**Forest Practices Application/Notification**  
**Office Checklist Page 1**  
**Northwest Region**

<table>
<thead>
<tr>
<th>FPA/N CLASSIFICATION:</th>
<th>Landowner Name:</th>
<th>Project Name:</th>
<th>Biomass</th>
<th>FFFPP</th>
<th>20-acre exempt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DNR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WRIA: Snohomish</th>
<th>WAU: Snohomish River</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRIA:</td>
<td>WAU:</td>
</tr>
<tr>
<td>WRIA:</td>
<td>WAU:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Legal Description: 7/18-21-oct; 12-27-95</th>
</tr>
</thead>
<tbody>
<tr>
<td>County: Snohomish</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity Type: Harvest 2.4 ac Spray</th>
<th>Stream Crossing(s): 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>Road</td>
</tr>
<tr>
<td>Construction 12,883 ft Abandonment 9029 ft Spoils 1500 cu</td>
<td></td>
</tr>
</tbody>
</table>

**ALTERNATIVE PRESCRIPTIONS ADDITIONAL COMMENTS:**
- Alternate Plan
- Ten-Year Forest Management Plan
- Columbia River Gorge National Scenic Area
- Watershed Analysis:____________________

- EARR Tax Credit: Yes [ ] No
- Habitat Conservation Plan
- Landowner Option Plan for Northern Spotted Owl
- Cooperative Habitat Enhancement Agreement

**RESOURCE REVIEW**
- Unstable Slopes (Risk: Highway, Water:________)
- Soils Map (Highly Erodible & Very Unstable)
- Landslide Inventory Polygon
- Potential Avalanche Areas
- High Avalanche Hazard Area
- Rain-on-Snow and Outside Approved WA
- Hydric Soils
- Wetland [ ] Forested, [ ] A, [ ] B
- In WMA of [ ] A, or [ ] B Wetland
- In RMZ/ELZ of Type [ ] S, [ ] F, [ ] N water
- Water Verification

**ASSOCIATED NON-SCANNED DOCUMENTS** – On file with the FPA/N at the Region office.
- SEPA Checklist/Documents
- Large Landowner Road Maintenance and Abandonment Plan

**ASSOCIATED SCANNED DOCUMENTS**
- Conversion Option Harvest Plan
- FPHP Plans & Specifications
- Qualified Expert Report; Type: Geo-Tech
- Natural Regeneration Plan
- Shoreline Permit
- Marbled Murrelet Form
- FPBM Appendix(s)
- Small Landowner RMAP Checklist
- LCMZ Assessment Form

**ADDITIONAL COMMENTS:**
- Bull Trout Overlay
- HCP Bull Trout Population
- Bald Eagle nest or roost within 660 feet
- Group A or B Water Supply
- Hatchery (Name:_______________)
- Even-Aged Harvest greater than 120 Acres
- Ground-based Equipment on Slopes greater than 40%
- Road Construction on Slopes greater than 65%
- Saltwater Islands (Name:_______________)
- In or Over Type Water
- Volume greater than 5 mbf per acre

Form completed by [Signature]
Forest Practices Application/Notification
Western Washington

Project Name: Sky Rider VDT

PLEASE USE THE INSTRUCTIONS TO COMPLETE THIS APPLICATION.

1. Landowner, Timber Owner and Operator

<table>
<thead>
<tr>
<th>Legal Name of LANDOWNER</th>
<th>Legal Name of TIMBER OWNER</th>
<th>Legal Name of OPERATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Natural Resources</td>
<td>[☐] Same as Landowner</td>
<td>[☐] Same as Landowner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mailing Address:</th>
<th>Mailing Address:</th>
<th>Mailing Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>919 N. Township St.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>City, State, Zip:</th>
<th>City, State, Zip:</th>
<th>City, State, Zip:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedro-Woolley, WA 98284</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone: (360) 856-3500</th>
<th>Phone:</th>
<th>Phone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(360) 856-3500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Email:</th>
<th>Email:</th>
<th>Email:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td>Email:</td>
<td>Email:</td>
</tr>
</tbody>
</table>

2. Contact Person

<table>
<thead>
<tr>
<th>Contact Person:</th>
<th>Phone:</th>
<th>Email:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tim Stapleton</td>
<td>(360) 856-3500</td>
<td><a href="mailto:tim.stapleton@dnr.wa.gov">tim.stapleton@dnr.wa.gov</a></td>
</tr>
</tbody>
</table>

3. Are you converting the land to non-forestry use within 3 years of harvest?

[☐] No  [☐] Yes  If yes, include your SEPA checklist and SEPA determination (if applicable) and county clearing and grading permit (if applicable).

4. If you are harvesting timber, enter the Forest Tax Number of the Timber Owner:

[☐] Eligible for EARR Tax Credit

[☐] No  [☐] Yes

Contact the Department of Revenue at 1-800-548-8829 for tax reporting information or to obtain a number.

5. Are you a small forest landowner per RCW 76.09.450? See instructions

[☐] No  [☐] Yes  If yes, Check all that apply. If no, skip to Question 6.

☐ My entire proposed harvest area is on a single contiguous ownership consisting of one or more parcels.
☐ My proposed forest practices activities is within an area covered by an approved Forest Stewardship Plan or Forest Management Plan developed in cooperation with DNR.

☐ I received technical assistance from a DNR small forest landowner Stewardship and Technical Assistance Forester in preparing this FPA/N.

☐ I have participated in a Washington State University Extension Service and/or DNR-sponsored Forest Stewardship Coached Planning course.

☐ I have attended a Washington State University Extension Service and/or DNR-sponsored Family Forest Owner Field Day.

6. Are you substituting prescriptions from an approved state or federal conservation agreement or Watershed Analysis?

☐ No ☐ Yes Write ‘HCP’ or ‘Using Prescriptions’ in tables that apply. Attach or reference prescriptions and/or crosswalks for approved state or federal conservation agreements or Watershed Analysis on file at the Region office.

7. What is the legal description of your forest practices?

<table>
<thead>
<tr>
<th>Section</th>
<th>Township</th>
<th>Range</th>
<th>E/W</th>
<th>Tax Parcel Number</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>27</td>
<td>10</td>
<td>E</td>
<td></td>
<td>Snohomish</td>
</tr>
<tr>
<td>18</td>
<td>27</td>
<td>10</td>
<td>E</td>
<td></td>
<td>Snohomish</td>
</tr>
<tr>
<td>12</td>
<td>27</td>
<td>09</td>
<td>E</td>
<td></td>
<td>Snohomish</td>
</tr>
</tbody>
</table>

*Does not include legal description for pre-haul maintenance; It is not a Forest Practices activity.

8. Have you reviewed this forest practices activity area to determine whether it may involve historic sites and/or Native American cultural resources? Read the instructions before answering this question.

☐ No ☐ Yes If you made any contacts, please provide information in Question 28.

9. Do you have a DNR approved Road Maintenance and Abandonment Plan (RMAP)?

a. ☐ No ☐ Yes Enter the RMAP number: R2800010L If yes, continue to b. If no, skip to c.

b. ☐ No ☐ Yes Is this Forest Practices Application/Notification for work that is included in this approved RMAP?

c. ☐ No ☐ Yes Is a Checklist RMAP required (see instructions)?

10. Are there potentially unstable slopes or landforms in or around the area of your forest practices activity?

☐ No ☐ Yes If yes, attach Appendix D. Slope Stability Informational Form and map of areas reviewed for and locations of unstable slopes and landforms found. If applicable, attach a geotechnical letter, memo, or report, Watershed Analysis prescriptions, and/or a SEPA Environmental Checklist.

11. Is this Forest Practices Application/Notification (answer every question):

a. ☐ No ☐ Yes A request for a multi-year permit? If yes, length requested: ☐ 4 years or ☐ 5 years. Not everyone qualifies for a multi-year permit. See instructions for details.

b. ☐ No ☐ Yes An Alternate Plan? If yes, include a template or detailed plan. See instructions for details.

10/1/2018

Page 2 of 9

Western Washington

2817265
c. □ No  □ Yes  For a funded Forest Family Fish Passage Program project?

d. □ No  □ Yes  Within an urban growth area? If yes, see instructions for additional required documents.

e. □ No  □ Yes  Within a public park? If yes, include SEPA Environmental Checklist or SEPA Determination, except for harvest/salvage of less than 5,000 board feet within a developed public park.
   Park name: ________________________________

f. □ No  □ Yes  Within 500 feet of a public park? Park name: ________________________________

g. □ No  □ Yes  In an approved Conversion Option Harvest Plan (COHP) from the local government? If yes, include a copy. This only applies to proposals within urban growth areas.

h. □ No  □ Yes  Within 200 feet of the Ordinary High Water Mark (OHWM) or floodway of Type S Water?
   If yes, check with the county or city to determine whether a substantial development permit is required under the local shorelines master plan.

i. □ No  □ Yes  Within 50 miles of saltwater AND do you own more than 500 acres of forest land in Washington State? If yes, include Marbled Murrelet Form or attach/reference HCP prescriptions.

j. □ No  □ Yes  In or directly adjacent to a potential Channel Migration Zone (CMZ)? If yes, include CMZ Assessment Form. Attach/reference applicable HCP and/or Watershed Analysis prescriptions.

You are required to verify all waters within 200 feet of your proposed forest practices activities prior to submitting a Forest Practices Application / Notification. Use the Water Type Classification Worksheet and/or a Water Type Modification form to explain how you verified water types. See Water Typing Requirements in the instructions.

**** If not working in or over typed Waters, skip to Question 16 ****

Prior to answering Questions 12-15 in this section please refer to the Forest Practices Application Instructions and Forest Practices Board Manual Section 5.

12. Are you proposing any of the following projects NOT permitted by current HPAs from WDFW?

   a. □ No  □ Yes  Installing, replacing, or repairing a culvert at or below the bankfull width of Type S or F Water(s) that exceeds a five percent gradient?

   b. □ No  □ Yes  Constructing, replacing, or repairing a bridge at or below the bankfull width of unconfined streams in Type S or F Water(s)?

   c. □ No  □ Yes  Placing fill material within the 100-year flood level of unconfined streams in Type S or F Water(s)?

13. Have you consulted with DNR and/or WDFW about the proposed hydraulic project(s) in or over Type S or F Water?  □ No  □ Yes

14. If installing, replacing, removing, or maintaining structures in or over any typed Water, complete the table below. Provide crossing locations and identifiers on your Activity Map. Provide plan details in Question 28 or attach plan to the FPA/N. Type S and F Waters require detailed plan information. Complex hydraulic projects in Type N Waters may also be required per WAC 222-24-042(2). See instructions for detailed plan requirements.
**Existing HPAs issued by WDFW will be complied and enforced by WDFW until expiration. Plan details are not required for hydraulic projects permitted with an existing HPA (see instructions).**

**Fords and/or equipment crossings on Type S and F Waters may result in an unauthorized incidental take of certain threatened or endangered fish species. For more information, see 'Background for the State’s Incidental Take Permits for certain threatened and endangered fish species' following Question 22 of the FPA/N Instructions.**

15. If conducting any of the following activities in or over typed Water(s), complete the table below. Some activities will require identifiers on the Activity Map and/or more information in Question 28. See instructions.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Type S Water</th>
<th>Type F Water</th>
<th>Type Np Water</th>
<th>Type Ns Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Crossing**</td>
<td>PROVIDE DETAILS IN QUESTION 14</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Suspending Cables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Yarding</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>LWD Placement/Removal</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beaver Dam Removal</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felling and Bucking</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (describe in Question 28)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Existing HPAs issued by WDFW will be complied and enforced by WDFW until expiration. Plan details are not required for hydraulic projects permitted with an existing HPA (see instructions).**

** Fords and/or equipment crossings on Type S and F Waters must be identified in Question 14.

16. If constructing or abandoning forest roads, complete the table below. Show the road locations and identifiers on the Activity Map. Include abandonment plans for all temporary roads and abandonment projects.

<table>
<thead>
<tr>
<th>Road Identifier (name, number)</th>
<th>Road Construction</th>
<th>Road Abandonment</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Length (feet)</td>
<td>Steepest Side-slope (%)</td>
</tr>
<tr>
<td></td>
<td>12,883</td>
<td>80</td>
</tr>
</tbody>
</table>

**See FPA Narrative**
17. If depositing spoils and/or expanding or developing a rock pit for forestry use, complete the table below. Show locations and identifiers on the Activity Map.

<table>
<thead>
<tr>
<th>Spoil Area Identifier (letter, number)</th>
<th>Amount of Spoils Deposited (cubic yards)</th>
<th>Rock Pit Identifier (name, number or letter)</th>
<th>Acres of New Rock Pit Developed</th>
<th>Acres of Existing Rock Pit Expanded</th>
</tr>
</thead>
</table>

See FPA Narrative

18. If operating within 200 feet of a wetland not associated Type F Water, complete the table below. Wetlands associated with Type S or F water should be listed in Question 25. Show the boundaries of each wetland, along with its identifier, and Wetland Management Zones on the Activity Map. See instructions for information.

<table>
<thead>
<tr>
<th>Wetland Identifier (letter, number)</th>
<th>Wetland Type (A, B, Forested)</th>
<th>Planned Activities in Wetland</th>
<th>Planned Activities in Maximum Width WMZ</th>
<th>Total Wetland Acres</th>
<th>How many Acres will be drained?</th>
<th>How many Acres will be filled?</th>
</tr>
</thead>
</table>

* * * * * If not harvesting or salvaging timber, skip to Question 27 * * * * *

19. If harvesting or salvaging timber, complete the table below. Show all harvest areas and unit numbers on the Activity Map. For even-aged harvest units, also show surrounding stand information on the Activity Map.

<table>
<thead>
<tr>
<th>Unit Number (Even-aged, Uneven-aged, Salvage, Right-of-Way)</th>
<th>Harvest Type (Y or N)</th>
<th>Harvest Method (rubber tired skidder, tracked skidder, dozer, shovel, full suspension cable, leading and suspension cable, helicopter, cable assist/tethered logging, animal, chipper, forwarder, slash bundler)</th>
<th>Acres to be Harvested</th>
<th>Volume to be Harvested (MBF)</th>
<th>Volume to be Harvested (tonnage)</th>
<th>Volume to be Harvested (%)</th>
<th>Steepest Slope in Harvest Unit (%)</th>
</tr>
</thead>
</table>

See FPA Narrative
20. Reforestation. Check all that apply:

☐ Planting. Tree Species: ______________________

☐ Natural. Include a Natural Regeneration Plan

☒ Not required because of one or more of the following:

☐ I am converting some or all of this land to non-forest land in the next 3 years or lands are exempted under WAC 222-34-050.

☐ Individual dead, dying, down, or wind-thrown trees will be salvaged.

☐ Trees are removed under a thinning program reasonably expected to maximize the long-term productivity of commercial timber.

☒ I am leaving at least 100 vigorous, undamaged, and well-distributed saplings or merchantable trees per acre.

☐ An average of 190 tree seedlings per acre are established on the harvest area and my harvest will not damage them.

☐ Road right-of-way or rock pit development harvest only.

* * Do you own MORE than 80 acres of forest land in Washington? If yes, skip to Question 25 * *

21. Are you using the exempt 20-acre parcel riparian management zone (RMZ) rule (WAC 222-30-023) on type S, F, or Np Waters?

☐ No  Skip to Question 25.

☐ Yes  Continue to Question 22. See instructions for qualifications and information.

22. Choose the answer below that best fits your situation. Show all RMZs on the Activity Map.

a. ALL of the following apply to me and my land: (If no, answer b.)

• Between June 5, 2006 and today’s date I have always owned less than 80 acres of forest land in Washington.

• Between June 5, 2006 and today’s date this parcel has always been 20 acres or less of contiguous ownership. See RCW 76.09.020 for definition of ‘contiguous’.

• Between June 5, 2006 and today’s date this parcel has always been owned by me or someone else that has owned less than 80 acres of forest land in Washington.

b. ONE OR MORE of the following apply to me and/or my land (check all that apply):

If any of the statements below apply AND you use the exempt 20-acre parcel RMZ rule, you are NOT authorized under the State’s Incidental Take Permits (see explanation in FPA instructions under Question 22).

☐ Between June 5, 2006 and today’s date I have owned more than 80 acres of forest land in Washington.

☐ Between June 5, 2006 and today’s date this parcel has been a part of more than 20 acres of contiguous ownership. See RCW 76.09.020 for definition of ‘contiguous’.

☐ Between June 5, 2006 and today’s date this parcel has been owned by someone that has owned more than 80 forested acres in Washington.
23. If harvesting within 115 feet of a Type S or F Water on an exempt 20-acre parcel, complete the table below. Show RMZs and stream segment identifiers on the Activity Map. If you are harvesting within 75 feet or within the maximum RMZ (whichever is less), stream shade must be assessed and met following harvest. Describe in Question 28 how stream shade was determined to be met, using the 'Appendix F. Stream Shade Assessment Worksheet' if necessary.

<table>
<thead>
<tr>
<th>Stream Segment Identifier (letter)</th>
<th>Water Type (S, F)</th>
<th>Segment Length (feet)</th>
<th>Bankfull Width (foot)</th>
<th>RMZ Maximum Width (foot)</th>
<th>Are you harvesting within the maximum RMZ? (Y or N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

24. Are you harvesting within 29 feet of a Type Np Water on an exempt 20-acre parcel?

☐ No  Skip to Question 27.

☐ Yes  See instructions and describe leave tree strategy in Question 28. Then skip to Question 27.

25. If harvesting within 200 feet of any Type S or F Water or periodically inundated areas of their associated wetlands, complete the table below. Include Desired Future Condition (DFC) for all inner zone harvests unless you have an HCP prescription. Show RMZs, CMZs, and stream segment identifiers on the Activity Map. If you are harvesting within 75 feet or within the maximum RMZ, whichever is less, stream shade must be assessed and met following harvest. Describe in Question 28 how stream shade was determined to be met or use the 'Appendix F. Stream Shade Assessment Worksheet' if necessary.

<table>
<thead>
<tr>
<th>Stream Segment Identifier (letter)</th>
<th>Water Type (S, F)</th>
<th>Site Class (I - V)</th>
<th>Stream Width (feet)</th>
<th>Is there a CMZ? (Y or N)</th>
<th>RMZ Harvest Code(s) (see instructions)</th>
<th>DFC Run Number</th>
<th>Total width of RMZ (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

See FPA Narrative

26. If harvesting within 50 feet of Type Np Water, complete the table(s) below. Show RMZs and stream segment identifiers on the Activity Map.

<table>
<thead>
<tr>
<th>Stream Segment Identifier (letter)</th>
<th>Total Stream Length in Harvest Unit (feet)</th>
<th>Length of No-Harvest, 50-foot Buffers in Harvest Unit (feet)</th>
<th>Stream Segment Identifier (letter)</th>
<th>Total Stream Length in Harvest Unit (feet)</th>
<th>Length of No-Harvest, 50-foot Buffers in Harvest Unit (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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</tr>
</tbody>
</table>

See FPA Narrative
27. How are the following currently marked on the ground? *(Flagging color, paint color, road, fence, etc.) Harvest/ Salvage Boundaries: See FPA Narrative
Clumped Wildlife Reserve Trees/Green Recruitment Trees: See FPA Narrative
Right-of-Way Limits/Road Centerlines: See FPA Narrative
Stream Crossing Work: See FPA Narrative
Riparian Management Zone Boundaries and Leave/Take Trees: See FPA Narrative
Channel Migration Zone: See FPA Narrative
Wetland Management Zone Boundaries and Leave/Take Trees: See FPA Narrative

28. Additional Information (attach additional pages if necessary): For hydraulic projects in or over Type S, F, or complex N Water(s) see instructions for required plan information. If applicable, document the mitigation measures you will be implementing from a geotechnical memo, letter, or report.

See attached FPA Narrative.
29. We acknowledge the following:

- The information on this application/notification is true.
- We understand this proposed forest practice is subject to:
  - The Forest Practices Act and Rules AND
  - All other federal, state or local regulations.
- Compliance with the Forest Practices Act and Rules does not ensure compliance with the Endangered Species Act or other federal, state or local laws.
- If we said that we would not convert the land to non-forestry use, the county or city may deny development permits on this parcel for the next 6 years.
- The following may result in an unauthorized incidental take of certain endangered or threatened fish species:
  - Conversion of land to non-forestry use.
  - Harvesting within the maximum RMZ on a 20-acre exempt parcel that was acquired after June 5, 2006.
  - Equipment Crossings/Fords in or over Type S and F Waters.
  - Inadvertent Discovery – Chapters 27.44, 27.53, 68.50 and 68.60 RCW
    - If you find or suspect you have found an archaeological object or Native American cairn, grave, or glyptic record, immediately cease disturbance activity, protect the area and promptly contact the Department of Archaeology and Historic Preservation at 360 586-3077.
    - If you find or suspect you have found human skeletal remains, immediately cease disturbance activity, protect the area, and contact the County Coroner or Medical Examiner and local law enforcement as soon as possible. Failure to report human remains is a misdemeanor.

The landowner understands that by signing and submitting this FPA, he/she is authorizing the Department of Natural Resources to enter the property in order to review the proposal, inspect harvest operations, and monitor compliance for up to three years after its expiration date. RCW 76.09.150

<table>
<thead>
<tr>
<th>Signature of Legal LANDOWNER</th>
<th>Signature of Legal TIMBER OWNER*</th>
<th>Signature of Legal OPERATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Signature]</td>
<td>[Signature]</td>
<td>[Signature]</td>
</tr>
<tr>
<td>Print Name: Bob Art</td>
<td>(If different than landowner)</td>
<td>(If different than landowner)</td>
</tr>
<tr>
<td>Date: 9/14/19</td>
<td>Print Name:</td>
<td>Print Name:</td>
</tr>
<tr>
<td></td>
<td>Date:</td>
<td>Date:</td>
</tr>
</tbody>
</table>

*NOTE: If you are a “Perpetual Timber Rights Owner,” and are submitting this without the Landowner’s Signature, provide written evidence the landowner has been notified.

Please make a copy of this FPA/N for your records. If this FPA/N contains a hydraulic project requiring WDFW concurrence review, it will not be available online for public review until after the WDFW concurrence review period.
FPA Narrative

This proposed activity is being conducted on lands covered by the Department’s multi-species HCP. These planned activities are consistent with our approved HCP dated September 1997 and associated Incidental Take Permits. See the attached HCP checklist for habitats and species both covered by our HCP agreement and specifically addressed with this proposal. Additionally, attached are DNR proprietary HCP/FPA substitute Addendums for Aquatic Resources, Northern Spotted Owl and Marbled Murrelets. This proposal also complies with the letter of agreement dated February 23, 2007 between DNR state lands and the US Fish and Wildlife Service.

Question #8
A DNR Cultural Resource technician conducted an office review on July 16, 2019 of the proposed project and did not identify any features listed in or eligible for listing in national, state, or local preservation registers.

If any cultural resources are discovered during forest activity operations, a DNR archaeologist will be notified and will follow the department’s “Cultural Resource Inadvertent Discovery Guidance” procedure.

The Tulalip Tribes, Stillaguamish Tribes of Indians, and Snoqualmie Indian Tribe were contacted on August 14, 2019. No responses have been received.

Question #14:
If installing, replacing, removing or maintaining structures in or over any typed water, complete the table below. Type S and F waters require detailed plan information. Provide plan details in number 31 or attach plan to the FPA/N. Provide crossing locations and identifiers on your Activity Map. (A detailed plan with profiles may also be required for more complex hydraulic projects in Type N Waters per WAC 222-24-042(2)).

<table>
<thead>
<tr>
<th>Crossing Identifier (letter and/or number)</th>
<th>Water Type</th>
<th>Water Type</th>
<th>Existing HPA Number</th>
<th>HPA Expiration Date</th>
<th>Planned Activity (install, replace, remove, temporary, structure maintenance)</th>
<th>Structure (culvert, bridge, ford**, pier, etc.)</th>
<th>Proposed Size (dimensions of structure)</th>
<th>Culvert Design Method (No-slope, stream-sim., hydraulic, other)</th>
<th>Channel Bed Width (ft)</th>
<th>Stream Gradient (%)</th>
<th>EMA Project (Y or N)</th>
<th>FSPR Project (Y or N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF-34 34+20</td>
<td>N/A</td>
<td>N/A</td>
<td>Replace</td>
<td>Culvert</td>
<td>49&quot;S/ 33&quot;R x36'</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>DF-3407 11+07</td>
<td>N/A</td>
<td>N/A</td>
<td>Temp</td>
<td>Culvert</td>
<td>30&quot;x36'</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Question #15:
Further information relating to question 15:
In order to achieve adequate deflection, cables may be suspended over typed waters to reach tall hold trees. If this occurs, no corridors shall be cut in the inner zones of the RMZ’s. If yarding occurs over type 5 streams, lead end of logs will be suspended over streams. Timber will be fallen and yarded away from all streams when possible.

Question #16:
Any roads to be built then abandoned (also know as temporary road) that are listed in the table for Question #16, are “optional construction roads”. Of the length listed in the table, zero feet up to the entire length listed may be built. For further information please see the road plan associated with the timber sale, on file at the Northwest Region Office.

<table>
<thead>
<tr>
<th>Road Identifier (Name, Number)</th>
<th>Road Construction</th>
<th>Abandonment Plan</th>
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<tbody>
<tr>
<td></td>
<td>Length (feet)</td>
<td>Steepest Side-slope (%)</td>
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<tr>
<td>DF-26</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td>DF-2602*</td>
<td>1435</td>
<td>30</td>
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<tr>
<td>DF-27</td>
<td>363</td>
<td>5</td>
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<td>DF-34</td>
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<td>DF-3406**</td>
<td>750</td>
<td>30</td>
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<td>DF-3407**</td>
<td>489</td>
<td>50</td>
</tr>
<tr>
<td>DF-3407</td>
<td>1026</td>
<td>50</td>
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</tbody>
</table>

*Portion of road work is reconstruction.

**ABANDONMENT FOR TRAIL CONVERSION

- Construct drivable waterbars at all culvert removals according to the attached DRIVABLE WATERBAR DETAIL, and also at a maximum spacing that will produce a vertical drop of no more than 20 feet between waterbars or between natural drainage paths and with a maximum spacing of 400 feet.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch.
- Place Oversize Riprap on the road surface adjacent to every waterbar as a Speed Control Barricade. The quantity of material at each waterbar must be a minimum of 2cy and a maximum of 10cy.
- Place logging slash and stumps in and across ditches. Do not place stumps on existing trails or in locations where stumps could fall on the road or trails. This work must be approved in writing by the Contract Administrator in consultation with DNR Recreation.
- Do NOT block the road with large woody debris.
- Roads shall be blocked with Oversized Riprap.
Additional Q.16 Road Abandonment for DF-26, DF-27 and DF-3407

Per the FPA Instructions:

A written plan that shows how the road will be left to:

* Control erosion
* Maintain water movement within wetlands and other natural drainages, and
* Prevent four-wheeled highway vehicles from entering the point of closure.

The following will be accomplished as applicable to meet the on-site conditions during the course of road abandonment work:

* Remove all ditch relief culverts. The resulting slopes will be 1:1 or flatter. Place and compact the removed fill material in a location that will not erode into any typed waters or wetlands.
* Remove all culverts in natural drainages. The resulting slopes will be 1 1/2 :1 or flatter. Strive to match the existing native stream bank gradient. The natural streambed width will be re-established. Place and compact the removed fill material in a location that will not erode into any typed waters or wetlands.
* Transport all removed culverts off site.
* Construct non-drivable waterbars at natural drainage points and at a spacing that will produce a vertical drop of no more than 20 feet between waterbars and with a maximum horizontal spacing of 400 feet.
* Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
* Key waterbars into the cut-slope to intercept the ditch. Waterbars will be outsloped to provide positive drainage. Outlets will be on stable locations.
* Inslope or outslope the road as appropriate.
* Remove bridges and other structures as applicable.
* Pull back unstable fill that has potential of failing and entering any typed waters or wetlands. Place and compact removed material in a stable location.
* Remove berms except as designed.
* Block the road by constructing an aggressive barrier of dense interlocked large woody debris (logs, stumps, root wads, etc.) so that four wheel highway vehicles cannot pass the point of abandonment. Typical barrier dimensions are 10 feet high by 20 feet deep, spanning the entire road prism from top of cut-slope to toe of fillslope. Long term effectiveness is the primary objective. If necessary construct a vehicular turn-around near the point of abandonment.
* Apply grass seed to all exposed soils resulting from the abandonment work.
* May provide a protective cover for seed if revegetation occurs between July 1 and March 31. The protective cover may consist of dispersed straw, jute matting, or clear plastic sheets.
Question #17

<table>
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<tr>
<th>Spoil Area Identifier (Number, Letter)</th>
<th>Spoils Deposited (Cubic Yards)</th>
<th>Rock Pit Identifier* (Name, Number, Letter)</th>
<th>Acres of New Rock Pit Developed</th>
<th>Acres of Existing Rock Pit Expanded</th>
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<tr>
<td>DF-ML 167+00</td>
<td>1000</td>
<td>DF-3002-0101</td>
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<td>DF-3002-01 4+40</td>
<td>500</td>
<td>DF-3002-07</td>
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Additional pit(s) may be developed/utilized along haul route or constructed roads. These will be less than 0.5 acre, and located outside RMZ's or sensitive areas.

Question #19

<table>
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<tr>
<th>Unit Number</th>
<th>Harvest Type</th>
<th>Biomass Harvest (Y/N)</th>
<th>Harvest Method</th>
<th>Acres to be Harvested</th>
<th>Volume to be Harvested (mbf)</th>
<th>Volume to be Harvested (biomass tonnage)</th>
<th>Volume to be Harvested (%)</th>
<th>Steepest Slope in Harvest Unit (%)</th>
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<td>1</td>
<td>Uneven-aged¹</td>
<td>N</td>
<td>Ground/Cable</td>
<td>221.4</td>
<td>4,684</td>
<td>--</td>
<td>35</td>
<td>95</td>
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¹ Includes 9.3 acres of Gap harvest, 20.7 acres of yarding corridors and 10.6 acres ROW

Ground-based equipment operations will be limited to sustained slopes less than 35%. Self-leveling equipment may be utilized on sustained slopes up to 55% with the approval of the Contract Administrator. In addition, tethered equipment may be utilized with the approval of the Contract Administrator.

Question #27
Harvest Boundaries: White “Timber Sale Boundary” Tags, Young stand breaks, Sandhill Motorized Recreation trail, DF-ML road

Clumped Wildlife Reserve Trees/Green Recruitment Trees: N/A

Right-of-Way Limits/Road Centerlines: Centerlines marked with orange flagging, limits tagged out w/Orange ROW tags

Stream Crossing Work: To be flagged by operator, then approved by State Lands Contract Administrator with consultation of FP Forester.

Riparian Management Zone Boundaries and Leave/Take Trees: White “Timber Sale Boundary” Tags.
Question #28:
Activity Map – Leave Tree locations depicted are approximate. Leave trees may be exchanged or traded to locations other than mapped on the Activity Maps to facilitate operational feasibility.

See requesting permission for tailholds within suitable marbled murrelet habitat – “Sky Rider” VDT timber sale. Note, unit number changed post signing of memo. Unit 1A VDT is now named Unit 1 VDT.

This proposal is anticipated to be a Class IV Special due to the groundwater recharge area of a dormant-indistinct to relict, glacial, deep-seated landslide extends into the proposed harvest unit.
# Forest Practices

**Informal Conference Note**

<table>
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<table>
<thead>
<tr>
<th>Landowner</th>
<th>Operator</th>
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<td>Department of Natural Resources –</td>
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**Meeting Location**

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<th>Telephone Conference</th>
<th>Date</th>
<th>Time</th>
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<td></td>
<td></td>
<td>8/20/2019</td>
<td>0900</td>
<td>NW</td>
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**Subjects Discussed:**

Landowner representatives requested a pre-application review of the RILs per WAC 222-16-050 in and adjacent to this proposal. Depending on the outcome of this field review, unit 2 may be dropped from the proposal and moved to a future proposal.

The group discussed and field reviewed the groundwater recharge area delineation associated with an apparent relict glacial deep-seated landslide located to the west of unit 1. Discussion included the appropriate classification of the proposal and techniques to appropriately delineate the groundwater recharge area.

CMZ and potential avulsion areas were also discussed and field reviewed.

## Decisions Made:

The proposal as planned will be classified as a class IVSP FPA.

Field review confirmed the relict glacial deep-seated landslide was correctly identified by the applicant. FP Geologist in consultation with FP Division determined that portions of Unit 1 contain criteria meeting Category C RIL (GWRA) conditions. Applicant should meet with Josh to discuss any other questions regarding the delineation of the GWRA.

CMZ and avulsion hazard areas were correctly identified and bounded out of the proposal.

<table>
<thead>
<tr>
<th>PRINT Participants’ Names</th>
<th>SIGNATURES of Participants</th>
<th>Representing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jennifer Parker</td>
<td></td>
<td>landowner</td>
</tr>
<tr>
<td>Bryant Daugherty</td>
<td></td>
<td>landowner</td>
</tr>
<tr>
<td>Tyson Whiteid</td>
<td></td>
<td>landowner</td>
</tr>
<tr>
<td>Bob Penhale</td>
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<td>ECY</td>
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<td>Derek Marks</td>
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<td>Neil Shea</td>
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<tr>
<td>Mitchell Allen</td>
<td></td>
<td>DNR FP</td>
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<tr>
<td>Josh Hardesty</td>
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</tbody>
</table>

Position No. 2925

Signature & Title of DNR Representative

Steven Huang
Skykomish FPF

Date 9/6/2019

Work Phone (360)770-9806

* (Participant signature means Note is correct for subjects discussed and decisions made at the meeting.)

Did not attend -- mail copies to: WFPARM, FPDM, FPCOORD, SKY30

☐ Timber Owner  ☑ Landowner  ☑ Others: SNOCO, ECY, DFW, DOR, TULALIP
Appendix D. Slope Stability Informational Form

Complete and attach this form to your FPA/N if you answered 'Yes' to FPA Question 10. Refer to WAC 222-16-050(1)(d) and Forest Practices Board Manual Section 16—Guidelines for Evaluating Potentially Unstable Slopes for definitions and descriptions of potentially unstable slopes or landforms. Instructions for Appendix D. is located in the Forest Practices Application/Notification Instruction document.

1. a. What preliminary screening tools were used to identify unstable slopes or landform features in and/or around your proposal?
   - Aerial Photo, LiDAR, Landslide Inventory, Landslide Hazard Zones, GIS,
   - Other, describe:
     - 1:100,000-scale geologic maps, office and field review by both State Lands geologist Jennifer Parker and State Lands geologist-in-training Greg Morrow.

b. Did any of the features identified during the preliminary screening (1.a.) not exist when you performed a field review? If yes, describe:
   No.

2. a. Are you conducting forest practices activities in or over potentially unstable slopes or landforms? Check all that apply:
   - Inner Gorge
   - Groundwater recharge areas for glacial deep-seated landslides
   - Bedrock Hollow
   - Convergent Headwall
   - Toe of deep-seated landslide
   - Outer edges of meander bends
   - Other (Deep-seated landslides or other features of potentially unstable slopes). Describe:

   b. What activities may occur in or over potentially unstable slopes or landforms? Check all that apply:
   - Timber harvest
   - Road construction
   - Suspending cables
   - Yarding
   - Tailholds

3. a. Are you conducting forest practices activities around potentially unstable slopes or landforms? Check all that apply:
   - Inner Gorge
   - Groundwater recharge areas for glacial deep-seated landslides
   - Bedrock Hollow
   - Convergent Headwall
   - Toe of deep-seated landslide
   - Outer edges of meander bends
   - Other (Deep-seated landslides or other features of potentially unstable slopes). Describe:

   b. What activities may occur around potentially unstable slopes or landforms? Check all that apply:
   - Timber harvest
   - Road construction
   - Suspending cables
   - Yarding
   - Tailholds
4. a. Were any features identified in question 3.a. excluded from your forest practices activity?
   □ No, skip to question 5.   ☑ Yes, continue to question 4.b.

b. Describe the field indicators you used to exclude potentially unstable slopes or landforms from your forest practices activity (i.e.: flagging was placed a crown width away from the break in slope of the inner gorge.):
   Refer to the attached slope stability narrative.

5. Are there areas of public use (which may include, but are not limited to: public roads, utilities, designated recreation areas, occupied structures, etc.) located in or around the area of your proposed forest practices activity?
   □ No   ☑ Yes, Show these locations on the map in question 7.

6. Date(s) of field review(s): 3/26/2019, 4/25/2019
   Person(s) that conducted field review(s):   Bryant Daugherty
   Forester
   Name
   Jennifer Parker, LEG
   State Lands Geologist
   Name

7. Attach a map that shows the following:
   ▪ All areas reviewed.
   ▪ Locations of unstable slopes and landforms that were identified as described in question 2.a. and 3.a. above.
   ▪ Locations where areas of public use exist as described in question 5 above.

   This map is intended to be developed by the field practitioner. This can be a forest practices activity map, harvest map, or GIS map – See attached example.
Slope Stability Information Form
Forest Practices Application/Notification
Sky Rider VDT Timber Sale

Narrative:

4b. Describe the field indicators you used to exclude potentially unstable slopes or landforms from your forest practices activity (i.e.: flagging was placed a crown width away from the break in slope of the inner gorge):

Inner gorges, one bedrock hollow, and convergent headwalls were excluded by hanging white timber sale boundary tags approximately one crown width away from the break in slope around these features. Small no harvest skips were bounded out with white timber sale boundary tags to exclude areas immediately between and around the inner gorges and the one bedrock hollow features.

There is a groundwater recharge area, for a dormant-indistinct to relict rotational landslide, located both within and in the vicinity of unit 1. See geotechnical report by Jennifer Parker, dated September 11, 2019.
SLOPE STABILITY MAP

SALE NAME: SKY RIDER VDT
APPLICATION #: TBD by FP Staff

COUNTY(S): Snohomish
TOWNSHIP(S): T27R10E, T27R9E

*Shapefiles provided by State Lands Geologist

Prepared By: bdau490
Modification Date: bdau490 9/12/2019
Engineering Geologic Risk Assessment

Sky Rider Timber Sale

September 11, 2019

Prepared for:

Bryant Daugherty, Forester
Department of Natural Resources
Northwest Region
Cascade District

Prepared by:

Jennifer Parker, LEG #2892
Department of Natural Resources
Forest Resources Division
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Figure 6 .......................................................... 1957 Aerial Photograph
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Figure 9 .......................................................... 2006 Orthophotograph
Figure 10 ......................................................... 2017 Orthophotograph

# Appendix

Appendix A .......................................................... Geologist Qualifications
1.0 Introduction

This report documents the engineering geologic evaluation of a glacial deep-seated landslide near the proposed Sky Rider timber harvest (proposed harvest) (Figures 1 and 2). The forester submitted a draft slope stability form to Forest Practices and the Timber Fish & Wildlife (TFW) community for a pre-application review. Forest Practices organized a pre-application interdisciplinary team (ID team) field meeting to review the sale. Following the ID team meeting, Forest Practices interpreted that the groundwater recharge area of a dormant-indistinct to relict, glacial, deep-seated landslide extends into the proposed harvest unit. This report is intended to document my engineering geologic evaluation of the landslide to satisfy the requirements of a Class-IV-Special Forest Practices Application (FPA), and address comments from ICN No. 135609. Other potentially unstable slopes located around the proposed harvest are documented in the Slope Stability Form of the FPA.

2.0 Scope of Services

The scope of services included:

- Review of DNR GIS data including:
  - Light detection and ranging (LiDAR) data.
  - 1:100,000-scale geologic map (Figure 3).¹
  - Forest Practices Landslide Inventory (LSI) mapping.
  - Forest Practices Landslide Hazard Zonation mapping is not available for the area.
- Field meeting on August 20, 2019 with Jenn Parker (State Lands Geologist) Josh Hardesty (Forest Practices Geologist), Steve Huang (Forest Practices Forester), Bob Penhale (Ecology), Neil Shea and Derek Marks (Tulalip Tribe), Tyson Whiteid (DNR Unit Forester), and Bryant Daugherty (DNR Forester) documented in ICN No. 135609.
- Field reconnaissance on March 26 and April 25, 2019 by Jennifer Parker and Bryant Daugherty.
- Field reconnaissance on January 16 and February 17, 2017 by Jennifer Parker and Greg Morrow (State Lands Geologist-in-Training).
- Preparation of this report.

Jennifer Parker (LEG #2892) is a “qualified expert” for timberland slope stability evaluation, as designated by the DNR (Appendix A).

3.0 Site and Project Description

The proposed Sky Rider timber sale involves a variable density thinning (VDT) in a stand that is currently designated as a "Next Best" Nesting Roosting Foraging (NRF) habitat management zone. Silvicultural prescriptions are designed to enhance "Next Best" habitat while expediting the stand's ability to grow into a condition that meets current Northern Spotted Owl habitat standards. The proposed harvest is located on a broad, relatively flat terrace within the Reiter Foothills Forest (Figure 1). The DNR proposes using ground-based and cable logging methods.

4.0 Geologic Setting

The published 1:100,000-scale geologic map\(^2\) for the area indicates that the proposed sale is underlain by Pleistocene glacial outwash (Qgo). During the most recent glaciation that covered the Puget Lowland (termed Vashon), glacial ice advanced east into the Skykomish Valley, deposited glacial till, and dammed the ancestral Skykomish River. Water flowing from the glacial ice and the Skykomish watershed deposited glacial outwash (Qgo), which consists of stratified sand and gravel. Glacial outwash (Qgo) overlies glacial till and Oligocene granodiorite (Oigd(i)). The approximate distribution of geologic units are shown in Figure 3. My interpretation of the geomorphology is presented in Figure 4.

5.0 Historic Aerial Imagery

We reviewed aerial photographs and historic maps to characterize previous land use and to look for evidence of landslides. Copies of pertinent photographs and orthophotographs are presented in Figures 5 through 10. The following paragraphs include a discussion of significant observations related to the glacial deep-seated landslide.

The 1936 Forest Type Map\(^3\) indicates that timber was clear cut between 1920 and 1936. The trees currently in the harvest unit and on the glacial deep-seated landslide are second growth.

The 1942 photograph shows the early, widespread timber harvest in the area. In it, the proposed harvest unit is mostly without trees (Figure 5). The terrace riser including the glacial deep-seated landslide below the proposed harvest has patchy trees. Yarding corridor scars extend onto the glacial deep-seated landslide. The deep-seated landslide topography appears to be the same size and shape as today. I did not observe evidence of deep-seated landslide reactivation following extensive timber harvest on the outwash bench.

---


In the 2003 and 2006 orthophotos, an approximately 80-acre harvest is visible on the upper terrace near a curve in the DF-ML road (Figure 9). The 80-acre area is within the topographic groundwater recharge area to the glacial deep-seated landslide. In the image, approximately 25 acres are harvested within the topographic groundwater recharge area with scattered leaf trees. The harvest covers slightly more than half of the delineated groundwater recharge area. The harvest extends outside of the topographic groundwater recharge area to the east, south, and north. I did not observe evidence of deep-seated landslide reactivation in the reviewed aerial imagery or in the field.

6.0 Landslide Inventory Review

We used the Forest Practices Landslide Hazard Zonation (LHZ) and landslide inventory (LSI) databases as screening tools. LHZ mapping is not available for the area and there are no LSI polygons in or around the proposed harvest.

7.0 Glacial Deep-Seated Landslide

I delineated the approximately 5 ½ acre, dormant-indistinct to relict, rotational landslide based on LiDAR topography and field mapping of hummocky topography, benches, springs, and seeps (Figure 4). The landslide is in glacial material, therefore I delineated a topographic GWRA using LiDAR data. Observations leading to my interpretation include:

- Rounded cobbles and boulders within the landslide area.
- No evidence of movement in historic imagery.
- Vertical old-growth stumps and vertical live conifers observed in the field throughout the landslide body and head scarp.
- Hummocks are large and rounded.
- Numerous springs on the southern lateral margin and body. The most prominent springs are included in Figure 4. Additional, unmapped springs and seeps are present on the landslide body.
- Flow from springs has dissected the landslide toe.
- Vegetation around springs and depressions is dominantly hardwood. Vegetation throughout the remainder of the slide body and head scarp is a similar age, density, and type, compared with surrounding area.
- Steep, vegetated head scarp is modified by past erosion.
- No cracks, displaced stumps, leaning trees, or other indications of recent movement were seen in the field.

During the pre-application ID team meeting, participants discussed the groundwater recharge area delineation to the glacial deep-seated landslide. There is a gravel borrow pit located approximately ¼-mile south of the deep-seated landslide (Figure 4). The pit sidewalls have cross-beded sand and gravel that dip steeply to the southwest. These beds likely represent foreset beds formed in a glacial outwash stream. Lower strata are not visible. It was suggested that these beds provide evidence of a southwestern groundwater flow direction, therefore the groundwater recharge area should be extended to the northeast.
As discussed earlier, the proposed harvest is located on a broad glacial outwash terrace. In the field, I observed till and granodiorite underlying outwash. Both of these geologic units have much lower hydraulic conductivity than the porous outwash, therefore they likely act as aquitards and likely have a strong influence on groundwater flow paths. In addition, heterogeneity within the outwash caused by buried channels, gravel bars, and other factors likely influence groundwater flow paths. I agree that foreset beds likely have a local influence groundwater flow direction, but in my opinion forest bed dip direction for a dynamic system like a glacial river, located ¼ mile away is not sufficient evidence to significantly change the groundwater recharge area delineation. Subsurface data are not available that either map the subsurface till/granodiorite topography nor the groundwater gradients.

Without detailed subsurface data, I followed the approach provided in Forest Practices board manual Section 16, to delineate the upslope topographic recharge area using a LiDAR-based digital elevation model. I acknowledge that there may be more area contributing water to this landslide. Many streams that drain the steep, rocky uplands to the west flow into the sub-surface and contribute water to the outwash aquifer. Conversely, springs emerge from both the west- and south-facing terrace risers, contributing to aquifer drainage. Without subsurface data, it is not possible to determine detailed groundwater flow directions.

Although a clear cause-and-effect relationship between timber harvesting and deep-seated landslide movement has not been established through the scientific literature, removal of canopy cover can reduce evapotranspiration, increase through fall, and alter groundwater recharge. These hydrologic changes upslope of the glacial deep-seated landslide could elevate water table levels and increase soil pore water pressures. However, struggle for existence in dense, un-thinned stands can inhibit growth and vigor of all trees in the stand. The variable density thinning will remove trees that are competing for resources that restrict the growth of dominant trees.

Black et al. found that evapotranspiration rates of remaining individual Douglas-fir trees increased following thinning, but that stand evapotranspiration initially decreased proportional to the amount of foliage mass removed. Jassal et al. found that an intermediate-aged Douglas-fir stand clear-cut harvested on the east-side of Vancouver Island, British Columbia had a 30

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percent reduction in evapotranspiration immediately following harvest and rates of evapotranspiration fully recovered after 12 years. Evapotranspiration rates should rebound more quickly in the proposed variable density thinning that will maintain canopy interception.

The forester designed a thinning prescription to enhance “Next Best” habitat for the NRF habitat management zone. The plan is to harvest red alder and the smallest merchantable western hemlock and Douglas fir (thin from below). The thinning will reduce the relative density by 34%. The tallest, most vigorous trees will remain on the landscape. In return, their growth may be promoted by the removal of smaller competition. The harvest must leave a minimum of 110 to 120 trees per acre (19.5’ x 19.5’ spacing) throughout the unit and the residual stand must average 220 square feet of basal area per acre. Road right-of-ways and twenty nine, 0.3-acre gaps scattered throughout the thinning will be clear cut harvested. Thinning prescription details are within the FPA.

The west-facing, glacial terrace riser has a dormant-indistinct to relict deep-seated landslide. The triggering mechanism for this feature was likely groundwater-induced instability. In my opinion, this instability likely occurred soon after the area was deglaciated when groundwater levels were likely much higher than today. Both the terrace riser with the deep-seated landslide and the terrace tread have been clear cut harvested in the past. I did not observe evidence that past, extensive clear cut harvesting resulted in deep-seated movement. In addition, the proposed harvest is located more than 700 feet away from the landslide head scarp and the variable density thinning maintains hydrologic maturity. Therefore in my opinion, there is a low likelihood the proposed harvest will cause or contribute to the movement of the glacial deep-seated landslide.

In the unlikely event of landslide reactivation, I interpret that the landslide would move with rotational movement. I anticipate that movement would primarily be directed onto the slopes immediately below the existing landslide toe. I did not observe evidence of long runout, deep-seated movement in the project area, therefore there does not appear to be a significant threat of rapid, long runout, deep-seated movement. Streams drain from the landslide therefore, in the unlikely event of landslide reactivation, there is a high likelihood that the landslide would deliver sediment to streams.

Using guidance from the Forest Practices board manual Section 16,9 dormant-indistinct and relict glacial deep-seated landslides do not require analysis beyond activity status characterization, groundwater recharge area delineation, and delivery potential evaluation because of the low likelihood of landslide reactivation and sediment delivery.

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During the pre-application ID team meeting, participants agreed that the proposed thinning harvest has a low likelihood of reactivating the dormant-indistinct to relict, glacial deep-seated landslide.

8.0 Forest Practice Rule Statements
The following are the required Forest Practice Rule statements addressing WAC 222-10-030 (1) (a,b,c). These responses are based on the data and discussion presented above.

(a) The likelihood that the proposed forest practices will cause movement on the potentially unstable slopes or landforms, or contribute to further movement of a potentially unstable slope or landform.

The west-facing, glacial terrace riser has a dormant-indistinct to relict deep-seated landslide. Both the terrace riser with the deep-seated landslide and the terrace tread have been clear cut harvested in the past. I did not observe evidence that past, extensive clear cut harvesting resulted in deep-seated movement. In addition, the proposed harvest is located more than 700 feet away from the landslide head scarp and the variable density thinning maintains hydrologic maturity. Therefore in my opinion, there is a low likelihood the proposed harvest will cause or contribute to the movement of the glacial deep-seated landslide.

(b) The likelihood of delivery of sediment or debris to a public resource, or in a manner that would threaten public safety:

The glacial deep-seated landslide appears to have been dormant for a long time period, and I did not find evidence that previous clear-cut harvest on the landslide body and topographic groundwater recharge area caused landslide reactivation. It is my opinion that this proposal has a low likelihood of contributing to landslide reactivation that could deliver sediment and debris to public resources or threaten public safety.
Streams drain from the glacial deep-seated landslide. In my opinion, in the unlikely event of landslide reactivation, there is a high likelihood that the landslide would deliver sediment to streams.

(c) Any possible mitigation for the identified hazards and risks:

The proposed harvest was designed to improve Spotted Owl habitat through a variable density thinning. There are no proposed mitigations specific to the glacial deep-seated landslide, because in my opinion, there is a low likelihood the proposed harvest will cause or contribute to the movement of the glacial deep-seated landslide.
9.0 Assessment Limitations

This report is intended to be submitted with the forest practices application (FPA) for the Sky Rider timber harvest to meet the requirements of a Class IV-special classification and to document licensed engineering geologist/qualified expert involvement in the road and harvest unit design. The conclusions presented in this report are based on observed site conditions as they existed at the time of the field visits. Site conditions can change with time and additional geologic information may become available. If this occurs, my geologic interpretations and recommendations may require modification. It is not possible to fully define the geologic conditions of the site based on this limited investigation; however, the work was performed using practices consistent with geologic and geotechnical industry standards in the region for forest slope stability. It is not possible to predict slope movement with certainty with the available scientific knowledge.

If any changes in the proposed FPA or road plan are formulated or carried out differently in the field than currently proposed, the conclusions and recommendations shall not be considered valid unless those changes are reviewed in writing by the author or author’s representative.
Legend

- Sky Rider Variable Density Thin

2006 ORTHOPHOTOGRAPH
Sky Rider Timber Sale

Washington State Department of Natural Resources
Appendix A

Geologist Qualifications

Jennifer Parker has a Bachelor of Arts degree, (2003) from Whitman College, Walla Walla, Washington in Geology and Environmental Studies and a Master of Science degree (2007) from the University of New Mexico, Albuquerque, NM, with an emphasis on geomorphology. Her academic research involved mapping fire-related debris-flow deposits in the Sacramento Mountains, New Mexico. Previous work experience includes working as an engineering geologist for Shannon & Wilson, Inc. (2007-2016). She has been employed by the Forest Resources Division of the Washington Department of Natural Resources since January 2017. Her work with the agency is related to slope stability assessments of proposed land management activities. Ms. Parker is a Licensed Engineering Geologist (LEG #2892) in the state of Washington and meets the definition of a “qualified expert” as outlined in WAC 222-10-030(5).
Appendix E. CMZ Assessment Form

Section See Narrative, Township See Narrative, Range See Narrative

Complete and attach this informational form to your FPA/N if you answered ‘Yes’ to FPA Question 11j. Refer to Forest Practices Board Manual Section 2—Standard Methods for Identifying Bankfull Channel Features and Channel Migration Zones for guidance on evaluating Channel Migration Zones (forms within Forest Practices Board Manual 2 are optional).


1:100,000-scale geologic map. The remote review was conducted by Jennifer Parker, LEG.

Applicant Office Review:

1. Screening tools used: [ ] GIS [ ] Aerial Photo Years: ________________ [ ] LiDAR [ ] USGS Topographic Map

2. Are you aware of channel movement or did you observe obvious channel movement between aerial photograph years?
   [ ] No, continue to question 3 [ ] Yes, continue to question 5

3. Evaluate valley confinement using USGS topographic map(s) or aerial photographs.
   [ ] Valley floor is significantly wider than the channel. Channel migration may be occurring.
   [ ] Valley floor is very narrow, obviously less than twice as wide as the channel. If you can clearly see this
   circumstance on the aerial photographs, it is unlikely that channel migration is occurring.

4. Did you observe any of the following on the aerial photographs?
   [ ] Side Channels [ ] Multiple Channels (Braiding)
   [ ] Large Gravel Bars [ ] Wood Jams
   [ ] Eroding Banks [ ] High Sinuosity or Sharp Channel Bends
   [ ] New Channels Occurring Between Photo Years (Avulsions)

Field Review:

Date of field review: 3/26/2019

Person(s) that conducted field review:

<table>
<thead>
<tr>
<th>Bryant Daugherty</th>
<th>Forester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Title/position</td>
</tr>
<tr>
<td>Jennifer Parker, LEG</td>
<td>State Lands Geologist</td>
</tr>
</tbody>
</table>

5. If CMZ is present check the component(s) present in your CMZ delineation.
   [ ] Avulsion hazard area [ ] Erosion hazard area (attach erosion rate calculations)

6. What was the distance of channel walked? What was the length of CMZ boundary delineated?
   On various dates, from east to west, the forester walked 17 channels and their associated CMZ boundaries. A total
   of 13,000 feet of stream channel was walked and 27,000 feet of CMZ boundary delineated.

Briefly describe how you determined a CMZ exists, how you delineated the outer edge of the CMZ, and how you marked
the outer edge of the CMZ on the ground (flagging color, paint, etc.):

See CMZ Narrative

2817265
CMZ Narrative

Section: 7 Township: 27 Range 10E

Section 12 Township: 27 Range 9E

Question #6:

Briefly describe how you determined a CMZ exists, how you delineated the outer edge of the CMZ, and how you marked the outer edge of the CMZ, on the ground (flagging color, paint, etc.).

During the remote review, the State Lands Geologist identified potential avulsion hazard areas (AHAs) near Unit 1. Streams in the AHAs included one seasonal Type-3 fish bearing streams, seven perennial Type-4 non-fish bearing stream, six perennial Type-5 non-fish bearing streams, and two seasonal Type-5 non-fish bearing streams. Using both field and remote sensing information as described in the Washington State Forest Practices Board Manual Section 2, the channels on AHAs have the potential to migrate and avulse, and therefore are subject to CMZ delineation.

AHAs were delineated using the Washington State Forest Practices Board Manual Section 2 to approximate the 140-year “near term” channel position. Field indicators were also used to help delineate the AHAs. These included finding buried vs. unburied old growth stumps, evidence of past debris flows, abandoned or current stream channels, and evidence of fresh gravel deposits/scour from recent avulsions or stream flow. Historical imagery was also used to observe past debris flows within the area.

The Type-3/4 tributary to Deer Creek (Stream X and Stream V) near the eastern portion of the unit (See Figure 1) has a debris flow history visible in air photos. During a field reconnaissance on March 26, 2019, Jennifer Parker and I evaluated the avulsion hazard along the western portion of stream X and V’s alluvial fan. The steep-gradient stream channel at the fan apex is incised to bedrock and the alluvial fan surface is approximately 25 to 40 feet higher than the stream. Therefore we interpret that western portions of the fan are relict and not within the AHA (Figure 1). We delineated the AHA by identifying abandoned channels that were connected to the main channel by low swales. We observed areas within the AHA with partially-buried old growth stumps, areas with younger vegetation, and exposed gravel at the ground surface. A variable density thinning (VDT) harvest will occur up to 25 feet from the AHA buffer, which is marked in the field with white “Timber Sale Boundary” tags.

Greg Morrow and John Van Hollebeke reviewed historical aerial imagery and performed field reconnaissance to identify the AHA along Hogarty Creek (Stream T) near the northwest portion of Unit 1 (See Figure 2). The most significant debris flow is visible in the 1978 imagery. The Hogarty Creek alluvial fan appears active based on the aerial imagery, partially-buried old growth stumps, and gravel exposed at the surface within the delineated AHA. The edge of the AHA was determined using Lidar along with the presence of unburied stumps and lack of debris flow evidence. A variable density thinning (VDT) harvest will occur up to 25 feet from the AHA buffer, which is marked in the field with white “Timber Sale Boundary” tags.
Three Type-4 non-fish bearing streams and six Type-5 non-fish bearing streams north of the unit (See Figure 3) are too small to identify through the forest canopy on most historical photos. A remote review using Lidar followed by field reconnaissance by the forester were used to identify the AHAs north of the unit. There were a number of Type-4 and Type-5 streams braided and scattered throughout the area. All of the streams started higher up on the mountain and dissipated in the valley floor. A number of buried stumps, fresh gravel/scour, pipped channels, and scattered/braided channels were found within the AHAs. The edge of the AHAs were delineated using Lidar and the presence of unburied old stumps with the lack of stream channels or deposits. A variable density thinning (VDT) harvest will occur up to 25 feet from the AHA buffer, which is marked in the field with white “Timber Sale Boundary” tags.
NOTE: When assessing hydrologic maturity for each sub-basin inside the rain-on-snow zone, DNR staff will use the most updated data layer delineating Watershed Administrative Units as designated by Forest Practices.

- Assessing Hydrologic Maturity in the Rain-On-Snow (ROS) Zone (Refer to item A in the Agreement Memo). If the activity lies within the ROS zone and subbasin will be managed for ROS, fill out the following table. If within ROS zone, but subbasin will not be managed for ROS, describe why in additional information section below.

<table>
<thead>
<tr>
<th>1. SUB-BASIN NAME</th>
<th>2. TOTAL ROS ACRES (DNR) WITHIN SUB-BASIN</th>
<th>3. HYDRO MATURE TARGET ACRES (2/3 of Column 2)</th>
<th>4. CURRENT DNR SUB-BASIN ACRES IN HYDRO MATURE FOREST IN ROS</th>
<th>5. ACRES OF HYDRO MATURE FOREST TO BE REMOVED</th>
<th>6. SUPRLUS (+) OR DEFICIT (-) ACRES AFTER ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skykomish Subbasin 1</td>
<td>1,028.2</td>
<td>685.5</td>
<td>800.6</td>
<td>0</td>
<td>115.1</td>
</tr>
</tbody>
</table>

- Wetlands Protection, road construction within wetlands or wetland buffers, requires mitigation. (Refer to item B in the Agreement Memo). If this activity will include road construction within a wetland or WMZ, describe the type of wetland, potential loss of wetland function and how and where the loss of function will be mitigated.

- Harvesting within Forested Wetlands. (Refer to items C & E in the Agreement Memo). Describe the remaining stand characteristics within the wetland and map any forested wetlands greater than 3 acres.

- Wetland Management Zones. (Refer to item D in the Agreement Memo). Describe the site index and WMZ width. If harvesting within the WMZ, describe the remaining stand characteristics within the WMZ.

- Riparian Management Zones for Type 1, 2 and 3 Waters (Refer to item F and Appendix 1 in the Agreement Memo). Describe the site index, RMZ width and if a wind buffer was applied. Describe if the RMZ begins from the outer edge of a CMZ or 100-year floodplain and how they were typed.

- Riparian Management Zones for Type 4 and 5 Waters (Refer to item G and Appendix 1 in the Agreement Memo). Describe any special protection for Type 5 waters.

- Harvesting or Salvaging within Type 1, 2, 3 and 4 Riparian Management Zones. (Refer to item F-J and Appendix 3 in the Agreement Memo). If harvesting, describe the general
HCP Riparian Forest Restoration Strategy management scenario under which the proposal's riparian stand will be managed. Describe stand treatment including removals, down wood and snag recruitment and type of activities. Describe post-harvest stand; how it meets the management parameters of the general management scenario, what species composition and diameter classes will remain, trees per acre, basal area, relative density. If salvaging, describe how you will be meeting the RDFC conditions, what you will retain and removals and other salvage/restoration conditions described within the Ecosystem Services Section approved site specific restoration plan (and/or attach plan).

Please provide any requested additional information below. If varying from standard HCP guidance, attach concurrence/variance approval from Land Management Division and/or Federal Services and discuss below (e.g. research).

| Skykomish River WAU Subbasin 1 included portions of Unit 1 variable density thinning and a 1.2 acre rock pit expansion. |
| Skykomish River WAU Subbasin 2 - subbasin has less than 33.33% of its area in the ROS zone. |

Riparian Management Zones Type 1, 2 and 3 Waters:
One type 3 stream buffer began off of the outer edge of a CMZ and was calculated using the 100-year site index buffer for Western Hemlock on the specific site it was located. No wind buffers are applied to any of the stream buffers based on low susceptibility to wind throw in this area. Low susceptibility was determined by making visual observations of the area and reviewing soil maps of the units.  

Riparian Management Zones Type 4 and 5 Waters:
All type 4 stream buffers that encompassed a CMZ began off the outer edge of the CMZ. All Type-5 waters will have a 30-foot equipment limitation zone. All trees are to be felled and yarded perpendicular to and away from streams where feasible. 

Harvesting or Salvaging within Type 1, 2, 3, and 4 Riparian Management Zones: All RMZs that fall within the boundary of Unit 1 represent areas to be thinned. Buffers will be thinned using the same Nesting Roosting Foragaging (NRF) variable density thinning prescription as the rest of the unit with a target density post thinning of approximately 110-120 trees per acre.

See attached table for stream buffer widths and site index.
<table>
<thead>
<tr>
<th>Stream Segment Identifier or Wetland Identifier</th>
<th>Water Type or Wetland “forested or open water”</th>
<th>Site Class FP Base Map / Other source</th>
<th>Stream Width (feet) or Wetland Size</th>
<th>Is there a CMZ? Yes or No</th>
<th>Thinning RMZ/WMZ? Yes or No</th>
<th>Total Width of RMZ/WMZ FP width / Actual width (feet)</th>
<th>Wind Buffer? Yes, No (for T-3, 2, 1) or N/A</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>III</td>
<td>&gt;2 feet</td>
<td>NO</td>
<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>III</td>
<td>&lt;2 feet</td>
<td>NO</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>III</td>
<td>&gt;2 feet</td>
<td>NO</td>
<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>D</td>
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<td>III</td>
<td>&gt;2 feet</td>
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<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td>III</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>G</td>
<td>5</td>
<td>III</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>H</td>
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<td>III</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>I</td>
<td>5</td>
<td>IV</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>J</td>
<td>4</td>
<td>III</td>
<td>&gt;2 feet</td>
<td>YES</td>
<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>K</td>
<td>5</td>
<td>III</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>L</td>
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<td>III</td>
<td>&gt;2 feet</td>
<td>YES</td>
<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>M</td>
<td>4</td>
<td>IV</td>
<td>&gt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>O</td>
<td>5</td>
<td>IV</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
<tr>
<td>P</td>
<td>4</td>
<td>IV</td>
<td>&gt;2 feet</td>
<td>NO</td>
<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>R</td>
<td>5</td>
<td>III</td>
<td>&lt;2 feet</td>
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<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
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<tr>
<td>T</td>
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<td>III</td>
<td>&gt;2 feet</td>
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<td>YES</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>V</td>
<td>4</td>
<td>IV</td>
<td>&gt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>50/100</td>
<td>N/A</td>
</tr>
<tr>
<td>X</td>
<td>3</td>
<td>III</td>
<td>&gt;2 feet</td>
<td>YES</td>
<td>YES</td>
<td>140/ 153</td>
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<tr>
<td>Y</td>
<td>5</td>
<td>III</td>
<td>&lt;2 feet</td>
<td>YES</td>
<td>NO</td>
<td>0/30 foot equipment limitation zone.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
DNR Trust Forestland HCP Water Typing Key
ADDENDUM TO INSTRUCTIONS FOR COMPLETING THE FOREST PRACTICE APPLICATION

STREAM(S) ID A, C

DATE: 8/14/2019

Within your road construction and harvest area, you need to physically review these streams on the ground to determine if they meet the criteria of Type 3 water. Refer to DNR Trust Forestland HCP Water Typing System to determine Type 1 and 2 waters.

1. Were any fish observed in the stream segment, or are fish known to use this stream segment?
   _____ Yes. Type 3 stream.
   ___X__ No. Go to question # 2.

2. Has the stream been surveyed?
   ___X__ Yes. Attach the survey data to the Application/Notification.
     _____ Fish found. Type 3 stream.
     ___X__ No fish. Is the average width of the stream segment two feet (2’) or wider between the ordinary high water marks?
     _____ Yes. Type 4 stream.
     ___X__ No. Type 5 stream.
     _____ No. Go to question # 3.

3. Is the average width of the stream segment two feet (2’) or wider between the ordinary high water marks?
   _____ Yes. Go to question # 4.
   ___X__ No. Type 5 stream.

4. Is the gradient of the stream segment 16% or less?
   (Example: 16’ fall in elevation over 100 feet of stream = 16/100=.16 or 16%).
   _____ Yes. Type 3 stream.
   ___X__ No. Go to question # 5.

5. Is the average gradient of the stream segment greater than 16% and less than or equal to 20%?
   _____ Yes. Go to question # 6.
   ___X__ No.. Type 4 stream.

6. Is the contributing basin (watershed) size to the stream segment greater than 50 acres?
   _____ Yes. Type 3 stream.
   ___X__ No. . Type 4 stream.

Definitions:

Stream Width: To determine the Ordinary High Water Mark (OHWM) of the stream(s), observe the break between the water influence zone and upland vegetation on the stream bank; this is usually the spring high water mark. Then measure stream width between the OHWMs on either side of the stream at 50 feet intervals along the stream bank for a minimum distance of 500 feet. This determines the average width of the stream. For further information see page M-11 of the board manual.

Stream Gradient: The gradient of a stream is defined as the inclination or rate of fall of a stream bed, expressed as a percentage. The average gradient of a stream is determined by calculating the inclination of individual sub-reaches over a minimum distance of 500 feet along a stream or to a point where distinct gradient changes occur. For further information see page M-14 of the board manual (only use the method for field measurements; do not use the mapping method).

Note: Streams with widths of twenty feet (20’) or greater or lakes, ponds, or impoundments having a surface area of 1 acre or greater at seasonal low water, may be type 2 waters.

1-14-08
DNR Trust Forestland HCP Water Typing Key

ADDENDUM TO INSTRUCTIONS FOR COMPLETING THE FOREST PRACTICE APPLICATION

STREAM(S) ID: D, J, L, M, P, T, V

DATE: 8/14/2019

Within your road construction and harvest area, you need to physically review these streams on the ground to determine if they meet the criteria of Type 3 water. Refer to DNR Trust Forestland HCP Water Typing System to determine Type 1 and 2 waters.

1. Were any fish observed in the stream segment, or are fish known to use this stream segment?
   ___ Yes. Type 3 stream.
   ___ No. Go to question # 2.

2. Has the stream been surveyed?
   ___ Yes. Attach the survey data to the Application/Notification.
      ___ Fish found. Type 3 stream.
      ___ No fish. Is the average width of the stream segment two feet (2') or wider between the ordinary high
         water marks?
         ___ Yes. Type 4 stream.
         ___ No. Type 5 stream.
         ___ No. Go to question # 3.

3. Is the average width of the stream segment two feet (2') or wider between the ordinary high water marks?
   ___ Yes. Go to question # 4.
   ___ No. Type 5 Stream.

4. Is the gradient of the stream segment 16% or less?
   (Example: 16' fall in elevation over 100 feet of stream = 16/100 = .16 or 16%).
   ___ Yes. Type 3 stream.
   ___ No. Go to question # 5.

5. Is the average gradient of the stream segment greater than 16% and less than or equal to 20%?
   ___ Yes. Go to question # 6.
   ___ No. Type 4 stream.

6. Is the contributing basin (watershed) size to the stream segment greater than 50 acres?
   ___ Yes. Type 3 stream.
   ___ No. Type 4 stream.

Definitions:

Stream Width: To determine the Ordinary High Water Mark (OHWM) of the stream(s), observe the break between the water influence zone and upland vegetation on the stream bank; this is usually the spring high water mark. Then measure stream width between the OHWMs on either side of the stream at 50 feet intervals along the stream bank for a minimum distance of 500 feet. This determines the average width of the stream. For further information see page M-11 of the board manual.

Stream Gradient: The gradient of a stream is defined as the inclination or rate of fall of a stream bed, expressed as a percentage. The average gradient of a stream is determined by calculating the inclination of individual sub-reaches over a minimum distance of 500 feet along a stream or to a point where distinct gradient changes occur. For further information see page M-14 of the board manual (only use the method for field measurements; do not use the mapping method).

Note: Streams with widths of twenty feet (20') or greater or lakes, ponds, or impoundments having a surface area of 1 acre or greater at seasonal low water, may be type 2 waters.
DNR Trust Forestland HCP Water Typing Key

ADDENDUM TO INSTRUCTIONS FOR COMPLETING THE FOREST PRACTICE APPLICATION

STREAM(S) M B,E,G,H,I,K,O,R,Y

DATE: 8/14/2019

Within your road construction and harvest area, you need to physically review these streams on the ground to determine if they meet the criteria of Type 3 water. Refer to DNR Trust Forestland HCP Water Typing System to determine Type 1 and 2 waters.

1. Were any fish observed in the stream segment, or are fish known to use this stream segment?
   ___ Yes. Type 3 stream.
   ___ No. Go to question # 2.

2. Has the stream been surveyed?
   ___ Yes. Attach the survey data to the Application/Notification.
     ___ Fish found. Type 3 stream.
     ___ No fish. Is the average width of the stream segment two feet (2') or wider between the ordinary high water marks?
       ___ Yes. Type 4 stream.
       ___ No. Type 5 stream.
       ___ No. Go to question # 3.

3. Is the average width of the stream segment two feet (2') or wider between the ordinary high water marks?
   ___ Yes. Go to question # 4.
   ___ No. Type 5 stream.

4. Is the gradient of the stream segment 16% or less?
   (Example: 16' fall in elevation over 100 feet of stream = 16/100=.16 or 16%).
   ___ Yes. Type 3 stream.
   ___ No. Go to question # 5.

5. Is the average gradient of the stream segment greater than 16% and less than or equal to 20%?
   ___ Yes. Go to question # 6.
   ___ No. Type 4 stream.

6. Is the contributing basin (watershed) size to the stream segment greater than 50 acres?
   ___ Yes. Type 3 stream.
   ___ No. Type 4 stream.

Definitions:

Stream Width: To determine the Ordinary High Water Mark (OHWM) of the stream(s), observe the break between the water influence zone and upland vegetation on the stream bank; this is usually the spring high water mark. Then measure stream width between the OHWMs on either side of the stream at 50 feet intervals along the stream bank for a minimum distance of 500 feet. This determines the average width of the stream. For further information see page M-11 of the board manual.

Stream Gradient: The gradient of a stream is defined as the inclination or rate of fall of a stream bed, expressed as a percentage. The average gradient of a stream is determined by calculating the inclination of individual sub-reaches over a minimum distance of 500 feet along a stream or to a point where distinct gradient changes occur. For further information see page M-14 of the board manual (only use the method for field measurements; do not use the mapping method).

Note: Streams with widths of twenty feet (20') or greater or lakes, ponds, or impoundments having a surface area of 1 acre or greater at seasonal low water, may be type 2 waters.

1-14-08

2 8 1 7 2 6 5
DNR Trust Forestland HCP Water Typing Key
ADDENDUM TO INSTRUCTIONS FOR COMPLETING THE FOREST PRACTICE APPLICATION

STREAM(S) ID: X  DATE: 8/14/2019

Within your road construction and harvest area, you need to physically review these streams on the ground to determine if they meet the criteria of Type 3 water. Refer to DNR Trust Forestland HCP Water Typing System to determine Type 1 and 2 waters.

1. Were any fish observed in the stream segment, or are fish known to use this stream segment?
   __ Yes. Type 3 stream.
   X  No. Go to question # 2.

2. Has the stream been surveyed?
   ___ Yes. Attach the survey data to the Application/Notification.
   ___ Fish found. Type 3 stream.
   ___ No fish. Is the average width of the stream segment two feet (2') or wider between the ordinary high water marks?
       ___ Yes. Type 4 stream.
       ___ No. Type 5 stream.
   X  No. Go to question # 3.

3. Is the average width of the stream segment two feet (2') or wider between the ordinary high water marks?
   X  Yes. Go to question # 4.
   ___ No. Type 5 Stream.

4. Is the gradient of the stream segment 16% or less?
   (Example: 16' fall in elevation over 100 feet of stream = 16/100=.16 or 16%).
   X  Yes. Type 3 stream.
   ___ No. Go to question # 5.

5. Is the average gradient of the stream segment greater than 16% and less than or equal to 20%?
   ___ Yes. Go to question # 6.
   ___ No. Type 4 stream.

6. Is the contributing basin (watershed) size to the stream segment greater than 50 acres?
   ___ Yes. Type 3 stream.
   ___ No. Type 4 stream.

Definitions:
Stream Width:  To determine the Ordinary High Water Mark (OHWM) of the stream(s), observe the break between the water influence zone and upland vegetation on the stream bank; this is usually the spring high water mark. Then measure stream width between the OHWMs on either side of the stream at 50 feet intervals along the stream bank for a minimum distance of 500 feet. This determines the average width of the stream. For further information see page M-11 of the board manual.
Stream Gradient:  The gradient of a stream is defined as the inclination or rate of fall of a stream bed, expressed as a percentage. The average gradient of a stream is determined by calculating the inclination of individual sub-reaches over a minimum distance of 500 feet along a stream or to a point where distinct gradient changes occur. For further information see page M-14 of the board manual (only use the method for field measurements; do not use the mapping method).

Note: Streams with widths of twenty feet (20') or greater or lakes, ponds, or impoundments having a surface area of 1 acre or greater at seasonal low water, may be type 2 waters.

1-14-08
Forest Practices Application/Notification Addendum
DNR Trust Lands HCP Implementation Checklist for the Marbled Murrelet, 2014
North Puget Planning Unit Only

Refer to the DNR Trust Lands HCP Implementation Summary for the Marbled Murrelet, 2014
and North Puget Planning Unit (NPPU) memos dated 02/23/2007 and 06/12/2009. Marbled
Murrelet GIS habitat and occupied site delineation is available at on the Quick Data Loader and
State Uplands Viewing Tool titled “State Lands – Marbled Murrelet – HCP Policy”.

1. Is the proposed Forest Practices activity within potential habitat, occupied site, Criteria 3
newly identified habitat or suitable habitat not available for release\(^1\)?
   ☐ Yes, proposal is inconsistent with current HCP strategy. Stop Proposed Activity or
document in Question #6 specifics of proposal and Forest Resources Division approval if
intending to proceed.
   ☑ No, not within suitable habitat not available for release, potential, occupied, or Criteria 3
   newly identified habitat. Go to Question #2.

2. Is the proposed activity within releasable\(^1\) suitable habitat according to the NPPU memo
(dated 6/12/2009)?
   ☐ Yes, document in Question #6 the WAU name, total suitable MM habitat acres allowed to
   be harvested within the WAU and the total acres to date of suitable MM habitat
   harvested within the WAU after this proposed harvest. Go to Question #3.
   ☑ No, proposal is not within releasable suitable habitat. Go to Question #3.

3. Is the proposed activity located within unsurveyed Criteria 1 newly identified habitat that is
within 0.25 miles of an occupied site, or unsurveyed Criteria 2 newly identified habitat?
   ☐ Yes, proposal is inconsistent with the current HCP strategy. Stop Proposed Activity or
document in Question #6 specifics of proposal and Forest Resources Division approval if
intending to proceed.
   ☑ No, go to Question #4.

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\(^1\) Some suitable habitat may be available for harvest (releasable) if 50% of the habitat will remain within the WAU
and it is greater than 0.5 miles from an occupied site and identified per NPPU memo dated 6/12/2009. Criteria 1
habitat is: Habitat ≥ 5 acres but ≤ 10 acres with ≤ 10 platforms per acre OR Habitat > 10 acres but ≤ 20 acres with ≤
5 platforms per acre. Criteria 2 habitat is: Habitat ≥ 5 acres but ≤ 10 acres with > 10 platforms per acre OR Habitat >
10 acres but ≤ 20 acres with > 5 platforms per acre OR Habitat > 20 acres with ≤ 15 platforms per acre. Criteria 3 is:
Habitat ≥ 20 acres with > 15 platforms per acre.
4. Is the proposed activity located within surveyed and unoccupied Criteria 1 or 2 newly identified habitat, or unsurveyed Criteria 1 that is greater than 0.25 miles from an occupied site and is the activity only for operational access (roads or yarding corridors) through this habitat type?
   □ Yes, proposal is consistent with the current HCP. Timing restrictions are applied when operating within this habitat and remaining habitat is deferred from harvest. Consult with Region biologist/specialist for recommendations on minimizing platform tree removal. Document in Question #6 the type of operational access, but first go to Question #5.
   ☒ No, go to Question #5.

5. Is the proposed harvest activity within ¼ mile of any marbled murrelet occupied site(s), Criteria 3 newly identified habitat or unsurveyed suitable MM habitat2?
   □ Yes, consult with Region biologist/specialist for recommendations on buffers and timing restrictions. Go to Question #6 and document type of buffer of occupied site or suitable habitat.
   ☒ No, proceed with activity; go to Question #6 if any documentation is required.

6. This question or section is for additional information the checklist suggested you provide in previous questions or any additional information you think is relevant to the proposal. If you were able to answer the previous questions without a “Stop Proposed Activity” notification then your proposal is consistent with the HCP and may proceed. Otherwise, more documentation is required here. If varying from current HCP guidance, attach consultation agreement from Forest Resources Division and/or USFWS and discuss below.

   Suitable marbled murrelet habitat does exist immediately adjacent and to the northeast of Unit 1. Because this habitat was previously identified but was not surveyed, it requires a buffer, but no timing restrictions. A 300-foot managed buffer is established but not marked in the field as the area will be thinned to the more conservative thinning treatment associated with Nesting, Roosting, Foraging (NRF) habitat treatment.

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2 “Unsurveyed suitable habitat” refers to potential habitat identified per the NPPU 2007 memo that has been field verified as suitable, but not yet surveyed.
Forest Practices Application/Notification Addendum DNR
State Trust Lands HCP Implementation Checklist for the
Northern Spotted Owl, 2017 (all HCP planning units & OESF)

Refer to the DNR State Trust Lands HCP Implementation Agreement for the NSO, 2017.

1. Is the Forest Practice activity within a NRF Management Area?
   ☒ Yes, Go to #2.
   ☐ No, Go to #6.

2. Is the Forest Practice activity within a designated 500-acre Nest Patch?
   ☐ Yes, Harvesting within a nest patch is inconsistent with HCP without consultation, refer to Substitution Agreement, Section I.A. Stop Proposed Activity or document in Question #17 the specifics of proposal and Forest Resources Division concurrence if intending to proceed. Maintenance of existing roads is permitted, describe road maintenance activity in Question #17. If able to proceed, go to #3.
   ☒ No, Go to #3.

3. Is the Forest Practice activity within 0.7 miles of a spotted owl nest site (status 1 or 2)?
   ☐ Yes, Apply timing restrictions; refer to Substitution Agreement, Section I. Go to #4.
   ☒ No, Go to #4.

4. Is the SOMU where the Forest Practice activity is located above the target amount of 50% NRF habitat?
   ☐ Yes, Proceed with the activity, ensuring that habitat within the SOMU will not fall below the target amount of 50% and no more than 5% of sub-mature or better habitat within the SOMU is harvested within two years. Please describe in Question #17; if the activity will be harvesting habitat or non-habitat, whether it is an enhancement activity or even-age harvest and how many acres or percentage of NRF habitat will remain within the SOMU after harvest. Go to #16.
   ☒ No, Go to #5.

5. Is the Forest Practice activity within suitable sub-mature habitat or better or “next best”?  
   ☒ Yes, Ensure NRF habitat remains after completion of the harvest activity or that the activity will not increase the length of time for the target amount to reach a suitable habitat condition. Please describe in Question #17, type of activity, how habitat will be maintained or next best stands enhanced and what the final stand condition will be. Go to #16.

   ☐ No, Ensure that target amount of habitat within the SOMU will not take longer to achieve after activity. Please describe in Question #17 how management activity will maintain and/or achieve the NRF target amount. Go to #16.

6. Is the Forest Practice activity within a Dispersal or DFC Management Area?
   ☐ Yes, Go to #7.
   ☐ No, Go to #10.

7. Is the Forest Practice activity within 0.7 miles of a spotted owl nest site (status 1 or 2)?
   ☐ Yes, Apply timing restrictions; refer to Substitution Agreement, Section I. Go to #8.
   ☐ No, Go to #8.

8. Is the SOMU where the Forest Practice activity is located, above the target amount of 50% dispersal habitat?
   ☐ Yes, Proceed with the activity, ensuring that habitat within the SOMU will not fall
below the target amount of 50%. Please describe in Question #17; if the activity will be harvesting habitat or non-habitat, whether it is an enhancement activity or even-age harvest and how many acres or percentage of dispersal habitat will remain within the SOMU after harvest. Go to #16.

☐ No, Go to #9.

9. Is the Forest Practice activity within suitable dispersal habitat or better or “next best”?
   ☐ Yes, Ensure dispersal habitat remains after completion of the harvest activity or that the activity will not increase the length of time for the target amount to reach a suitable habitat condition. Please describe in Question #17, type of activity, how habitat will be maintained or next best stands enhanced and what the final stand condition will be. Go to #16.
   ☐ No, Ensure that target amount of habitat within the SOMU will not take longer to achieve after activity. Please describe in Question #17 how management activity will maintain and/or achieve the dispersal target amount. Go to #16.

10. Is the Forest Practice activity located within the OESF?
    ☐ Yes, Go to #11.
    ☐ No, Go to #16.

11. Is the Forest Practice Activity within Young Forest Habitat, Old Forest Habitat, or a Pathways Management Candidate Stand?
    ☐ Yes, Proceed with the activity, Please describe in Question #17; whether it is an enhancement activity or even-age harvest and how many acres. Describe percentage of suitable habitat will remain within the SOMU after harvest. Go to #16.
    ☐ No, Go to #12.

12. Is the Forest Practice activity in a SOMU in the maintenance and enhancement phase?
    ☐ Yes, Activity can proceed if it ensures commitments to OESF Forest Land Plan as described within the Substitution Agreement, Section II and that habitat within the SOMU will not fall below the target amount. For Old Forest Habitat both the 20% Old Forest and 40% Young Forest and Better thresholds must be maintained. Active and Passive Pathways Management Candidate Stands are available if thresholds are maintained. Please describe in Question #17 how management activity will maintain habitat thresholds and how any candidate stands will be managed in accordance with the pathway prescription. Go to #16.
    ☐ No, Go to #13.

13. Is the Forest Practice activity in Old Forest Habitat in a SOMU that is in the Restoration Phase?
    ☐ Yes, No harvesting of Old Forest Habitat is allowed during the Restoration Phase.
    ☐ No, Go to #14.

14. Is the Forest Practice activity a regeneration harvest of Young Forest Habitat in a SOMU that is in the Restoration Phase?
    ☐ Yes, No regeneration harvest of Young Forest Habitat in a SOMU during the Restoration Phase without consultation with the HCP and Scientific Consultation Section. Describe in #17 how many acres or percentage of suitable habitat will remain within the SOMU after harvest. Document the reasons for harvest of young forest habitat and provide documentation of approval. Go to #16.
    ☐ No, Go to #15.
15. Is the Forest Practice activity in an Active or Passive Pathways Management Candidate Stand in a SOMU that is in the Restoration Phase?

☐ Yes, No harvesting of Passive Pathways Management Candidate Stand is allowed during the Restoration Phase. Active Pathways Management Candidate Stands can only have thinning activities. Please describe in Question #17 how management activity will maintain habitat thresholds or how thinning activities will enhance habitat. Describe in #17 how many acres or percentage of suitable habitat will remain within the SOMU after harvest.

☐ No, Proceed with the activity; if commitments to the OESF Forest Land Plan as described within the Substitution Agreement and the SOMU are maintained and habitat does not fall below the minimum threshold. Please describe in Question #17 how management activity will maintain habitat thresholds or how thinning activities will enhance habitat. Describe in #17 how many acres or percentage of suitable habitat will remain within the SOMU after harvest. Go to #16.

16. Is the Forest Practice activity located within a Status 1 or 2 spotted owl management circle based on the WDFW database?

☐ Yes, Apply harvest timing restrictions to activities within the best 70-acre core around the site center; refer to Substitution Agreement, Section III. Include location of best 70-acre core on Forest Practices Map. Go to #17.

☒ No, Go to #17.

17. Provide any additional information or details requested from previous questions on the following lines. If no additional information is required, simply state “not applicable” below. Otherwise, include the SOMU name(s) when necessary if activity is within NRF or dispersal management areas or OESF and how habitat will be maintained or enhanced, etc. If varying from standard HCP guidance, attach concurrence/variance approval from Land Management Division and/or Federal Services and discuss below.

End checklist.

A 221.4 acre proposal is located in both the Wallace River SOMU NRF Management Area (175.2 ac) and the North Fork Skykoish SOMU NRF Management Area (46.2 acres). 220.2 acres of the proposal are located in NRF “Next Best” stands. The remaining 1.2 acre portion is in NRF-managed lands but classified as non-habitat. Forest activities within the proposed area that are in “Next Best” stands include variable density thinning, small gap creation, road building, and RMZ thinning. Silvicultural prescriptions are meant to enhance next best habitat while expediting the stands ability to grow into a final stand condition that meets current Northern Spotted Owl habitat standards.
September 3, 2019

TO: Bryent Daugherty, Forester

FROM: Lisa Egtvedt, Wildlife Biologist

SUBJECT: Wildlife Review of the Proposed Sky Rider VDT Timber Sale

This memo serves as documentation of a region biologist review of the proposed Sky Rider VDT Timber Sale in section 12 of Township 27 North, Range 9 East and section 7 of Township 27 North, Range 10 East. This proposal is comprised of one unit, which will involve variable density thinning (VDT) in stands that are currently designated as “Next Best” for Nesting Roosting Foraging (NRF) habitat management for the northern spotted owl (Unit 1). There will also be thinning in Riparian Management Zones, following the same prescription as for the rest of the unit (which is actually more restrictive than a typical RFRS prescription). The stands are approximately 74-94 years old.

I conducted an initial field review of this proposal on 5/1/18 with John Van Hollebeke (DNR presales forester who was originally planning this proposal), and a subsequent field review was conducted on 5/9/19 after the proposal had been postponed and altered. The latter visit included Bryent Daugherty (current DNR presales forester for this proposal), Tyson Whiteid (acting Boulder Unit Forester), and Pete Hurd (region silviculturist). The purpose of these visits was to assess the stands for the potential to implement a habitat enhancement activity in the NRF Next Best stands, and to discuss prescription options. One more field visit was conducted on 6/3/19, accompanied by Bryent Daugherty, in order to verify marbled murrelet habitat delineation work that had been conducted for the proposal by John Van Hollebeke, Brynt Daugherty, Max Maeder, and Sam Woodson (who have all been trained to conduct such delineation).

Based on the site visits, consultation with the forester, and a GIS review, I have the following input:

- At the time of the initial field review, it was determined that a “thinning from below”, with some “skips and gaps” would likely be the most appropriate habitat enhancement prescription for the VDT stands, and that has indeed become the preferred approach since then. Four “skips” have been tagged out of the unit, including one that is approximately one acre in size, and two more that are approximately four acres in size. These were marked to protect a number of snags and concentrations of large down wood. There are 29 “gaps” that were relatively evenly distributed throughout the unit. These are all close to 0.3 acre in size, and were marked with pink paint.

- The unit does not contain suitable marbled murrelet habitat. There are six scattered individual platform trees (PFTs) within the unit. They are all “countable”, but considered to be of low quality in terms of potential nesting platforms, as they have developed as the result of either broken tops or forked tops. Therefore, no effort has been made to specifically protect these trees, though four out of six of them should remain on site simply by following the thinning prescription (based on species and diameter).
• Suitable marbled murrelet habitat does exist immediately adjacent and to the northeast of Unit 1. Because this habitat was previously identified but was not surveyed, it requires a buffer, but no timing restrictions. Since a 300-foot managed buffer is one of the options, the thinning prescription for the unit can be considered a similar (if not more conservative) treatment as that of a 300-foot managed buffer. Therefore, the buffer has not been marked on site.

• It is anticipated that some tailholds will be needed within the habitat block, so consultation has been conducted and mitigation measures will be implemented (see "Tailholds within Suitable Marbled Murrelet Habitat for Sky Rider VDT Timber Sale" for more details. Note: document confirmed

General Proposal Area

Following a GIS review of WDFW and DNR wildlife & habitat databases, it was determined:

• The nearest known occupied marbled murrelet site is located approximately 5.5 miles to the NNW of the proposal. Due to this distance, there is no need for mitigation measures for this site in association with the proposal.

• According to the most current Marbled Murrelet Long-Term Conservation Strategy (MM LTCS) GIS layers, the majority of the unit is in p-stage 0, with a portion of it in p-stage 0.25 (per Alternative H, the Preferred Alternative). There are no Special Habitat Areas proposed in the vicinity of the proposal.

• Several peregrine falcon nest sites have been known to be active on the Index Wall, located to the southeast of the proposal. The DNR is no longer required to mitigate for this species since its delisting, but I mention this because these sites previously had a management plan developed for them in association with the nearby Deer Wrap Timber Sale. It should be additionally noted that the sites are mapped approximately 3,390 feet and further to the southeast, which is beyond the distance that once required mitigation measures.

• There is mountain goat winter and transition range located just to the north of Unit 1, but there are no management implications for it in association with the proposal.

Besides those mentioned above, no other occurrences of habitats or species of concern are reported within or near the proposal area.

Thank you for the opportunity to review and provide input for this proposal.
August 22, 2018

TO: Bryent Daugherty, Unit Forester, Northwest Region
FROM: Jeff Keck, Forest Hydrologist, Forest Resources Division
John Jenkins, Hydrogeologist, Forest Resources Division

SUBJECT: Potential flow changes to the Town of Index Critical Aquifer Recharge area caused by the Sky Rider thinning

A 220 acre thinning is planned by DNR for a stand of 75 to 95 year old trees near the Town of Index. The purpose of the thinning is to improve old-growth like structure of the stand and promote owl habitat. Of the total area being thinned, roughly 24 acres and one 363 ft long spur road with a landing (road + landing area = 0.8 acres) are located within the 159 acre Critical Aquifer Recharge area to the City of Index Well as defined by Perkins, 2016. This memo discusses potential effects of the thinning and road construction on the Town of Index Critical Aquifer Recharge area. The harvest is located approximately 1 mile from the Index well at the closest point.

The Critical Aquifer Recharge area is underlain by a thick section of Pleistocene-age glacial drift. From the top of the deposit on Deer Flats (~1800 ft) to the elevation of the well (~880 ft), observed deposits within the drift include well sorted, unconsolidated coarse gravel and cobble deposits, thick beds of well sorted sand and silt, and occasionally thin bedded silt and clay deposits.

Overall aquifer permeability is relatively high given that the bulk of the sediments appear to be sand with variable silt and gravel. According to Town of Index staff (Perkins, 2016) flow from the Index well is relatively constant throughout the year. Given the thickness of the deposit over the well location and the lack of flow variability or response to precipitation events, flow from the Index Aquifer has characteristics of the base flow component of hillslope runoff. In other watersheds of the Pacific Northwest, steady and adequate base flow is crucial for the survival of many aquatic species including wild salmon and trout (Riley et al., 2009). Consequently, a number of published studies have examined how tree harvests and plantations affect base flow.

Moore et al., 2004 compared stand characteristics of a 40 year old plantation and a 450 year old stand of trees in the HJ Andrews forest to determine how stand age and composition affect stand level transpiration rates. They found that older stands of trees use less water than young stands. The difference in water use was attributed to tree age, a reduction in sapwood area (despite increases in total basal area) and changes in stand structure to include more shade tolerant tree species. Perry and Jones, 2016 used a paired basin study in the HJ Andrews to examine how tree plantations alter summer low flows (base flow). They found that detectable summer low flow decreases occur in basins in which the original old-growth forest was replaced by a tree plantations much larger than 8 ha.

Given that the 24 acres of thinning planned in the Critical Aquifer Recharge area will maintain the current age structure and potentially increase the number of shade tolerant trees in the stand, it is expected that transpiration rates will continue as is or slowly decrease as the remaining old trees age. Regarding the road construction, the area of forest converted to road is small a relative to the recharge area. This indicates that the proposed harvest will have very little change to the aquifer recharge budget. Therefore, we conclude that no changes in flow to the Index well will occur due to the thinning and road construction.
References


Riley, W. D., Maxwell, D. L., Pawson, M. G. and Ives, M. J. (2009), The effects of low summer flow on wild salmon (Salmo salar), trout (Salmo trutta) and grayling (Thymallus thymallus) in a small stream. *Freshwater Biology*, 54: 2581-2599
July 16, 2019

TO: Allen Estep, Assistant Division Manager, Forest Resources Division

THROUGH: Laurie Bergvall, NW Region State Lands Assistant

FROM: Lisa Egtvedt, Northwest Region Fish and Wildlife Biologist.

SUBJECT: Requesting permission for tailholds within suitable marbled murrelet habitat – “Sky Rider” VDT timber sale.

During the course of laying out the proposed Sky Rider variable density thinning (VDT) timber sale (located in Section 7 of Township 27 North, Range 10 East), a forester working for Cascade District determined that a preferable cable yarding design for Unit 1A would likely require the use of up to five tailholds. The potential tailholds would be located to the northeast, outside of the harvest unit. Some of the proposed tailholds may be located within a stand of previously-identified suitable marbled murrelet habitat, although it is feasible that some tailholds may be selected that are outside of the habitat block.

The potential tailhold trees within the habitat polygon are Douglas-fir trees that are approximately 18 to 30” dbh, in a dominant canopy position. Large stumps may also be used as tailholds, depending on location. It will not be possible to locate tailholds or cable corridors away from platform trees (per the current definition under the interim strategy for marbled murrelets in the North Puget Planning Unit), as the density of platform trees within this habitat block is too high and evenly-distributed. The contract will require that platform trees be avoided as tailhold trees, and that all tailholds must be approved by the Contract Administrator (to ensure that platform trees are avoided).

There is not likely to be any “line-whip” damage to any platform trees or other adjacent trees, due to the fact that it is anticipated that only guy lines will be needed within habitat block. The yarding system that is expected to be used is a static or standing skyline; therefore, the cable line within the suitable habitat will be located relatively close to the ground (not likely to be higher than 10 feet in the tailholds located within the habitat block). In addition, the remainder of the line will only go up/down at the beginning and end of the work day, or during road changes (i.e., the cable will not be moving up and down within the stand of habitat during yarding operations).

The habitat block is not located within 0.25 mile of an occupied murrelet site; the nearest known occupied site is located approximately 5.5 miles to the northwest. However, since this is previously-identified habitat that has not been surveyed for murrelets, the use of tailholds within the habitat block will require daily timing restrictions if conducted during the critical nesting season (April 1-August 31).
It is my opinion that this proposal represents a low likelihood of risk to the trees within the murrelet habitat block. As mentioned above, the cable within the habitat will not be attached to platform trees, nor will it be moving up and down during operations. The proposal also represents a low likelihood of risk to potential nesting murrelets, due to timing restrictions that will be implemented for harvest operations, if conducted during the critical nesting season.

In summary, it is proposed that as many as five (but possibly fewer) non-platform trees that are located within previously-identified suitable marbled murrelet habitat be rigged as tailhold trees for cable yarding of the adjacent Sky Rider VDT timber sale (Unit 1A). No tree removals or additional habitat modifications are anticipated with this proposal. Please contact me for any additional information needs, or sign below if you concur with the proposal as described above.

Allen Estep  
Assistant Division Manager, Forest Resources Division  
Date

Attachment (1)

c: Sky Rider Timber Sale File
FIGURE 1. Proposal to Locate Tailholds within Suitable Marbled Murrelet Habitat adjacent to the Sky Rider VDT Timber Sale, Unit 1A.

Sky Rider Unit 1A
Potential Tailholds in Adjacent Marbled Murrelet Habitat

Legend
- Sky Rider Units
- MM NPPU Baseline
- HAB TYPE
  - SUITABLE
  - UNSUITABLE
  - UNVERIFIED

Scale: 0 40 80 160 240 320 Feet

Page 3 of 3
Forest Practices Application/Notification
Notice of Decision

Decision
[ ] Notification  Operations shall not begin before the effective date.
[x] Approved  This Forest Practices Application is subject to the conditions listed below.
[ ] Disapproved  This Forest Practices Application is disapproved for the reasons listed below.
[ ] Closed  Applicant has withdrawn FPA/N.

FPA/N Classification
[ ] Class II  [ ] Class III  [ ] Class IVG  [x] Class IVS

Number of Years Granted on Multi-Year Request
[ ] 4 years  [ ] 5 years

Conditions on Approval / Reasons for Disapproval
No additional conditions.

FOR YOUR INFORMATION:
Please notify DNR Northwest Region Office (360-856-3500) 48 business hours before commencing timber harvest operations. Please provide the application number and legal description for your operation.

Issued By: Steven Huang
Title: Skykomish Forest Practice Forester
Copies to: [x] Landowner, Timber Owner and Operator.
Issued in person: [x] Landowner [ ] Timber Owner [ ] Operator
Region: Northwest
Date: 12/6/2019
**Appeal Information**

You have thirty (30) days to appeal this Decision and any related State Environmental Policy Act determinations to the Pollution Control Hearings Board in writing at the following addresses:

**Physical address:** 1111 Israel Rd. SW, Ste 301, Tumwater, WA 98501  
**Mailing address:** P.O. BOX 40903, OLYMPIA, WA 98504-0903

Information regarding the Pollution Control Hearings Board can be found at: [http://www.eluho.wa.gov/](http://www.eluho.wa.gov/)

At the same time you file an appeal with the Pollution Control Hearings Board, also send a copy of the appeal to the Department of Natural Resources' region office and the Office of the Attorney General at the following addresses:

Office of the Attorney General  
Natural Resources Division  
1125 Washington Street SE  
PO Box 40100  
Olympia, WA 98504-0100

And  
Department Of Natural Resources  
Northwest Region  
919 N Township S;  
Sedro-Woolley WA 98284

**Other Applicable Laws**

Operating as described in this application/notification does not ensure compliance with the Endangered Species Act, or other federal, state, or local laws.

**Transfer of Forest Practices Application/Notification (WAC 222-20-010)**

Use the “Notice of Transfer of Approved Forest Practices Application/Notification” form. This form is available at region offices and on the Forest Practices website: [http://www.dnr.wa.gov/businesspermits/forestpractices](http://www.dnr.wa.gov/businesspermits/forestpractices). Notify DNR of new Operators within 48 hours.

**Continuing Forest Land Obligations (RCW 76.09.060, RCW 76.09.070, RCW 76.09.390, and WAC 222-20-055)**

Obligations include reforestation, road maintenance and abandonment plans, conversions of forest land to non-forestry use and/or harvest strategies on perennial non-fish habitat (Type Np) waters in Eastern Washington.

Before the sale or transfer of land or perpetual timber rights subject to continuing forest land obligations, the seller must notify the buyer of such an obligation on a form titled “Notice of Continuing Forest Land Obligation”. The seller and buyer must both sign the “Notice of Continuing Forest Land Obligation” form and send it to the DNR Region Office for retention. This form is available at DNR region offices.

If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer’s costs related to continuing forest land obligations, including all legal costs and reasonable attorneys’ fees incurred by the buyer in enforcing the continuing forest land obligation against the seller.

Failure by the seller to send the required notice to the DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forest land obligation prior to sale.

**DNR affidavit of mailing:**

On this day ______________, I placed in the United States mail at ______________, WA, postage paid, a true and accurate copy of this document. Notice of Decision FPA # ______________

L Utgard  
(Printed name)  
(Signature)
Revisions to FPA/N ___2817265

<table>
<thead>
<tr>
<th>DATE</th>
<th>DOCUMENT</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>5/22/2020</td>
<td>Transfer Form</td>
<td>Change of Timber Owner &amp; Operator</td>
</tr>
<tr>
<td>5/22/2020</td>
<td>Transfer Form</td>
<td>Change of operator</td>
</tr>
</tbody>
</table>
Forest Practices Application/Notification

NOTICE OF TRANSFER

I/we transfer my/our rights, privileges, and obligations under this approved Forest Practices Application or Notification. I/we affirm that the information contained below is true and agree to comply with the rules authorized by the Forest Practices Act and be bound by all conditions on the approved application or notification.

30-997430 SKY RIDER VDT VRH

FPA/N Number: 2817265          Section(s): 12, 7, 18          Township: 27N          Range: 09, 10E

Original Landowner (Signature):  

Original Landowner (Printed):  COURTNEY COLEMAN  

Date: 5/6/20

<table>
<thead>
<tr>
<th>New Operator – Complete this section only if you are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Changing an operator for:</td>
</tr>
<tr>
<td>□ Adding an operator for:</td>
</tr>
<tr>
<td>□ Road construction</td>
</tr>
<tr>
<td>□ Timber harvest</td>
</tr>
<tr>
<td>□ Aerial spray</td>
</tr>
</tbody>
</table>

Legal Name of New Operator: (Print)  SIERRA PACIFIC INDUSTRIES

Phone: 360-424-7619

Email:

New Operator Signature:  

Date: 3/5/20

New Landowner – Complete this section only if you are transferring your FPA to a new landowner

□ No  □ Yes  Are you a small forest landowner per RCW 76.09.450 (if yes, continue to question below)

□ No  □ Yes  Is your entire proposed harvest area on a single contiguous ownership consisting of one or more parcel(s)?

Legal Name of New Landowner: (Print)

Phone:

Email:

New Landowner Signature:

Date:

New Timber Owner – Complete this section only if you are transferring your timber rights

Legal Name of Timber Owner: (Print)  SIERRA PACIFIC INDUSTRIES

Phone: 360-424-7619

Email:

Forest Tax Reporting Account Number: (Contact Dept. of Revenue at: 1-800-548-8829)

800 059 489

New Timber Owner Signature:  

Date: 3/5/20

Received by:  
(DNR Forest Practices Staff Signature)  11/01/2017

Date: 5/30/20
Forest Practices Application/Notification
NOTICE OF TRANSFER

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FPA/N Number: 2817265  Section(s): 1/12/18  Township: 27N  Range: 9/10E

Original Landowner (Signature): [Signature]
Original Landowner (Printed): [Printed Name]  Date: 5/6/20

New Operator – Complete this section only if you are:
☑ Changing an operator for: ☐ Road construction  ☐ Timber harvest  ☐ Aerial spray
☐ Adding an operator for:  ☐ Road construction  ☐ Timber harvest  ☐ Aerial spray

Legal Name of New Operator: (Print)  Mailing Address:
Nielsen Bros, Inc.
Phone: 360-671-8078  100 Pine St
Email: david.nielsen@comcast.net  Bellingham, WA 98225
New Operator Signature: [Signature]  Date: 4/14/20

New Landowner – Complete this section only if you are transferring your FPA to a new landowner
☐ No  ☐ Yes  Are you a small forest landowner per RCW 76.09.450 (if yes, continue to question below)
☐ No  ☐ Yes  Is your entire proposed harvest area on a single contiguous ownership consisting of one or more parcel(s)?

Legal Name of New Landowner: (Print)  Mailing Address:
Phone:  Email:
New Landowner Signature:  Date:

New Timber Owner – Complete this section only if you are transferring your timber rights
Legal Name of Timber Owner: (Print)  Mailing Address:
Phone:  Email:
Forest Tax Reporting Account Number: (Contact Dept. of Revenue at: 1-800-548-8829)

New Timber Owner Signature:  Date:

☒ Received by: [Signature]  Date: 5/6/20

(DNR Forest Practices Staff Signature)  11/01/2017
<table>
<thead>
<tr>
<th>DATE</th>
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<tr>
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NOTICE OF TRANSFER

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SKYL RIDE

FPA/N Number: 2817265          Section(s): 1/12/18          Township: 27N          Range: 9/10E

Original Landowner (Signature):  

Original Landowner (Printed):  CORTNEY COLEMAN  Date: 6/30/2020

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<tr>
<td>☑ Aerial spray</td>
</tr>
</tbody>
</table>

Legal Name of New Operator: Skagit Log & Construction Inc.

Mailing Address: 5788 Schornbush Road
Deming, WA 98244

Phone: 360-708-5600

Email: linctorgerson@aol.com

New Operator Signature:  

Date: 6/17/20

<table>
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<tr>
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Legal Name of New Landowner:  

Mailing Address:  

Phone:  

Email:  

New Landowner Signature:  

Date:  

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| Legal Name of Timber Owner:  

Mailing Address:  

Phone:  

Email:  

Forest Tax Reporting Account Number: (Contact Dept. of Revenue at: 1-800-548-8829)

New Timber Owner Signature:  

Date:  

☑ Received by:  

(DNR Forest Practices Staff Signature)  11/01/2017

Date: 7/2/20