	Non-forested	0.00	0.00		X			
Proposed Route	Morrow, OR	Ayers Canyon-Butter Creek	170701030907	Transmission Line	28.1	Butter Creek	Umatilla River	Non-forested	0.00	0.00		X			
Proposed Route	Morrow, OR	Ayers Canyon-Butter Creek	170701030907	Transmission Line	34.2	Butter Creek	Umatilla River	Non-forested	0.00	0.63		X			
Proposed Route	Umatilla, OR	Hog Hollow-Butter Creek	170701030904	Transmission Line	50.1	Butter Creek	Umatilla River	Non-forested	0.00	0.27		X			
Proposed Route	Umatilla, OR	Bear Creek-West Birch Creek	170701030604	Transmission Line	58.6	Bear Creek	West Birch Creek	Non-forested	0.00	0.00	Spawning/Rearing	X	X		
Proposed Route	Umatilla, OR	West Birch Creek	170701030606	Transmission Line	59.7	West Birch Creek	Birch Creek	Non-forested	0.00	0.06	Spawning/Rearing	X	X		
Proposed Route	Umatilla, OR	Lower East Birch Creek	170701030603	Transmission Line	64.1	California Gulch	East Birch Creek	Non-forested	0.00	0.37	Spawning/Rearing	X	X		
Proposed Route	Umatilla, OR	Lower East Birch Creek	170701030603	Transmission Line	64.7	East Birch Creek	Birch Creek	Non-forested	0.00	1.34	Spawning/Rearing	X	X		
Proposed Route	Umatilla, OR	Sevenmile Creek-McKay Creek	170701030406	Transmission Line	75.6	McKay Creek	Umatilla River	Mixed	1.00	0.16		X			
Proposed Route	Umatilla, OR	Wood Hollow-McKay Creek	170701030403	Transmission Line	80.3	Rail Creek	McKay Creek	Forested	1.49	0.00		X			
Proposed Route	Umatilla, OR	Beaver Creek-Meacham Creek	170701030201	Transmission Line	83.4	Little Beaver Creek	Beaver Creek	Forested	1.49	0.28	Spawning/Rearing	X	X		
Proposed Route	Umatilla, OR	Beaver Creek-Meacham Creek	170701030201	Transmission Line	84.8	Beaver Creek	Meacham Creek	Forested	1.49	1.15	Spawning/Rearing	X	X		
Proposed Route	Union, OR	Pelican Creek	170601040402	Transmission Line	94.8	Dry Creek	Pelican Creek	Forested	1.49	1.12	Spawning/Rearing	X	X		
Proposed Route	Union, OR	Coleman Ridge-Grande Ronde River	170601040307	Transmission Line	99.5	Grande Ronde River	Snake River	Mixed	0.88	0.00	Spawning/Rearing (Steelhead), Migration (Bull Trout)	X		X	
Morgan Lake Alternative	Union, OR	Coleman Ridge-Grande Ronde River	170601040307	Transmission Line	99.6	Grande Ronde River	Snake River	Mixed	0.68	0.00	Spawning/Rearing (Steelhead), Migration (Bull Trout)	X		X	
Proposed Route	Union, OR	Rock Creek	170601040306	Transmission Line	101.1	Rock Creek	Grande Ronde River	Mixed	0.23	0.00	Spawning/Rearing	X		X	
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Transmission Line	101.5	Graves Creek	Rock Creek	Forested	1.49	0.13	Spawning/Rearing	X		X	
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Transmission Line	101.8	Rock Creek	Grande Ronde River	Mixed	1.46	0.50	Spawning/Rearing	X		X	
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Transmission Line	102.5	Sheep Creek	Rock Creek	Forested	1.49	0.27	Spawning/Rearing	X		X	

Route Name	County	Subbasin Name	Subbasin HUC	Crossing Type	MP ¹	Stream Name		Riparian Habitat Impacts at Crossing			Sensitive Fish Species at Crossing or as indicated within 600 feet Downstream				
						At Crossing Location	Tributary to:	Riparian Vegetation Type ²	Impact to Forested Riparian (acres) ³	Total Soil Impact within 500 feet of Stream (acres) ⁴	Known Habitat Use (excluding rainbow trout)	Columbia Basin Rainbow Trout	Columbia River Summer Steelhead	Lower Snake River Summer Steelhead	Bull Trout
Morgan Lake Alternative	Union, OR	Rock Creek	170601040306	Transmission Line	104.2	Sheep Creek	Rock Creek	Mixed	1.32	0.00	Spawning/Rearing	X		X	
Proposed Route	Union, OR	Gekeler Slough	170601040603	Transmission Line	106.5	Mill Creek	Gekeler Slough	Forested	1.49	0.00	Spawning/Rearing	X		X	
Proposed Route	Union, OR	Lower Ladd Creek	170601040604	Transmission Line	114.1	Ladd Creek Pickup Ditch	Catherine Creek	Mixed	0.03	0.00	Spawning/Rearing	X		X	
Morgan Lake Alternative	Union, OR	Upper Ladd Creek	170601040601	Transmission Line	115.2	Ladd Creek Pickup Ditch	Catherine Creek	Mixed	1.48	0.00		X			
Proposed Route	Union, OR	East Fork Ladd Creek	170601040602	Transmission Line	115.8	Unnamed Stream [1180266452136] (previously Ladd Canyon)	Ladd Creek Pickup Ditch	Mixed	0.19	0.00		X			
Proposed Route	Union, OR	Jimmy Creek	170502030603	Transmission Line	124.7	Clover Creek	Jimmy Creek	Non-forested	0.00	0.00		X			
Proposed Route	Union, OR	Jimmy Creek	170502030603	Transmission Line	124.9	Jimmy Creek	Powder River	Non-forested	0.00	0.00		X			
Proposed Route	Union, OR	Thief Valley Reservoir-Powder River	170502030605	Transmission Line	128.2	Powder River	Snake River	Non-forested	0.00	0.00		X			
Proposed Route	Baker, OR	Lower Alder Creek	170502020703	Transmission Line	166.0	Alder Creek	Pritchard Creek	Non-forested	0.00	0.02		X			
Proposed Route	Baker, OR	Powell Creek-Burnt River	170502020603	Transmission Line	171.3	Burnt River	Snake River	Mixed	0.43	0.00		X			
Proposed Route	Baker, OR	Powell Creek-Burnt River	170502020603	Transmission Line	175.0	Powell Creek	Burnt River	Mixed	0.74	0.00		X			
Proposed Route	Baker, OR	Dixie Creek	170502020807	Transmission Line	185.4	Dixie Creek	Burnt River	Non-forested	0.00	4.16		X			
Proposed Route	Baker, OR	Jett Creek-Burnt River	170502020808	Transmission Line	188.3	Goodman Creek	Burnt River	Non-forested	0.00	2.58		X			
Proposed Route	Baker, OR	Durbin Creek-Burnt River	170502020809	Transmission Line	190.7	Cavanaugh Creek	Burnt River	Non-forested	0.00	0.00		X			
Proposed Route	Baker, OR	Durbin Creek-Burnt River	170502020809	Transmission Line	192.8	Durbin Creek	Burnt River	Non-forested	0.00	0.71		X			
Proposed Route	Baker, OR	Benson Creek	170502010205	Transmission Line	195.0	Benson Creek	Snake River	Non-forested	0.00	1.45		X			
Proposed Route	Malheur, OR	Lower Birch Creek	170502010204	Transmission Line	199.1	Birch Creek	Snake River	Non-forested	0.00	0.00		X			
Proposed Route	Malheur, OR	Willow Creek	170501190603	Transmission Line	215.7	Willow Creek	Malheur River	Non-forested	0.00	6.76		X			
Proposed Route	Malheur, OR	Swede Flat Creek-Cottonwood Creek	170501180303	Transmission Line	226.8	Cottonwood Creek	Bully Creek	Non-forested	0.00	1.37		X			
Proposed Route	Malheur, OR	Washington Creek-Bully Creek	170501180302	Transmission Line	228.4	Bully Creek	Malheur River	Non-forested	0.00	0.78		X			
Proposed Route	Malheur, OR	Vine Hill-Malheur River	170501170403	Transmission Line	231.9	Malheur River	Snake River	Mixed	0.14	1.22		X			
Proposed Route	Malheur, OR	Rock Spring Canyon-Owyhee River	170501100704	Transmission Line	255.2	Owyhee River	Snake River	Non-forested	0.00	0.00		X			
Proposed Route	Malheur, OR	South Alkali Creek-Succor Creek	170501030907	Transmission Line	266.9	Succor Creek	Snake River	Mixed	0.63	1.00		X			

Route Name	County	Subbasin Name	Subbasin HUC	Crossing Type	MP ¹	Stream Name		Riparian Habitat Impacts at Crossing			Sensitive Fish Species at Crossing or as indicated within 600 feet Downstream			
						At Crossing Location	Tributary to:	Riparian Vegetation Type ²	Impact to Forested Riparian (acres) ³	Total Soil Impact within 500 feet of Stream (acres) ⁴	Known Habitat Use (excluding rainbow trout)	Columbia Basin Rainbow Trout	Middle Columbia River Summer Steelhead	Lower Snake River Summer Steelhead
Proposed Route	Owyhee, ID	Middle Jump Creek	170501031002	Transmission Line	276.2	Poison Creek	(no outlet)	Non-forested	0.00	0.15		X		
Proposed Route	Owyhee, ID	Middle Jump Creek	170501031002	Transmission Line	278.0	Jump Creek	Snake River	Mixed	0.09	1.43		X		
Proposed Route	Owyhee, ID	Lower Squaw Creek	170501030703	Transmission Line	283.4	Squaw Creek	Snake River	Forested	1.49	0.29		X		
Proposed Route	Owyhee, ID	Hardtrigger Creek	170501030701	Transmission Line	289.2	Hardtrigger Creek	Snake River	Non-forested	0.00	1.59		X		
Proposed Route	Owyhee, ID	Lower Reynolds Creek	170501030604	Transmission Line	294.0	Reynolds Creek	Snake River	Non-forested	0.00	0.26		X		

¹ MP = milepost; the mileposts reflect the location of the crossing relative to the Proposed Route.

² Riparian areas were determined as one site-potential tree height (150 feet) 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.

³ Area of project right-of-way (ROW), plus any ground disturbance caused by construction outside of the ROW, within 150 feet of road and transmission line stream crossings, which are also classified as forested. This is the maximum potential removal of forest area; however, much of the area will not be cleared due to various lengths of transmission line spanning trees at most crossings.

⁴ Soil disturbance includes area of new and improved roads, tower pads and pulling sites within 500 feet of the stream at the specific crossing.

⁵ Roads at crossing were either "new," meaning a new road would be constructed to the crossing; "improved," meaning an existing road is present, but some modification will be needed on the road; or "unchanged," meaning the road is adequate but the stream crossing would need modification.

⁶ These crossings are of non-fish-bearing streams within 600 feet (stream distance) upstream of a fish bearing stream.

⁷ NA=no assessment of disturbance or vegetation removal were assessed at these crossings as they are not at fish-bearing stream crossings; however, they are included in the table as they occur within 600 feet upstream of fish-bearing streams.

⁸ These stream crossings were determined from field surveys to possibly need improvement even though no road improvements are planned.

⁹ Requires a temporary structure over a fish-bearing stream in Oregon and will require review by the ODFW (Exhibit BB, Attachment BB-3 provides the fish passage plans and designs).

Stream temperature can be affected by removal of streamside vegetation. For example, cool stream temperatures are required for proper completion of the life cycle functions of some fish species (e.g., salmon and trout in Northwest streams), while warm water temperatures can limit rearing, spawning, egg incubations, and migration of salmon and trout (ODEQ 1995; McCullough 1999; McCullough et al. 2001; Sauter et al. 2001; Ecology 2002; EPA 2003). For example, the maximum temperature in the short term (i.e., less than a week) that may cause direct mortality of salmon and trout ranges from about 22 to 26 degrees Celsius (°C) depending on the species (ODEQ 1995; Ecology 2002; EPA 2003). Under laboratory conditions, bull trout mortality has been documented in less than 24 hours when bull trout are exposed to temperatures of 26°C or more (Selong et al. 2001). Hicks (2000) recommended that daily maximum temperatures remain below 19 to 20°C to prevent directly lethal conditions to steelhead. Furthermore, rearing habitat quality may be reduced when temperature exceeds 12 to 20°C for extended periods, depending on species and food availability (EPA 2003), and bull trout do not typically utilize habitats where the water temperatures exceed 15°C.

Temperatures changes from loss of riparian vegetation are likely to be varied among streams. Generally, the larger the relative area exposed to solar radiation the greater the magnitude of temperature change. Total temperature change across a cleared area, however, would be greater in small streams than large ones, due largely to shallower depth and lower volume of water in smaller streams. However, as most of the riparian areas in the analysis area currently consist of shrubs and grasses, and much of this vegetation would not be permanently cleared by the Project, retained streamside vegetation is likely to be suitable to maintain adequate shade to prevent substantial temperature increases. DeWalle (2010) examined models of the effect of buffer height, width, and vegetation density on maintaining adequate shade on streams. He concluded that for a moderate to high density of canopy thickness, a ratio of buffer height to stream width of five would maintain adequate stream shade. This suggests that streams in the range of about 3 to 7 feet wide, with a vegetation buffer of 15 and 35 feet high or wide, may be adequately buffered to maintain temperature if the density of vegetation is high, indicating even moderate retention of vegetation could help moderate stream water temperatures crossed by the Project. As a result, Project actions would not likely result in a substantial temperature increase that could result in a biological effect at most locations that contain fish resources.

Clearing of riparian vegetation at transmission line crossings and other construction facilities can reduce the source and quantity of LWD to streams. LWD present in streams will take decades to decay for the larger pieces (Murphy and Koski 1989). Beechie et al. (2000) considered 1.5 to 2.0 percent per year loss of in-stream LWD in Northwest streams to be reasonable. Thus, much of the current LWD in streams will remain over several decades. However, in the long term, at the transmission line crossings of streams LWD quantity will be reduced, resulting in reducing overall local and possibly downstream habitat conditions. The area of wooded riparian vegetation removed, assuming complete removal of all trees within one site potential tree height (150 feet) on each side of the stream crossing, is shown in Table P1-16. This could reduce site-specific LWD supply directly in fish streams.

The clearing of riparian vegetation, installation or modification of stream crossing structures, as well as the presence and use of access roads can increase the input of sedimentation into adjacent waterbodies. Increased turbidity and sedimentation can impact fish behavior and physiological processes (e.g., blood chemistry, gill trauma, immune system resistance), and can result in reduced growth, health, and an increase in the risk of mortality. Sediment entering the water column can be redeposited on downstream substrates, which could bury aquatic macroinvertebrates (an important food source for some fish species). Additionally, downstream sedimentation could impact spawning habitat, spawning activities, eggs, larvae, and juvenile fish survival, as well as benthic community diversity and health. Because the impacts of increased sedimentation and turbidity are often limited to the period of work / soil disturbance, the duration

of these impacts is expected to be relatively short. However, specific site characteristics including flow, substrate composition, relative disturbance, and other factors could extend the duration of construction impacts. Construction of access roads across waterbodies and installation or modification of stream crossing structures, as well as any other in-water work, is typically a major contributor to waterbody sedimentation. As presented in Table P1-18, 7 roads will cross fish-bearing streams that will require temporary structures over the road crossings. None of these 7 crossings will require work to be done inside the channel bankfull margins; no other instream work will occur for the other 11 crossings on fish-bearing streams. In addition to those 7 crossings over fish-bearing streams, there are 2 road crossings located 600 feet upstream of fish-bearing streams; however, at these 2 crossings there will be no improvement to the existing crossing structure, as only the roads will be improved.

Use of existing access roads, soil disturbance adjacent to waterbodies, as well as clearing of riparian vegetation in areas where the transmission line would span waterbodies would, however, contribute to the risk of erosion and sedimentation. Two of the most important factors in determining the risk of erosion and sedimentation to streams are soil disturbance (e.g., from existing roads, tower pads, clearing of vegetation) distance from the stream and the presence of vegetation between the disturbance and the stream (MacDonald et al. 2001; Croke and Hairsine 2006; Rashin et al. 2006; Olsen et al. 2007; McCune 2010). Some studies noted that approximately 100-foot vegetated buffers have been considered effective at reducing sediment to streams from land-disturbing activities (Croke and Hairsine 2006; Olsen et al. 2007). Modeling by Olsen et al. (2007), however, noted large contributions of sediment from beyond this distance with or without buffers. McCune (2010) found that direct connection of flow from roads, which would include sediment, decreased linearly for a distance up to about 660 feet (200 meters). Knutson and Naef (1997) summarized literature on riparian function, including riparian distance considered suitable to adequately reduce sediment entry from overland runoff to streams. The maximum vegetative buffer distance considered in the literature to adequately control sediment entry to water bodies was 300 feet (Knutson and Naef 1997). Based on these studies the total ground disturbance area proximity to the streams can influence sediment contribution to streams, with potential increases in erosion and sedimentation associated with soil disturbance between 100 and 660 feet. Considering the varied results from literature and likely vegetation disturbance resulting from project activities, a distance of 500 feet was considered conservative for potential sediment movement to streams from soil disturbance activity.

Regarding downstream sediment transport, Ritter (1984) developed a model estimating downstream distance and concentration of suspended sediment from construction of a pipeline from wet bottom trenching (i.e., a very significant form of stream bottom disturbance). This form of bottom disturbance is likely much greater than what will occur from normal stream crossing related to transmission line construction activities. Transmission line disturbance is likely more similar to, but much less than, the "dry" crossing pipeline construction type, in which bottom disturbance is isolated from flowing water (e.g., empirical suspended sediment data by Reid et al. [2002] found that dry, open-cut pipeline installation produced about one-seventh the amount of sediment produced by wet cut pipeline methods). Adjusting the Ritter (1984) wet bottom trenching model for the lower suspended sediment concentration (in proportion to estimates for dry crossing method) suggests that noticeable increases in suspended sediment (e.g., over 20 milligrams per liter) will not likely occur within 100 feet downstream for small fish streams and possibly about 200 feet for large fish streams crossed by the transmission line where actions actually disturb the stream bank or bottom. This estimate is likely still higher than what is likely to occur from transmission line stream crossings that will occur as a result of the Project. It should be noted that turbidity levels (as measured in nephelometric turbidity units) are strongly correlated with suspended sediment levels (Lloyd et al. 1987; Rosetta 2005) and will follow similar patterns of change in magnitude.

The FWS (2004 and 2007) evaluated potential effects associated with construction of stream crossing structures and instream restoration projects and identified that turbidity and sedimentation plums may occur up to 600 feet downstream of individual projects. In addition, the FWS (2004 and 2007) documented that besides direct construction, turbidity and sedimentation plums could also affect fish during the initial seasonal high flows for brief periods (e.g., 3 hours). Based on the literature from Ritter (1984), Reid et al. (2002), and FWS (2004 and 2007), increased turbidity and sedimentation could occur between 100 and 600 feet downstream of a crossing, with the potential to impact State Sensitive fish species and their habitat. Considering the varied results from literature, a distance of 600 feet was used to evaluate the distance sediment could be transported to or within a fish-bearing stream.

To reduce the potential for the Project to increase sedimentation and turbidity resulting from clearing of riparian vegetation, installation or modification of stream crossing structures, as well as the presence and use of access roads, IPC has developed various construction and operation plans, including the Vegetation Management Plan (see Attachment P1-4; Fish and Wildlife Conditions 5, 17, and 27) and the Reclamation and Revegetation Plan (see Attachment P1-3; Fish and Wildlife Conditions 4 and 16).

Unrestricted access to habitat is important for both resident and anadromous salmonids. Upstream-migrating fish require access to suitable spawning gravel and juvenile fish must be able to disperse upstream and downstream to take advantage of available rearing habitat. If culverts or other types of road crossing structures are poorly designed, constructed, or maintained, they can affect the population of entire stream drainages. As presented in Table P1-18, 18 roads will cross fish-bearing streams that will require improvements, with 7 of the 18 requiring temporary road crossing structures that will be reviewed by the ODFW. The fish passage plans and designs prepared for ODFW review are provided in Exhibit BB, Attachment BB-3. None of these 7 crossings will require work to be done inside the channel bankfull margins. If any future route modification require road crossing improvement or modifications beyond those identified in the fish passage plans, IPC will install all culverts or other stream crossing structures in accordance with ODFW fish passage rules and approvals. In addition, any crossing structure not already approved will be installed in accordance with BLM and USFS requirements on federally managed lands. As a result of these fish passage plans and designs, as well as the overall Project designs to minimize the number of fish-bearing crossings, the Project is unlikely to adversely affect fish passage. To ensure compliance with the Fish Passage Plan, IPC proposes the following site certificate conditions:

Other Information Condition 1: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Fish Passage Plan. The protective measures described in the draft Fish Passage Plan in ASC Exhibit BB, Attachment BB-2, shall be included as part of the final Fish Passage Plan, unless otherwise approved by the department.*

Other Information Condition 4: *During construction, the certificate holder shall conduct all work in compliance with the final Fish Passage Plan referenced in Other Information Condition 1.*

Another potential impact to fish habitat during construction is the risk of hazardous materials entering surface water supplies. For example, petroleum products entering streams can have direct toxic effects to fish and indirect effects by impacting aquatic macroinvertebrates (i.e., a major food source for fish). With the use of heavy and light equipment within the analysis area, there is the potential for spills of fuel and oils from storage containers, equipment working in or near streams, and fuel transfers. In addition, the construction of the tower footings would require the pouring of concrete. If wet concrete or concrete cleaning water enters streams, it could have

an adverse effect on fish and other aquatic organisms from elevation of pH levels (e.g., stress, injury). Herbicides used near waterbodies (used to control invasive-plant species) can leach into waterbodies, or run off into waterbodies during rain events. These herbicides can have adverse effects on fish species, resulting in reduced fitness or mortality. To reduce the risk of oils, wet concrete, or wash water entering streams, IPC will follow the avoidance and minimization measures outlined in the Spill Prevention, Containment, and Countermeasures (SPCC) Plan (see Exhibit G, Attachment G-4, as well as Exhibit J, which contains some of the preliminary measures that will be followed), which will be fully developed during final design of the Project and submitted to ODOE prior to construction of the Project. Both Exhibit G, Attachment G-4, and Exhibit J contain measures that will prevent hazardous substances from entering fish-bearing streams. Use of herbicides will follow agency-approved types and application methods on federal lands and manufacturer's recommendations on private lands (see Attachment P1-5, Noxious Weed Plan, and Attachment P1-4, Vegetation Management Plan), which will include restrictions on where herbicides could be used (e.g., restriction on use near waterbodies).

Fish salvage (i.e., removal or exclusion of fish from an area) is often necessary during installation of culverts or other crossing structures on perennial streams. Potential adverse effects of fish salvage include fish injury, stress, and direct mortality. Injury and stress could result in the individual fish becoming more susceptible to infection or predation, thereby resulting in mortality. All structure installations at the identified crossings will be temporary and require ODFW approval, however, and none of the crossings will require work within the bankfull channel. Therefore, the Project will not likely require any work area isolation and fish salvage. Although no fish salvage is currently proposed for the Project, any site related to the Project that requires work area isolation and fish salvage will adhere to the ODFW-approved methods and therefore limit potential adverse effects to fish species.

3.5.6 Measures to Avoid, Reduce, or Mitigate Adverse Effects

ORAR 345-021-0010(1)(p)(G): A description of any measures proposed by the applicant to avoid, reduce or mitigate the potential adverse impacts described in (F) in accordance with the ODFW mitigation goals described in ORAR 635-415-0025 and a discussion of how the proposed measures would achieve those goals.

This section describes the avoidance, minimization, and mitigation measures that have been and will be implemented to avoid, reduce, or mitigate potential adverse impacts to fish and wildlife habitat and State Sensitive species, and discusses how the proposed measures achieve ODFW habitat mitigation goals. Mitigation is further discussed in the Fish and Wildlife HMP (Attachment P1-6).

3.5.6.1 Avoidance and Minimization Measures

Project Design

During initial routing of the Project, avoidance of sensitive resources related to fish and wildlife habitat and State Sensitive species was taken into consideration by IPC. Applicable sensitive resource areas that were avoided to the extent practical during the initial siting process included, but were not limited to:

- BLM-designated areas of critical environmental concern;
- BLM-designated wilderness study areas;
- Waterbodies and wetlands, including wild and scenic rivers and streams with special status species;

- FWS and NOAA Fisheries critical habitats for federal Endangered Species Act-listed species;
- Areas with sensitive wildlife resources, such as WAGS colonies, elk and mule deer winter range, sage-grouse habitat, and raptor nests;
- USFS-designated inventoried roadless areas; and
- Category 1 WAGS and State Sensitive wildlife habitat on the NWSTF Boardman.

To minimize impacts, the Project was designed to follow existing developments and utility corridors, such as existing roads and power lines, to the extent practical in order to consolidate impacts of the proposed line in areas that have already been disturbed, as opposed to impacting undisturbed areas.

IPC also conducted extensive public outreach, as well as consultations with land-managing agencies regarding possible route locations for the Project. A route that completely avoided impacts to all sensitive resources was not possible due to the distribution of sensitive resources across the landscape. As avoidance of one sensitive resource can often result in the route being located within range of another sensitive resource (e.g., avoiding forested habitats can cause the route to pass through more shrubland habitats), input from the public and land-managing agencies led to alternative routes that weighed avoidance of one resource against another. Documentation of the siting process is available in Exhibit B. Details regarding the siting process and the constraints considered during the development of the proposed and alternative routes are presented in the Project Siting Studies (Attachments B-1, B-2, and B-4 in Exhibit B).

Efforts to avoid and minimize impacts to fish species and habitat have been and will continue to be coordinated with ODFW as reflected in the fish passage plans and designs provided in Exhibit BB, Attachment BB-3.

Construction and Operation Plans

IPC has prepared a Reclamation and Revegetation Plan (Attachment P1-3), a Vegetation Management Plan (Attachment P1-4), a Noxious Weed Plan (Attachment P1-5), an SPCC Plan (Exhibit G, Attachment G-4), and an Erosion and Sediment Control Plan (ESCP) as part of the National Pollution Discharge Elimination System General Permit #1200-C (Exhibit I, Attachment I-3).

The Reclamation and Revegetation Plan describes and recommends actions that will minimize the effects associated with ROW preparation and the construction of Project facilities and will immediately stabilize disturbed areas to facilitate native plant revegetation. The Vegetation Management Plan describes the methods by which vegetation along the transmission line will be managed during operation of the Project, including the use of herbicides. The Noxious Weed Plan describes the measures that IPC will undertake to control noxious weed species and prevent the introduction of these species during construction and operation activities. The SPCC Plan outlines preventative measures and practices to reduce the likelihood of an accidental release of a hazardous or regulated liquid and, in the event such a release occurs, to expedite the response to and remediation of the release. The ESCP shows a representative 1-mile section of the Project and presents typical erosion and sediment control measures, BMPs, and notes for proper implementation of the plans. These plans will work to avoid and minimize the potential adverse impacts to fish and wildlife habitat presented in this Exhibit.

The Vegetation Management Plan, Reclamation and Revegetation Plan, and Noxious Weed Plan are addressed in Fish and Wildlife Conditions 4, 5, 6, 16, 17, 18, 27, and 28. IPC is proposing a site certificate condition in Exhibit G regarding an ODEQ-approved SPCC Plan and a site certificate condition in Exhibit I regarding an ODEQ-approved ESCP.

Environmental Training

Construction personnel will attend mandatory training on protection of sensitive resources, as well as the need to adhere to all applicable restrictions and permit requirements. The training will ensure that all Project personnel understand and are aware of the environmental requirements, protection measures, and compliance. To ensure compliance with the environmental training program, IPC proposes that the Council include the following condition in the site certificate providing that IPC will ensure all Project personnel are trained on environmental matters:

Fish and Wildlife Condition 9: *Prior to construction, the certificate holder shall train all construction personnel on the protection of cultural, paleontological, ecological, and other natural resources such as (a) federal and state laws regarding antiquities, paleontological resources, and plants and wildlife, including collection and removal; (b) the importance of these resources; (c) the purpose and necessity of protecting them; and (d) reporting and procedures for stop work.*

Seasonal Restrictions

During construction and operation, IPC will implement seasonal restrictions for big game habitat (Fish and Wildlife Condition 10), sage-grouse habitat (Fish and Wildlife Condition 11, Exhibit P2), raptor nests (Fish and Wildlife Condition 12), non-raptor breeding birds (Fish and Wildlife Condition 13), and fish-bearing streams. IPC will observe the seasonal fisheries restrictions listed in Table P1-19 below. In addition to the seasonal fisheries restrictions associated with in-water work actions, per the fish passage plans and designs (see Exhibit BB, Attachment BB-3) additional seasonal restrictions may apply to IPC operational use of each of the seven crossings following ODFW review and final approval of the plans and designs. These restrictions are described in detail in Exhibit BB, Attachment BB-3 (see Other Information Conditions 1 and 4).

Table P1-19. Seasonal Fisheries Restrictions for In-water Work Actions Recommended by the ODFW¹ Applicable to Proposed Road Stream Crossing Locations

Subbasin	Waterbody Crossed	Tributary to:	Date Range ¹	Location of Sensitive Fish Relative to Crossing
Rock Creek	Little Rock Creek	Rock Creek	July 1–October 31	At Crossing
Rock Creek	Rock Creek	Grande Ronde River	July 1–October 31	At Crossing
Rock Creek	Rock Creek	Grande Ronde River	July 1–October 31	At Crossing
Rock Creek	Rock Creek	Grande Ronde River	July 1–October 31	At Crossing
Jett Creek-Burnt River	Goodman Creek	Burnt River	July 1–October 31	At Crossing
Durbin Creek-Burnt River	Cavanaugh Creek	Burnt River	July 1–October 31	At Crossing
Benson Creek	Jordan Creek	Snake River	July 1–October 31	At Crossing

¹ Source: ODFW 2008

² In addition to seasonal restrictions associated with in-water work actions, additional seasonal restrictions may apply to use of each of the seven crossings following ODFW review and final approval of the plans and designs (see Exhibit BB, Attachment BB-3).

Avian Protection

In addition to applicable avian seasonal restrictions discussed above, IPC designed the Project in accordance with the APLIC suggested practices to minimize the potential impact of the Project on avian species, including State Sensitive avian species likely to use the analysis area. IPC will also adhere to its Avian Protection Plan (Attachment P1-9), which provides protocols for minimizing electrocution and collision events and managing nests during operations, including the protection of nests during vegetation management activities (see Fish and Wildlife Condition 22).

Mapping and Flagging of Sensitive Resources

IPC will develop a set of maps that depict the extent of spatial and/or temporal restriction areas within the analysis area. These maps will be maintained at the Project site. Sensitive wildlife resources that occur within or adjacent to the ROW and work areas will be flagged on the ground, where practical, to ensure they are avoided. IPC requests that the Council include the following condition in the site certificate regarding flagging of sensitive resources:

Fish and Wildlife Condition 15: *During construction, the 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 certificate holder shall submit a mapset showing the location of environmentally sensitive areas and restricted work zones to the department for its approval. The certificate holder shall make the mapset available to all construction personnel.

Wildlife Injury

IPC will implement traffic control measures to minimize the risk to wildlife of direct loss due to vehicle collision. This includes adhering to speed limits (see Fish and Wildlife Conditions 16 and 26) on Project roads and limiting access on Project roads (see Fish and Wildlife Condition 10 and Fish and Wildlife Condition 11 [Exhibit P2]).

3.5.6.2 Compliance with ODFW Fish Passage Rules

All historic and current fish-bearing streams associated with the Proposed Route and alternatives were surveyed where access was granted to IPC. Based on these surveys, fish distributions for the Project were developed by IPC and approved by ODFW. Utilizing the ODFW-approved fish distributions, Project roads that intersected fish streams were surveyed and evaluated to determine if a given crossing required a new or improvement to existing road crossing. This approach was intended to help meet ODFW Fish Passage Rules by surveying and evaluating each road crossing. As presented in Table P1-16, seven Project roads will cross fish-bearing streams that will require temporary structures over the road crossings. None of these 7 crossings will require work to be done inside the channel bankfull margins; no other instream work will occur for the other 11 crossings on fish-bearing streams.

The fish passage plans and designs for the seven road crossings that will require temporary structures are provided in Exhibit BB, Attachment BB-3. The development and future review and approval from the ODFW for these Project-related fish passage plans and designs demonstrates IPC's compliance with ODFW Fish Passage Rules. If any future route modification requires road crossing improvement or modifications beyond those identified, IPC

will install all culverts or other stream crossing structures in accordance with ODFW fish passage rules and approvals. Currently, no fish-bearing stream crossings occur on federally managed lands (BLM and USFS). If any future route modification requires road crossing improvement or modifications on federally managed lands, the crossing will be installed in accordance with BLM and USFS requirements on federally managed lands. IPC has developed the Fish Passage Plan to ensure compliance with the Fish Passage Rules, and IPC will conduct all work according to that plan (see Fish and Wildlife Conditions 15 and 16).

3.5.7 Monitoring Plan

OAR 345-021-0010(1)(p)(H): A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (G).

The Reclamation and Revegetation Plan and the Noxious Weed Plan both include monitoring components. IPC also will monitor mitigation actions to determine if mitigation performance measures have been met at habitat mitigation sites. The Fish and Wildlife HMP (Attachment P1-6) discusses habitat mitigation actions and will identify monitoring of those actions. In addition, as described in Exhibit BB, Attachment BB-3, any stream crossing structure put in place for the Project will be inspected for status within a week of any high-flow event during Project construction.

If an exception to Fish and Wildlife Condition 10 or Fish and Wildlife Condition 12 is approved by the Department, the justification may include a wildlife monitoring component. Each exception will be addressed on a case by case basis, and wildlife monitoring may not be needed to justify approval of the exception.

4.0 IDAHO POWER'S PROPOSED SITE CERTIFICATE CONDITIONS

IPC proposes the following site certificate conditions to ensure compliance with the relevant EFSC standards which are relevant to the analysis of fish and wildlife.

Prior to Construction

Fish and Wildlife Condition 1: *Prior to construction, the certificate holder shall conduct, as applicable, the following biological surveys on those portions of the site boundary that have not been surveyed at the time of issuance of the site certificate:*

- a. Northern Goshawk;
- b. American Three-Toed Woodpecker;
- c. Great Gray Owl;
- d. Flammulated Owl;
- e. Terrestrial Visual Encounter Surveys;
- f. Wetlands; and
- g. Fish Presence and Crossing Assessment Surveys.

Fish and Wildlife Condition 2: *Prior to construction, the certificate holder shall conduct, as applicable, the following biological surveys on all portions of the site boundary, regardless of whether those portions have been surveyed at the time of issuance of the site certificate:*

- a. Washington ground squirrels; and
- b. Raptor Nests.

Fish and Wildlife Condition 3: *Prior to construction, the certificate holder shall conduct a one-year traffic study in elk habitat (i.e., elk summer range and elk*

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Surrebuttal Testimony of Michael Ottenlips

Exhibit 2402

Excerpts from Exhibit P2 of the ASC

April 7, 2023

Exhibit P2 Greater Sage-Grouse

Boardman to Hemingway Transmission Line Project



*1221 West Idaho Street
Boise, Idaho 83702*

Mark Stokes, Project Leader
(208) 388-2483
mstokes@idahopower.com

Zach Funkhouser, Permitting
(208) 388-5375
zfunkhouser@idahopower.com

Application for Site Certificate

September 2018

impacts consistent with the Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). Additionally, compensatory mitigation for permanent and temporary impacts will be addressed in the Greater Sage-Grouse Habitat Mitigation Plan (Attachment P2-3).

3.7.3 Direct Impacts

With respect to sage-grouse, direct impacts are defined as those impacts that have “an adverse effect of a development action upon sage-grouse habitat which is proximal to the physical footprint of the development action in time and place” (OAR 635-140-0002(4)). Direct impacts may be permanent or temporary.

3.7.3.1 Permanent Direct Impacts

Table P2-3 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project’s potential permanent direct impacts to sage-grouse habitat.

Table P2-3. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Permanent Direct Impacts to Sage-Grouse Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Permanent direct impacts from vegetation clearing (transmission line, communication stations, and access roads)	Permanent direct	Construction, Operation	Life of the Project	As calculated by the Institute of Natural Resources on behalf of the State of Oregon	Permanent direct impacts from vegetation clearing will be mitigated as set forth in the Greater Sage-Grouse Habitat Mitigation Plan (Attachment P2-3).
Direct mortality	Permanent direct	Construction, Operation	Life of the Project	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	Mortality related to Project access roads will be mitigated by implementing speed limits and controlling access on Project roads within sage-grouse habitat, subject to approval by the relevant land management agency or landowner; mortality related to the transmission line will be addressed through avian-safe design measures.

Permanent Direct Impacts from Vegetation Clearing

Vegetation clearing to accommodate Project features required for operation will result in permanent direct impacts to fish and wildlife habitat through habitat loss. Permanent loss of habitat will occur within the operations disturbance areas for transmission structures, the Longhorn Station, communication stations, and access roads; the dimensions of these areas are summarized in Exhibit C, Section 3.4.

With respect to the permanent direct impacts specifically from access road construction and modification, details on road construction activities and methods, including types of improvements to existing roads and projected traffic volumes, are provided in Exhibit B, Attachment B-5 (Road Classification Guide and Access Management Plan), Exhibit U, and Attachment U-2 (Traffic and Transportation Management Plan). Access to construction sites will require both improvements to existing unpaved roads, as well as construction of new access roads. For existing roads that require substantial modification, proposed repair and/or construction activities will increase the width of the existing road prism, change the existing road alignment, use materials inconsistent with the existing road surface, and/or change the existing road profile, as well as meet additional criteria detailed in Exhibit B, Attachment B-5. New roads proposed to be constructed include both primitive and bladed roads. Primitive roads, commonly called “two track” or “overland travel” roads, will be created by direct vehicle use with little or no grading. Bladed roads will be constructed using heavy equipment and designed to support vehicular traffic; bladed road features typically include cuts and/or fills to construct a smooth travel surface and manage surface water drainage.

IPC will provide mitigation for permanent direct impacts resulting from construction and installation of Project features as set forth in the Sage-Grouse Habitat Mitigation Plan (Attachment P2-3). As discussed in the plan, Oregon is developing a Sage-Grouse Habitat Quantification Tool (HQT), which will estimate direct and indirect impacts to sage-grouse habitat resulting from transmission lines and roads (see below Section 3.4.7). ODFW has indicated that, pursuant to Executive Order No. 15-18 and ODFW’s Greater Sage-Grouse Conservation Strategy, IPC is required to account for direct and indirect impacts using the HQT. Consistent with that direction, IPC proposes that the Council include the following conditions in the site certificate providing that IPC will run the Project through the HQT to identify the related direct and indirect impacts:

Fish and Wildlife Condition 8: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Sage-Grouse Habitat Mitigation Plan.*

a. The certificate holder shall provide to the department the information necessary for the State of Oregon to calculate the amount of sage-grouse habitat compensatory mitigation required for the facility using Oregon’s Sage-Grouse Habitat Quantification Tool.

b. The final Sage-Grouse Habitat Mitigation Plan shall address the potential sage-grouse habitat impacts through mitigation banking, an in-lieu fee program, development of mitigation projects by the certificate holder, or a combination of the same.

i. To the extent the certificate holder shall develop its own mitigation projects, the final Sage-Grouse Habitat Mitigation Plan shall:

1. Identify the location of each mitigation site, including a map of the same;

2. Identify the number of credit-acres that each mitigation site will provide for the certificate holder;

3. Include a site-specific mitigation management plan for each mitigation site that provides for:

- A. A baseline ecological assessment;
- B. Conservation actions to be implemented at the site;
- C. An implementation schedule for the baseline ecological assessment and conservation actions;
- D. Performance measures;
- E. A reporting plan; and
- F. A monitoring plan.

ii. To the extent the certificate holder shall utilize a mitigation bank or in-lieu fee program, the final Sage-Grouse Habitat Mitigation Plan shall:

- 1. Describe the nature, extent, and history of the mitigation bank or in-lieu fee program; and
- 2. Identify the number of credit-acres that each mitigation site will provide for the certificate holder.

c. Oregon's Sage-Grouse Habitat Quantification Tool shall be used to calculate the amount of sage-grouse habitat compensatory mitigation required for the facility and the number of credit-acres that each mitigation site will provide for the certificate holder.

d. The Sage-Grouse Habitat Mitigation Plan may be amended from time to time by agreement of the certificate holder and the department. Such amendments may be made without amendment to the site certificate. The Council authorizes the department to agree to amendments of the plan and to mitigation actions that may be required under the plan; however, the Council retains the authority to approve, reject, or modify any amendment of the plan agreed to by the department.

Fish and Wildlife Condition 21: During construction, the certificate holder shall commence implementation of the conservation actions set forth in the final Sage-Grouse Habitat Mitigation Plan referenced in Fish and Wildlife Condition 8.

Fish and Wildlife Condition 25: During the third year of operation, the certificate holder shall provide to the department the information necessary for the State of Oregon to calculate the final amount of sage-grouse habitat compensatory mitigation required for the facility using Oregon's Sage-Grouse Habitat Quantification Tool. After receiving the calculations from the State, the certificate holder shall provide to the department a report demonstrating that sage-grouse habitat mitigation shall be commensurate with the final compensatory mitigation calculations.

a. The final calculations shall be based on the as-constructed facility.

b. Oregon's Sage-Grouse Habitat Quantification Tool shall be used to calculate the amount of sage-grouse habitat compensatory mitigation required for the facility, and the information from the pre- and post-construction traffic studies shall be used in the calculation.

Direct Mortality

Traffic-Related Mortality

Direct mortality to sage-grouse individuals may occur as a result of collisions with Project-related vehicles during construction or operation of the Project. IPC expects this risk to be very low, as sage-grouse will likely avoid the work sites and vehicles. The risk of traffic-related direct mortality can be avoided or minimized by having Project vehicles reduce their speed to a level

sufficient to anticipate and avoid striking sage-grouse individuals. Accordingly, to avoid or minimize direct mortality to sage-grouse, IPC proposes that the Council include the following conditions in the site certificate establishing speed limits on access roads where possible:

Fish and Wildlife Condition 16: *During construction, the 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 26: *During operation, the 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.*

Additionally, vehicle-wildlife collisions on Project access roads can be substantially reduced through controlling use of such roads. IPC will implement access control as set forth in the draft Road Classification Guide and Access Control Plan (Exhibit B, Attachment B-5). Access control may involve fencing, gates, barriers, and/or signage as preferred by the landowner while maintaining effectiveness. To avoid or minimize indirect impacts related to access roads, consistent with the Road Classification Guide and Access Control Plan, IPC proposes that the Council include the following conditions in the site certificate providing that access control will be pursued where possible:

Fish and Wildlife Condition 27: *During operation, the certificate holder shall employ access control on facility access roads within elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat), subject to approval by the applicable land-management agency or landowner.*

Transmission-Line-Collision Mortality

Direct mortality to individual sage-grouse may occur from collisions with Project structures (e.g., birds flying into wires). However, IPC expects the risk of mortality from such collisions to be very low. Additionally, the risk of sage-grouse mortalities occurring as a result of electrocutions is negligible for extra high-voltage transmission lines. This is because a bird would need to contact two phases of the line simultaneously to be electrocuted and the spacing between phases of the Project's transmission lines is much larger than the wing span of sage-grouse. Therefore, electrocution due to the transmission line is not considered likely. Even so, IPC is committed to designing and constructing the Project to avoid or minimize direct mortality to avian species by following practices set forth in IPC's Avian Protection Plan and certain other avian protection guidelines. IPC recommends that the Council adopt the following condition regarding the same:

Fish and Wildlife Condition 22: *During construction, the certificate holder shall construct the transmission line to avian-safe design standards consistent with the certificate holder's Avian Protection Plan (Idaho Power 2015).*

3.7.3.2 Temporary Direct Impacts

Table P2-4 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project’s potential temporary direct impacts to sage-grouse habitat.

Table P2-4. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Temporary Direct Impacts to Sage-Grouse and Their Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Temporary direct impacts from vegetation clearing (construction areas)	Temporary direct	Construction	Construction through re-vegetation	As calculated by the Institute of Natural Resources on behalf of the State of Oregon	Temporary direct impacts from vegetation clearing will be mitigated as set forth in the Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3) and the Sage-Grouse Habitat Mitigation Plan (Attachment P2-3).
Retirement	Temporary direct	Retirement	Retirement	Similar to construction related impacts	Similar to construction-related impacts

Temporary Direct Impacts from Vegetation Clearing

To provide for construction-related activities and installation of certain Project features, vegetation providing habitat for sage-grouse may be cleared within the Project’s right-of-way. In most areas, IPC will have a 250-foot-wide right-of-way in which to construct the 500-kV portions of the transmission line and a 100-foot-wide right-of-way to construct the 138-kV portions of the line. Temporary vegetation clearing activities encompass the entire footprint of pulling and tensioning sites, multi-use areas, and light-duty fly yards. Temporary clearing activities will also occur around the perimeter of permanent Project features including transmission structures, the Longhorn station, communication stations, and access roads. Areas cleared for construction activities, and not encompassed by permanent Project features or not needed for normal transmission line operation and maintenance will be reclaimed through measures described in IPC’s Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). To ensure the protective measures set forth in the draft Reclamation and Revegetation Plan are incorporated into the final Reclamation and Revegetation Plan (unless otherwise determined in consultation with relevant government agencies) and to ensure compliance with the final Reclamation and Revegetation Plan, IPC proposes that the Council include the following conditions in the site certificate providing for the same:

- Fish and Wildlife Condition 4:** *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Reclamation and Revegetation Plan. The protective measures described in the draft Reclamation and Revegetation Plan in ASC Exhibit P1, Attachment P1-3, shall be included and implemented as part of the final Reclamation and Revegetation Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 17: *During construction, the certificate holder shall conduct all work in compliance with the final Reclamation and Revegetation Plan referenced in Fish and Wildlife Condition 4.*

Sage-brush habitat that is cleared for construction will be restored and the duration of the impact will not exceed the life of the Project; thus, clearing vegetation followed by restoration constitutes a temporary impact to sage-grouse habitat. However, restoration of sage-brush can take decades and restoration to pre-construction conditions could span several generations of sage-grouse. Although the impact is temporary, the benefit of restoration might not be realized by sage-grouse in the short term and could constitute a long-term temporary impact. Regardless of the duration of the impact, temporary direct impacts from vegetation clearing will be quantified and mitigated pursuant to the Sage-Grouse Habitat Mitigation Plan (Attachment P2-3).

Retirement

Retirement of the Project would involve activities and equipment similar to those that would be used during construction. Therefore, potential impacts on sage-grouse during retirement of the Project would be similar to the temporary impacts described for construction.

3.7.3.3 Quantifying Direct Impacts

The State of Oregon, through the Institute for Natural Resources, is developing a Direct Impact Assessment Tool for calculating direct impacts from projects impacting sage-grouse habitat. By letter dated May 9, 2017, the Institute for Natural Resources provided to ODOE and IPC a preliminary analysis of the Project's direct impacts using the draft Direct Impact Assessment Tool. The Institute summarized its methodology as follows:

1. Identified the area of influence for transmission lines, using the following values: 200 feet for 500-kV lines, 150 feet for 230-kV lines, and 100 feet for 138-kV lines.
2. Overlaid the buffered Proposed Route and the operation-related project features shapefiles, dissolving the same to get an overall footprint of the Project's permanent components.
3. Added construction-related Project features shapefiles.
4. Clipped the Project features to the affected Priority Areas of Concern (PAC).
5. Calculated the Project area of influence relative to the total acres of each PAC.
6. Subtracted the calculated Project area of influence from the baseline development shapefiles to get the net area and acres of influence.

Access roads were included in the operation-related Project features (see Step 2). The roads were classified into five types based on whether they were existing or new, and the amount of improvement to existing roads. Despite this categorization, all access roads were included in the calculations. Many of the access roads were located under a transmission line, and therefore, the overlapping impacts did not contribute independently to the net area or acres of influence. Table P2-5 summarizes the results of that analysis.

Table P2-5. Direct Impacts to Sage-grouse Habitat in Oregon

Existing Conditions (acres)	Baker PAC	Cow Valley PAC
Total area	336,415	368,442
Total development	2,938	1,501
Development percent of total	0.87%	0.41%
Project Direct Impacts (acres)	Baker	Cow Valley
Permanent (operations)	347	179
Temporary (construction)	24	30
Overlap with existing baseline	(28)	(9)
Net Project impacts	343	200
Area Remaining for Development after the Project		
Acres remaining to the 3% threshold ¹	6,811	9,352
Percent remaining to the 3% threshold	2.02%	2.54%
Acres remaining to the 1% threshold ²	3,021	3,484
Percent remaining to the 1% threshold	0.90%	0.95%

¹ The 3% disturbance cap is intended to ensure that direct impacts do not exceed 3% of the total area in any Priority Area of Concern (PAC) (see OAR 660-023-0115(17)). The 1% metering threshold provides that the area of direct impact levels in any PAC does not increase by an amount greater than 1% of the total area of the PAC in any ten-year period (see OAR 660-023-0115(16)). The initial period commenced on the effective date of OAR 660-023-0115, which was July 24, 2015.

² The 1% metering threshold provides that the area of direct impact levels in any PAC does not increase by an amount greater than 1% of the total area of the PAC in any ten-year period (see OAR 660-023-0115(16)). The initial period commenced on the effective date of OAR 660-023-0115, which was July 24, 2015.

3.7.4 Indirect Impacts

With respect to sage-grouse, indirect impacts are defined as “adverse effects to sage-grouse and their habitat that are caused by or will ultimately result from implementation of a development action, with such effects usually occurring later in time or more removed in distance as compared to direct effects” (OAR 635-140-0002(6)). Indirect impacts may be permanent or temporary.

3.7.4.1 Permanent Indirect Impacts

Table P2-6 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project’s potential permanent indirect impacts to sage-grouse.

Table P2-6. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Permanent Indirect Impacts to Sage-Grouse and Sage-Grouse Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Permanent indirect impacts from the transmission line	Permanent indirect	Operation	Life of the Project	As calculated by the State of Oregon's Sage-Grouse Habitat Quantification Tool	Permanent indirect impacts from the transmission line will be mitigated as set forth in the Sage-Grouse Habitat Mitigation Plan (Attachment P2-3).
Permanent indirect impacts from the access roads	Permanent indirect	Operation	Life of the Project	As calculated by the State of Oregon's Sage-Grouse Habitat Quantification Tool	Permanent indirect impacts from the access roads will be mitigated by implementing speed limits; controlling access on Project roads within sage-grouse habitat, subject to approval by the relevant land management agency or landowner; and implementing the Sage-Grouse Habitat Mitigation Plan (Attachment P2-3).

Permanent Indirect Impacts from the Transmission Line

It has been suggested that transmission lines and other tall structures indirectly impact sage-grouse by offering opportunities for increased predator use thereby generating aversion behaviors among sage-grouse (Manier et al. 2014; Walters et al. 2014). However, evidence that sage-grouse instinctively avoid tall structures to avoid predators remains highly debated and there is a dearth of research addressing the issue (Manier et al. 2014). As described by Walters et al. (2014), most studies of the effects of development on sage-grouse were not designed to isolate the effect of tallness of a structure on a response variable. However, despite experiments to isolate an aspect of development, authors have attributed an observed pattern to a specific aspect of development. Thus, as stated in the U.S. Geological Survey sage-grouse conservation buffer document, caution should be used when interpreting the studies of the effects of development on sage-grouse (Manier et al. 2014). Indeed, findings from some studies suggest transmission lines result in no or limited indirect impacts on sage-grouse:

- LeBeau, C.W., J.L. Beck, G.D. Johnson, and M.J. Holloran. 2014. Short-term impacts of wind energy development on sage-grouse fitness. *Journal of Wildlife Management* 78:522-530 (suggesting that transmission lines were not actively avoided by female sage-grouse during the nesting and brood-rearing period in the study area).
- Blomberg, E.J., M.T. Atamian, and J.S. Sedinger. 2007. Greater Sage-Grouse (*Centrocercus urophasianus*) Nest Success Following Transmission Line Construction in Northern Nevada [Abstract]. In: Proceedings of the 26th Western Agencies Sage and Columbian Sharp-tailed Grouse Workshop, Mammoth Lakes, California, June 23-26 (suggesting that presence of a 345-kV transmission line in Nevada did not affect sage-

grouse nest success among 13 leks located approximately 0.5 to 15 kilometers [km] from the line).

- Wisinski, C.L. 2007. Survival and Summer Habitat Selection of Male Greater Sage-Grouse (*Centrocercus urophasianus*) in Southwestern Montana. M.S. Thesis. Montana State University, Bozeman (distance to power line variable was not found to be associated with sage-grouse habitat selection, suggesting that presence of transmission lines did not affect habitat selection by the male sage-grouse monitored during this study).
- Johnson, D.H., M.J. Holloran, J.W. Connelly, S.E. Hanser, C.L. Amundson, and S.T. Knick. 2011. Influences of environmental and anthropogenic features on Greater Sage-Grouse populations, 1997-2007. Pp. 407-450 in S.T. Knick and J.W. Connelly (editors). *Greater sage-grouse: Ecology and conservation of a landscape species and its habitats*. Studies in Avian Biology (vol. 38). University of California Press, Berkeley, CA (presence of power lines within 5 km and 18 km did not affect trends in lek counts).

Therefore, that tall structures cause avoidance behavior among sage-grouse is not supported based on the existing data (Walters et al. 2014) because most studies were not designed to isolate an effect of tallness. Among the authors suggesting such a correlation between tall structures and sage-grouse avoidance, there is no definitive methodology for quantifying those impacts.

Regardless of IPC's position on the issue, the State of Oregon has concluded that transmission lines have indirect impacts on sage-grouse habitat and Oregon's HQT will account for such indirect impacts. As discussed above, IPC has proposed a site certificate condition providing that IPC will run the Project through the HQT and provide mitigation commensurate with the HQT results (see also the Sage-Grouse Habitat Mitigation Plan (Attachment P2-3)).

Permanent Indirect Impacts from the Access Roads

New and substantially modified existing access roads are not expected to act as a barrier to sage-grouse movement. However, the introduction of traffic (i.e., motorized on- or off-road vehicles) and the presence of human activity on roads used for the Project potentially will have negative indirect impacts on sage-grouse. The indirect impacts may include reduced utilization of habitat, fragmentation of migration corridors, and the associated disruption of important sage-grouse life processes. Indirect impacts from roads to sage-grouse and sage-grouse habitat will be addressed through implementation of speed limits on Project access roads and controlling access on Project roads within sage-grouse habitat as set forth in the Road Classification Guide and Access Control Plan (Exhibit B, Attachment B-5). Additionally, Oregon's HQT addresses permanent indirect impacts from roads, and again, IPC will provide mitigation commensurate with the HQT results.

3.7.4.2 Temporary Indirect Impacts

Table P2-7 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential temporary indirect impacts in sage-grouse habitat.

Table P2-7. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Temporary Indirect Impacts to Sage-Grouse and Their Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Temporary indirect impacts from access roads	Temporary indirect	Construction	Construction	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts.	Temporary indirect impacts from access roads will be mitigated by implementing speed limits and controlling access on Project roads within sage-grouse habitat, subject to approval by the relevant land management agency or landowner; and implementing certain seasonal and spatial restrictions, subject to ODOE-approved variances.
Temporary indirect impacts from invasive species	Temporary direct	Construction	Construction through re-vegetation	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	Temporary indirect impacts from invasive species will be avoided, minimized or mitigated as set forth in the Noxious Weed Plan (Exhibit P1, Attachment P1-5) and Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3).

Temporary Indirect Impacts from the Access Roads

Construction activities will result in noise, visual disturbance from heavy equipment, traffic and people, fugitive dust dispersing from the immediate construction area, and small amounts of air pollution from construction equipment’s exhaust. Collectively, these impacts are referred to as

surface disturbance and can directly impact sage-grouse in the immediate vicinity of the Project. Individual sage-grouse may be disturbed if they were to occur in the Site Boundary or in close proximity to the Site Boundary, and the habitat near the construction area may temporarily be unsuitable during the construction period. Temporary direct impacts from surface disturbance will be limited to the immediate vicinity of the disturbance.

Noise would likely have the farthest-reaching effect (i.e., the effect of noise would extend farther from construction sites than dust or other disturbances). Some construction activities would likely result in sound levels beyond baseline ambient levels, with a maximum instantaneous predicted noise level of 80 to 90 A-weighted decibels at 50 feet from the work site. Increases in noise would be concurrent with any disturbance associated with the presence of humans and their activities (e.g., dust, visual disturbances, etc.). Surface disturbance has been associated with declines in lek attendance and negative population persistence (Johnson et al. 2011; Blickley et al. 2012). Thus, surface disturbance has been shown to affect sage-grouse and reduce the functionality of habitat at varying distances from the disturbance. These disturbances could render habitats unsuitable for a limited period of time, with disturbances ceasing once construction or maintenance activities have ceased. To avoid or minimize these impacts, IPC will implement speed limits and access control on Project roads in sage-grouse habitat, where possible.

Further, IPC will comply with certain spatial and timing restrictions near sensitive sage-grouse habitat, which would limit the construction window to time periods when sage-grouse are less sensitive to disturbances. IPC may seek exceptions to said timing restrictions if site conditions allow and subject to ODOE approval. For example, if sage-grouse are not using the sensitive habitat, IPC may request permission to start work in the area sooner than what would normally be allowed. IPC proposes the following site certificate conditions providing for the same:

Fish and Wildlife Condition 9: *Prior to construction, the certificate holder shall train all construction personnel on the protection of cultural, paleontological, ecological, and other natural resources such as (a) federal and state laws regarding antiquities, paleontological resources, and plants and wildlife, including collection and removal; (b) the importance of these resources; (c) the purpose and necessity of protecting them; and (d) reporting and procedures for stop work.*

Fish and Wildlife Condition 11: *During construction, the certificate holder shall not conduct ground-disturbing activities within sage-grouse areas of high population richness, core area habitat, low density habitat, or general habitat between March 1 to June 30. Upon request by the certificate holder, the department may provide exceptions to this restriction. The certificate holder's request must include a justification for the request, including any actions the certificate holder will take to avoid, minimize, or mitigate impacts to sage-grouse in the relevant area.*

Fish and Wildlife Condition 15: *During construction, the 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 certificate holder shall submit a mapset showing the location of environmentally sensitive areas and restricted work zones to the department for its approval. The certificate holder shall make the mapset available to all construction personnel.

IPC will develop a set of maps that depict the extent of spatial and temporal restriction areas within the analysis area. These maps will be maintained at the Project site to ensure construction workers are aware if and when their activities will occur within sage-grouse habitat and that the spatial and temporal restrictions discussed above would apply.

Temporary Invasive Species Impacts

The initial clearing of vegetation and resulting soil disturbance during construction could create optimal conditions for the establishment of invasive-plant species. The establishment of invasive-plant species can affect the quality of wildlife habitat through competition with, and the eventual replacement of desirable native plant species (Westbrook 1998). The replacement of native plant species can have various environmental effects on wildlife habitat, including changes in fire regime (e.g., increasing the frequency and severity of fires), changes in the nutrient regime of soils (thereby reducing the quality of forage species), increased soil erosion (resulting in additional loss of vegetated areas, as well as sedimentation to aquatic habitats), or reductions in the abundance of important forage species (due to invasive species excluding them from the area). These alterations to habitat quality can extend beyond the area of initial impacts (e.g., fires and/or invasive-plant species can spread to areas far beyond the initial disturbance/ignition). To avoid or minimize the risk of invasive-plant species spread or establishment, IPC will implement the Noxious Weed Plan (Exhibit P1, Attachment P1-5) and Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). IPC proposes that the Council include the following conditions in the site certificate regarding the Noxious Weed Plan:

Fish and Wildlife Condition 6: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Noxious Weed Plan. The protective measures as described in the draft Noxious Weed Plan in ASC Exhibit P1, Attachment P1-5, shall be included and implemented as part of the final Noxious Weed Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 19: *During construction, the certificate holder shall conduct all work in compliance with the final Noxious Weed Plan referenced in Fish and Wildlife Condition 6.*

Fish and Wildlife Condition 29: *During operation, the certificate holder shall conduct all work in compliance with the final Noxious Weed Plan referenced in Fish and Wildlife Condition 6.*

3.7.4.3 Quantifying Indirect Impacts

IPC's concerns with the uncertainty in the science regarding transmission lines indirect impacts aside, as discussed above, Oregon is developing its HQT to measure the quantity and quality (in terms of functional value) of sage-grouse habitat affected by certain development projects (see Oregon's Greater Sage-Grouse Habitat Mitigation Manual [Sage-Grouse Conservation Partnership 2015]). The HQT will capture both direct and indirect impacts. It will draw on both landscape-scale data and site-level information collected at the location of the relevant project. Individual indicators will be combined into themes, which are then summarized into a single functional acre score (see the Greater Sage-Grouse Habitat Mitigation Manual, Section 2.2). The HQT functional acre score will represent the amount of compensatory mitigation required for the relevant development project. The same HQT will be used to measure the benefits of crediting projects.

At this time, the HQT continues to be under development. Even so, ODFW has indicated the HQT will be finalized prior to commencement of construction on the Project and ODFW intends that IPC utilize the HQT to calculate the Project's impacts to sage-grouse habitat. Accordingly,

in this application, IPC has not quantified indirect impacts or the amount of compensatory mitigation required for the Project related to sage-grouse. Rather, the amount of sage-grouse habitat compensatory mitigation required for the Project will be determined by the HQT prior to commencement of construction.

The indirect impacts analysis will also account for temporary direct impacts as the indirect impacts analysis does not remove temporary direct impacts from the indirect impacts calculation. In other words, indirect impacts are analyzed from the feature (e.g., transmission line) and not from the edge of the construction area. Therefore, all temporary indirect effects are included in the debit calculation in the HQT as designed by ODFW.

Finally, it is IPC's understanding that the HQT analysis will take into consideration traffic volumes on Project roads. That being so, IPC will conduct a traffic study to evaluate pre- and post-construction traffic on public roads used for the Project. The traffic study will be conducted for one year in the year prior to construction, and for one year during the second year the Project is in operation to most accurately characterize traffic patterns. IPC's approach to identifying which Project road segments are included in the Site Boundary, and accordingly in the impact analysis, is set forth in Attachment B-5 of Exhibit B. To ensure compliance with the traffic monitoring program, IPC proposes that the Council include the following conditions in the site certificate providing that IPC will monitor traffic volumes in sage-grouse habitat:

Fish and Wildlife Condition 3: *Prior to construction, the certificate holder shall conduct a one-year traffic study in elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat). The certificate holder shall submit the traffic study to the department for its approval.*

Fish and Wildlife Condition 23: *During the second year of operation, the certificate holder shall conduct a one-year traffic study in elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat).*

Fish and Wildlife Condition 25: *During the third year of operation, the certificate holder shall provide to the department the information necessary for the State of Oregon to calculate the final amount of sage-grouse habitat compensatory mitigation required for the facility using Oregon's Sage-Grouse Habitat Quantification Tool. After receiving the calculations from the State, the certificate holder shall provide to the department a report demonstrating that sage-grouse habitat mitigation shall be commensurate with the final compensatory mitigation calculations.*

a. The final calculations shall be based on the as-constructed facility.

b. Oregon's Sage-Grouse Habitat Quantification Tool shall be used to calculate the amount of sage-grouse habitat compensatory mitigation required for the facility, and the information from the pre- and post-construction traffic studies shall be used in the calculation.

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Surrebuttal Testimony of Michael Ottenlips

Exhibit 2403

Excerpts from Exhibit P3 of the ASC

April 7, 2023

Exhibit P3 Elk Winter Range and Summer Range

Boardman to Hemingway Transmission Line Project



1221 West Idaho Street
Boise, Idaho 83702

Mark Stokes, Project Lead
(208) 388-2483
mstokes@idahopower.com

Zach Funkhouser, Permitting
(208) 388-5375
zfunkhouser@idahopower.com

Application for Site Certificate

September 2018

The Morgan Lake Alternative will include the following Project features in elk summer range: the transmission line (15.61 line miles), new access roads (12.56 miles), substantially modified existing roads (14.52 miles), and one communication station (CS UN-02 ALT). There will be no multi-use areas or light-duty fly yards in elk summer range for the Morgan Lake Alternative.

The Double Mountain Alternative will not include any Project features in elk summer range.

Neither of the Bombing Range Road alternatives will include any Project features in elk summer range.

3.5.2 Duration of Impacts

Impacts may be permanent or temporary. Permanent impacts are defined as those impacts that will exist for the entire life of the Project. Temporary impacts are those impacts that will last for a time less than the life of the Project. Within elk winter range and summer range, the duration of temporary impacts to habitat will vary by vegetation type. For example: the recovery period for agricultural areas that were directly disturbed could be as short as 1 to 3 years; grasslands and herbaceous wetlands generally recover within 3 to 7 years; shrublands may require 30 to 100 years to recover (with the longer recovery periods associated with disturbances in mature sagebrush habitats located in arid regions or for specific sagebrush species; e.g., *Artemisia tridentata* ssp. *wyomingensis*); and forested and woodland areas could take anywhere from 50 to many hundreds of years to reach preconstruction conditions (depending on the condition of the area prior to construction). Arid sites with naturally sparse vegetation, as well as those with saline or alkaline soils, shallow soils, compacted soils, or areas that have a high erosion potential may be difficult to restore and could require special techniques or repeated revegetation efforts by IPC. IPC will restore temporary impacts consistent with the Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). To the extent compensatory mitigation is required for temporary impacts, IPC will address the recovery periods associated with the lost habitat functionality as set for in the Fish and Wildlife Habitat Mitigation Plan (HMP; Exhibit P1, Attachment P1-6).

3.5.3 Direct Impacts

Direct impacts are defined as the impacts that will have an adverse effect upon elk habitat or elk individuals, and that will occur at the same, or in close proximity in, time and place. Direct impacts may be permanent or temporary.

3.5.3.1 Permanent Direct Impacts

Table P3-2 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential permanent direct impacts in elk winter range and summer range.

Table P3-2. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Permanent Direct Impacts to Elk and Elk Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Permanent direct impacts from vegetation clearing (transmission line, communication stations, and access roads)	Permanent direct	Construction, Operation	Life of the Project	Quantified based on construction dimensions	Permanent direct impacts from vegetation clearing will be mitigated as set forth in the Fish and Wildlife Habitat Mitigation Plan (Attachment P1-6); permanent direct impacts from vegetation clearing in forest lands in particular will be minimized as set forth in the Vegetation Management Plan (Attachment P1-4).
Direct mortality	Permanent direct	Construction, Operation	Life of the Project	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	Mortality related to Project access roads will be mitigated by implementing speed limits and controlling access on Project roads within elk habitat, subject to approval by the relevant land management agency or landowner.

Permanent Direct Impacts from Vegetation Clearing

Vegetation clearing to accommodate Project features required for operation will result in permanent direct impacts to fish and wildlife habitat through habitat loss. Permanent loss of habitat will occur within the operations disturbance areas for transmission structures, the Longhorn Station, communication stations, and access roads; the dimensions of these areas are summarized in Exhibit C, Section 3.4.

With respect to the permanent direct impacts from access road construction and modification, details on road construction activities and methods, including types of improvements to existing roads and projected traffic volumes, are provided in Exhibit B, Attachment B-5 (Road

Classification Guide and Access Management Plan), Exhibit U, and Attachment U-2 (Traffic and Transportation Management Plan). Access to construction sites will require both improvements to existing unpaved roads, as well as construction of new access roads. For existing roads that require substantial modification, proposed repair and/or construction activities will increase the width of the existing road prism, change the existing road alignment, use materials inconsistent with the existing road surface, and/or change the existing road profile, as well as meet additional criteria detailed in Exhibit B, Attachment B-5. New roads proposed to be constructed include both primitive and bladed roads. Primitive roads, commonly called a “two track” or “overland travel” roads, will be created by direct vehicle use with little or no grading. Bladed roads will be constructed using heavy equipment and designed to support vehicular traffic; bladed road features typically include cuts and/or fills to construct a smooth travel surface and manage surface water drainage.

IPC will provide mitigation for permanent direct impacts resulting from construction and installation of Project features as set forth in the draft Fish and Wildlife HMP (Exhibit P1, Attachment P1-6). IPC proposes the following conditions in the site certificate providing that IPC will finalize the draft Fish and Wildlife HMP and provide mitigation commensurate with the same:

Fish and Wildlife Condition 7: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Fish and Wildlife Habitat Mitigation Plan.*

- a. The final Fish and Wildlife Habitat Mitigation Plan shall include the following, unless otherwise approved by the department:*
 - i. The areas that were surveyed for biological resources;*
 - ii. The location of all facility components and related and supporting facilities;*
 - iii. The areas that will be permanently and temporarily disturbed during construction;*
 - iv. The protective measures described in the draft Fish and Wildlife Habitat Mitigation Plan in ASC Exhibit P, Attachment P-6; and*
 - v. The results of the biological surveys referenced in Fish and Wildlife Condition 1 and Fish and Wildlife Condition 2.*
- b. The final Fish and Wildlife Habitat Mitigation Plan shall address the potential habitat impacts through mitigation banking, an in-lieu fee program, development of mitigation projects by the certificate holder, or a combination of the same.*
 - i. To the extent the certificate holder shall develop its own mitigation projects, the final Habitat Mitigation Plan shall:*
 - 1. Identify the location of each mitigation site, including a map of the same;*
 - 2. Identify the number of credit-acres that each mitigation site will provide for the certificate holder;*
 - 3. Include a site-specific mitigation management plan for each mitigation site that provides for:*
 - A. A baseline ecological assessment;*
 - B. Conservation actions to be implemented at the site;*
 - C. An implementation schedule for the baseline ecological assessment and conservation actions;*
 - D. Performance measures;*
 - E. A reporting plan; and*
 - F. A monitoring plan.*
 - ii. To the extent the certificate holder shall utilize a mitigation bank or in-lieu fee program, the final Habitat Mitigation Plan shall:*

1. Describe the nature, extent, and history of the mitigation bank or in-lieu fee program; and
 2. Identify the number of credit-acres that each mitigation site will provide for the certificate holder.
- c. Oregon's Elk Mitigation Framework shall be used to calculate the amount of elk habitat compensatory mitigation required for the facility.
- d. The final Fish and Wildlife Habitat Mitigation Plan may be amended from time to time by agreement of the certificate holder and the Department. Such amendments may be made without amendment to the site certificate. The Council authorizes the department to agree to amendments of the plan and to mitigation actions that may be required under the plan; however, the Council retains the authority to approve, reject, or modify any amendment of the plan agreed to by the department.

Fish and Wildlife Condition 20: During construction, the certificate holder shall commence implementation of the conservation actions set forth in the final Fish and Wildlife Habitat Mitigation Plan referenced in Fish and Wildlife Condition 7.

Fish and Wildlife Condition 24: During the third year of operation, the certificate holder shall provide to the Department a report demonstrating that fish and wildlife habitat mitigation shall be commensurate with the final compensatory mitigation calculations.

- a. The final calculations shall be based on the as-constructed facility.
- b. Oregon's Elk Mitigation Framework shall be used to calculate the amount of elk habitat compensatory mitigation required for the facility, and the information from the pre- and post-construction traffic studies shall be used in the calculation.

Regarding forest lands in particular, permanent clearing will occur along the transmission line right-of-way (ROW) where necessary to meet reliability standards to protect the line from vegetation encroachments and hazards. A wire-border zone method will be used during maintenance of the ROW to control vegetation and to ensure adequate ground-to-conductor clearances (see Exhibit P1, Attachment P1-4, Vegetation Management Plan). This method results in two zones of clearing and revegetation. The wire zone includes the linear area along the ROW located under the wires as well as the area extending 10 feet outside of the outermost phase-conductor. After initial clearing, vegetation in the wire zone would be maintained to consist of native grasses, legumes, herbs, ferns, and other low-growing vegetation that remain under 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 would be maintained to consist of tall shrubs or short trees (up to 20 feet high at maturity), grasses, and forbs. These cover plants along the border zone benefit the ROW by competing with and excluding undesirable plants. During operations, vegetation growth will be monitored and managed on a routine cyclical clearing schedule (i.e., every 3 to 6 years) to maintain the wire-border zone objectives. In addition, hazard trees (i.e., trees that pose a risk of falling onto conductors, structures, or Project personnel) would be removed as needed. Maintenance efforts will be conducted around project structures and communication sites. ROW clearing for construction in forested/woodland habitats will remove thermal and hiding cover for elk; however, this clearing of vegetation has the potential to benefit elk in some situations by providing clearings for use in foraging or traveling (Rowland et al. 1983; Stewart et al. 2000).

To ensure the protective measures set forth in the draft Vegetation Management Plan in Exhibit P1, Attachment P1-4 are incorporated into the final plan (unless otherwise approved by ODOE) and to ensure compliance with the final Vegetation Management Plan, IPC proposes that the

Energy Facility Siting Council (EFSC or Council) include the following conditions in the site certificate:

Fish and Wildlife Condition 5: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Vegetation Management Plan. The protective measures described in the draft Vegetation Management Plan in ASC Exhibit P1, Attachment P1-4, shall be included as part of the final Vegetation Management Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 18: *During construction, the certificate holder shall conduct all work in compliance with the final Vegetation Management Plan referenced in Fish and Wildlife Condition 5.*

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

Direct Mortality

Direct mortality to individual elk may occur as a result of collisions with Project-related vehicles during construction or operation of the Project. IPC expects this risk to be very low. Moreover, the risk can be avoided or minimized by having Project vehicles reduce their speed to a level sufficient to anticipate and avoid striking individual elk. Accordingly, to avoid or minimize direct mortality to elk, IPC proposes the following conditions in the site certificate establishing speed limits on access roads where possible:

Fish and Wildlife Condition 16: *During construction, the 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 26: *During operation, the 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.*

Additionally, vehicle-wildlife collisions on Project access roads can be substantially reduced through controlling use of such roads. IPC will implement access control as set forth in the draft Road Classification Guide and Access Control Plan (Exhibit B, Attachment B-5). Access control may involve fencing, gates, barriers, and/or signage as preferred by the landowner while maintaining effectiveness. To avoid or minimize indirect impacts related to access roads, consistent with the Road Classification Guide and Access Control Plan, IPC proposes that the Council include the following condition in the site certificate providing that access control will be pursued where possible:

Fish and Wildlife Condition 27: *During operation, the certificate holder shall employ access control on facility access roads within elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat), subject to approval by the applicable land-management agency or landowner.*

3.5.3.2 Temporary Direct Impacts

Table P3-3 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential temporary direct impacts in elk winter range and summer range.

Table P3-3. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Temporary Direct Impacts to Elk and Elk Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Temporary direct impacts from vegetation clearing (construction areas)	Temporary direct	Construction	Construction through re-vegetation	Construction area dimensions	Temporary direct impacts from vegetation clearing will be mitigated as set forth in the Reclamation and Revegetation Plan (Attachment P1-3) and the Fish and Wildlife Habitat Mitigation Plan (Attachment P1-6).
Retirement	Temporary direct	Retirement	Retirement	Similar to construction related impacts	Similar to construction-related impacts

Temporary Direct Impacts from Vegetation Clearing

To provide for construction-related activities and installation of certain Project features, vegetation providing habitat for elk may be cleared within the Project's right-of-way. In most areas, IPC will have a 250-foot-wide ROW in which to construct the 500-kV portions of the transmission line and a 100-foot-wide ROW to construct the 138-kV portions of the line. Temporary vegetation clearing activities encompass the entire footprint of pulling and tensioning sites, multi-use areas, and light-duty fly yards. Temporary clearing activities will also occur around the perimeter of permanent Project features including transmission structures, the Longhorn station, communication stations, and access roads. Areas cleared for construction activities, and not encompassed by permanent Project features or not needed for normal transmission line operation and maintenance will be reclaimed through measures described in IPC's Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). To ensure the protective measures set forth in the draft Reclamation and Revegetation Plan are incorporated into the final Reclamation and Revegetation Plan (unless otherwise approved by ODOE) and to ensure compliance with the final Reclamation and Revegetation Plan, IPC proposes that the Council include the following conditions in the site certificate providing for the same:

Fish and Wildlife Condition 4: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Reclamation and Revegetation Plan. The protective measures described in the draft Reclamation and Revegetation Plan in ASC Exhibit P1, Attachment P1-3, shall be included*

and implemented as part of the final Reclamation and Revegetation Plan, unless otherwise approved by the department.

Fish and Wildlife Condition 17: *During construction, the certificate holder shall conduct all work in compliance with the final Reclamation and Revegetation Plan referenced in Fish and Wildlife Condition 4.*

Elk habitat that is cleared for construction will be restored and the duration of the impact will not exceed the life of the Project; thus, clearing vegetation followed by restoration constitutes a temporary impact to elk habitat. While restoration of certain elk habitat (e.g., forestlands) can take decades and restoration could span generations of elk, those impacts are considered temporary because they will last less than the life of the Project which is expected to be in place indefinitely. Regardless of the duration of the impact, temporary vegetation clearing will be quantified and mitigated pursuant to the Fish and Wildlife HMP (Exhibit P1, Attachment P1-6).

Retirement

Retirement of the Project would involve activities and equipment similar to those that would be used during construction. Therefore, potential impacts on elk during retirement of the Project would be similar to the temporary impacts described for construction.

3.5.3.3 Quantifying Direct Impacts

Direct impacts were calculated for winter range and summer range using disturbance limits for construction (temporary impacts) and operation (permanent impacts) in Exhibit C, Table C-24. Temporary impacts are calculated from the edge of the permanent disturbance; thus, there is no overlap of temporary and permanent impacts. Areas of feature overlap were dissolved so that overlapping impacts were not double counted.

The indirect impacts analysis described below in Section 3.5.4.3 follows ODFW's Elk Mitigation Framework, which provides that areas up to 0.20 mile from a medium or high traffic road and 0.25 mile from a low traffic road have a 1.0 habitat disturbance (HD) value. In other words, the Framework assigns a complete loss of functional habitat value to elk within this distance band. Thus, as all functional value is assumed to be lost (and is accounted for in the indirect impacts analysis), IPC first identified areas where the 1.0 HD indirect impact buffer from existing roads or new Project roads overlapped completely the direct impact acres from Project features other than roads. The overlapping direct impact acres were summed by ODFW habitat category and subtracted from the total direct impacts calculated here. Using this method, direct impacts from Project features other than roads that occur in areas determined by the Framework to have no functional habitat value for elk are not included in the direct impacts presented below.

Direct impacts are presented for winter range and summer range separately. However, there is extensive overlap of winter range and summer range, and impacts are calculated for the overlapping ranges. The total impacts are equal to the sum of winter range and summer range minus overlapping ranges. Thus, the total impact acres does not double count overlapping ranges.

Table P3-4 sets out the direct impacts to elk winter range and summer range for the Proposed Route and Morgan Lake Alternative.³ Table P3-5 breaks down those impacts by Project feature category—i.e., work areas, access roads, and transmission line ROW.

³ The Double Mountain, West of Bombing Range Road 1, or West of Bombing Range Road 2 alternatives will each have no direct impacts to elk winter range or summer range.

Table P3-4. Direct Impacts to Elk Winter Range and Summer Range

Route	ODFW Habitat Categories (Acres)				Overlap of Winter Range and Summer Range ³		Total ⁴	
	2 Winter Range ¹		3 Summer Range ²		Temp	Perm	Temp	Perm
	Temp	Perm	Temp	Perm				
Proposed Route	237.6	178.7	43.0	89.1	43.0	68.1	237.6	199.7
Morgan Lake Alternative	76.5	13.1	51.8	9.5	51.8	9.5	76.5	13.1

¹ Winter range includes those areas normally occupied by elk from December through April (ODFW 2013). Portions of elk winter range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

² Summer range as defined by the M.A.P. (Measure and Prioritize) Elk Habitat Project (RMEF 1999). Portions of elk summer range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

³ Overlap of Winter Range and Summer Range is where the area of impact occurs within both types habitat. Summer Range and Winter Range are not discrete areas.

⁴ Total = [(Winter Range + Summer Range) – (Overlap of Winter Range and Summer Range)]. Total does not double count acres.

Table P3-5. Direct Impacts to Elk Winter Range and Summer Range by Project Feature Category, after Reducing by Areas that had Existing or New Indirect Impact Habitat Disturbance Values of 1.0

ODFW Habitat Category	Project Feature	Acres Disturbed			
		Proposed Route		Morgan Lake Alternative	
		Temp	Perm	Temp	Perm
2: Winter Range ¹	Work Areas	104.6	3.7	22.1	0.5
	Access Roads	13.9	18.5	3.6	3.6
	Transmission Line	–	20.7	–	–
	<i>Category 2 Subtotal</i>	<i>118.5</i>	<i>42.9</i>	<i>25.7</i>	<i>4.1</i>
3: Summer Range ²	Work Areas	22.8	0.4	19.7	0.4
	Access Roads	1.6	2.7	3.2	3.2
	Transmission Line	–	0.1	–	–
	<i>Category 3 Subtotal</i>	<i>24.4</i>	<i>3.2</i>	<i>22.9</i>	<i>3.6</i>
Overlap of Winter Range and Summer Range ³	Work Areas	22.8	0.4	19.7	0.4
	Access Roads	1.6	2.7	3.2	3.2
	Transmission Line	–	0.1	–	–
	<i>Overlap Subtotal</i>	<i>24.4</i>	<i>3.2</i>	<i>22.9</i>	<i>3.6</i>
Total⁴	Category 2 + Category 3 – Overlap	118.5	42.9	25.7	4.1

¹ Winter range includes those areas normally occupied by elk from December through April (ODFW 2013). Portions of elk winter range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

² Summer range as defined by the M.A.P. (Measure and Prioritize) Elk Habitat Project (RMEF 1999). Portions of elk summer range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

³ Overlap of Winter Range and Summer Range is where the area of impact occurs within both types habitat. Summer Range and Winter Range are not discrete areas.

⁴ Total = [(Winter Range + Summer Range) – (Overlap of Winter Range and Summer Range)]. Total does not double count acres.

Elk Winter Range

For the Proposed Route, direct impacts to elk winter range include 178.7 acres of permanent direct impacts and 237.6 acres of temporary direct impacts (Table P3-4).

The Morgan Lake Alternative will include 13.1 acres of permanent direct impacts and 76.5 acres of temporary direct impacts (Table P3-4).

Elk Summer Range

For the Proposed Route, direct impacts to elk summer range include 89.1 acres of permanent direct impacts and 43.0 acres of temporary direct impacts (Table P3-4).

The Morgan Lake Alternative will include 9.5 acres of permanent direct impacts and 51.8 acres of temporary direct impacts (Table P3-4).

3.5.4 Indirect Impacts

Indirect impacts are defined as the impacts that will have an adverse effect upon elk habitat or elk individuals, and that will occur later in time or in a different place than the Project activities. Indirect impacts may be permanent or temporary. Permanent impacts will exist for the entire life of the Project. Temporary impacts are those impacts that will last for a time less than the life of the Project.

3.5.4.1 Permanent Indirect Impacts

Table P3-6 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential permanent indirect impacts in elk winter range and summer range.

Table P3-6. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Permanent Indirect Impacts to Elk and Elk Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Permanent indirect impacts from the transmission line	Permanent indirect	Operation	Life of the Project	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts	None.
Permanent indirect impacts from the access roads	Permanent indirect	Operation	Life of the Project	As calculated using the approach set forth in Oregon's Elk Mitigation Framework	Permanent indirect impacts from the access roads will be mitigated by implementing speed limits; controlling access on Project roads within elk habitat, subject to approval by the relevant land management agency or landowner; and implementing the Fish and Wildlife Habitat Mitigation Plan (Attachment P1-6).

Permanent Indirect Impacts from the Transmission Line

Once constructed, the transmission line is not expected to limit the movement or distribution of elk. Elk are expected to readily pass under transmission lines and associated structures. Therefore, there will be no permanent indirect impacts related to the transmission line itself and no mitigation is required.

Permanent Indirect Impacts from the Access Roads

New and substantially modified existing access roads are not expected to act as a barrier to elk movement. However, the introduction of traffic (i.e., motorized on- or off-road vehicles) and the presence of human activity on roads used for the Project potentially will have negative indirect impacts on elk (see ODFW 2015). The indirect impacts may include reduced utilization of habitat, fragmentation of migration corridors, and the associated disruption of important elk life processes. These potential impacts can be substantially reduced through the implementation of a traffic management plan and spatial and temporal restrictions (ODFW 2015). Accordingly, as discussed above, IPC will implement speed limits and access control to minimize the effects that roads have on elk habitat.

Furthermore, IPC will provide mitigation for permanent indirect impacts resulting from the access roads as set forth in the Fish and Wildlife HMP (Exhibit P1, Attachment P1-6). As discussed in the plan, Oregon has developed a methodology in its Elk Mitigation Framework for quantifying indirect impacts to elk habitat resulting from roads (see below Section 3.5.4.3). To quantify the indirect impacts from the access roads, IPC will use the methods set forth in the Elk Mitigation Framework, as discussed in in the Fish and Wildlife HMP.

3.5.4.2 Temporary Indirect Impacts

Table P3-7 summarizes the type, timing, duration, quantification metric, and mitigation measures related to the Project's potential temporary indirect impacts in elk winter range and summer range.

Table P3-7. Type, Timing, Duration, Quantification Metrics, and Mitigation Measures Related to Temporary Indirect Impacts to Elk and Elk Habitat

Type of Disturbance	Type of Impact	Timing of Impact	Duration of Impact	Metric to Quantify Effects on Habitat Functionality	Mitigation Measures
Temporary indirect impacts from access roads	Temporary indirect	Construction	Construction	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts.	Temporary indirect impacts from access roads will be mitigated by implementing speed limits and controlling access on Project roads within elk habitat, subject to approval by the relevant land management agency or landowner; and implementing certain seasonal and spatial restrictions, subject to ODOE-approved variances.
Temporary indirect impacts from invasive species	Temporary direct	Construction	Construction through re-vegetation	Not quantified – no or de minimis impacts expected; there is no reasonable and accepted methodology for quantifying these impacts.	Temporary indirect impacts from invasive species will be avoided, minimized or mitigated as set forth in the Noxious Weed Plan (Attachment P1-5) and Reclamation and Revegetation Plan (Attachment P1-3).

Temporary Indirect Impacts from the Access Roads

Construction activities will result in noise, visual disturbance from heavy equipment, traffic and people, fugitive dust dispersing from the immediate construction area, and small amounts of air pollution from construction equipment's exhaust. Indirect construction impacts may also include an increased risk for the spread or establishment of invasive-plant species (which can degrade habitats and exclude native species from areas), and increased access to areas previously inaccessible to the public due to the construction of project-related roads (which can further degrade habitats as a result of increased human presence). These activities can impact elk behavior in areas beyond the Project construction areas. For example, the habitat near the construction areas may temporarily be unsuitable during the construction period. Noise would likely have the farthest-reaching effect (i.e., the effect of noise would extend farther from construction sites than dust or other disturbances). Some construction activities would likely result in sound levels beyond baseline ambient levels, with a maximum instantaneous predicted noise level of 80 to 90 A-weighted decibels at 50 feet from the work site. Increases in noise would be concurrent with any disturbance associated with the presence of humans and their activities (e.g., dust, visual disturbances, etc.). Research conducted in northeast Oregon at the Starkey Experimental Forest and Range (EFR) station found that elk avoid habitats close to roads during times of probable human use (Wisdom 1998; Millsbaugh 1999; Ager et al. 2003) and where traffic rates are higher than areas with low traffic (Wisdom 1998; Johnson et al. 2000; Ager et al. 2003). Additional research conducted at the Starkey EFR station suggests that elk avoidance of habitat adjacent to roads varies with the amount of daily traffic (Wisdom et al. 2004). Thus, Project construction activities may affect elk and reduce the functionality of habitat at varying distances from the construction areas. These disturbances could render habitats unsuitable for a limited period of time, with disturbances ceasing once construction or maintenance activities have ceased. IPC expects these impacts to be low. Even so, to avoid or minimize these impacts, IPC will implement speed limits and access control on Project roads in elk habitat, where possible.

Further, IPC will comply with certain spatial and timing restrictions near sensitive elk habitat, which would limit the construction window to time periods when elk are less sensitive to disturbances. IPC may seek exceptions to said timing restrictions if site conditions allow and subject to ODOE approval. For example, if elk are not using the sensitive habitat, IPC may request permission to start work in the area sooner than what would normally be allowed. IPC proposes the following site certificate conditions providing for the same:

Fish and Wildlife Condition 10: *During construction, the 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 certificate holder, the Department may provide exceptions to this restriction. The certificate holder's request must include a justification for the request, including any actions the certificate holder will take to avoid, minimize, or mitigate impacts to elk and mule deer in the relevant area.*

Fish and Wildlife Condition 15: *During construction, the 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 certificate holder shall submit a mapset showing the location of environmentally sensitive areas and restricted work zones to the department for

its approval. The certificate holder shall make the mapset available to all construction personnel.

IPC will develop a set of maps that depict the extent of spatial and temporal restriction areas within the analysis area. These maps will be maintained at the Project site to ensure construction workers are aware if and when their activities will occur within sensitive elk habitat and that the spatial and temporal restrictions discussed above would apply.

Temporary Invasive Species Impacts

The initial clearing of vegetation and resulting soil disturbance during construction could create optimal conditions for the establishment of invasive-plant species. The establishment of invasive-plant species can affect the quality of wildlife habitat through competition with, and the eventual replacement of desirable native plant species (Westbrook 1998). The replacement of native plant species with invasive species can have various environmental effects on wildlife habitat, including changes in fire regime (e.g., increasing the frequency and severity of fires), changes in the nutrient regime of soils (thereby reducing the quality of forage species), increased soil erosion (resulting in additional loss of vegetated areas, as well as sedimentation to aquatic habitats), or reductions in the abundance of important forage species (due to invasive species excluding them from the area). These alterations to habitat quality can extend beyond the area of initial impacts (e.g., fires and/or invasive-plant species can spread to areas far beyond the initial disturbance/ignition). To avoid or minimize the risk of invasive-plant species spread or establishment, IPC will implement the Noxious Weed Plan (Exhibit P1, Attachment P1-5) and Reclamation and Revegetation Plan (Exhibit P1, Attachment P1-3). IPC proposes that the Council include the following conditions in the site certificate regarding the Noxious Weed Plan:

Fish and Wildlife Condition 6: *Prior to construction, the certificate holder shall finalize, and submit to the department for its approval, a final Noxious Weed Plan. The protective measures as described in the draft Noxious Weed Plan in ASC Exhibit P1, Attachment P1-5, shall be included and implemented as part of the final Noxious Weed Plan, unless otherwise approved by the department.*

Fish and Wildlife Condition 19: *During construction, the certificate holder shall conduct all work in compliance with the final Noxious Weed Plan referenced in Fish and Wildlife Condition 6.*

Fish and Wildlife Condition 29: *During operation, the certificate holder shall conduct all work in compliance with the final Noxious Weed Plan referenced in Fish and Wildlife Condition 6.*

3.5.4.3 Quantifying Indirect Impacts

IPC calculated the quantity of indirect impacts related to the Project access roads using the methods set forth in the Elk Mitigation Framework. The Framework provides that the area of indirect impact depends on the increase in traffic volume compared to the baseline traffic volume of an existing road. Table P3-8 comes from the Elk Mitigation Framework and it provides that the higher the increase in traffic volume during operation, the larger the disturbance buffer, which is applied from the road centerline.

Table P3-8. Disturbance Buffers Based on Traffic Rate

Road Type and Status (Daily Rate Averaged over Any 30-day Period)	Disturbance Buffer (miles)
Very Low – 0 - 1 vehicle increase	None
Low Traffic – 2 - <4 vehicle increase	0.25
Moderate Traffic – 4 - <10 vehicle increase	0.5
High Traffic – >10 vehicle increase	1.0

Source: Elk Mitigation Framework, p.4.

The disturbance buffer is then broken down into disturbance bands that have a corresponding HD weight (specified as percent habitat disturbance). The habitat disturbance weightings are multipliers used to calculate the number of acres that will be required for mitigation. Table P3-9 presents the HD values associated with low, moderate, and high traffic volume.

Table P3-9. Habitat Disturbance Value for Roads

High Traffic Roads Distance (mi)	Moderate Traffic Roads Distance (mi)	Low Traffic Roads Distance (mi)	Percent Habitat Disturbance (HD)
0.00 – 0.25	0.00 – 0.20	0.00 – 0.25	1.00
0.25 – 0.50	0.20 – 0.30		0.80
0.50 – 0.75	0.30 – 0.40		0.40
0.75 – 1.00	0.40 – 0.50		0.20

Source: Elk Mitigation Framework, p.4.

To best evaluate the potential for traffic volume, U.S. Department of Agriculture National Agriculture Imagery Program imagery was examined and all roads within 2 miles of Project features were reviewed, resulting in a review of roads over 830 square miles. As traffic data are unavailable for roads in the analysis area, the following assumptions were used to classify roads for impacts analysis:

1. Paved roads = High traffic (10+ vehicles per day)
2. Unpaved gravel/dirt roads = Moderate traffic (4-9 vehicles per day)
3. Two tracks/unpaved roads with clear substrate difference between wheel tracks = Low traffic (2-3 vehicles per day)
4. Gated unpaved roads = Very Low traffic (0-1 vehicles per day)
5. No road evidence from aerial imagery = removed from dataset

Roads clearly within a town or city environment will be identified as High traffic roads, regardless of substrate. On November 8, 2017, ODOE informed IPC that ODOE and ODFW concurred with the above proposed road classification.

IPC will conduct a traffic study to evaluate pre- and post-construction traffic on public roads used for the Project. The traffic study will be conducted for one year in the year prior to construction, and for one year during the second year the Project is in operation to most accurately characterize traffic patterns. IPC's approach to identifying which Project road segments are included in the Site Boundary, and accordingly in the impact analysis, is set forth in Attachment B-5 of Exhibit B. Road segments where access control currently exists or can be successfully implemented will not have indirect impacts on elk habitat. Absent traffic rate data, IPC assumed that the traffic volume for new Project roads was in the low category. For existing roads that are used for the Project, IPC assumed that the traffic volume from the Project would not increase the traffic volume to the next category. To ensure compliance with the traffic

monitoring program, IPC proposes that the Council include the following conditions in the site certificate providing that IPC will monitor traffic volumes in elk habitat:

Fish and Wildlife Condition 3: *Prior to construction, the certificate holder shall conduct a one-year traffic study in elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat). The certificate holder shall submit the traffic study to the Department for its approval.*

Fish and Wildlife Condition 23: *During the second year of operation, the certificate holder shall conduct a one-year traffic study in elk habitat (i.e., elk summer range and elk winter range) and sage-grouse habitat (i.e., areas of high population richness, core area habitat, low density habitat, or general habitat).*

Fish and Wildlife Condition 24: *During the third year of operation, the certificate holder shall provide to the Department a report demonstrating that fish and wildlife habitat mitigation shall be commensurate with the final compensatory mitigation calculations.*

a. The final calculations shall be based on the as-constructed facility.

b. Oregon's Elk Mitigation Framework shall be used to calculate the amount of elk habitat compensatory mitigation required for the facility, and the information from the pre- and post-construction traffic studies shall be used in the calculation.

To quantify the acres of indirect impacts to elk winter range and summer range, the assumed baseline traffic volume was evaluated against assumed traffic volume during operation. To calculate indirect impacts from new Project roads, the increase in traffic volume was compared to a baseline of zero. Thus, new Project roads with a low traffic volume increased the baseline from zero vehicles per day to two to less than four vehicles per day. Disturbance impacts from existing roads are considered realized and no new indirect impacts are calculated where the HD of the existing road exceed the HD of the new road. To calculate indirect impacts to existing roads used for the Project, the increase in traffic volume is evaluated against the existing traffic volume and new impacts are calculated only where the HD of the new volume exceeds the HD of the existing volume.

Further, direct impact areas are treated as resulting in a complete loss of functional value, or having an impact akin to an HD value of 1.00. In order not to double count direct and indirect impacts above a complete loss of functional value HD greater than 1.0, IPC did not include indirect impact acres within an HD band less than 1.0 if those acres were already accounted for by a direct impact acre.

Figure P3-2 provides an example of how IPC applied the distance bands and calculated the indirect impacts for Project roads. Attachment P3-1 shows the same analysis as Figure P3-2 but for the entire length of the Proposed Route in elk winter range and summer range.

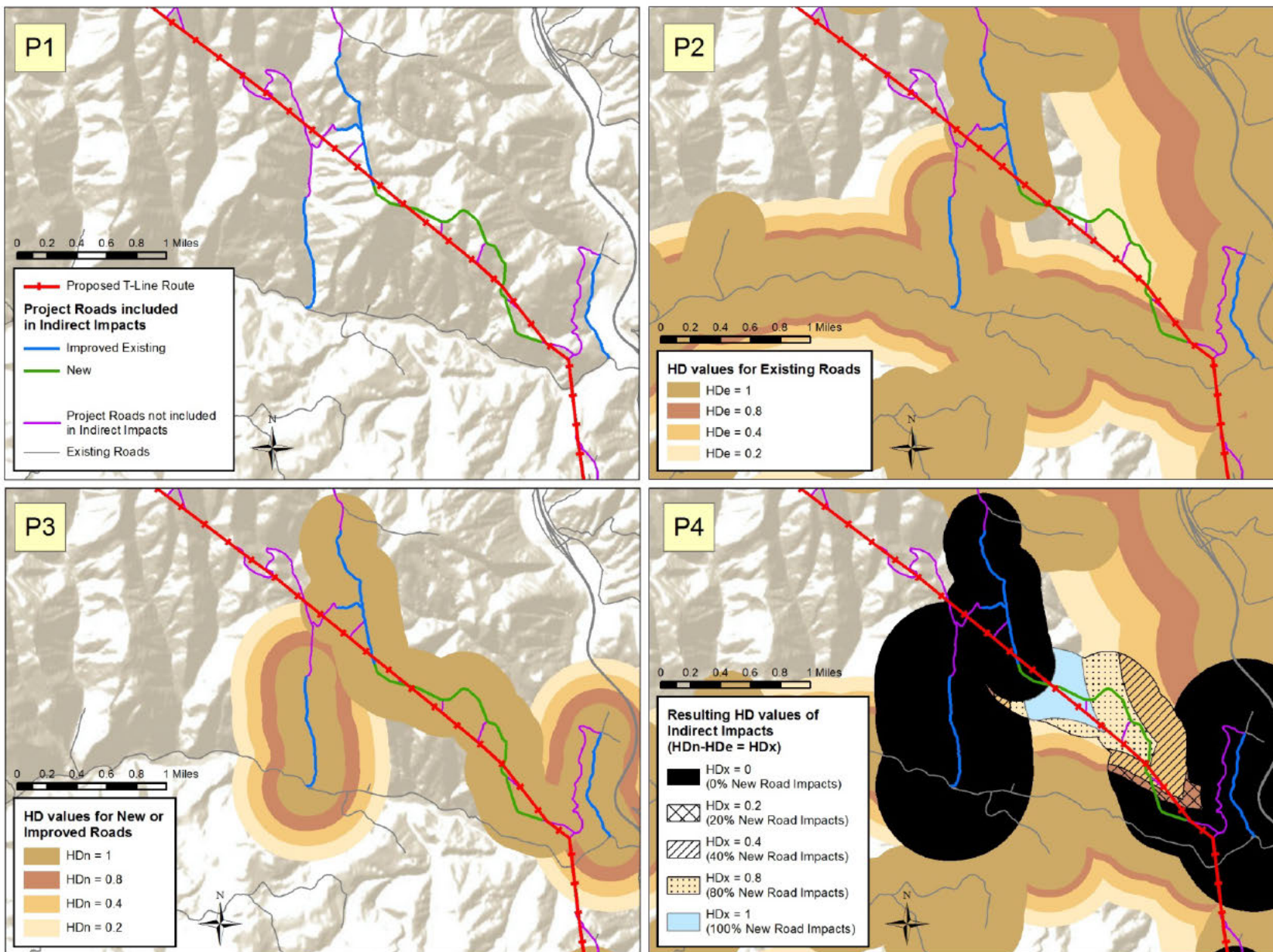


Figure P3-2. Indirect Impacts Calculation Example

With the Proposed Route, 119.27 miles out of a total of 751 miles of new and existing roads are within elk winter range or summer range. A total of 27.88 miles of those roads do not have proposed access control and therefore are included in the indirect impact calculation. The roads with access control are not included.

For the Morgan Lake Alternative, 31.06 of 59 miles of new and existing roads are within elk winter range or summer range, of which 8.5 miles of new and existing roads do not have proposed access control and therefore are included in the indirect impact calculation. The roads with access control are not included.

Table P3-10 identifies the number of miles of Project roads within elk winter range and summer range. Table P3-11 sets forth the indirect impact calculations based on the Elk Mitigation Framework methodology.

Table P3-10. Miles of Project Roads within Elk Winter Range and Summer Range

Route or Segment	Road Type	ODFW Habitat Categories		Overlap of Winter Range and Summer Range ³ (Miles)	Total ⁴ Miles
		2 - Winter Range ¹ (Miles)	3 - Summer Range ² (Miles)		
Proposed Route	New Roads, included in indirect impacts	2.63	1.69	0.00	4.32
	Substantially Modified Roads, included in indirect impacts	15.28	10.18	1.89	23.57
	New and Substantially Modified Roads, not included in indirect impacts	87.61	24.33	20.54	91.39
Morgan Lake Alternative	New Roads, included in indirect impacts	2.42	2.42	2.42	2.42
	Substantially Modified Roads, included in indirect impacts	4.43	6.05	4.43	6.05
	New and Substantially Modified Roads, not included in indirect impacts	19.97	18.61	15.99	22.59

¹ Source: ODFW 2013. Portions of elk winter range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

² Source: RMEF 1999. Portions of elk summer range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

³ Overlap of Winter Range and Summer Range is where the area of impact occurs within both types habitat. Summer Range and Winter Range are not discrete areas.

⁴ Total = [(Winter Range + Summer Range) – (Overlap of Winter Range and Summer Range)]. Total does not double count acres or miles.

Table P3-11. Indirect Impacts Calculations for Elk Winter Range and Summer Range

Route	Habitat	Disturbance Band	Habitat Distanc e Value (HD)	Weighted Indirect Impacts of the Project (acres)	Weighted Indirect Impacts of Existing Roads that Overlap the Project's Indirect Impacts (acres)	Indirect Impacts of the Project, Taking into Account Existing Road Impacts (acres)
Proposed Route, New Roads	Winter Range ¹	0-0.25	1	1,287.43	887.18	400.25
	Summer Range ²	0-0.25	1	1,015.32	1,015.32	0.00
	Overlap of Winter and Summer Range ³	0-0.25	1	7.17	7.17	0.00
	Total⁴			2,295.58	1,895.33	400.25
Proposed Route, Substantially Modified Roads	Winter Range ¹	0-0.25	1	5,699.94	5,699.94	0.00
	Summer Range ²	0-0.25	1	3,094.49	3,094.49	0.00
	Overlap of Winter and Summer Range ³	0-0.25	1	556.17	556.17	0.00
	Total⁴			8,372.80	8,372.80	0.00
Morgan Lake Alternative, New Roads	Winter Range ¹	0-0.25	1	1,367.24	1,349.98	17.26
	Summer Range ²	0-0.25	1	1,319.90	1,304.13	15.77

Route	Habitat	Disturbance Band	Habitat Distance Value (HD)	Weighted Indirect Impacts of the Project (acres)	Weighted Indirect Impacts of Existing Roads that Overlap the Project's Indirect Impacts (acres)	Indirect Impacts of the Project, Taking into Account Existing Road Impacts (acres)
	Overlap of Winter and Summer Range ³	0-0.25	1	1,268.43	1,252.66	15.77
	Total⁴			1,418.71	1,401.45	17.26
Morgan Lake Alternative, Substantially Modified Roads	Winter Range ¹	0-0.25	1	1,400.25	1,400.25	0.00
	Summer Range ²	0-0.25	1	1,848.06	1,848.06	0.00
	Overlap of Winter and Summer Range ³	0-0.25	1	1,400.08	1,400.08	0.00
	Total⁴			1,848.22	1,848.22	0.00

¹ Source: ODFW 2013. Portions of elk winter range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

² Source: RMEF 1999. Portions of elk summer range within elk de-emphasis areas (East Beulah and Columbia Basin management units) were removed from this analysis per guidance from ODFW.

³ Overlap of Winter Range and Summer Range is where the area of impact occurs within both types habitat. Summer Range and Winter Range are not discrete areas.

⁴ Total = [(Winter Range + Summer Range) – (Overlap of Winter Range and Summer Range)]. Total does not double count acres or miles.

Elk Winter Range

For the Proposed Route, 2.63 miles of new access roads and 15.28 miles of substantially modified existing roads are included in the elk winter range indirect impact analysis (Table P3-10). Indirect impacts related to new roads will be 400.25 acres. There are no indirect impacts resulting from substantially modified existing roads (Table P3-11).

For the Morgan Lake Alternative, 2.42 miles of new access roads and 4.43 miles of substantially modified existing roads are included in the elk winter range indirect impact analysis (Table P3-10). Indirect impacts related to new roads will be 17.26 acres. There are no indirect impacts resulting from substantially modified existing roads (Table P3-11).

Elk Summer Range

For the Proposed Route, 1.69 miles of new access roads and 10.18 miles of substantially modified existing roads without access control (Table P3-10). There are no indirect impacts resulting from new roads or substantially modified existing roads (Table P3-11).

For the Morgan Lake Alternative, indirect impacts to elk summer range include 2.42 miles of new access roads and 6.05 miles of substantially modified existing roads are included in the elk winter range indirect impact analysis (Table P3-10). Indirect impacts related to new roads will be 15.77 acres. There are no indirect impacts resulting from substantially modified existing roads (Table P3-11).

3.5.5 Measures to Avoid, Reduce, or Mitigate Adverse Effects

OAR 345-021-0010(1)(p)(G): A description of any measures proposed by the applicant to avoid, reduce or mitigate the potential adverse impacts described in (F) in accordance with the ODFW mitigation goals described in OAR 635-415-0025 and a discussion of how the proposed measures would achieve those goals.

This section describes the avoidance, minimization, and mitigation measures that have been and will be implemented to avoid, reduce, or mitigate potential adverse impacts to fish and wildlife habitat and State Sensitive species, and discusses how the proposed measures achieve ODFW habitat mitigation goals. Mitigation is further discussed in the Fish and Wildlife Habitat Management Plan (Attachment P1-6).

3.5.5.1 Avoidance and Minimization Measures Common to All Fish and Wildlife Habitats and State Sensitive Species

Project Design

During initial routing of the Project, avoidance of sensitive resources related to fish and wildlife habitat and State Sensitive species was taken into consideration by IPC. Applicable sensitive resource areas that were avoided to the extent practical during the initial siting process included, but were not limited to:

- BLM-designated areas of critical environmental concern;
- BLM-designated wilderness study areas;
- Waterbodies and wetlands, including wild and scenic rivers and streams with special status species;
- U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration Fisheries Division critical habitats for federal Endangered Species Act-listed species;