

1 EXECUTIVE SUMMARY

2 1.1 INTRODUCTION

3 This Draft Environmental Impact Statement (DEIS) describes the environmental impacts of the
4 Skookumchuck Wind Energy Project (Project), a commercial wind energy generating facility, proposed by
5 Skookumchuck Wind Energy Project, LLC (the Applicant), a subsidiary of Renewable Energy Systems Inc.
6 (RES). The Proposed Action is to construct and operate a wind energy generation facility. The Project Area
7 is located in Lewis and Thurston counties, Washington on approximately 22,000 acres (ac) (Figure 1-1).

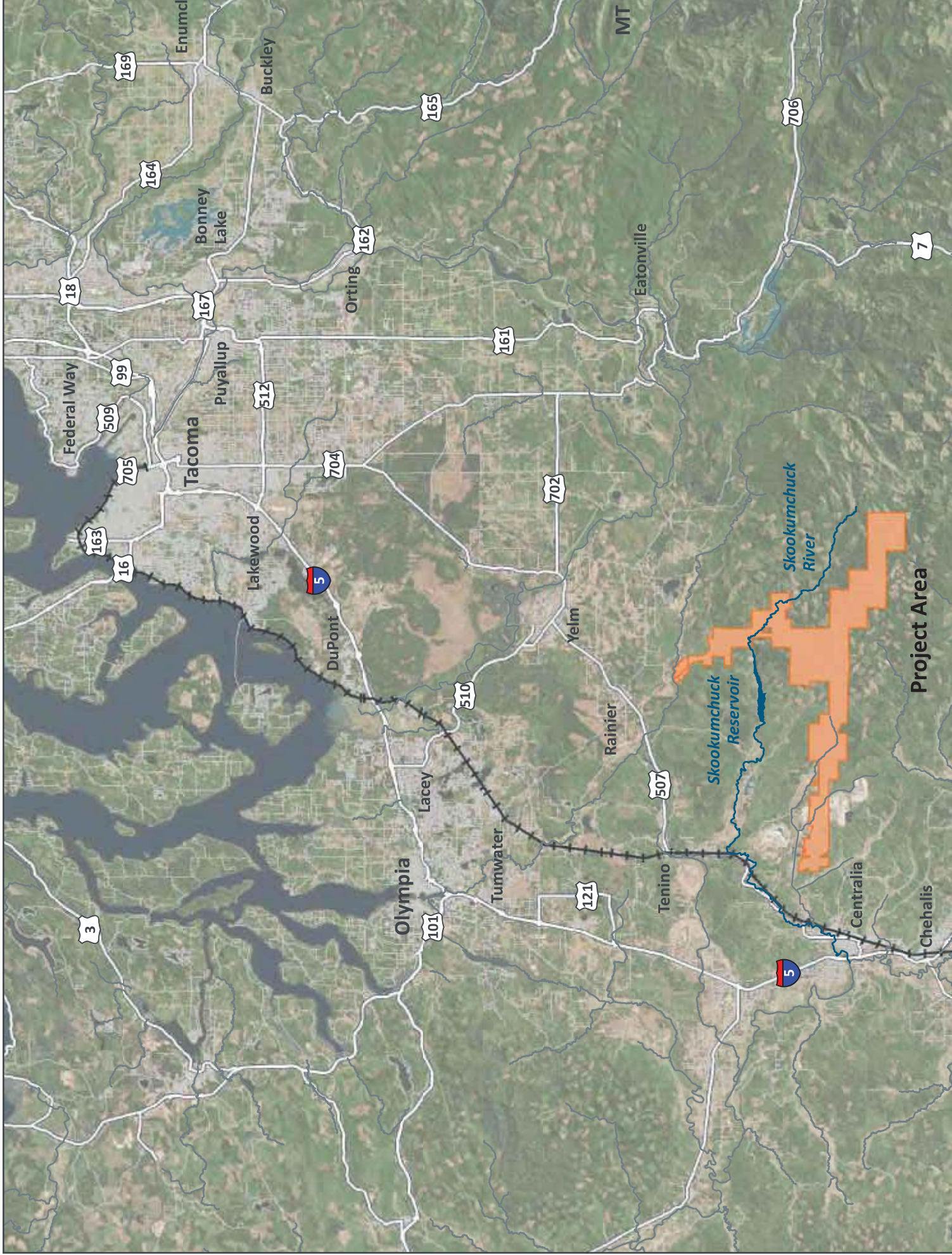
8 Lewis County is conducting an environmental review of the Project pursuant to the Washington State
9 Environmental Policy Act (SEPA) (Chapter 43.21C Revised Code of Washington [RCW]), the SEPA rules
10 (Washington Administrative Code [WAC] Chapter 197-11), and Lewis County SEPA regulations (Lewis
11 County Code (LCC) 17.110). Lewis County assumed lead agency status, with Thurston County participating
12 in this review as a cooperating agency (Lewis County 2018a).

13 The Project under review consists of up to 38 wind turbine generators (WTGs) with a total Project
14 nameplate capacity of up to 137 megawatts (MW), and associated Project support facilities, including an
15 access road system, electrical collection lines, an onsite substation, meteorological towers, an operation
16 and maintenance (O&M) Facility, and a 115 kilovolt (kV) generation interconnection (gen-tie) line from
17 the Project substation to interconnect at Puget Sound Energy's (PSE) electrical system at the Tono
18 substation in Tono, Washington.

19 SEPA provides a way to identify possible environmental impacts that may result from governmental
20 decisions, such as the decision required by Lewis County on a Shoreline Substantial Development Permit
21 and Thurston County on a Special Use Permit (SUP) for the Project. The SEPA process typically begins when
22 an application is submitted to an agency for issuance of a permit to develop a private project. This
23 environmental review was triggered by the Applicant's submittal of a Joint Aquatic Resources Permit
24 Application to Lewis County (RES 2018) on February 7, 2018.¹ Lewis County issued a Determination of
25 Significance and determined that an environmental impact statement (EIS) is required under RCW
26 43.21C030 (2)(c) (Lewis County 2018b).

27 The DEIS is circulated for public and agency review and comment. Chapter 5 provides the distribution list
28 for the DEIS. The DEIS comment period starts on the date the Notice of Availability is issued by Lewis
29 County and ends 30 calendar days thereafter. Upon request, the lead agency may grant an extension of
30 up to fifteen days to the comment period. Agencies and the public must request any extension before the
31 end of the comment period. The lead agency is not required to hold a public hearing on the DEIS unless
32 (a) 50 or more persons, within the agency's jurisdiction or who would be adversely impacted by the
33 proposal, make written request within 45 days of the issue date of the draft EIS or (b) two or more agencies
34 with jurisdiction over a proposal make written request to the lead agency within 45 days of the issuance
35 of the draft EIS. During the comment period, the public and agencies are invited to provide comment on
36 the DEIS. The FEIS will be prepared after the close of the comment period and will respond to comments
37 submitted during the comment period. Depending on the nature of the comments received, the FEIS may
38 contain clarifications or additional environmental analysis. The analysis contained in the DEIS and the FEIS,
39 collectively, constitutes the required environmental review under Chapter 43.21C RCW and WAC 197-11.

¹ The Applicant also submitted an SUP application to Thurston County on March 20, 2017.



1 The objective of SEPA is to provide government decision makers (e.g., Lewis County, Thurston County,
2 and any other local or state agencies from which permits and approvals are required for the Project) with
3 information and the authority to impose reasonable conditions to mitigate impacts from a proposed
4 action. If the decision maker determines, through the SEPA evaluation, that a proposal has too many
5 significant unavoidable adverse impacts that cannot be mitigated, the decision maker may have the
6 authority to deny the proposal. SEPA, however, does not require the local government to deny a project
7 simply because it has adverse impacts (or even significant adverse impacts) as compared to the no action
8 alternative. SEPA is intended to ensure that the government’s review of a proposed action includes
9 disclosure of and careful consideration of probable significant adverse impacts and the potential to
10 mitigate those impacts through conditions or project modification (e.g., habitat mitigation), before
11 making a decision on the permit. This document provides the analysis required for Lewis and Thurston
12 counties, as well as other local and state jurisdictions requiring approvals for this proposal, to consider
13 those impacts and mitigation measures in their decision-making processes.

14 This DEIS analyzes potential impacts resulting from the implementation of the proposed action and
15 identifies mitigation that will address the impacts identified.

16 Chapter 1 provides a summary of the DEIS and briefly describes the regulatory framework for the actions
17 under consideration (Section 1.2), the Applicant’s objectives for the proposal (Section 1.3), introduces the
18 Proposed Action and alternatives considered in the DEIS (Section 1.4), summarizes the public involvement
19 activities associated with the preparation and issuance of this DEIS (Section 1.5), provides a summary of
20 the anticipated environmental impacts and mitigation proposed to address them (Section 1.6), and
21 provides a summary of the principal areas of interest and conclusions (Section 1.7).

22 The remainder of the DEIS provides a detailed presentation of the elements summarized in Chapter 1 as
23 follows:

- 24 • Chapter 2 of the DEIS provides descriptions of the Proposed Action and the alternatives that are
25 evaluated in the DEIS.
- 26 • Chapter 3 documents the affected environment applicable to the Project, the expected
27 environmental impacts of the Proposed Action and the alternatives to the Proposed Action, and
28 the proposed or possible mitigation measures that will address those impacts from the Proposed
29 Action.
- 30 • Chapter 4 identifies the preparers of the DEIS.
- 31 • Chapter 5 lists the agencies, organizations, and individuals receiving copies of the DEIS.

32 Detailed technical documentation supporting several of the environmental impact analyses is included in
33 the appendices.

34 **1.2 REGULATORY FRAMEWORK**

35 The Applicant proposes to construct and operate a wind energy generation facility in Lewis and Thurston
36 counties. The majority of the Project will be located in unincorporated Lewis County, approximately 12
37 miles east of Chehalis, while the O&M Facility and certain road improvements will be located in
38 unincorporated Thurston County.

1 Activities proposed to be conducted by the Applicant are subject to SEPA review. Lewis County is
2 conducting this review pursuant to SEPA (RCW 43.21C and WAC 197-11), and its SEPA regulations (LCC
3 17.110). Lewis County assumed lead agency status, with Thurston County participating in this review as a
4 cooperating agency (Lewis County 2018a). Lewis County issued a Determination of Significance and
5 determined that an EIS is required under RCW 43.21C.030 (2)(c) (Lewis County 2018b). In conjunction with
6 the Determination of Significance, Lewis County requested public and agency comments on the scope of
7 the Skookumchuck Wind Energy Project EIS. The scoping period extended from May 1, 2018 to May 31,
8 2018. In addition to receiving written comments, the lead agency conducted one scoping meeting on May
9 9, 2018 in Chehalis, Washington, where members of the public were provided the opportunity to obtain
10 information about the Project and to submit scoping comments in person. Lewis County considered the
11 scoping comments received to determine the scope of this DEIS. Lewis County shared all scoping
12 comments with Thurston County, soliciting Thurston County’s input regarding the scope of the EIS.

13 **1.3 PROPOSED ACTION OBJECTIVE, PURPOSE AND NEED**

14 The objective of the Proposed Action is to construct and operate a wind energy generation facility and
15 associated infrastructure in Lewis and Thurston counties, Washington. The purpose of the Project is to
16 generate renewable wind energy available for private and public utilities in order to meet the demands
17 and need for renewable energy resources. Additional information is provided in Section 2.2.

18 **1.4 SUMMARY OF THE PROPOSED ACTION AND ALTERNATIVES**

19 **1.4.1 Proposed Action**

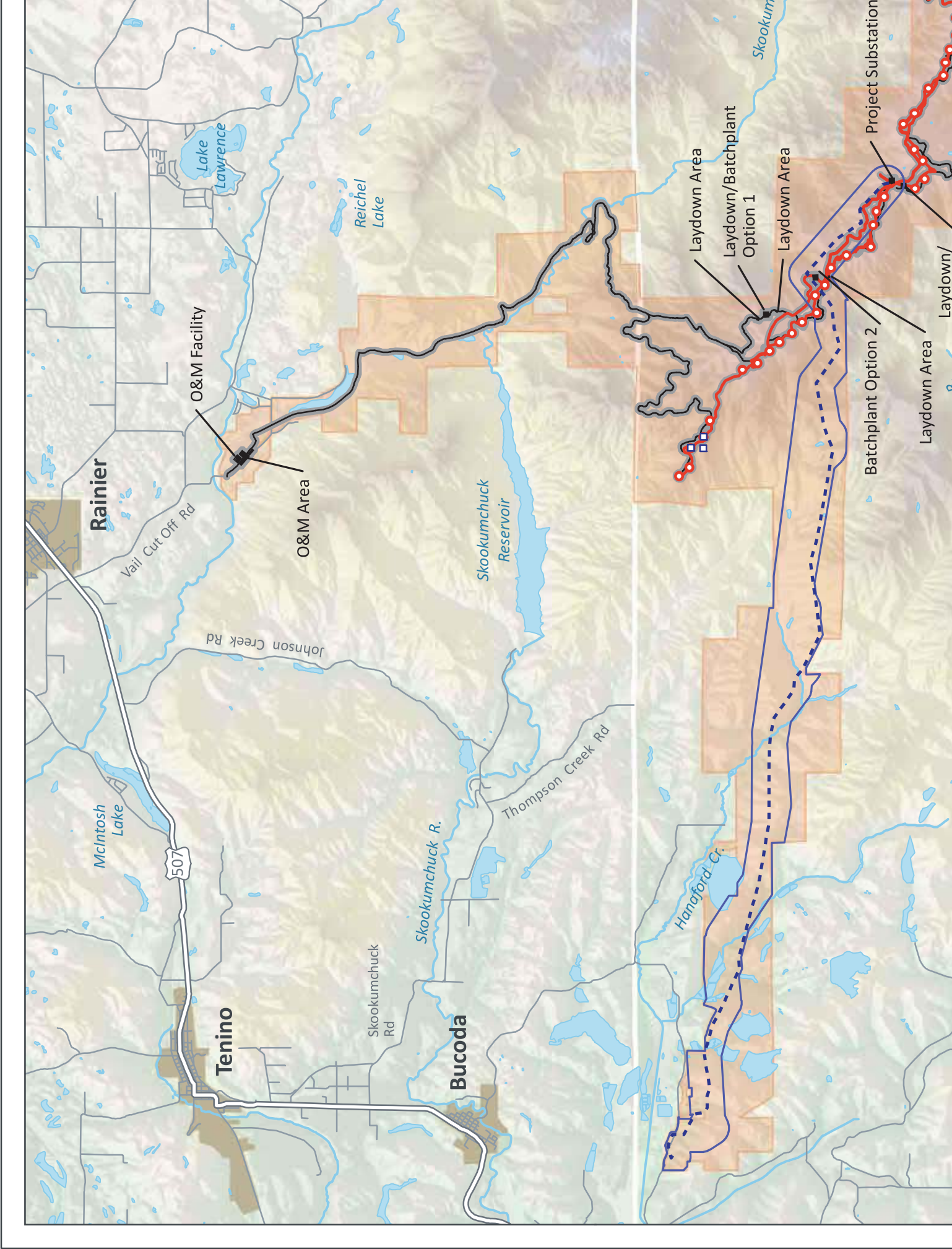
20 The Project is a commercial-scale wind energy generation facility with a nameplate capacity of up to 137
21 MW. The wind generation facility will consist of several prime elements that will be constructed in
22 consecutive phases. A Project Area overview is illustrated in Figure 1-2. A detailed site layout illustrating
23 key Project elements is shown in Figure 1-3. A permanent footprint of approximately 335 acres will be
24 required to accommodate the proposed WTGs and related support facilities. The Project Area, consisting
25 of the parcels upon which the Project will be constructed, spans approximately 22,000 acres. The majority
26 of the Project footprint will be sited along a ridge top (Figure 1-2). The facilities, equipment, and features
27 that will be installed as part of the Project include the following:

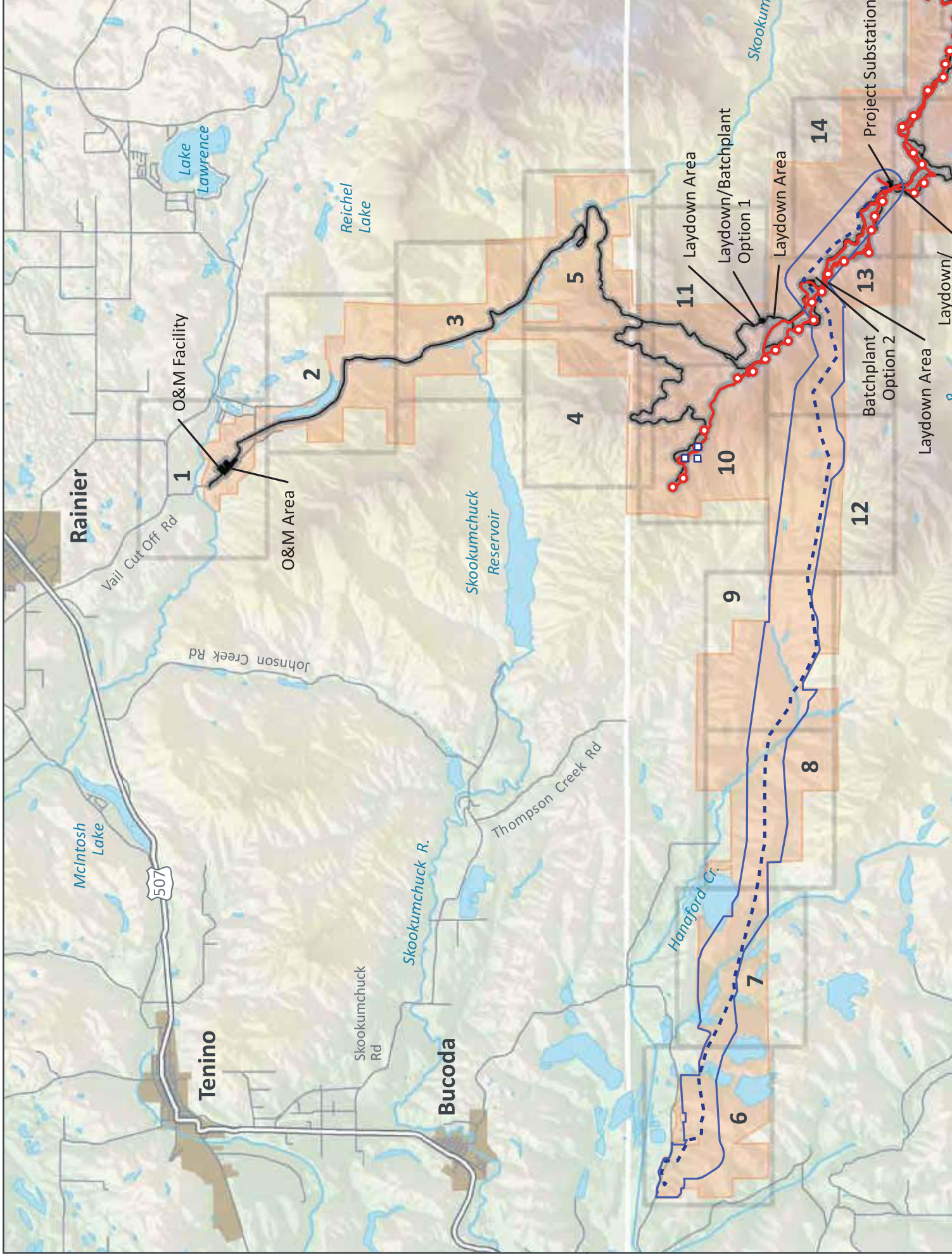
- 28 • WTGs: The Project involves the installation of up to 38 individual WTGs.
- 29 • Access Roads: A system of Project roads will be established within an existing road network used
30 primarily for commercial forest operations to provide access to the WTG sites for construction
31 and subsequent long-term operation. Approximately 4.5 miles of new roads will be constructed
32 on private lands. Improvements to roughly 42 miles of existing roads will occur on private lands.
- 33 • Medium Voltage Electrical Collection System (Collection System): Electrical power from the WTGs
34 will be collected by a collection system, consisting of belowground cables that will deliver the
35 electrical energy to the Project substation. Approximately 30.5 miles of underground 34.5-kV
36 collection system power line will be installed.
- 37 • Project Substation: At the Project substation the electrical power will be transformed, or “stepped
38 up,” from 34.5 kV to 115 kV and will be fed to a gen-tie line for delivery to the regional power
39 grid.

- 1 • Gen-tie Line: The gen-tie line will deliver the 115-kV electrical current from the Project substation
2 to the point of interconnection on the regional transmission grid. The gen-tie line will be located
3 for the most part on privately owned lands used primarily for commercial forest operations.
- 4 • Interconnection Point: The gen-tie line will interconnect to the PSE transmission system at PSE's
5 Tono substation, which is located near the Centralia Coal Plant in Tono, Washington.
- 6 • O&M Facility: An O&M Facility of approximately 10,250 square feet will be established to house
7 the Project controls and maintenance activities and offices on private land in Thurston County.
- 8 • Meteorological Towers: Up to three permanent meteorological towers will be constructed to
9 provide ongoing data during the lifetime of Project operations.

10 As described in the analyses presented in subsequent chapters of this DEIS, the Applicant utilized a
11 number of key criteria to design the proposed Project layout. The Applicant conducted numerous surveys
12 and studies to determine the presence of protected natural resources. The Applicant developed the
13 proposed Project layout based on optimizing Project performance while avoiding and minimizing impacts
14 to protected resources, and mitigating impacts as required by applicable regulations and guidance. WTGs,
15 access roads, belowground medium voltage collection cables, and the aboveground gen-tie line have been
16 established within micro siting corridors. Micro siting corridors provide an area of 100 to 300 feet of the
17 preliminary design to allow the Applicant to conduct studies that can identify the constraints within a
18 defined area during the development process. This information then provides a better opportunity for the
19 Applicant to balance a number of technical, environmental, and engineering factors, including limitations
20 posed by the terrain, wind data (speed, wind shear, etc.), feasibility of access, setbacks (internally
21 established or based on permit requirements), geotechnical considerations (subsurface conditions),
22 environmental restrictions (avoidance of sensitive habitat), cultural/archeological restrictions (avoidance
23 of cultural resource sites), telecommunications constraints (line of sight microwave paths), Federal
24 Aviation Administration (FAA) requirements, Department of Defense (DoD) requirements, and other site-
25 specific criteria. As the Project gets closer to construction, the engineering will be optimized, and locations
26 of infrastructure may change very slightly based on safety needs or other constraints, as well as
27 economical savings. However, the Applicant will locate all such facilities within the micro siting corridors
28 that have been assessed and approved in applicable land use and environmental permits, which are
29 addressed in this EIS and the Final EIS (FEIS).

30





RUNYON RD

VAIL CUT OFF RD

VAIL LOOP RD

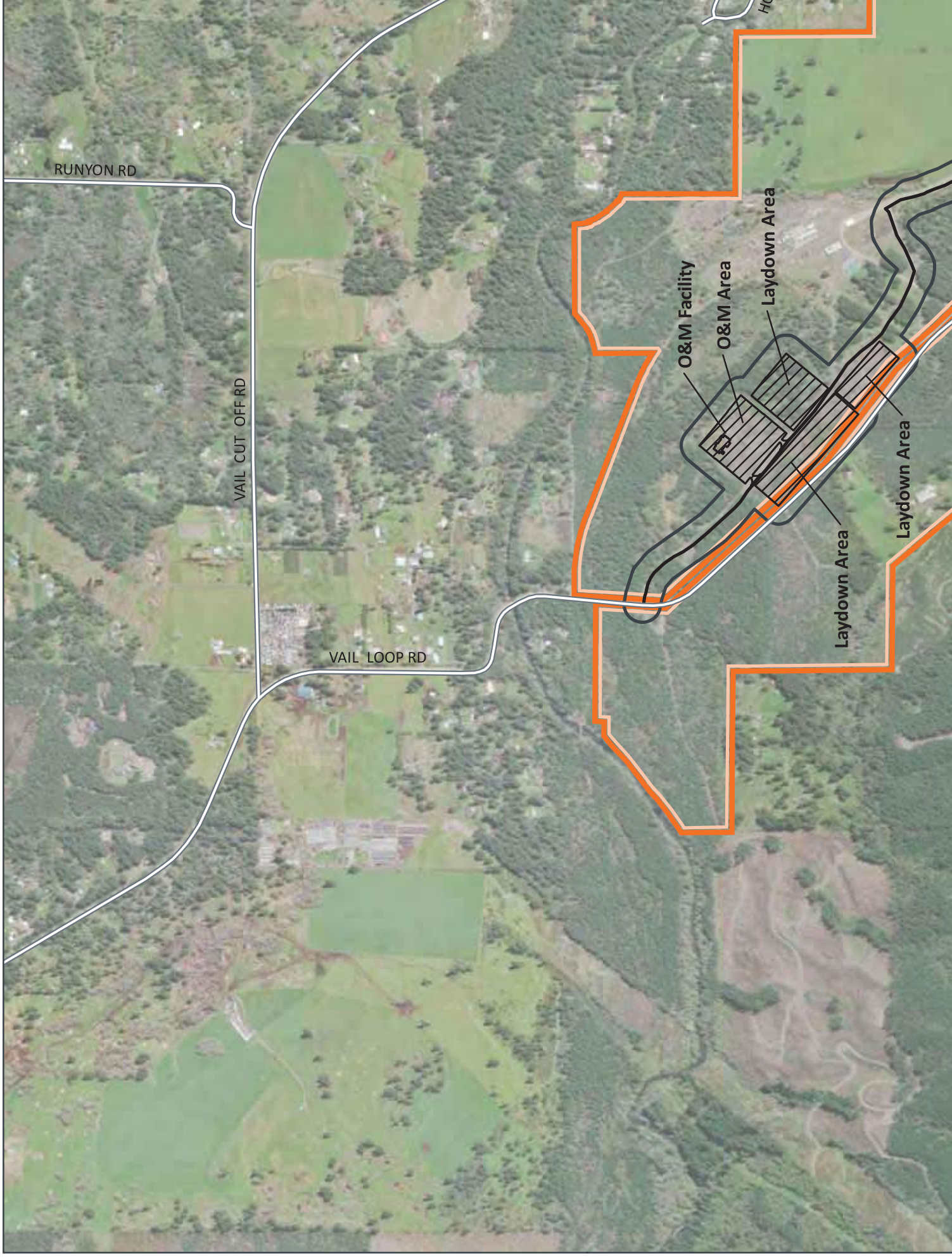
O&M Facility

O&M Area

Laydown Area

Laydown Area

Laydown Area





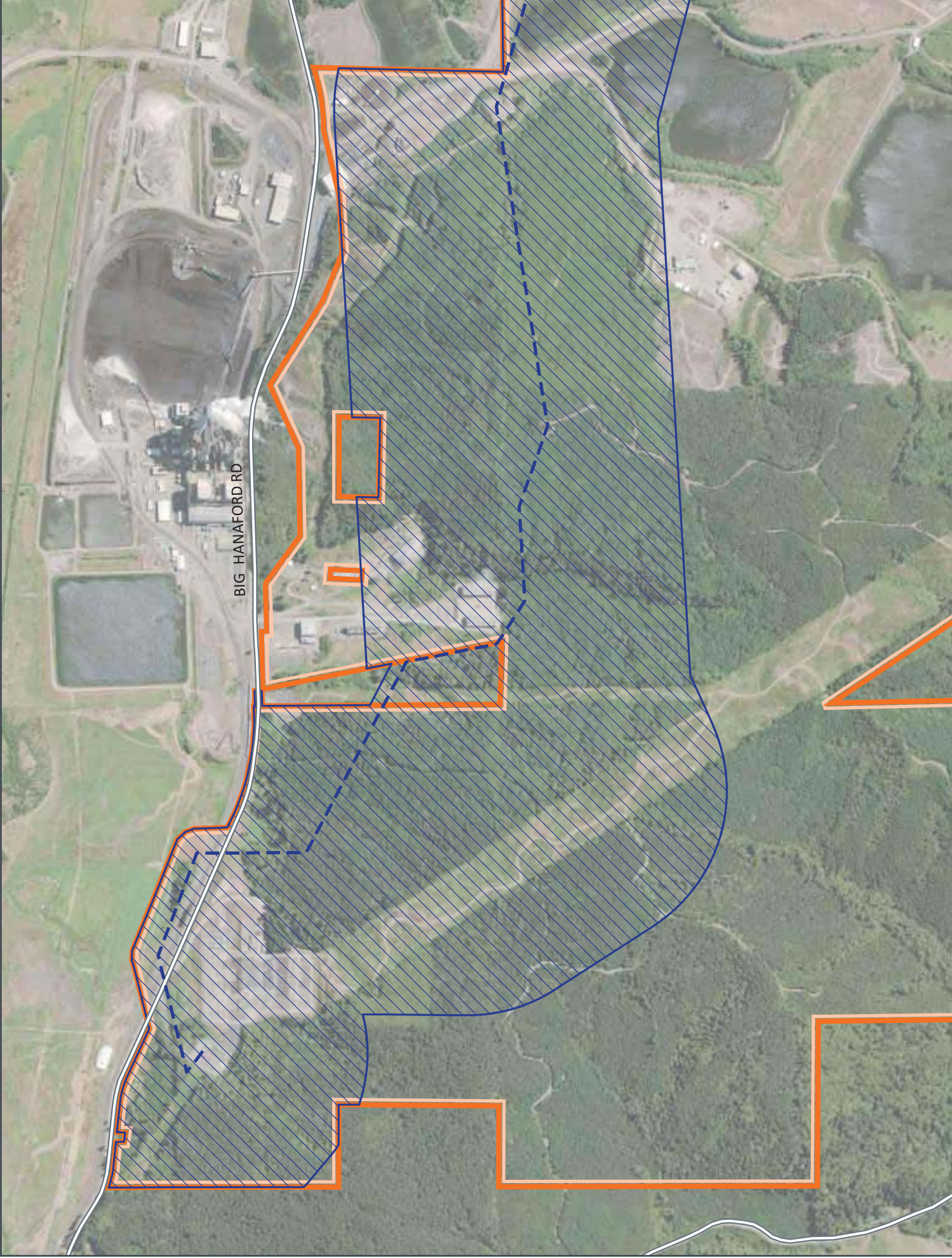
GORDON RD

CHATWOOD RD







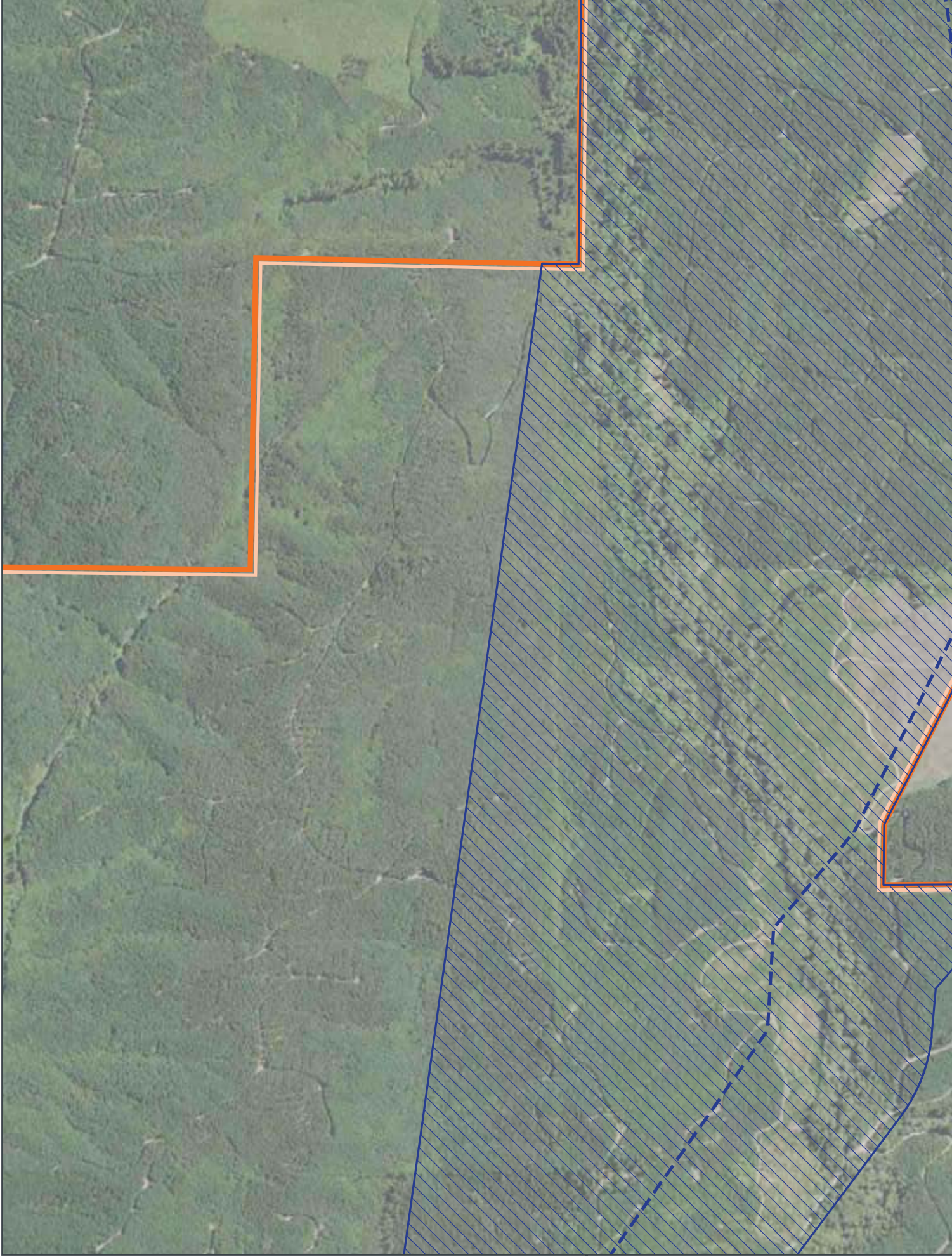


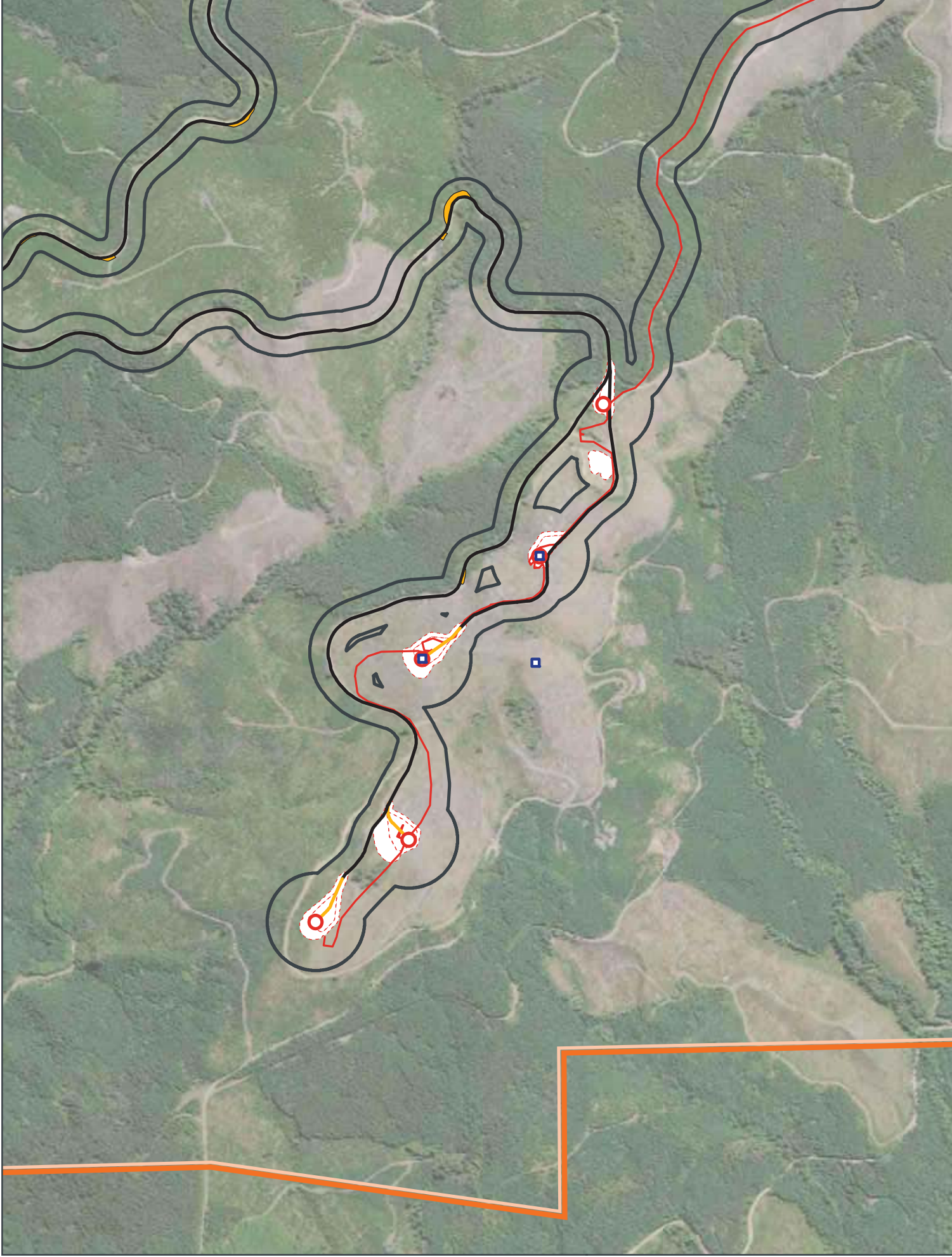
BIG HANAFORD RD

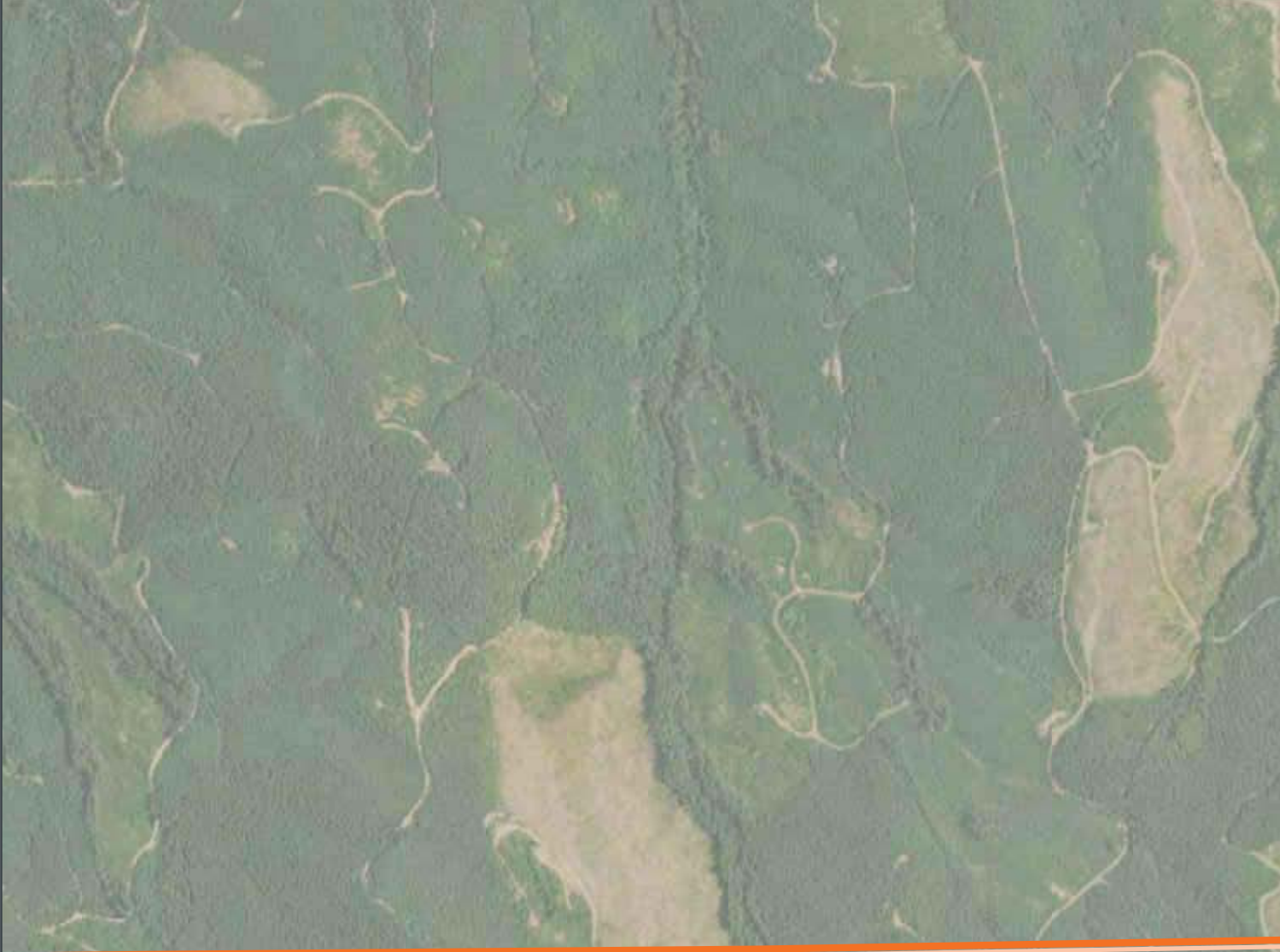
UNNAMED RD

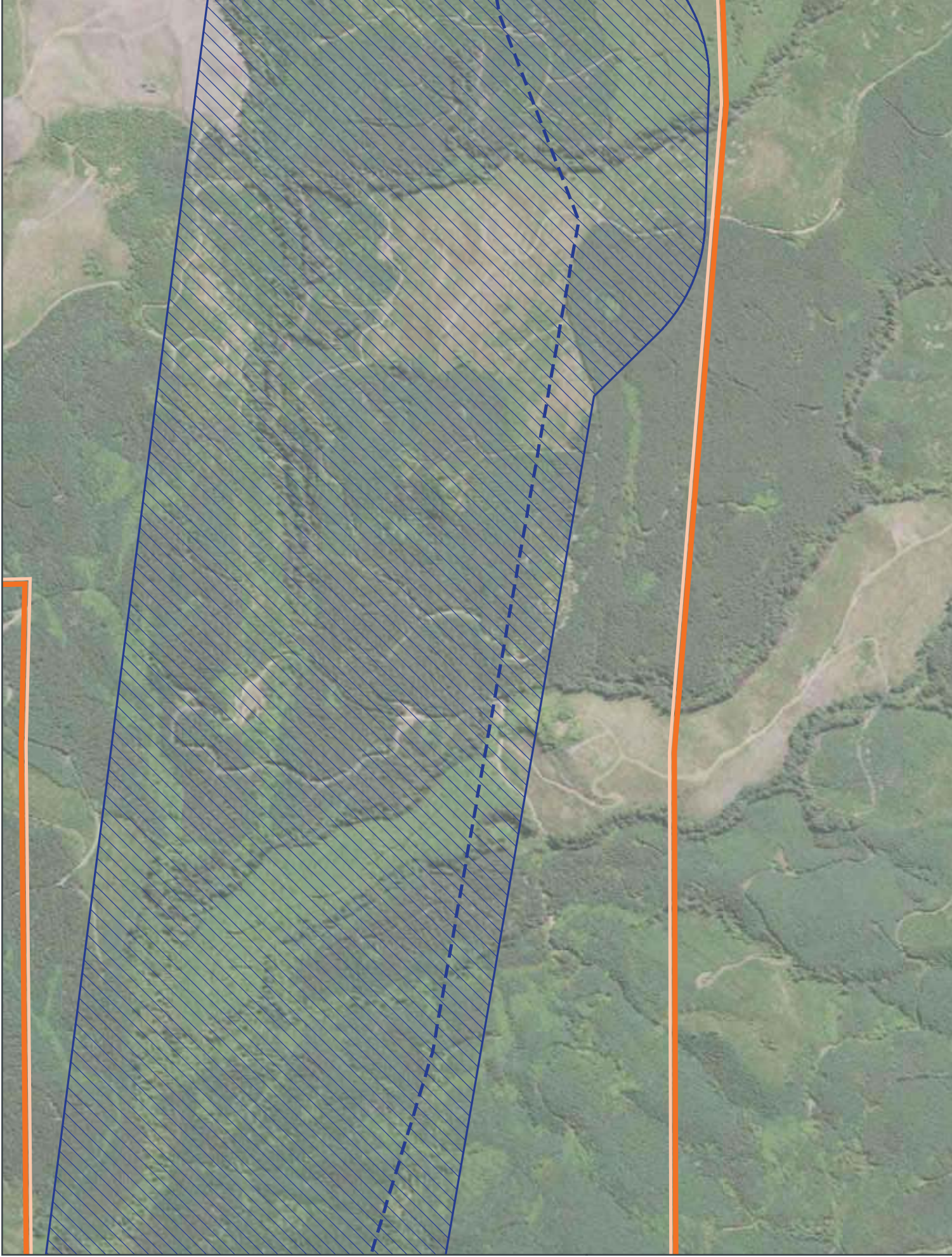


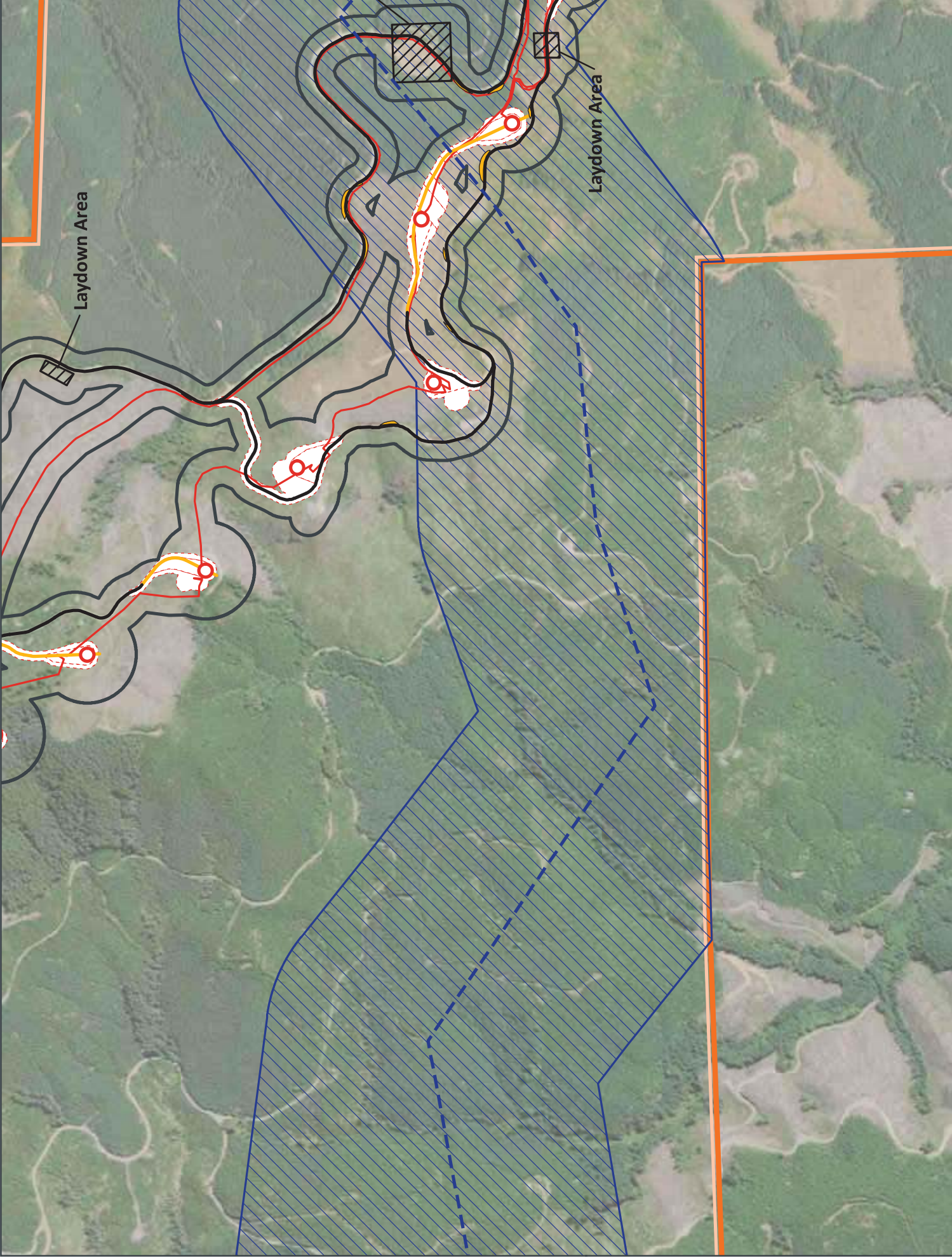








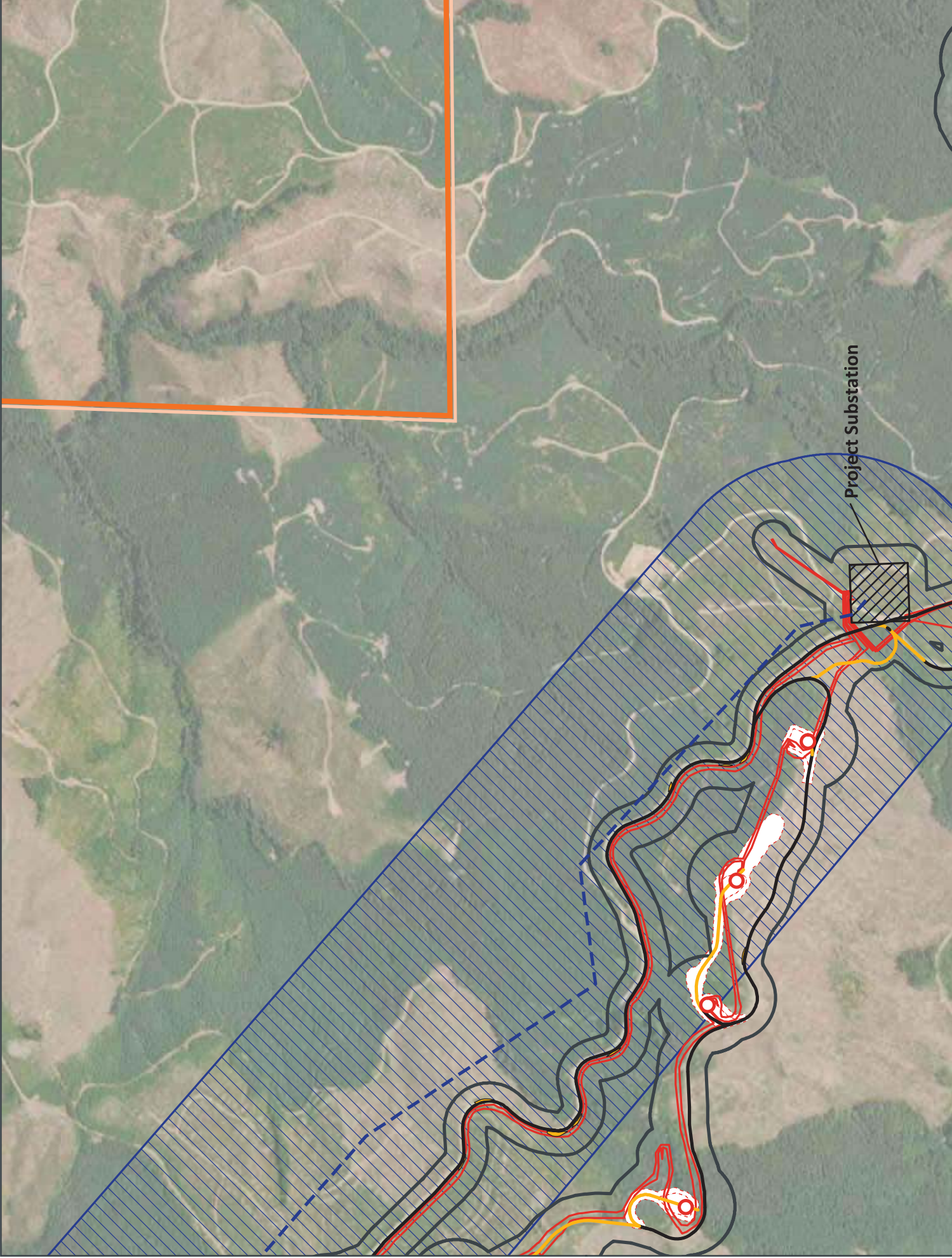




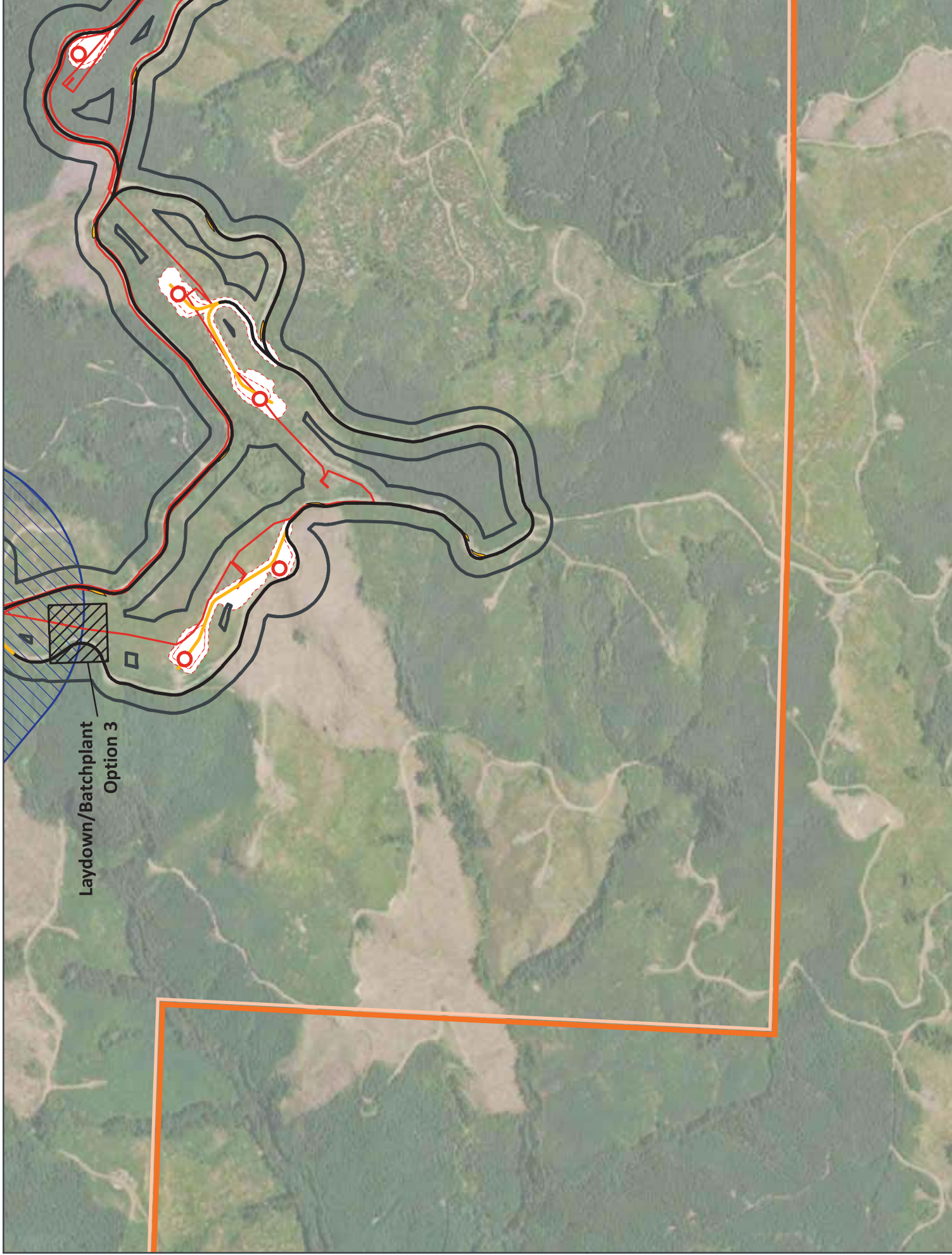
Laydown Area

Laydown Area

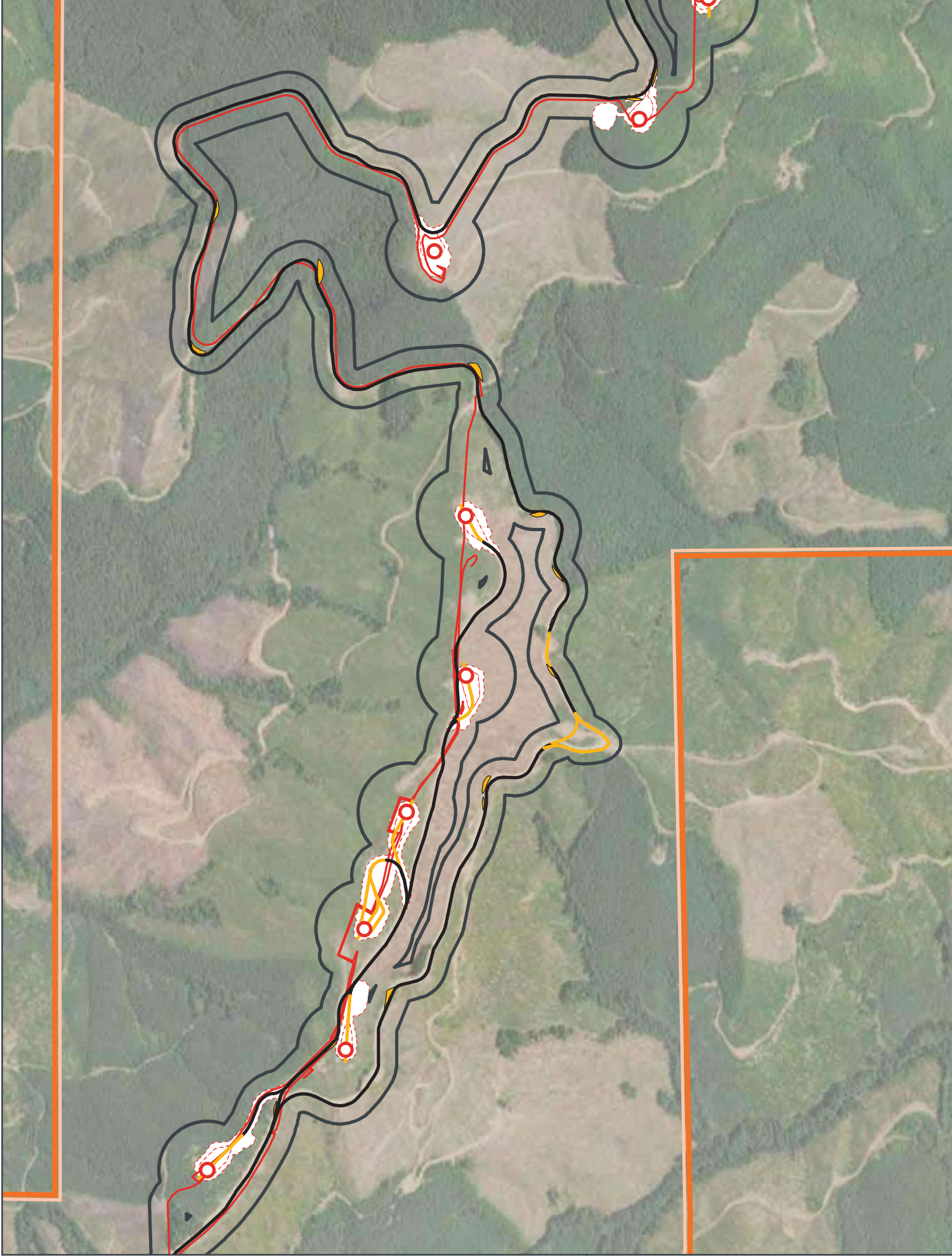
Laydown Area

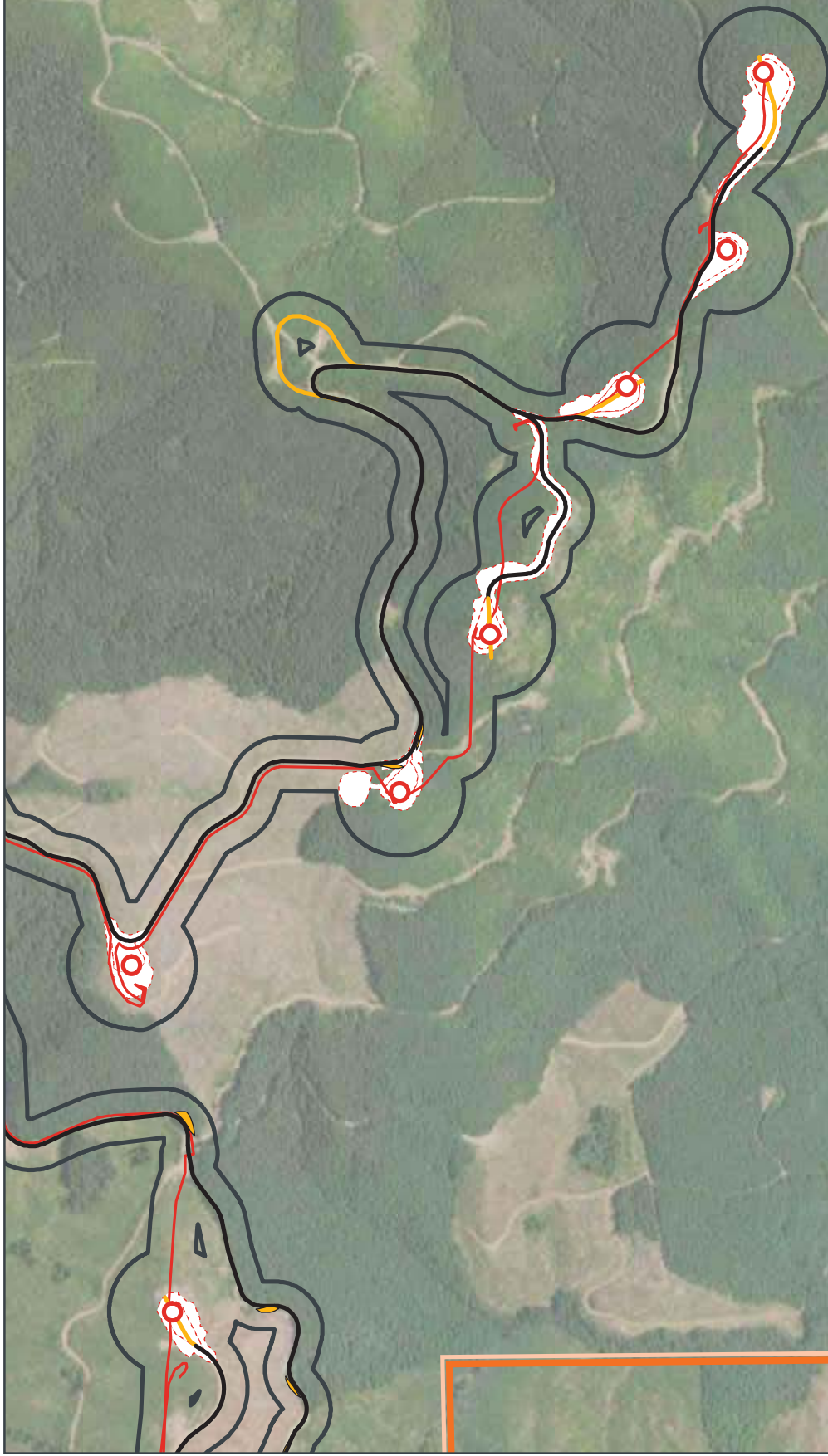


Project Substation



Laydown/ Batchplant
Option 3





1 **1.4.2 Connected Action**

2 The Applicant has submitted a request for gen-tie line interconnection services for the Project to PSE. The
3 Project will connect to the PSE transmission system at the Tono substation. Interconnection of the Project
4 will require installation of a step-up transformer in the Tono substation yard and installation of electrical
5 cabling to connect the gen-tie lines to the step-up transformer, and cabling to connect the step-up
6 transformer to the remainder of the substation.

7 **1.4.3 No Action Alternative**

8 For private actions, such as this one, SEPA requires the evaluation of only the No Action Alternative, as
9 well as other reasonable alternatives for achieving the proposal’s objective on the same site (WAC 197-
10 11-440[5]). Under the No Action Alternative, only ongoing commercial forestry activities within the Project
11 Area would continue and the Proposed Action would not be implemented. Utilities would continue to use
12 other or new power sources, renewable or non-renewable in nature, to meet energy demand and comply
13 with Washington’s Renewable Portfolio Standard (RPS) requirements. Development of additional power
14 sources to meet such needs could occur at various other locations throughout Washington.

15 **1.4.4 Alternatives Considered but Eliminated from Further Study**

16 The SEPA Rules provide for the consideration of reasonable alternatives to a proposed action (WAC 197-
17 11-440[5]). Reasonable alternatives are defined as actions that could feasibly attain or approximate the
18 objectives for a proposal, but at a lower environmental cost or decreased level of environmental
19 degradation. The Rules also specify that use of the term “reasonable” is intended to limit the number and
20 range of alternatives evaluated in an EIS, and to limit the amount of detailed analysis of alternatives to be
21 included in the document (WAC 197-11-440(5)(b)(i)).

22 Section 2.11 of the DEIS describes how the Applicant has already undertaken an analysis of alternative
23 designs and locations of Project components which over time refined the Project layout to the current 38
24 WTGs. These included:

- 25 • *An enlarged Project footprint alternative* wherein the Applicant considered the feasibility of
26 constructing and operating a larger generation facility, both in terms of more WTGs and a larger
27 area, involving the proposed Project site. Analysis of factors such as presence of sensitive
28 environmental resources, constructability issues, and available market for a greater Project
29 generation capacity resulted in reducing Project size overall. This reduction directly resulted in
30 avoiding critical habitat for Marbled Murrelet and Spotted Owl Special Emphasis Areas (SOSEAs).
- 31 • *Alternative Interconnection Point* wherein the Applicant considered an alternate point of
32 interconnection northwest of the Project Area; however, studies of the anticipated gen-tie line
33 corridor under this alternative revealed the presence of suitable habitat for Mazama pocket
34 gophers. Because of the much greater potential for environmental effects as compared to
35 developing the currently proposed gen-tie line alignment, this alternative was considered but
36 eliminated.
- 37 • *Removal of the Northern Turbine string* wherein the Applicant took into consideration information
38 received from regulatory agencies, environmental groups, and the public and evaluated several
39 iterations of Project layout and design. The Applicant’s evaluation included considering different
40 WTG models, the number of WTGs in the resource areas, comprehensive road improvement

1 plans, and other key elements of the Project. These additional efforts resulted in the Applicant's
2 decision to forgo implementation of the northern WTG string, thereby avoiding impacts to DoD
3 military training operations originating from Joint Base Lewis-McChord, minimizing impacts to
4 sensitive biological species, and minimizing visual impacts to the residential uses located closest
5 to the proposed WTG locations.

6 In summary, the Applicant has evaluated alternative facility configurations within the Project Area as well
7 as alternative interconnection points (and their associated gen-tie-line corridors). Due to potential
8 adverse environmental impacts associated with these alternatives, the Applicant reduced the Project
9 footprint and relocated the point of interconnection, resulting in the current proposed action. Due to their
10 potential for adverse environmental impacts, the alternatives previously considered by the Applicant are
11 not considered reasonable action alternatives and do not warrant a detailed evaluation in the EIS. The
12 only means to further reduce potential adverse environmental impacts would be to reduce the footprint
13 of the Project or number of WTGs. A reduced footprint or reduced capacity scenario would not be feasibly
14 attained or meet the objectives of the proposal to generate renewable wind energy available for private
15 entities and public utilities to meet the regional demands and need for renewable energy resources.

16 **1.5 SUMMARY OF PUBLIC INVOLVEMENT, CONSULTATION, AND COORDINATION**

17 **1.5.1 DEIS Scoping**

18 SEPA requires evaluation of probable significant adverse impacts of a proposal such as a wind facility
19 project. For projects addressed by an EIS, SEPA requires preparation of a DEIS and FEIS. Public scoping is
20 an integral part of the SEPA process and is done to assist in identifying key issues for evaluation in the EIS.
21 Lewis County initiated scoping for the Project to obtain public and agency comment on the significant
22 environmental aspects of this Project by issuing a Determination of Significance and Scoping Notice on
23 May 1, 2018 (Anderson 2018). The scoping period closed on May 31, 2018. In addition to receiving written
24 scoping comments during this period, Lewis County also conducted a scoping meeting on May 9, 2018 in
25 Chehalis, Washington to obtain scoping comments, provide information about the Project to the public,
26 and to address questions about SEPA review process.

27 Lewis County received 19 letters addressing the DEIS scope from the public, state and local agencies, and
28 tribes. In addition, one person presented oral comments at the scoping open houses. The SEPA lead
29 agency considered the comments in determining the scope of the DEIS, and specific concerns that the
30 DEIS should analyze. Major concerns identified during the scoping process are summarized in Section 1.7
31 below.

32 **1.5.2 Comment on DEIS**

33 This DEIS is being issued for public comment in accordance with WAC 197-11-510 and Lewis County Code
34 (LCC) 17.110.170. The DEIS will be available for review by agencies and the public for a 30-day comment
35 period. During this period, members of the public are invited to submit comments on the DEIS. The lead
36 agency is not required to hold a public hearing on the DEIS unless (a) 50 or more persons, within the
37 agency's jurisdiction or who would be adversely impacted by the proposal, make written request within
38 45 days of the issue date of the draft EIS or (b) two or more agencies with jurisdiction over a proposal
39 make written request to the lead agency within 45 days of the issuance of the draft EIS.

40 At the conclusion of the DEIS comment period, Lewis County will consider the comments received, and
41 will supplement or revise the information presented in the DEIS in order to prepare and issue a Final EIS.

1 As specified in the SEPA rules (WAC 197-11-460[5]), local and state agencies may not take action on the
2 proposal sooner than 7 days after the FEIS has been issued.

3 **1.5.3 Other Consultation and Coordination**

4 In addition to the formal comment opportunities required under SEPA, the Applicant and other agencies
5 have conducted consultation and coordination activities with members of the public, non-governmental
6 organizations, regulatory agencies, and tribes. These activities are summarized below. Additional
7 permitting, consultation, or coordination efforts with local, state, and federal agencies are ongoing and
8 have been described herein, to the extent possible.

9 **1.5.3.1 Activities Conducted by the Applicant**

10 The Applicant conducted open house meetings open to the public on September 6 and 7, 2017, in
11 Thurston County and Lewis County respectively. These open houses provided the public an opportunity
12 to learn about the Project and provide comments about the Project to the Applicant.

13 The Applicant also coordinated with DAHP and applicable tribes to provide them an opportunity to
14 comment on cultural resource investigation plans. These activities are summarized in Section 3.10.3 of
15 this DEIS.

16 **1.5.3.2 Activities Conducted by Other Local and State Agencies**

17 In addition to submittal of an application for an SSDP to Lewis County, the Applicant also submitted an
18 application for Special Use Permit (SUP) (March 20, 2017) and a Joint Aquatic Resources permit
19 Application (JARPA) (December 7, 2017) to Thurston County. Thurston County published a notice of
20 application and received public comments; these comments were submitted to Lewis County during the
21 scoping period (Smith 2018).

22 Further, the Applicant will apply for the following permits and approvals from various local and state
23 entities.

1 **Table 1.5-1. Project Permits and Approvals**

Federal	
National Environmental Policy Act (NEPA) Incidental Take Permit/Habitat Conservation Plan (ITP/HCP) for Operations	U.S. Fish and Wildlife
FAA Hazard Determinations	Federal Aviation Administration
Form 7460: Notice of Proposed Construction or Alteration	Federal Aviation Administration
Section 404 Nationwide Permit	U.S. Army Corps of Engineers
State	
State Environmental Policy Act (SEPA)	Lewis County (Lead Agency)
Forest Practices Act Class III (FPA Class III)	Washington Department of Natural Resources
Forest Practices Act Class IV (FPA Class IV)	Washington Department of Natural Resources
Oversize/Overweight Vehicle Permits*	Washington State Department of Transportation
Highway Access Permit*	Washington State Department of Transportation
Hydraulic Project Approval	Washington Department of Fish and Wildlife
Construction Stormwater National Pollution Discharge Elimination System (NPDES)	Washington State Department of Ecology
Department of Ecology Industrial Stormwater NPDES	Washington State Department of Ecology
Section 401 Water Quality Certification	Washington State Department of Ecology
Air Discharge Permit(s) for rock crusher and concrete batch plant	Southwest Clean Air Agency
Local	
Shoreline Substantial Development Permit (SSDP) / Shoreline Conditional Use Permit (CUP)	Lewis County
Transmission Line Type II Administrative Approval (Rural Area zone authorizations)	Lewis County
Building and other Related Ministerial Construction Permits for the Tower Foundation and Bottom Section of the Tower	Lewis County
Shoreline Substantial Development Permit (SSDP)*	Thurston County
Special Use Permit for the O&M Building (SUP)	Thurston County
Critical Area Authorizations*	Lewis and Thurston Counties
Building Permit	Lewis County
Grading Permit*	Lewis County
Road Approach Permit*	Lewis County
Building Permit	Thurston County
Grading Permit*	Thurston County
Right of Way Access Permit*	Thurston County
Right-of-Way Permit*	Pierce County
Road Use Permit*	City of Tacoma

2 Note: permits/approvals for project haul routes will be obtained separately by the contractor. Anticipated
3 haul route permits are noted with an asterisk (*) in the table.

1 Review of these applications may include notices of application made to the public and public comment
2 periods.

3 **1.5.3.3 Activities Conducted by Federal Agencies**

4 In addition to receipt of local and state permits and approvals which require review under SEPA, the
5 Applicant is required to obtain certain federal approvals, some of which are being reviewed under the
6 National Environmental Policy Act (NEPA). In particular, the Project is applying for an incidental take
7 permit (ITP) under Section 10(a)(1)(B) of the Endangered Species Act (ESA) from the U.S. Fish and Wildlife
8 Service (USFWS) for potential take of marbled murrelet, with take coverage for bald and golden eagles,
9 resulting from operation of the Project. Seeking an ITP for take of listed wildlife under ESA Section 10 is a
10 voluntary action undertaken by an applicant, and the USFWS is the lead agency for the review of the ITP
11 for this Project. As part of the review of these permit applications, the Applicant has prepared a Habitat
12 Conservation Plan (HCP). The HCP was developed through Technical Assistance and coordination with
13 USFWS and WDFW and is undergoing review through multiple levels of the USFWS. Information that is
14 presented within the HCP has been included within this document to provide background on the analysis
15 of impacts and proposed mitigation to fully offset impacts to the species.

16 As part of its permit application review, the USFWS is the lead agency for review under NEPA. The USFWS
17 has chosen to prepare a NEPA EIS to assess the impacts of Project operation and maintenance activities
18 subject to the approvals it is issuing (USFWS 2018). The USFWS is conducting a separate public
19 consultation process in accordance with NEPA requirements. The USFWS conducted scoping meetings on
20 May 8 and May 10, 2018, in Lacey and Centralia, Washington, respectively. The USFWS will prepare and
21 issue a separate NEPA EIS, including a DEIS for public comment and review, and a FEIS in support of its
22 permitting decision. The ITP/HCP, and the DEIS that is being prepared as part of the NEPA review is
23 expected to be published in the Federal Register for public comment in late October/early November
24 2018. In accordance with the U.S. Department of Interior’s Secretarial Order 3355, NEPA review must be
25 completed and a Record of Decision (ROD) and an ITP must be issued 365 days after the published date
26 of the NOI, which was April 5, 2018. Therefore, the ROD and ITP are anticipated in April 2019. Thus, the
27 ITP will be received prior to the Applicant’s expected date of operations of the Project for which the ITP
28 provides take coverage.

29 **1.6 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION**

30 **1.6.1 Proposed Action**

31 Table 1.6-1 summarizes the potential environmental impacts of the Project. Mitigation measures available
32 to minimize potential impacts to the natural and built environment, including measures proposed by the
33 Applicant or required by regulation, are also identified in the table. The information presented in the table
34 is a summary of the detailed discussion of impacts and mitigation for the respective elements of the
35 environment provided in Chapter 3.

Table 1.6-1. Summary of Environmental Impacts and Mitigation

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Earth</p> <p>During construction, clearing and grading activities could result in increased potential for erosion, minor changes in topography, and soil compaction.</p> <p>During operation, impacts are limited to the potential for earthquakes or volcanic hazards to occur.</p>	<p>During construction, erosion and sediment control best management practices (BMPs) will be implemented per requirements of the construction stormwater general permit, National Pollution Discharge Elimination System (NPDES). Additional detailed geotechnical investigations will occur prior to construction and all Project facilities will be designed and engineered to account for site-specific geohazards and in accordance with applicable seismic standards and building codes. Two WTG locations were identified as susceptible to landslide risk and these locations will be mitigated/stabilized during the final design of the site.</p> <p>Gen-tie line construction activities within the regulated shoreline jurisdiction of Hanaford Creek and Packwood Creek and their critical area buffers (if any) will comply with applicable Lewis County shoreline and critical areas regulations pertaining to erosion hazards.</p>
<p>Air Quality</p> <p>Construction: Exhaust emissions will result from operation of construction equipment and construction vehicles. These vehicles will also generate fugitive dust from travel on dirt and gravel roads and from soil-disturbing activities during construction. Cement crushing and batching equipment will generate particulate matter, and the diesel generators that power this equipment will generate emissions.</p> <p>Operations: Facility operations and maintenance will result in combustion emissions and fugitive dust generated by vehicles traveling on access roads within the Project site. WTGs do not generate emissions during operation as they do not burn fossil fuels to produce energy. However, limited life cycle GHG emissions will result from the manufacturing of wind energy generation equipment.</p> <p>Decommissioning: Excavation, clearing, grading, and trenching will generate emissions similar to those generated during construction, primarily from construction vehicle exhaust emissions and fugitive dust particles.</p>	<p>Project construction activities may result in temporary dust emissions resulting from ground disturbance and emissions from operation of construction equipment. Although such emissions are expected to be minor, the Applicant has proposed implementation of a fugitive dust plan and measures to minimize idling of equipment. Temporary rock crushing and concrete batching operations will be permitted in accordance with Southwest Clean Air Agency (SWCCA) and Olympic Region Clean Air Agency (ORCAA), as applicable. During both construction and decommissioning, the Applicant will control fugitive emissions from construction and decommissioning in accordance with SWCCA and ORCAA regulations. Mitigation measures to reduce or avoid impacts will comply with applicable federal and state air quality regulations for exhaust emissions.</p> <p>Operation of the Project will result in potential emissions generated by maintenance and operation vehicles. However, these emissions will be small, intermittent, and geographically localized. Therefore, no mitigation for air emissions associated with Project operation is proposed.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Water Resources</p> <p>During construction, clearing and grading activities could lead to an increased potential for erosion and sedimentation of nearby waterbodies. The use and transport of various liquids (fuels, oils, and cleaners) also presents a risk for spills or leaks of water pollutants into waters.</p> <p>The gen-tie line will involve multiple aerial crossings of streams, but structures will be placed outside of streams and any regulated riparian buffers including jurisdictional areas under the shoreline management plan (SMP). Access road improvements will require some minor cut and fill within the regulated shoreline and stream buffer of the Skookumchuck River in Thurston County. The access roads to the gen-tie line in Lewis County will dead-end prior to the 200-foot shoreline area of the SMP jurisdiction of Packwood Creek and Hanaford Creek; only removal of trees for fall protection will occur within SMP jurisdictions.</p>	<p>In general, all construction activities including clearing, grading, and staging of equipment, will occur outside of streams or their regulated buffers and shoreline jurisdictional areas. Shoreline Development Permits will be received for planned work activities within the regulated shoreline jurisdictions of Hanaford Creek, Packwood Creek, and the Skookumchuck River prior to construction activities.</p> <p>A Stormwater Pollution Prevention Plan (SWPPP) has been developed to manage stormwater discharge and prevent erosion and sedimentation into nearby waterbodies. This SWPPP prescribes the use of BMPs that are standard features of such plans. The Project SWPPP is based on and will comply with Ecology's Stormwater Management Manual for Western Washington, the DNR Forest Practices Applications and Notifications (FPA/N), the DNR Road Maintenance and Abandonment Planning (RMAP), any stipulations of the Washington Department of Fish & Wildlife (WDFW) Hydraulic Protection Approval (HPA), and Lewis and Thurston County stormwater regulations. Additionally, the SWPPP follows requirements in the property lease agreement. Potential water pollutants will be stored in properly contained areas away from all waterbodies and a Spill Prevention Control and Countermeasure (SPCC) plan will be implemented during construction and operation to prevent spills or leaks of water pollutants.</p>
<p>Biological Resources</p> <p><u>Construction:</u></p> <p><i>Plants</i></p> <p>Construction will result in temporary and long-term impacts to vegetation communities and sensitive plant species, and could facilitate the introduction and spread of noxious weeds in the Project Area. Construction of the Project will temporarily disturb approximately 452 acres. Long-term impacts will occur on approximately 335 acres. Therefore, total disturbance, including both temporary and permanent impact areas, will be approximately 787 acres.</p> <p><i>Wetlands</i></p> <p>Project facilities will be sited to avoid wetlands and wetland buffers.</p> <p><i>Wildlife</i></p>	<p><u>Construction:</u></p> <p>The Applicant followed a tiered evaluation process that follows the process outlined in the USFWS Land-Based Wind Energy Guidelines (WEG) (USFWS 2012) and WDFW Wind Development Guidelines to assess potential impacts of the Project and identify measures to avoid, minimize, and mitigate potentially adverse impacts.</p> <p>The Applicant has completed biological resource surveys for the gen-tie line alignment to identify protected resources which must be avoided. The Project has been designed to avoid impacts to protected resources. If avoidance is not possible, the Applicant will identify mitigation measures in accordance with applicable regulatory requirements.</p> <p>Impacts to vegetation, waterbodies and wildlife during construction and decommissioning of the facility will be minimized by the implementation of BMPs required as part of the NPDES Construction Stormwater Permit, HPA (if applicable), and Lewis and Thurston County critical areas regulations. These efforts will also be in compliance with the requirements of the property and easement lease or purchase agreements.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Temporary and permanent impacts on wildlife resources from construction activities mainly result from habitat loss. Wildlife species that are not able to move away from construction activities, such as vegetation clearing, could experience mortality. More mobile species will likely be displaced from the site during active construction.</p> <p>The potential for mortality of bird species may occur when vegetation is cleared that contains bird nests with young or eggs still in the nest. There is also the potential for collision mortality of birds as construction crews drive onsite between locations. The removal of vegetation for the WTGs, may impact bat foraging areas, due to the change in vegetation structure and insect abundance. The noise and activity associated with construction crews and equipment may displace birds from the immediate area.</p> <p>Construction of the Project could potentially affect fish-bearing streams through erosion and sedimentation. Within Thurston County, a short segment of access road improvements will occur within the shoreline jurisdictional area of the Skookumchuck River, which will involve clearing and grading within the regulated shoreline area. The clearing and grading activities within the regulated shoreline area could create the potential for erosion and sedimentation to occur, thereby potentially causing a temporary and localized reduction in water quality and fish habitat.</p> <p>During the construction period, big game species might be temporarily displaced from the site due to the presence of humans, heavy construction equipment, and associated disturbance (e.g., noise, blasting). Construction of the Project could affect other mammals that are likely to occur in the Project Area, either by direct mortality from construction vehicles or loss of habitat from forest clearing. Earth moving activities during construction of the WTG pads, road alignments, and other Project facilities will also cause mortality of ground-dwelling mammals if burrows are crushed.</p>	<p>Plants</p> <p>The Applicant has developed and will implement a SWPPP which identifies the specific restoration activities to be conducted in temporarily disturbed areas to restore the temporarily disturbed habitat and prevent erosion from occurring after construction activities have concluded.</p> <p>Wetlands</p> <p>All Project facilities will be sited to avoid wetlands and wetland buffers, and temporary erosion and sedimentation control measures will be installed to prevent sedimentation from discharging into the wetlands and wetland buffers.</p> <p>Wildlife</p> <p>To minimize potential collisions with wildlife during construction and decommissioning, a vehicle speed limit of 25 miles per hour will be posted and enforced within the Project Area.</p> <p>Construction within the regulated shoreline jurisdictional area will be conducted in accordance with the mitigation requirements of the Substantial Shoreline Development Permit. Erosion and sedimentation control measures will be implemented at the beginning of the construction process and will be incorporated into the design and contractual requirements to minimize the potential for sediment from the Project construction from entering headwater systems and streams.</p> <p>Operation:</p> <p>Plants</p> <p>During Project operation, maintenance activities will be confined to right-of-way, access roads, and areas surrounding Project components, avoiding additional impacts to vegetation. The Applicant will monitor vegetation re-establishment following construction through the implementation of the SWPPP. The Applicant will monitor re-vegetated areas for the presence of noxious weeds and will spot treat infestations via approved herbicides or hand pulling.</p> <p>Wildlife</p> <p>As part of the Project and in accordance with the Land-Based WEG (WEG; USFWS 2012), the Applicant will develop and will implement a Bird Bat Conservation Strategy (BBCS) Plan prior to operations of the Project. All information supporting take authorization under ESA and BGEPA will be provided in the HCP and much of that analysis is discussed in this DEIS as well. The Applicant will install self-supporting permanent meteorological</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Impacts to amphibians in the Project Area from Project construction may occur through loss of habitat or water quality changes to streams or direct mortality from construction vehicles or ground disturbing activities in riparian areas.</p> <p>Decommissioning activities will result in the similar impacts to biological resources as Project construction activities.</p> <p><u>Operation:</u></p> <p><i>Plants</i></p> <p>Project operations could cause long-term impacts to vegetation communities and special-status plant species and could facilitate the introduction and spread of noxious weeds in the Project Area.</p> <p><i>Wildlife</i></p> <p>Birds have been identified as a group potentially at risk because of collisions with WTGs and power lines and displacement due to the presence of the associated infrastructure. Specifically, migrant songbirds are found more often in post-construction mortality monitoring compared to other groups of birds. Raptor use in the Project Area was low compared to other wind facility studies, and raptor mortality is therefore expected to be low. Mortality of red-tailed hawks due to collisions may therefore occur in the Project Area. For bats, there is a lack of information relating pre-construction activity patterns of bats to post-construction fatality.</p> <p>Indirect impacts to water quality in water bodies where fish may be present could occur if permanent stormwater controls are improperly maintained leading to erosion and sedimentation which could reach nearby waterbodies.</p> <p>No impacts to small mammals are expected during the operations phase, although some collision-related mortality could occur during maintenance activities. The lack of knowledge of potential impacts of wind energy development on big game increases the difficulty in predicting effects of the Project on elk and deer in the Project Area. Conversely, newly replanted vegetation in temporarily disturbed areas may be palatable and attract elk.</p>	<p>towers, thereby minimizing avian collisions by avoiding the use of guy-lines to support the towers.</p> <p>The Applicant is applying for an ITP for marbled murrelets, in accordance with Section 10(a)(1)(B) of the ESA, with take coverage for bald and golden eagles. In coordination with USFWS and WDFW a HCP has been prepared and all avoidance, minimization, and mitigation measures in that plan will be incorporated into the Project. The Applicant will mitigate the impacts of the potential take of murrelets by acquiring conservation lands that promote the preservation and enhancement of suitable nesting habitat for marbled murrelets, which will also provide mitigation for bald eagles. The Applicant will also provide mitigation for murrelets by providing funding for the removal of derelict nets; which will provide direct and immediate benefit to marbled murrelets. Furthermore, the Applicant will implement pole retrofits for mitigation of take of golden and bald eagles outlined in the HCP and described in this DEIS.</p> <p>A monitoring program will be developed and implemented as part of the Project's HCP, which will be the methodology to verify ITP compliance through evaluation of the level of take of the covered species, to provide progress reports on the fulfillment of mitigation requirements and to enable evaluation of the effectiveness of the minimization and mitigation actions in meeting the biological goals and objectives. Avian fatality monitoring will be conducted over the life of the Project, and the monitoring program will be adapted if needed as information is collected and mitigation effectiveness will be confirmed for those species for which mitigation is being provided.</p> <p>Flight diverters will be installed on aboveground transmission and distribution lines to minimize collision risk according to Avian Power Line Interaction Committee suggested practices. Technological advancements in line-marking systems now include diverters that are visible to birds in low-light conditions. The exact locations are being determined at this time, based on several factors including habitat, waterbodies, and risk assessments of habitat and existing disturbance.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Direct impacts from the operation of WTGs at the Project include the potential removal of individual marbled murrelets from the population as a result of collision with blades.</p> <p>WTG operation has the potential to directly affect bald eagles and golden eagles in the form of mortality from collision with spinning blades.</p>	<p>Identiflight units will be installed to minimize potential take of bald and golden eagles (see Section 2.6.2 for more information).</p>
<p>Energy and Natural Resources</p>	
<p>The Project will consume various materials as a result of construction of the WTGs and associated Project elements. In addition to those components and materials which will be shipped to the site (e.g., steel in the form of WTGs and electrical cabling), there are sufficient quantities of raw construction materials available locally and regionally to provide for Project construction and other regular consumption. The Project will not adversely affect local utility power availability and will contribute positively towards the availability of renewable energy in the region.</p>	<p>As the Project will have a net positive effect on the availability and consumption of renewable energy resources, no mitigation measures beyond those included in the Project design are required. Conservation measures proposed as part of the Project are included below.</p> <p>During construction and decommissioning, BMPs will include construction waste recycling when possible, and carpooling will be encouraged to reduce consumption of refined petroleum products and their resulting emissions.</p> <p>During Operations, BMPs will be developed that include conservation measures for nonrenewable resources such as water, fuel, and electricity. These BMPs may include the following conservation measures when cost effective:</p> <ul style="list-style-type: none"> • Installation of high-efficiency electrical fixtures, appliances, and light bulbs in the O&M Facility • Use of low-water flush toilets in the O&M Facility • Encouraging carpooling among operations workers • Recycling of waste office paper and aluminum will be encouraged.
<p>Health and Safety</p>	
<p>During construction, health and safety risks include potential fire and explosions, electrical hazards, hunting activity, worker falls from WTGs, and an inadvertent hazardous materials release.</p> <p>Operation health and safety risks will be the same as construction, with the addition of potential mechanical hazards and ice throw.</p>	<p>Prior to construction, workers will be trained on general safety, security and fire/emergency response protocols and procedures. An emergency and fire response plan, fall protection plan, SPCC plan, and construction site access procedures will be implemented during construction.</p> <p>During operation, health and safety risks will be managed through built-in fire protection and lightning protection systems for the WTGs communication and control monitoring systems, regular tower inspections, and compliance with applicable setbacks. Site access will be restricted and operational SPCC, which will be renewed every five years, and fall protection plans will be implemented.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
	<p>In addition, fire breaks will be a design feature. Each road will be considered a site fire break, and each WTG location will have an area of up to approximately 125 feet by 150 feet to allow for assembly. This area will be rolled flat with most of significant vegetation removed to aid in protection against fire dangers.</p>
<p>Noise</p> <p>Project construction and decommissioning will result in temporary construction noise at the construction sites. Construction traffic will also result in temporary vehicle noise on roads used to access construction sites. The Applicant has proposed mitigation measures to minimize the impacts of temporary construction noise. Operation of the Project WTGs will result in noise emissions; however, receptors are too far removed to perceive any increase from background from the WTG sources. Since there will be no adverse impact, mitigation is not required.</p>	<p>The Project will comply with all applicable local, state, and federal laws, ordinances, regulations, and standards. Although no specific receivers are identified as being impacted by construction, decommissioning, or operational noise at this time, the following practices are recommended to minimize the effects of construction noise in the Project area:</p> <ul style="list-style-type: none"> • Implement construction and maintenance work-hour controls so that most noise-generating activities occur between 7:00 AM and 6:00 PM, which will reduce the impact during sensitive nighttime hours • Minimize the number of heavy-duty haul trucks traveling through the area during nighttime hours • Maintain equipment in good working order and use adequate mufflers and engine enclosures to reduce equipment noise during operation • Limit vehicle idling • Use the quietest available construction equipment and techniques
<p>Land Use and Recreation</p> <p>Land Use</p> <p>The Project will be designed and constructed, operated, and decommissioned to be compliant with all applicable land use and shoreline use regulations.</p> <p>Lewis County.</p> <p>The WTGs, the Project substation, and a portion of the gen-tie line will be located on lands designated as Forest Resource Lands (FRL) in Lewis County. Some lands will be removed from commercial forestry use during the 30-year life of the Project. In Lewis County the gen-tie line will cross Hanaford Creek twice where it is designated in the Lewis County SMP as Rural Conservancy, and in another location at Packwood Creek where it is designated as High Intensity.</p>	<p>Land Use</p> <p>The Applicant will collaborate with Weyerhaeuser to develop a timber harvest plan to maximize ongoing commercial forestry activities temporarily impacted by Project implementation in Lewis County.</p> <p>The Applicant will develop and implement a traffic control program to coordinate construction activities to minimize impacts to public and private road traffic resulting from construction of the Project.</p> <p>The Applicant will coordinate construction activities with the owners and operators of nearby commercial forestry lands to minimize impacts to their activities during construction of the WTGs and associated facilities in the Project lease area and within the private lands where the gen-tie line will be located. Coordination activities will also be conducted with Lewis County to minimize traffic impacts resulting from construction of the gen-tie line in public right-of-way.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Decommissioning of Project facilities in Lewis County will not permanently alter land use. Following decommissioning, commercial forestry lands on which Project facilities were constructed will be placed back into service, and Project access roads will remain in support of forest management and harvest. Thurston County</p> <p>In Thurston County where the O&M facility will be located, a change in use from uses allowed in the RRR 1/5 zone will occur. Decommissioning of Project facilities in Thurston County will not permanently alter land use.</p> <p>In Thurston County, the improvements needed to the access road for the Project site will be located within the SMP jurisdictional area of the Skookumchuck River. The access roads to the gen-tie line in Lewis County will dead-end prior to the 200-foot shoreline area of the SMP jurisdiction of Packwood Creek and Hanaford Creek; only removal of trees for fall protection will occur within SMP jurisdictions.</p> <p>Recreation</p> <p>No Project construction or decommissioning activities will occur directly in publicly managed recreational areas or parks. Persons wishing to recreate in the area surrounding the Project may experience short-term and temporary travel delays on local roads or roads providing access to Weyerhaeuser lands resulting from the presence of construction vehicles and material deliveries to the Project site.</p> <p>Impacts to persons recreating in publicly owned areas of the Gifford Pinchot National Forest will be limited to potential visual and noise impacts. However, such impacts will be short term and temporary and will only occur at locations where there is a clear line of sight from the Gifford Pinchot National Forest to Project construction activities, or where Project construction noise is not attenuated by local topography and vegetation.</p> <p>Over the life of the Project and during decommissioning, persons visiting public recreation areas may see WTGs if there is a line of sight from that location towards the Project.</p>	<p>The Applicant will conduct construction activities in shoreline areas in accordance with the Shoreline Substantial Development Permits issued by Lewis County and Thurston County.</p> <p>The Applicant will construct Project facilities in Thurston County in accordance of a Special Use Permit issued under TCC 20.54.</p> <p>Recreation</p> <p>Construction site access will be restricted by gated and locked private access roads, substation yards, and access to the WTGs will be well secured from the general public. The Applicant will develop and implement a construction site access plan in coordination with Weyerhaeuser to prevent injury to Project construction workers as a result of recreation activities such as hunting, and vice versa, to prevent injury to permit holders as a result of Project construction activities. The plan will identify areas that are temporarily closed to recreation activity due to construction of the Project.</p> <p>Weyerhaeuser will communicate such closures to recreational permit holders. Following decommissioning, land on which the O&M Facility is constructed will be available for other development consistent with the zoning and comprehensive planning designation.</p> <p>Site access to the O&M Facility and substation yards will be restricted by locked gates to protect safety of the public; access inside the WTGs will also be secured from the general public.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Visual Resources</p> <p>During construction, large earth-moving equipment, trucks, cranes, and other heavy equipment will be visible from public roads as deliveries are made to the Project construction site. During operation, portions of the Project WTGs may be visible from viewpoints within a 15-mile radius of the Project.</p>	<p>During construction, dust suppression will reduce visual impacts. During operation, visual impacts will be reduced through WTG design considerations including low reflectivity, neutral colors (white), uniform design, and restricted exterior lighting to the extent consistent with FAA guidelines. In addition, outdoor lighting at the O&M Facility will be limited to the minimum necessary for safety and security.</p>
<p>Historic and Cultural resources</p> <p>The Project has been designed in such a manner as to avoid archeological and historical resources that are potentially eligible for inclusion on the NRHP. Project construction activities have the potential to impact unidentified archeological resources as a result of ground disturbance. Operation will not result in additional impacts to cultural resources, as operations will not involve ground disturbance in any new areas. Decommissioning of the Project is not anticipated to have an impact on cultural resources unless activities go beyond areas previously disturbed during construction of the Project. If any of the decommissioning activities cause ground disturbance in areas not previously surveyed for cultural resources there could be impacts to undocumented cultural resources.</p>	<p>The Applicant has conducted surveys for archeological and historical resources throughout the micrositing corridor of the site and the gen-tie line. The Applicant will provide archeological monitoring for vegetation removal ground disturbance in areas where Project activity is defined as sensitive for cultural resources. The Applicant has prepared an Unanticipated Discovery Plan to address any inadvertent discovery of archeological resources during construction. The Applicant will also implement cultural resources training and will provide a qualified cultural resource archaeologist to monitor ground disturbance in areas requiring extensive clearing.</p>
<p>Transportation</p> <p>During construction, temporary traffic impacts and road damage can occur as a result of Project construction-related traffic on local roads, and transportation of oversize and overweight equipment on regional haul routes. Operation-related impacts are limited to wear of private Project access roads and intrusion of the WTGs and meteorological towers into navigable airspace.</p>	<p>Prior to beginning construction, the Applicant will finalize access road designs and will develop and implement construction transportation management protocols. These protocols will identify the various access requirements and restrictions to address potential impacts to private and public roads and traffic during the construction phase. The protocols will include:</p> <ul style="list-style-type: none"> • Design standards for establishing access to public roads • Identification of primary and secondary roads to be used for construction site deliveries and access, and return trips from the Project • Identification of major laydown and delivery truck queuing areas • Identification of Project staff and construction contractor parking locations

Potential Environmental Impacts	Proposed Mitigation Measures
	<ul style="list-style-type: none"> • Haul route agreements negotiated with local governments • Time, location, and nature of temporary road closures affecting public use of right-of-way to minimize traffic disruptions • General construction traffic management activities to minimize traffic impacts and maintain traffic safety • Location-specific traffic management activities for higher risk locations • For large component deliveries: haul routes, delivery schedule, specific traffic management controls, location of temporary road modifications, and site-specific mitigation activities • Methods of notice to public and affected agencies of temporary road closures • Coordination activities with private landowners where access is shared with the Applicant • Emergency response access routes and coordinated means for approach with emergency responders • Permits for overweight and oversize loads (local and state as applicable) • Permits for temporary access to public roads not usually permitted (e.g., travel in wrong lane, temporary traffic channelization, etc.) (local and state as applicable) • Identification and mitigation of load-limit restrictions for bridges and culverts to be crossed with permitted oversize and overweight loads (local and state as applicable). <p>Prior to beginning of operations, the Applicant will identify emergency access routes to permanent Project facilities in coordination with local emergency providers.</p> <p>The following mitigation measures are identified to avoid, reduce, or compensate for the potential impacts to the transportation system as a result of the heavy haul route from the Port of Tacoma.</p> <ul style="list-style-type: none"> • Schedule construction hauling outside of the weekday AM and PM peak commute periods. • Prepare traffic control protocol (to be submitted to local agencies prior to construction for review) to direct and obligate the contractor to implement procedures to minimize traffic impacts in consultation with WSDOT, Thurston County, and City of Tacoma. • Comply with state, county, and city permitting requirements for over-size and over-weight vehicles.

<p>Potential Environmental Impacts</p>	<p>Proposed Mitigation Measures</p> <ul style="list-style-type: none"> • Notify adjacent land owners in the project vicinity prior to construction of transportation routes that would be used for construction equipment and labor. • Place approved state, county, and/or city advanced warning construction signs prior to and during construction. • Use certified flaggers when necessary to direct traffic when over-size and over-weight trucks either enter or exit public roads, to minimize risk of accidents. • Avoid restricting traffic flow for more than 20 minutes during the construction phase. • When slow or oversized wide loads are being hauled, appropriate vehicle and roadside signing and warning devices will be deployed per the transportation traffic management protocols. Pilot cars will be used as the DOT dictates, depending on load size and weight. • Conduct pre- and post-haul construction visual assessments of roadway surface conditions to identify weak or deteriorated areas along the haul route that may require repair as a result of project-related traffic. Following the end of construction, repair all pavement sections affected by project-related traffic as needed to pre-construction conditions or better • Applicant will videotape the haul route roadways to document pavement conditions before and after construction and address changes in discussions with WSDOT, Lewis/Thurston/Pierce counties, and City of Tacoma. <p>The Applicant will implement additional mitigation measures as required by the FAA resulting from its review of the Project. The Applicant will also implement the final WTG and meteorological tower marking scheme as approved by the FAA.</p>
<p>Public Services</p> <p>During construction, the Project will slightly increase the demand for local fire protection services, emergency medical services, and law enforcement. The Project's demand for utilities will be limited to water and solid waste disposal during construction. During operation, only fire emergency services will be needed. The Project's operational workforce will result in negligible to minimal demands for law enforcement, emergency medical services, and schools. The O&M Facility in Thurston County will require electricity, water supply, and sanitary waste disposal and will generate minimal quantities of solid waste.</p>	<p>Public Services</p> <p>Local public service providers have been contacted to confirm that adequate facilities are available to serve the Project as required by each local permitting process. An emergency response plan, security plan, and fire prevention and protection plan have been prepared and will be communicated with local providers prior to construction. All local providers will be given keys to any locked and secured gates. Operational measures will similarly include health and safety training for all employees, implementation of emergency response, fire prevention, and security plans, and communication of these plans to local providers.</p>

Potential Environmental Impacts	Proposed Mitigation Measures
<p>Socioeconomics</p> <p>Project-related spending during construction will trickle through the economy of the regional study area, resulting in induced labor income of around \$26 million as well as approximately 400 to 500 additional job-years (i.e., one full or part-time job for one year). The Project will employ approximately 300 full-time and part-time workers at some point during the construction period. The construction workforce will increase the population of the local study area by a very small amount. Based on preliminary cost estimates for the Project, it is estimated that purchases of Project-related wind generation equipment will generate an estimated \$2.5 million in sales tax collections by the state of Washington. Construction expenditures will also generate retail sales tax and use revenue of approximately \$1.9 million. Operating the Project will require spending approximately \$7.4 million per year, on average, resulting in potential economic impacts to the regional area. Project operations will directly and indirectly support around 34 jobs in the regional study area. Project spending related to operating and maintaining the Project will generate sales and use tax revenue at the state and local levels. Property tax collections, based on the average levy rate in Lewis County (\$11.30 per \$1,000), will be approximately \$1.3 million.</p>	<p>Impacts of the Project will be primarily positive, resulting from increases in income for local businesses and increased employment opportunities primarily during Project construction (though minor positive impacts may also occur during operation), and increased tax collections during construction and operation. Potential adverse impacts on socioeconomic resources may occur if peak construction overlaps with the peak recreation season, resulting in a shortage of temporary lodging in the local study area. The primary adverse impact will be on customary users of hotels/motels and campgrounds in the area, who may have to pay more for lodging, or travel further than they otherwise would have. Mitigation options include directing workers who require temporary lodging during these peak times to stay further away from the Project site where temporary lodging supply is not limited, or providing private accommodations in close proximity to the Project Area (e.g., RV parking areas that are not open to the public).</p>

1 **1.6.2 Cumulative Impacts**

2 Section 3.14 of the EIS provides a detailed assessment of potential cumulative impacts associated with
3 the Project. The assessment describes conditions associated with existing development in the vicinity of
4 the Project, as well as likely conditions related to current and reasonably foreseeable future development
5 planned for the area including:

- 6 • Ongoing industrial, commercial, and forestry uses
- 7 • Land use and recreation projects
- 8 • Transportation improvements
- 9 • Other regional initiatives
- 10 • Other energy generation related development.

11 Although the Project and other proposals can result in similar impacts (for example construction related
12 erosion, storm water impacts, or temporary fugitive dust) such impacts are unlikely to be cumulative with
13 other reasonably foreseeable future development. Although other reasonably future development has
14 been identified, it is expected to occur in different locations and at different times than the Project.

15 **1.7 AREAS OF INTEREST, ISSUES TO BE RESOLVED, AND CONCLUSIONS**

16 Public scoping identified a number of areas of interest to be considered in this DEIS (Witherspoon 2018).
17 The following summarizes the issues considered in this DEIS based on main scoping comments and
18 analyses conducted. Scoping concerns are addressed in detail in subsections of Chapter 3.

19 *Earth Resources*

20 Scoping comments requested an evaluation of geologic hazards on or near Project access roads and WTGs
21 during and after project construction. The primary geologic hazards to address include landslides and
22 severe erosion. The presence of geologic hazards is described in Section 3.1.3.4, with detailed figures
23 identifying of locations of such hazards provided in Figures 3.1-3 through 3.1-5. Construction related
24 geologic hazards are addressed in Section 3.1.4.1, and mitigation measures are described in Section
25 3.1.6.1, including those applicable to preventing landslides and severe erosion in areas of steep slopes
26 and restoration responsibility in the event of a landslide or severe erosion event occurrence.

27 *Water Resources*

28 Scoping comments requested an analysis of Project impacts during and after construction to inwater,
29 adjacent, or overhead year-round and seasonal streams and wetlands. Section 3.3 identifies surface
30 waters present within or near the Project construction area, and which resources may be impacted by
31 each of the Project components (access roads (existing and new), WTG sites, medium voltage electrical
32 collection system, gen-tie line, Project substation, O&M Facility, and other Project support facilities). The
33 DEIS identifies potential impacts to stormwater drainage patterns and to natural hydrology within the
34 Project site during construction and operation, and identifies mitigation measures, which will be
35 implemented to maintain drainage patterns and hydrology similar to existing conditions.

1 *Biological Resources*

2 Scoping comments requested that the amount of vegetation that the Project will remove for construction
3 be identified and that revegetation strategies be identified. Impacts to plants and habitat, and mitigation
4 strategies are addressed respectively in Sections 3.4.4 and 3.4.6.

5 Scoping comments were focused on impacts to avian species in general, and marbled murrelet and eagles
6 in particular, as well as other protected species potentially impacted by construction and operation of the
7 Project. Information regarding site-specific species presence, nesting, foraging, and migration was also
8 requested, as well as an analysis of potential Project-related impacts to species supported with peer-
9 reviewed literature and best available science. Scoping comments also requested a thorough discussion
10 of mitigation and compensation alternatives for potential take of species by operation of WTGs and other
11 Project facilities. Various subsections of Section 3.4 address both the anticipated presence, the impacts
12 to, and mitigation for impacts to protected species potentially found at, or using the Project site.

13 Scoping comments requested that wetland impacts be addressed. Offsite road improvement impacts to
14 wetlands and buffers along public rights-of-way that are necessary to accommodate delivery of over-sized
15 equipment to the Project site are addressed in Section 3.11. Measures to minimize impacts to wetland
16 resources resulting from haul route improvements are addressed in Section 3.4.6.2. In Section 3.4.4.1, the
17 DEIS addresses the avoidance measures via Project design the Applicant has taken to minimize impacts to
18 wetlands and their buffers.

19 *Noise*

20 Scoping comments requested the discussion and analysis of noise disturbance emitted by WTG operation
21 both to humans and animals. Section 3.7 presents an analysis of noise emissions from the Project during
22 its construction and operations phases and identifies that noise emissions will comply with applicable
23 regulatory thresholds. Noise impacts to animals are analyzed in Section 3.4.4.

24 *Visual Resources*

25 Scoping comments requested a discussion and analysis of visual impacts to residential and recreational
26 lands uses (including the impacts to Mt. Rainier National Park, Mt. Baker Snoqualmie National Forest and
27 Gifford Pinchot National Forest). Visual impacts are presented and assessed in Section 3.9 of the DEIS;
28 impacts to recreational users, including those located in nearby national forests, are also addressed in
29 Section 3.8.

30 *Historical and Cultural Resources*

31 Scoping comments requested a discussion, analysis, and documentation of historic and cultural resources
32 on the Project site and identification of interested parties. Impacts to historical and cultural resources and
33 the coordination activities conducted with interested parties are documented in Section 3.10 of the DEIS.
34 The DEIS identifies avoidance measures which will be used to minimize impacts to cultural resources
35 eligible for listing and protocols for inadvertent discoveries during Project implementation.

36 *Transportation*

37 Scoping comments requested a discussion and analysis of impacts to aircraft and public rights-of-way and
38 traffic when transporting oversized equipment to and from the Project site. Comments also requested

1 that the DEIS clearly identify the sea port origination and the haul routes to the construction location,
2 including any road improvements within right-of-way, expansion of right-of-way (temporary or
3 permanent), and any other action adjacent to the right-of-way. Section 3.11 of the DEIS addresses these
4 and other impacts to local and regional transportation systems resulting from Project implementation.

5 *Public Services and Utilities*

6 Scoping comments requested that a discussion and analysis of potential fire hazards from construction
7 activities and operation of WTGs, and an evaluation of the capacity and capability of local emergency
8 service responders to contain fires and provide other emergency services to the Project site. Section 2.4.8
9 addresses safety systems designed into the Project, and Section 3.6.4 addresses responsibilities,
10 strategies, and protocols for fire prevention and containment. Section 3.6.6 also describes emergency
11 planning measures which will equally apply to disaster recovery activities. Section 3.12 addresses local
12 responders' capacity and capability to provide emergency services to the project site during construction
13 and operation.

14 **1.8 UNAVOIDABLE ADVERSE IMPACTS**

15 Significant unavoidable adverse impacts are those impacts that are both significant and cannot be
16 avoided, minimized, or mitigated to a level of insignificance. The impact analysis documented in Chapter
17 3 of this DEIS identifies that although unavoidable adverse impacts may occur as a result of the
18 implementation of the Proposed Action, the Applicant has avoided, minimized, or mitigated such impacts
19 such that no probable significant adverse environmental impacts will result. Section 1.6 above provides a
20 summary of the potential Project impacts and mitigation measures which are proposed to reduce the
21 impacts to non-significant levels.

22 **1.9 REFERENCES**

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28 Skookumchuck Wind Energy Project. DATE, 2018.

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30 2018.

31 Smith, Robert. 2018. E-mail to Karen Witherspoon. Skookumchuck Wind Energy EIS Scoping. May 29,
32 2018.

33 U.S. Fish and Wildlife Service (USFWS). 2018. Notice of Intent To Prepare a Draft Environmental Impact
34 Statement for the Proposed Skookumchuck Wind Energy Project Habitat Conservation Plan in Lewis and
35 Thurston Counties, Washington. FR 2018090405, May 3, 2018.

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37 Wind Energy Project. June 22, 2018/