LEWIS RIVER TERRESTRIAL COORDINATION COMMITTEE

Facilitator: KENDEL EMMERSON
503-813-6040; CELL 509-774-8102

Location: Online Teams Meeting

Date: Wednesday February 8, 2023

Time: 9:00 AM –11:00 AM

Agenda Items

9:00 a.m.	Welcome, ➢ Review and Accept Agenda ➢ Review and Accept 2/8/2023 Meeting Notes
9:10 a.m.	Public Comment Period
9:15 a.m.	Yale Saddle Dam Seismic Remediation Mitigation Memo
9:45 a.m.	PacifiCorp Lewis River Annual Plan and Report Update
10:00 a.m.	Cowlitz PUD Lewis River Annual Plan and Report Update
10:15 a.m.	Moss Cave Land Acquisition Update (Confidential)
10:30 a.m.	Project Updates ➢ Great Blue Heron February Survey ➢ WDFW Bat and Bridge Survey ➢ Cresap Campground Project progress
10:45 a.m.	Next Meeting's Agenda **Note: all meeting notes and the meeting schedule can be located at:** https://www.pacificorp.com/energy/hydro/lewis-river/acc-tcc.html
11:00 a.m.	Meeting adjourns

Microsoft Teams meeting

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Meeting Notes
Lewis River License Implementation
Terrestrial Coordination Committee (TCC) Meeting
March 8, 2023
Conference Call

TCC Representatives Present: (8)
Kendel Emmerson, PacifiCorp
Summer Peterman, PacifiCorp
Amanda Farrar, Cowlitz PUD
Erik White, Cowlitz Tribe
Peggy Miller, WDFW
Eric Holman, WDFW
Bill Richardson, Rocky Mountain Elk Foundation
Jeff Garnett, USFWS

Guests: (2)
Sarah Montgomery, Anchor QEA (note-taker for PacifiCorp)
Larissa Rohrbach, Anchor QEA (note-taker for PacifiCorp)

Calendar:

March 8, 2023	TCC Meeting	Teams Call

Assignments for March 8, 2023	**Status**
Emmerson: Provide the Cougar Creek culvert project permit package to the TCC.	**In progress**
Emmerson: Revise and redistribute the Saddle Dam Mitigation Memo for TCC final approval.	**Complete**
Emmerson: Provide contact information for Clark County noxious weed control staff to Amanda Farrar.	**In progress**

Assignments for February 8, 2023	**Status**
Emmerson: Finalize and distribute the final Cresap Campground Mitigation Memo.	**In progress**
Peterman: Conduct additional public trail use observations near proposed Saddle Dam (MU10) trail location before and after parks open in 2023 for comparison with early 2023 data.	**In progress**

Assignments for December 14, 2022	**Status**
Emmerson: Update the tree tally information and finalize the Saddle Dam Mitigation Memo.	**Complete.**
Emmerson: Send the Moss Cave appraisal to the TCC members by request.	**Complete**
Miller and Peterman: Coordinate on WDFW's oak specialist providing feedback on the proposed plantings at Woodland Release Ponds site.	**Complete**

Assignments for May 11, 2022	**Status**

Emmerson: Make a tracking sheet for 10.3.3 funding disbursements and include it in the 2022 TCC Annual Report.	**In progress**

Assignments for December 8, 2021	**Status**
Emmerson: Discuss potential WHMP disturbance impacts with permitting staff for the Cougar Creek highway project.	**In progress**

Assignments for January 13, 2021	**Status**
Emmerson: Provide a list of past timber harvest areas that have been within the WHMP buffer, associated TCC meeting notes, and reference to the WHMP language.	**In Progress**

Kendel Emmerson (PacifiCorp) called the meeting to order at 9:01 am. Emmerson reviewed the February 8, 2023, notes, and no comments were received. Emmerson asked if any TCC representatives would like more time to review the notes; no additional time was requested.

The TCC approved the February 8, 2023 meeting notes.

Public Comment Period
None.

Saddle Dam Seismic Remediation Mitigation Memorandum
Emmerson shared the Revised Saddle Dam Mitigation Memorandum, which was shared with the TCC via email. She said the drawings are available for reference on PacifiCorp's website but are not included in the memo. The entire Saddle Dam project area was included in the analysis for the memo even though the memo only quantifies mitigation for the impacts to WHMP lands. She noted that the revised memo includes a summary of TCC meetings where the mitigation approach was discussed. In summary, 1.23 acres will be permanently excluded from the WHMP; 450 trees will be removed; two years of construction will cause disturbance to WHMP lands; and there is a loss of annual WHMP budget due to the excluded lands. Table 2 summarizes the land valuation and permanent impacts. Recent noise disturbance research out of the USFWS Arcata office was used to determine impacts to sensitive receptors, as demonstrated in the memo by the attenuation distances based on equipment type. Emmerson summarized the vegetation cover types that will be impacted by the project and the valuation for those impacts. She discussed the tree planting locations and potential screening areas. She anticipates there will be significant tree planting effort in 2024. Overall, the total mitigation cost is $232,171.

Peggy Miller asked Emmerson to clarify impacts to the fields and meadows at Saddle Dam Park in the memo. As written, it is unclear what areas are recreational land and what are WHMP land when impacts to recreational facilities are being discussed. Emmerson said she will make that revision.

Miller asked how long it will take for the fields to germinate and function as forage habitat, and whether that additional time should be accounted for in the impacts? Emmerson said it depends on when construction is complete, but she anticipates that if they finish construction in February and seed the area in April, the fields will provide forage the following winter. However, if construction is not complete until September, for instance, forage would not be available that winter. Miller

summarized it would take a maximum of one year to achieve forage. Emmerson said the area will also be hydroseeded, which can germinate very quickly when done correctly. Forage could be available in as little as three months.

Eric Holman thanked Emmerson for her work on the mitigation calculations and memo. He said the impacts and mitigation are clearer now. He asked if the county would provide any direction on the tree replacement requirements. Emmerson said Cowlitz County is familiar with the WHMP—they will specify the mitigation ratio (3:1) then let the applicant decide on the species as long as it is native. She said the replacement trees do not even have to be installed in Cowlitz County as long as they are within the wildlife program area. Emmerson said these mitigation trees may be needed in some riparian areas, or for upcoming trail screening or harvest screening. PacifiCorp is discussing these locations as well as considering areas for volunteer planting events. Miller asked what type of tree the replacement cost was based on. Emmerson said the cost is based on the tree that is being removed. Size and market value are considered. Unfortunately, tree valuations do not incorporate habitat value.

Bill Richardson asked what the final available funds will be after planting and miscellaneous restoration work is complete. Emmerson said she will provide an update later in the meeting on total budget status including incoming mitigation funds. For this project, the tree planting work will cost about $13,000, so there will be approximately $220,000 available for other uses. Richardson suggested clarifying in the memo how the funds will be allocated. Emmerson said she will add the tree planting cost into the memo (which includes labor, sourcing, spraying, tubing, etc.) but will not specify how the funds will otherwise be allocated, as that is outside the scope of the memo and not yet determined. Emmerson also clarified that seed mix is included in the project budget so that is not a separate cost. Holman asked whether the TCC could suggest additional forage species like clover, vetch, and a wider variety of grasses. Emmerson said the project manager will defer to the TCC on the seed mix, then provide it to the contractor, so yes, she plans to specify a high-quality forage seed mix.

Jeff Garnett joined the meeting and Emmerson summarized the TCC's discussion on the memo.

There were no further questions or comments. Emmerson will send a revised version of the memo to the TCC, which is expected to be **approved on March 30 if no additional comments are received during the 30-day review period.**

PacifiCorp Lewis River Annual Plan and Report Update

Emmerson said PacifiCorp has been preparing the WHMP Annual Report for 2022 and Plan for 2023. They are planning on providing these for review in April. She reviewed a few main points and updates with the TCC, as follows:

- Seedling maintenance goals were achieved.
- Invasive species control has progressed from 57% in 2021 to 58% in 2022.
- Pre-commercial thinning has achieved more than the target amount.
- Good progress was made in forestry in 2022.
- The budget is in good condition. Though it is challenging to determine the total budget amount, and more input from the finance team regarding inflation adjustments is needed, the program came in under budget in 2022 and is in good shape for 2023.

For the 2023 Plan, Summer Peterman said PacifiCorp will be working to improve soil conditions in the upland Hemlock Meadows in Unit 39 (Big Hemlock, Little Hemlock and No Hemlock, named for the single hemlocks, or none, in each meadow). Amending with ash is one idea to improve the soil conditions. Though these upland meadows are not actively managed, she thinks it would be beneficial to have the soil tested in each meadow to determine whether adding ash could be beneficial. Ash is available from the burning of large woody debris piles at Swift Reservoir. PacifiCorp is currently researching best locations to disposed of and is starting to cause erosion where it is currently stored. Bill Richardson said in theory he supports this idea because it could help the meadows. Burning meadows or adding biochar is generally beneficial. He agreed it will be important to do soil testing and noted that conifers prefer more acidic soil. Peterman confirmed there are only two hemlock trees, and they would consider not amending the soil near those trees. The area was seeded about four years ago (the meadows were acquired with the Fruit Growers acquisition) the seeding did not take well. Holman agreed with Richardson—conceptually this is a good idea and soil testing is a great idea. He suggested using some of the extra funds that might be available in the budget to do more soil testing and meadow soil amendments across the basin (either ash or other treatments). He asked if the ash is selected as an appropriate treatment based on the soil testing, what is an efficient treatment? Would it be hauled all at once? He suggested considering efficiency and economy before starting to haul materials. Peterman agreed and said the WHMP budget would not have to cover transport, as PacifiCorp is already looking to move the ash. Holman suggested considering the distribution rate, time of year, and access to the meadow. Peterman said she will consider these aspects as well as potentially tilling the soil and evaluate the costs.

Miller suggested checking with Ecology to make sure there would not be concern about erosion from ash placement. Emmerson confirmed the meadows are more than 500 feet from any streams or wetlands. Miller agreed with the approach to test the soil and determine the nutrient value of the ash. Peterman said from her understanding and research, the natural driftwood has good soil amendment properties, but she will confirm this with testing and provide the results to the TCC. Emmerson noted from the distribution standpoint, there is a spent quarry in the area where the ash could be stockpiled.

Emmerson also alerted the TCC to a new section of the Annual Report that provides a summary of the 10.3.3 funding that has been disbursed. While putting this table together, she worked to clean up some of the accounting of the funds and rediscovered a project form that should be used moving forward. The form provides a way to consistently describe the project details and the TCC outcome. Emmerson summarized that the TCC is well under the $500,000 funding limit. Miller asked how projects that "roll off" the funding limit will be notated. Emmerson said she can add a line showing which projects fall within the 10-year funding window for the TCC to track. She also emphasized that due to the available funding, the TCC is encouraged to reach out to potential applicants like county noxious weed staff.

Cowlitz PUD Lewis River Annual Plan and Report Update

Amanda Farrar shared Cowlitz PUD's (Year 15) Annual Plan Budget for WHMP lands. She said these numbers will be finalized in the annual plan. At the draft stage, there is a carryover of nearly $25,000 for the fund, plus the annual payment of $21,000. In the budget, Farrar is maintaining a $5,000 administrative fee which covers inspections and invasive plant control. Unfortunately, she said Cowlitz PUD's interlocal agreement with Skamania County cannot be renewed, as the county

is focusing more on their county areas. She anticipates the invasive plant control costs to increase in 2023 and is currently working to get a new contractor on board to complete this task. She noted that the Devil's Backbone area did not need to be reseeded in 2022 but may be needed in 2023. She estimated the total budget amount of $46,000 with a remaining budget of $30,000.

Eric Holman suggested checking with Cowlitz County and Clark County for invasive species control work. Farrar said she discussed this with Cowlitz County staff; they cannot do it either but provided a list of contractors to consider. She has not reached out to Clark County yet. Emmerson will provide contact information for Clark County noxious weed control staff.

Farrar said she hopes to distribute the Draft Plan by the end of the week for TCC review. She summarized that the plan includes funds to maintain elk forage plots but is otherwise saving money for future forestry actions.

Emmerson said on an unrelated note, Clark County staff recently reached out to PacifiCorp property staff because they are conducting surveys for milfoil which is present in Merwin Reservoir. The type of milfoil present in the reservoir is a hybrid, not the Class A noxious weed variable leaf milfoil, but Clark County is working to add the hybrid to the Class A list too. Emmerson said many FERC licenses have noxious weed management components, but PacifiCorp's obligations are unique because noxious weeds (including aquatic ones) are covered in the WHMP objectives. However, funds for noxious weed eradication does not come out of the WHMP budget because the reservoirs are not within the WHMP area. Emmerson will continue coordinating with Clark County to conduct surveys and work to eradicate the milfoil. She said she is particularly interested in its presence at Camper's Hideaway – Miller agreed and noted there is a new dock proposed for construction in Camper's Hideaway. She is concerned the construction could spread the milfoil and suggested PacifiCorp consider this when considering the shoreline permit and permit conditions. Emmerson said she would like to get this area treated, but one of the preferred herbicides is highly restricted, so finding a contractor for the work is challenging. She said she will communicate this concern to PacifiCorp's permitting staff and keep the TCC updated on her coordination with Clark County. She noted that the milfoil generally grows in shallow water (less than 20 feet), and Merwin is a deep reservoir in most places. She said it would be a much bigger issue if the milfoil spread to Speelyai Bay in Merwin Reservoir.

Moss Cave Acquisition
Moss Cave Acquisition – Due to confidential information details of this portion of the meeting have been omitted from these meeting notes.

Project Updates

Great Blue Heron February Survey
Emmerson said February surveys of great blue herons in the WHMP area yielded two intact nests and one blown out nest approximately 50 feet apart. She said the nest appears to be occupied with a pair and she hopes to have more details to share with the TCC over the next few surveys.

WDFW Bat and Bridge Survey
Emmerson noted WDFW staff have recently expanded their search for bats in the Lewis River basin. On March 23, Emmerson, Peterman, and WDFW staff will be visiting bridges in the WHMP

area to evaluate for bat presence. Though some bridges may still be inaccessible due to snow and others due to safety, she plans to have data to share with the TCC in April on this survey effort.

Cresap Campground Project Update
Emmerson said the Cresap Campground Project is nearly ready to go to construction. However, the area is still covered in snow, so the project team is waiting for a period of favorable weather to begin work. She reminded the TCC that they reviewed the Cresap Campground Mitigation Memorandum in February and agreed to change the mitigation ratio from 1:1 to 1.5:1. The total mitigation value has increased to approximately $12,000. This compensatory mitigation will be added to the mitigation fund, and the final memorandum will be attached to the February meeting notes. Emmerson noted she provided a grass seed mix to the project team but will revise the mix before they start seeding. She is considering early season orchard grass that can seed before they start mowing, adding clover to the mix, with a focus on an early season mix that can handle trampling and mowing. She will provide another project update in April.

Cougar Creek Culvert Project
Emmerson said Tom Cole (WSDOT) submitted the permit package for the Cougar Creek culvert project. Emmerson said she reviewed the materials. She noted WSDOT has Programmatic Biological Opinions from the Services which provide Endangered Species Act coverage for impacts to bull trout and other species. She said the U.S. Army Corps of Engineers permit will be a Nationwide 13. She asked for more details on how the stream will be accessed. Emmerson noted the start date is June 2023 and it is a relatively short duration project. Emmerson is working on permits for access to PacifiCorp land and impacts to WHMP areas, so PacifiCorp and WSDOT will coordinate on planting and restoration needs in the project area. Emmerson will forward the permit package to the TCC upon request.

Administrative
Sarah Montgomery introduced Larissa Rohrbach to the TCC, who will be taking over her duties supporting various PacifiCorp projects. Rohrbach and Emmerson will coordinate TCC note-taking at future meetings.

Agenda items for April 12, 2023
- Review March 8, 2023, Meeting Notes
- Bridge Surveys for Bats in WHMP Areas
- WHMP Annual Report – Draft
- WHMP Annual Plan – Draft
- 2023 Budget Update
- Cresap Campground Construction Update
- Study/Work Product Updates
- Upcoming field visits to timber harvest areas and high country (May/June)

Next Scheduled Meeting

April 12, 2023
Merwin Hydro Control/Teams

Attachments:

- March 8, 2023, Meeting Agenda
- Revised Saddle Dam Mitigation Memorandum
- Cresap Campground Mitigation Memorandum

Adjourn Meeting 10:31 a.m.

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Memorandum

To:	Eric Hansen Yale Saddle Dam Seismic Remediation Project Manager, PacifiCorp
From:	Kendel Emmerson, Principal Scientist, PacifiCorp
CC:	Terrestrial Coordination Committee (TCC)
Date:	3/8/2023
Re:	Terrestrial Coordination Committee decision on mitigation for Lewis River Wildlife Habitat Management Plan lands for the proposed Yale Saddle Dam Seismic Remediation Project

Proposed Project

Yale Saddle Dam was constructed in 1951-1952 and is an earthfill embankment dam with a crest elevation of 503 feet. Several geotechnical investigations have since been conducted to evaluate potential project expansion, filter compatibility, and liquefaction potential. The most recent investigations and analyses, conducted in 2020 and 2021, identified seismic stability concerns with the dam embankment involving the potential for liquefaction of foundation materials. To address the seismic concerns, PacifiCorp will complete a Yale Saddle Dam Seismic Remediation Project (Project) including the following:

- filter buttress constructed on the downstream face of the dam
- a shallow drainage collection ditch at the downstream dam toe discharging to a central drainage swale
- the placement of additional riprap on the upstream side of the dam to augment existing riprap and add new riprap in unprotected areas
- modifications to Saddle Dam Park recreational facilities

The following is a description of the proposed actions. Detailed drawings of the proposed actions are available in the Yale Hydroelectric Project Draft Application for License Volume II – Exhibit E, Environmental Report Attachment A (PacifiCorp 2022)

Filter Buttress on Downstream Face of Dam

The filter buttress on the downstream face of the dam will consist of excavating the existing embankment on the downstream face of the dam to create a 3:1 slope, placing the filter buttress materials, excavating the toe ditch and central drainage swale, placing riprap in the toe ditch and upstream end of the central drainage swale, placing topsoil along the remaining length of the central drainage swale, and hydroseeding.

The filter buttress materials will be imported from an existing off-site borrow source and will either be stockpiled on site or transported directly to the embankment to be placed as fill. The filter and cover materials will be placed and compacted concurrently in horizontal lifts from the foundation to the dam crest.

Central Drainage Swale

The central drainage swale will be sloped at a one percent grade to convey drainage downstream and away from the dam embankment. The central drainage swale will include riprap armament where the toe ditch from each side of the embankment discharges into it. The swale will be finished downstream with topsoil and seeded to create a grassy swale. The central drainage swale will be shaped as a trapezoid with an 8-foot bottom dimension and 3H:1V side slopes to facilitate mowing. The grassy swale will discharge to the surface at a daylight point downstream in the Saddle Dam Farm.

Riprap Placement on Upstream Side of Dam

Riprap will be added to the upstream side of the dam from the toe of the embankment to near the crest to create a minimum 2-foot layer including existing riprap. Approximately 11,200 cubic yards of riprap will be placed. The new riprap will be blended to create a smooth transition to the existing rehabilitated riprap area on the north bank of the dam. Upstream riprap placement will be completed by accessing the upstream side of the embankment using the existing boat ramp. A riprap bedding layer will be placed along the toe of the embankment which will also allow for tracked equipment to navigate the toe of the slope while placing riprap materials.

Saddle Dam Park Modifications

Modifications to Saddle Dam Park recreational facilities to relocate existing facilities and in accordance with Federal Energy Regulatory Commission (FERC) license criteria due to new toe of the embankment extending over the existing facilities footprint. Demolition and site preparation activities will include removing existing recreational facilities such as the America Disabilities Act (ADA) ramp and fences etc., that will later be replaced in kind.

Saddle Dam Farm Modifications

Fields and meadows within Saddle Dam Farm that would be used for temporary construction access and laydown areas would be restored following completion of the Project. The site reclamation will include removing temporary geotextile and road base course from construction access roads and laydown areas, and discing the underlying topsoil, or placing stockpiled topsoil and hydroseeding the site to provide and maintain high-quality forage habitat for elk.Construction equipment for the entire Project is expected to include conventional earth moving equipment such as haul trucks, roller compactors, motor graders, front-end loaders, and excavators.

This Project will result in both permanent and temporary impacts to Lewis River Wildlife Habitat Mitigation Lands (WHMP) lands (PacifiCorp 2008). Lewis River Settlement Agreement (SA)

Section 10.8.5.5 Mitigation for Impacts on Wildlife Habitat addresses mitigation requirements for impacts to WHMP lands (PacifiCorp et al. 2004):

> *"If PacifiCorp proposes to take action on its Interests in Land that are managed under its WHMP, other than those actions specifically prescribed under this Agreement, and that action makes those lands no longer available for wildlife habitat, PacifiCorp shall consult with the TCC to determine if any mitigation is necessary. If Cowlitz PUD* [Public Utility District] *proposes to take action on its Interests in Land managed under its WHMP, other than those actions specifically prescribed under this Agreement, and that action makes those lands no longer available for wildlife habitat, Cowlitz PUD shall consult with the TCC* [Terrestrial Coordination Committee] *to determine if any mitigation is necessary. If the TCC determines that mitigation is necessary, then whichever Licensee is responsible in the specific case shall implement that mitigation. Mitigation shall not be required for land parcels specifically identified in the WHMPs as having wildlife habitat as the secondary use."*

The rip rap placement upstream of Saddle Dam and Saddle Dam Park modifications will occur on lands excluded from WHMP lands; therefore, are not included in the evaluation for permanent impacts to WHMP lands. However, the temporary WHMP land impacts expected from wildlife disturbance evaluated the entire Project and did not distinguish between the individual actions. Attachment A provide detailed maps showing the WHMP lands, Secondary Use Management Area on Saddle Dam, and the excluded lands in Saddle Dam Park.

Terrestrial Coordination Committee and Lewis River Wildlife Habitat Management Lands

The SA Section 10.8 created the Terrestrial Coordination Committee (TCC) to oversee the implementation of the terrestrial measures in the SA; including coordinating and consulting on the development and implementation of plans, implementation of measures, and preparation of reports; reviewing information; and in specific cases, making decisions and granting approvals (Section 14.1). The primary purpose of the TCC is to provide a forum for coordinating between the Licensees and the other Parties on implementation of the protection, mitigation, and enhancement measures for terrestrial resources included in Section 10 of the SA.

The SA Section 10.8 directs PacifiCorp, in Consultation with the TCC, to develop a Wildlife Habitat Management Plan (WHMP) for their respective lands designated in SA Exhibit A. The Lewis River Settlement Agreement (SA) Section 10.8 provides the following definition on the WHMP:

> *"The purpose of the WHMPs shall be to benefit a broad range of fish, wildlife, and native plant species, including, but not limited to, large and small game, amphibians, bats, forest raptors, neo-tropical birds, and culturally significant native plants."*

The TCC has authority to approve actions on WHMP lands and under SA Section 10.8.5.5

may require mitigation

Terrestrial Coordination Committee Consultation

From the onset of the Project, it was clear that impacts to WHMP lands would be unavoidable. As a result, the TCC was informed of progress during the scoping, design, and permitting process. The following are the TCC meetings that included discussions on the Project. All meeting notes are available for review at the following link:

https://www.pacificorp.com/energy/hydro/lewis-river/acc-tcc.html

Meeting Date	Agenda Item
February 12, 2020	Introduction to project purpose and need
June 10, 2020	Proposed exploration drilling and need to search for local rock sources near Saddle Dam.
July 8, 2020	Proposed public access closure and provide update on exploration drilling.
September 8, 2020	Update on exploration drilling
October 14, 2020	Update on exploration drilling
December 9, 2020	Update on exploration drilling
January 13, 2021	TCC approved exploration drilling sites on WHMP lands
June 9, 2021	Proposed Saddle Dam Rehabilitation Borrow Pit and Road Improvements
July 14,2021	Discussed the Saddle Dam Rehabilitation proposed borrow pit location, road improvements, and tree removal
September 8, 2021	Discuss mitigation strategy for the proposed Saddle Dam Rehabilitation Borrow Pit
October 13, 2021	Reviewed and approved the Yale Saddle Dam Seismic Remediation Project proposed rock quarry record of decision
February 9, 2022	Discussed potential impacts to WHMP lands and proposed construction schedule
March 9, 2022	Discussed mitigation strategy for tree removal
April 13, 2022	Discussed mitigation strategy for tree removal.
May 11, 2022	Saddle Dam site visit with Project Manager to discuss the Saddle Dam Project
June 8, 2022	Discussed the expected budget loss due to permanent loss of WHMP lands
March 8, 2023	Review Mitigation Memo and Accept

Mitigation Strategy

In 2011 the TCC developed a mitigation strategy that identified replacement values for each vegetation cover type on WHMP lands. The values were based on the definitions and habitat types in the Oregon Department of Fish and Wildlife Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000) in the table below.

Table 1: Fish and Wildlife Habitat Mitigation Policy

Habitat Type	**Definitions**	**Replacement Value** (Replacement Acres per acre impacted)
Irreplaceable	Unable to replace or recreate, essential or primary habitat for species, and locally rare (e.g., forested wetlands, old-growth)	3:1
Essential	Difficult to replace or recreate, essential or primary habitat for species, and locally uncommon (e.g., mature conifer forests, oak woodland)	2.5:1
Limited	Able to recreate or replace, primary habitat for species, and locally uncommon (e.g., shrubland, meadows). Habitat is actively or has been actively managed in the last 5 years (e.g., Pole thinned). Habitat is a Priority Habitat and Species (PHS) habitat.	2:1
Important	Able to recreate or replace, primary habitat for species, and locally common (e.g., mid-successional forests, pastures)	1.5:1
Potential	Able to restore or natural succession will provide habitat (e.g., clear cut forest)	1:1
Potential	Difficult to restore and natural succession will not provide habitat, and locally common (e.g., developed lands)	1:1

WHMP Land Impacts

Only a portion of the Project will occur on WHMP lands. Saddle Dam Park is excluded from WHMP lands and most of Saddle Dam is Secondary Use Management Area (Attachment A). The following WHMP land impacts are anticipated and will be discussed in detail:

- The extended Saddle Dam footprint will result in a loss of 1.23 acres of WHMP lands and would be permanently removed from the WHMP lands.
- The WHMP annual budget is based on a per acre cost, so the loss of WHMP lands will result in an overall reduction of budget.
- The construction will take up to 2 years and it assumed it will disturb and preclude wildlife from WHMP lands within 300-m of the roads used for construction transportation and 500-m of the Saddle Dam Construction site.
- An expected 140 to 150 trees to be removed.

WHMP Land Valuation and WHMP Permanent Impacts

The best valuation available for this area is the property purchased in 2010 with funds under SA Section 10.1 Yale Land Acquisition and Habitat Protection Fund. The land acquisition includes 490 acres on 5 parcels. The 2010 purchase price was the appraised price of $5,000,000 ($10,204 per acre).

In August 2021 PacifiCorp received a broker opinion for the land value for parcel in the vicinity of Saddle Dam (Cowlitz County tax parcel ER3001001). The opinion provided a value range of $250,000- $275,000 for 24.8 acres. This equals to $10,080.65 to $11,088.71 per acre. To determine a per acre price for this area all three values (broker opinion low value, broker opinion high value, and original price) were averaged: $10,204.08+$10,080.65+$11,088.71=$31,373.44/3= **$10,457.81** It is assumed that this best available information and is applicable to these WHMP land acres.

Every acre of WHMP lands has been assigned a vegetation cover type (VCT) and each VCT has been assigned a replacement value based on the mitigation strategy in Table 1. The table below shows the VCT that will be permanently removed from WHMP lands due to the expanded footprint of Saddle Dam and total value for the loss.

Table 2: Permanent Impacts from Construction

Vegetation Cover Type	Vegetation Cover Type Code	Acres	Replacement Value	Price Per Acre	Total Value for Permanent WHMP loss
Agriculture	AG	0.81	1:1	$10,457.81	$8,470.83
Project Facility	PF	0.23	1:1	$10,457.81	$2,405.30
Dry Meadow/ Grassland	MD	0.14	2:1	$10,457.81	$2,928.19
Upland Mix Conifer/ Deciduous Forest	UM	0.05	1.5:1	$10,457.81	$784.34
Total		**1.23**			**$14,588.64**

Overall impact to WHMP Budget

The annual WHMP budget is based on a $27 dollars per acre from 2008 adjusted for inflation. To date this has been average rate of change $0.78 per year. It assumed the loss of 1.23 acres from 2023 to 2058 will total $2,436.63.

Temporary WHMP Impacts

The construction and rock material transportation will be high impact noise that is expected to cause considerable disturbance to wildlife within the area. Therefore, to determine the impacts from disturbance to wildlife the following analysis was completed.

Ambient Conditions

The first step in determining the effects of construction noise on wildlife is to determine the baseline noise or ambient conditions for the area. It is assumed that the area surrounding the Project area is 35 dB on an average day due to the overall low natural background sound level. The area lacks swift moving rivers and streams, has generally calm winds, and it is isolated from highway or other human produced sounds outside of the recreation season (USFWS 2020).

Wildlife Disturbance Sound Level Threshold

The United States Fish and Wildlife Service (USFWS) has completed extensive research and analysis on construction noise and disturbance to northern spotted owls and marbled murrelet. The USFWS has defined the Above-Existing threshold as (USFWS 2020):

> "*the species may react to elevated sounds in relation to all existing sound sources. We determined this elevated decibel difference to be a 25 decibel difference between all existing noise (i.e., natural background ambient, line and point sound sources) and only the action-generated sound."*

This is the dB level that is considered to cause disturbance to northern spotted owls and marbled murrelets. For the purposes of this document, it is assumed that same threshold applies to all the wildlife species on WHMP lands. Therefore, any noise level that is greater than 60 dB (Ambient conditions + above-existing threshold) will cause disturbance.

Construction Noise Levels

Table 3 provides the sound levels for construction equipment and actions associated with the Saddle Dam construction.

Table 3: Sound Levels for Construction Equipment[1]

Construction Equipment	Reported Decibel level @50 ft.	Sound Level Category[3]
Front-end loader	87	High
Motor graders	85	High
Roller compactors	83	High
Dump Truck	84	High
Excavator (Large Diesel Engine)	86	High
Combined Equipment[3]	95	High

[1]Source: USFWS 2020 Appendix B Table 2
[2] Doubling equivalents for sound sources results in a 3 dB increase over one source. For example, if two large chain saws will be operating together it will 86 dB + 3 dB= 89 dB (USFWS 2020).
[3] These sound level categories correlate to the sound levels referenced in USFWS 2020 Appendix B Table 1

Construction Sound Attenuation

Sound attenuation (i.e., the gradual decline in sound as it moves away from the source) can be calculated by know the dB level of the sound source, the distance it was measured, and distance to the source detecting the sound.

Table 4: Sound Attenuation Calculations[1]

Construction Equipment	**Reported Decibel level @50 ft.**	**Distance to reach below 60 dB Feet (meters)**	**Attenuated Sound Pressure Level A-weighted Decibel (dBA)**
Front-end loader	87	1150 (351)	59.8
Motor Graders	85	900 (274)	59.9
Dump Truck	84	800 (244)	59.9
Roller Compactors	83	725 (221)	59.8
Excavator (Large Diesel Engine)	86	1028 (313)	59.8
Combined all equipment	95	2850 (869)	59.9

[1] The attenuated sound pressure level was calculated using the Sound Attenuation – Inverse Square Law online calculation (WKC Group 2023).

These calculations do not factor in vegetation and topography that would dampen or absorb sound over that distance. Therefore, the above listed distances are worse case scenarios and the actual distance to reach 60 dB may be much less.

The USFWS has provided some common construction scenarios in forested habitat with recommended auditory disturbance distances. These scenarios are applicable to the Saddle Dam construction and rock transportation (USFWS 2020):

Scenario 3: Moderate action-generated sounds in species habitat otherwise unaffected by human sound-generating activity.

This scenario would be applicable to the transportation of rock material as dump truck produces a sound level of 84 dB and two dump trucks passing on the road would equal 87 dB, which is within the range of moderate action-generated sounds. This would have an auditory disturbance distance of 300 m (984 ft).

Scenario 5: High action-generated sounds in species habitat otherwise subject to very low human sound-generating activity.

This scenario would be applicable to Saddle Dam construction that includes combination of graders, large trucks, front-end loader, excavators and roller compactors with a combined 95 dB, which is within the range of high action-generated sounds. This would have an auditory disturbance distance of 500 m (1640 ft).

Since these scenarios' auditory disturbance distance factor in forested habitat, it likely these distances are more representative of the conditions at the proposed quarry location. It is assumed that all wildlife disturbance will occur within 500 m of the proposed Saddle Dam construction and with 300 m of the roads used for rock transportation. Attachment A is map that shows the extent of these disturbance limits on WHMP lands.

Temporary Impacts to WHMP Lands

As described above it is expected that the construction and material transportation will disturb and displace wildlife within 500 m of Saddle Dam and 300 m of the transportation route (Frasier Road, 900, and 1000 road). The Saddle Dam construction and material transportation are expected to occur year round and construction will require 2 years. The maps in Attachment A show the temporary impacts to WHMP land acres within the 300 m of the transportation route and 500 m of the Saddle Dam construction.

As stated above the best available information on the value of the WHMP lands is the adjacent parcels that PacifiCorp purchased in 2010 with 48 years remaining on a 50-year federal hydroelectric project license. To determine the value per acre per year, the annual rate for the 490

acre parcel is $5,000,000/48 years =$104,166.67 per year. The per acre value is $104,166.67/490 acres= $212.59 per acre per year.

Table 5: VCT acres within 500-m Disturbance Distance of Saddle Dam Construction

Vegetation Cover Type	Acres	Replacement Value	Value Per Acre Per Year	Value per acre per Year	Construction Years	Total Value
Agriculture (AG)	30.24	1:1	$212.59	$6,428.61	2	$12,857.23
Mature Conifer (M)	6.46	2.5:1	$212.59	$3,432.99	2	$6,865.97
Dry Meadow/ Grassland (MD)	8.63	2:1	$212.59	$3,667.29	2	$7,334.58
Mid-successional Conifer (MS)	41.31	1.5:1	$212.59	$13,173.33	2	$26,346.65
Orchard (OR)	2.40	2:1	$212.59	$1,022.11	2	$2,044.23
Pole Conifer (P)	2.42	1:1	$212.59	$513.97	2	$1,027.93
Pole Conifer (thinned) P-t	17.59	2:1	$212.59	$7,478.92	2	$14,957.83
Palustrine Emergent Wetland (PEM)	0.43	2:1	$212.59	$181.10	2	$362.19
Palustrine Unconsolidated Bottom Wetland (PUB)	0.72	2:1	$212.59	$305.82	2	$611.64
Riparian Deciduous (RD)	6.44	2:1	$212.59	$2,738.24	2	$5,476.49
Recreational (REC)	0.69	1:1	$212.59	$147.67	2	$295.33
Transmission Line ROW (ROW)	1.50	1:1	$212.59	$318.89	2	$637.77
Seedling/ Sapling Conifer Forest (SS)	13.83	2:1	$212.59	$5,879.08	2	$11,758.17
Upland Deciduous (UD)	12.53	1.5:1	$212.59	$3,995.63	2	$7,991.25
Upland Mix Conifer/ Deciduous Forest (UM)	41.64	2:1	$212.59	$17,704.50	2	$35,408.99
Young Upland Mix Conifer/ Deciduous Forest	2.83	1:1	$212.59	$601.78	2	$1,203.55
Total	**189.65**			**$67,589.93**		**$135,179.80**

Table 6: VCT acres within 300-m Disturbance Distance of Saddle Dam Construction

Vegetation Cover Type	Acres	Replacement Value	Value Per Acre Per Year	Value Per Year	Construction Years	Total Value
Mature Conifer (M)	3.37	2.5	$212.59	$1,793.31	2	$3,586.62
Mid-successional Conifer (MS)	10.45	1.5	$212.59	$3,333.57	2	$6,667.14
Pole Conifer (P)	33.08	1.0	$212.59	$7,031.89	2	$14,063.78
Pole Conifer (thinned) (P-t)	8.62	2.0	$212.59	$3,663.25	2	$7,326.50
Palustrine Emergent Wetland (PEM)	1.97	2.0	$212.59	$837.03	2	$1,674.06
Palustrine Unconsolidated Bottom Wetland (PUB)	0.39	2.0	$212.59	$167.86	2	$335.72
Riparian Deciduous (RD)	1.65	2.0	$212.59	$703.21	2	$1,406.41
Riparian Mixed Conifer/Deciduous (RM)	1.89	2.0	$212.59	$802.16	2	$1,604.32
New Clearcut (SS1)	0.15	2.0	$212.59	$63.22	2	$126.45
Upland Deciduous (UD)	17.50	1.5	$212.59	$5,579.22	2	$11,158.44
Upland Mix Conifer/ Deciduous Forest (UM)	22.19	2.0	$212.59	$9,433.78	2	$18,867.56
Total	**101.26**			**$33,408.49**		**$66,816.98**

As shown in Appendix A the 500-m buffer and 300-m buffer do not overlap. WHMP lands included in the temporary impacts were only include in either the 500-m or 300-m buffer, but not both.

Saddle Dam Tree Removal

Approximately 140 to 150 trees would be removed for the project to accommodate construction access, the extended dam embankment, and the central drainage In April 2022, the trees were cruised by Chilton Logging to determine the estimated stumpage value of $4,383.21 (Attachment B). The TCC decided on April 13, 2022, meeting to use a 3:1 stumpage value for compensation and to fund planting the trees at 3:1 replacement on WHMP lands. The value is ($4,383.21*3)=$13,149.63 will be used to plant 450 trees for habitat restoration on WHMP lands. The species will be native and locally common the Lewis River, but locations are to be approved by the TCC.

Total Mitigation

Total compensatory mitigation for WHMP impacts will be $14,588.64+$2,436.63+135,179.80+ $66,816.98=$219,022.05. These funds will be a lump sum payment and may be expended with TCC approval. These funds will not accrue interest.

The triple stumpage payment of $13,149.63. These funds will be used to plant trees at 3:1 replacement value or estimated 450 trees on WHMP lands. These funds will not accrue interest**.**

Total compensatory mitigation will be the TCC fund of $219,002.05 and tree replanting fund $13.149.63 for a total of $232,171.68

References

PacifiCorp, Public Utility District No. 1 of Cowlitz County, National Marine Fisheries Service, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, USDA Forest Service, Confederated Tribes and Bands of the Yakama Nation, Washington Department of Fish and Wildlife, Washington Interagency Committee for Outdoor Recreation, Cowlitz County, Cowlitz-Skamania Fire District No. 7, North Country Emergency Medical Service, City of Woodland, Woodland Chamber of Commerce, Lewis River Community Council, Lewis River Citizens At-Large, American Rivers, Fish First, Rocky Mountain Elk Foundation, Trout Unlimited, Native Fish Society and Cowlitz Indian Tribe. 2004. Settlement Agreement Concerning the Relicensing of the Lewis River Hydroelectric Projects, FERC Project Nos. 935, 2071, 2111, and 2213, Cowlitz, Clark, and Skamania Counties, Washington. November 30, 2004.

PacifiCorp. 2008. Lewis River Wildlife Habitat Management Plan Volume I through IV. Portland, Oregon. December 2008

PacifiCorp. 2022. Yale Hydroelectric Project FERC Project No. P-2071 Draft Application for License Amendment. Available at https://www.pacificorp.com/energy/hydro/lewis-river.html. Accessed on February 22, 2022

USFWS. 2020. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owl and Marbled Murrelets in Northwestern California. United States Fish and Wildlife Arcata, California October 1, 2020. Available at https://www.fws.gov/arcata/es/ birds/mm/ documents/MAMUNSO%20Harassment%20Guidance%20NW%20CA% 202006Jul31.pdf. Accessed on August 11, 2021.

WKC Group. 2023. Sound Attenuation Calculator – Inverse Square Law. Available at https://www.wkcgroup.com/tools-room/inverse-square-law-sound-calculator/. Accessed on February 21, 2023.

Attachments

Attachment A Yale Saddle Dam Seismic Remediation Project Wildlife Disturbance Limits on Lewis River Wildlife Habitat Management Plan land

Attachment B Yale Saddle Dam Seismic Remediation Project Tree Removal and Value

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Memorandum

To:	Eric Hansen, Cresap Bay Park Parking Expansion, Project Manager, PacifiCorp
From:	Kendel Emmerson, Principal Scientist, PacifiCorp
CC:	Terrestrial Coordination Committee, Jessica Kimmick, and Todd Olson, PacifiCorp
Date:	2/8/2023
Re:	Terrestrial Coordination Committee (TCC) decision on mitigation for Lewis River Wildlife Habitat Management Plan lands for the proposed Cresap Bay Park Parking Expansion.

Proposed Project

The Cresap Bay Park and Campground was built on Merwin Reservoir in 1992. Under the Merwin Wildlife Habitat Plan, Washington Department of Fish and Wildlife (WDFW) and PacifiCorp developed a plan to provide additional parking area that provided a big game forage in the off-season and additional parking during the recreation season. This was accomplished by using geo-pavers that allows for seeding in the open spaces of the pavers. The area is mowed during the recreation season, which allows parking for cars. Following the recreation season, the grass is allowed to grow and provide big game forage.

PacifiCorp is proposing to expand parking at Cresap Bay Park. This is due to the increase in use that often has the parking at capacity and to offset the loss of the temporary closure of Saddle Dam Park during the Saddle Dam Rehabilitation project. PacifiCorp has planned an additional parking lot that would be located on the Lewis River Wildlife Habitat Management Plan (WHMP) lands. Lewis River Settlement Agreement (SA) Section 10.8.5.5 Mitigation for Impacts on Wildlife Habitat addresses mitigation requirements for impacts to WHMP lands:

> *"If PacifiCorp proposes to take action on its Interests in Land that are managed under its WHMP, other than those actions specifically prescribed under this Agreement, and that action makes those lands no longer available for wildlife habitat, PacifiCorp shall consult with the TCC to determine if any mitigation is necessary. If Cowlitz PUD proposes to take action on its Interests in Land managed under its WHMP, other than those actions specifically prescribed under this Agreement, and that action makes those lands no longer available for wildlife habitat, Cowlitz PUD shall consult with the TCC to determine if any mitigation is necessary. If the TCC determines that mitigation is necessary, then whichever Licensee is responsible in the specific case shall implement that mitigation. Mitigation shall not be required for land parcels specifically identified in the WHMPs as having wildlife habitat as the secondary use."*

Terrestrial Coordination Committee and Lewis River WHMP Lands

The SA Section 10.8 created the Terrestrial Coordination Committee (TCC) to oversee the implementation of the terrestrial measures in the SA; including coordinating and consulting on the development and implementation of plans, implementation of measures, and preparation of reports; reviewing information; and in specific cases, making decisions and granting approvals (Section 14.1). The primary purpose of the TCC is to provide a forum for coordinating between the Licensees and the other Parties on implementation of the protection, mitigation, and enhancement measures for terrestrial resources included in Section 10 of the SA.

The SA Section 10.8 directs PacifiCorp, in Consultation with the TCC, to develop a WHMP for their respective lands designated in SA Exhibit A. The Lewis River SA Section 10.8 provides the following definition on the WHMP:

> *"The purpose of the WHMPs shall be to benefit a broad range of fish, wildlife, and native plant species, including, but not limited to, large and small game, amphibians, bats, forest raptors, neo-tropical birds, and culturally significant native plants."*

The TCC has authority to approve actions on WHMP lands and under SA Section 10.8.5.5 may require mitigation for the permanent loss of WHMP lands and temporary impacts to wildlife.

Terrestrial Coordination Committee Consultation

The TCC reviewed the Cresap Park parking expansion project at the April 14, 2021, meeting. The TCC representatives agreed to the parking expansion if the following conditions are met:

- A plastic geo-paver method similar to the other additional parking area be used for the new parking area.
- The area be seeded to provide forage for big game outside of the recreation season.
- The loss of habitat and temporary impacts to wildlife be compensated.

WHMP Land Impacts

The access to the proposed parking area will be through a former road grade. The proposed parking area will occur in an existing opening that is a small meadow surrounded by forested habitat. The meadow area was created for wildlife. It was formerly used for volleyball and was mowed during the recreation season. This area will be leveled, graded, and have plastic geo-pavers installed. This will create additional 31 parking spots for vehicles.

Note that although the proposed new parking area is currently a grassy meadow, the area is vegetation cover typed as Mid-successional Conifer because the meadow is less than 1.0 acre in size. However, for the purposes of determining WHMP impacts it will be assumed that there will

be a degradation from meadow habitat to recreational habitat.

Cresap Bay Park and Campground are closed to public access outside of the recreation season (Friday before Memorial Day to September 30) to minimize disturbance to wildlife. The construction will occur during the off season in the spring, which is the critical season for wildlife reproduction. Therefore, it is assumed that wildlife will be displaced during the construction for at least 6 months.

To determine the effects of construction noise on wildlife. It is assumed that the ambient noise conditions for the area on an average day in the off-season are similar to normal background levels in a forested habitat and are 35 decibels (dB) (USFWS 2020).

The United States Fish and Wildlife (USFWS) has completed extensive research and analysis on construction noise and disturbance to Northern Spotted Owls and Marbled Murrelet. The USFWS has defined the Above-Existing threshold as (USFWS 2020):

> *"the species may react to elevated sounds in relation to all existing sound sources. We determined this elevated decibel difference to be a 25 decibel difference between all existing noise (i.e., natural background ambient, line and point sound sources) and only the action-generated sound."*

This is the dB level that is considered to cause disturbance to northern spotted owls and marbled murrelets. For the purposes of this document, it is assumed that same threshold applies to all wildlife. Therefore, any noise level that is above 60 dB (Ambient conditions + above-existing threshold) will cause disturbance.

The USFWS has provided some common construction scenarios in forested habitat with recommended auditory disturbance distances. These scenarios are applicable to the proposed parking lot construction (USFWS 2020):

> *Scenario 3: Moderate action-generated sounds in species habitat otherwise unaffected by human sound-generating activity*.

This scenario would be applicable to the construction of parking area and is estimated to have a sound level of 89 dB which within the range of moderate action-generated sounds. This would produce an auditory disturbance distance of 300 m (984 ft).

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Mitigation Strategy

In 2011 the TCC developed a mitigation strategy that identified replacement values for each vegetation cover type on WHMP lands (table below). The values were based on the definitions and habitat types in the Oregon Department of Fish and Wildlife Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000).

Habitat Type	**Definitions**	**Replacement Value** (Replacement Acres per acre impacted)
Irreplaceable	Unable to replace or recreate, essential or primary habitat for species, and locally rare (e.g., forested wetlands, old-growth)	3:1
Essential	Difficult to replace or recreate, essential or primary habitat for species, and locally uncommon (e.g., mature conifer forests, oak woodland)	2.5:1
Limited	Able to recreate or replace, primary habitat for species, and locally uncommon (e.g., shrubland, meadows). Habitat is actively or has been actively managed in the last 5 years (e.g., Pole thinned). Habitat is a Priority Habitat and Species (PHS)habitat.	2:1
Important	Able to recreate or replace, primary habitat for species, and locally common (e.g., mid-successional forests, pastures)	1.5:1
Potential	Able to restore or natural succession will provide habitat (e.g., clear cut forest)	1:1
Potential	Difficult to restore and natural succession will not provide habitat, and locally common (e.g., developed lands)	1:1

WHMP Land Valuation

The best valuation available for the proposed parking area is the Saddle Mountain property purchased in 2010 with funds under SA Section 10.1 Yale Land Acquisition and Habitat Protection Fund. The 2010 land acquisition includes 490 acres on 5 parcels. The 2010 purchase price was for $5,000,000 ($10,204.08 per acre), the appraised value.

In August 2021 PacifiCorp received a broker opinion for the Saddle Mountain property . The opinion provided a value range of $250,000 - $275,000 for 24.8 acres that included a broker

opinion low value, broker opinion high value, and original price. To determine a per acre price for the proposed parking area all three values (broker opinion low value, broker opinion high value, and original price) were averaged:

$10,204.08+$10,080.65+$11,088.71=$31,373.44/3=$10,457.81 per acre valuation

It is assumed that the per acre valuation is applicable to other WHMP land acres. Every acre of WHMP lands has been assigned a vegetation cover type (VCT) and each VCT has been assigned a replacement value or ratio. The table below shows the VCT that are within the project footprint and will be degraded from habitat vegetation cover type to a disturbed/modified habitat type. The lands will remain within the WHMP, therefore there is no permanent loss to WHMP total acreage. As result the replacement value is the split the difference between current VCT to proposed VCT modified following construction. In this scenario the Meadow (2:1) will be converted to Recreation (Potential at 1:1), so the replacement value is 1.5:1

Vegetation Cover Type	**Total WHMP Acres Impacted**	**Replacement Value**	**Total Cost for Modification to WHMP**
Dry Meadow/Grassland (MD) Less than 10% forested canopy coverage and ground consists of greater than 50% grass species.	0.51	1.5:1	(0.51 acres x 1.5 replacement value)= 0.77 acres x $10,457.81 = $8,052.51
Total	**0.51**		**$8,052.51**

Due to the construction noise creating temporary disturbance, it is assumed the surrounding WHMP lands within 300 m from the construction site will be avoided by wildlife. To determine compensatory mitigation for the temporary disturbance the average purchase price per acre for all WHMP lands that have been acquired since 2008 was determined (see table below). This value along with the life of the license will be used to determine the value associated with the duration the area of disturbance will not be used by wildlife.

Purchase Name	Purchase Price	Total Acres	Price Per Acre
Swift 1 Fruit Growers Supply	$4,817,747	2,111	$2,282.21
Swift Creek Longview	$625,000	480	$1,302.08
Swift 2 Fruit Growers Supply	$3,210,000	1,881	$1,706.54
Jackman Property	$486,142	52	$9,348.88
Saddle Mountain	$5,000,000	490	$10,204.08
Ane Forest	$2,100,000	640	$3,281.25
		Average Price per	**$4,687.51**

WHMP lands currently are 15,789 acres and are a 50-year license term. To determine the annual rate of impact per acre would be as follows:

($4687.51 price per acre x 15,789 acres) / 50 years for license = $1,480,220.86 per year all WHMP acres. To determine the cost of impacts per acre for 1 year =1,480,220.86 /15,789 acres = $93.75 per acre per year for impact. Since temporary impacts are for 6 months the rate will be $93.75/2=$46.88 per acre.

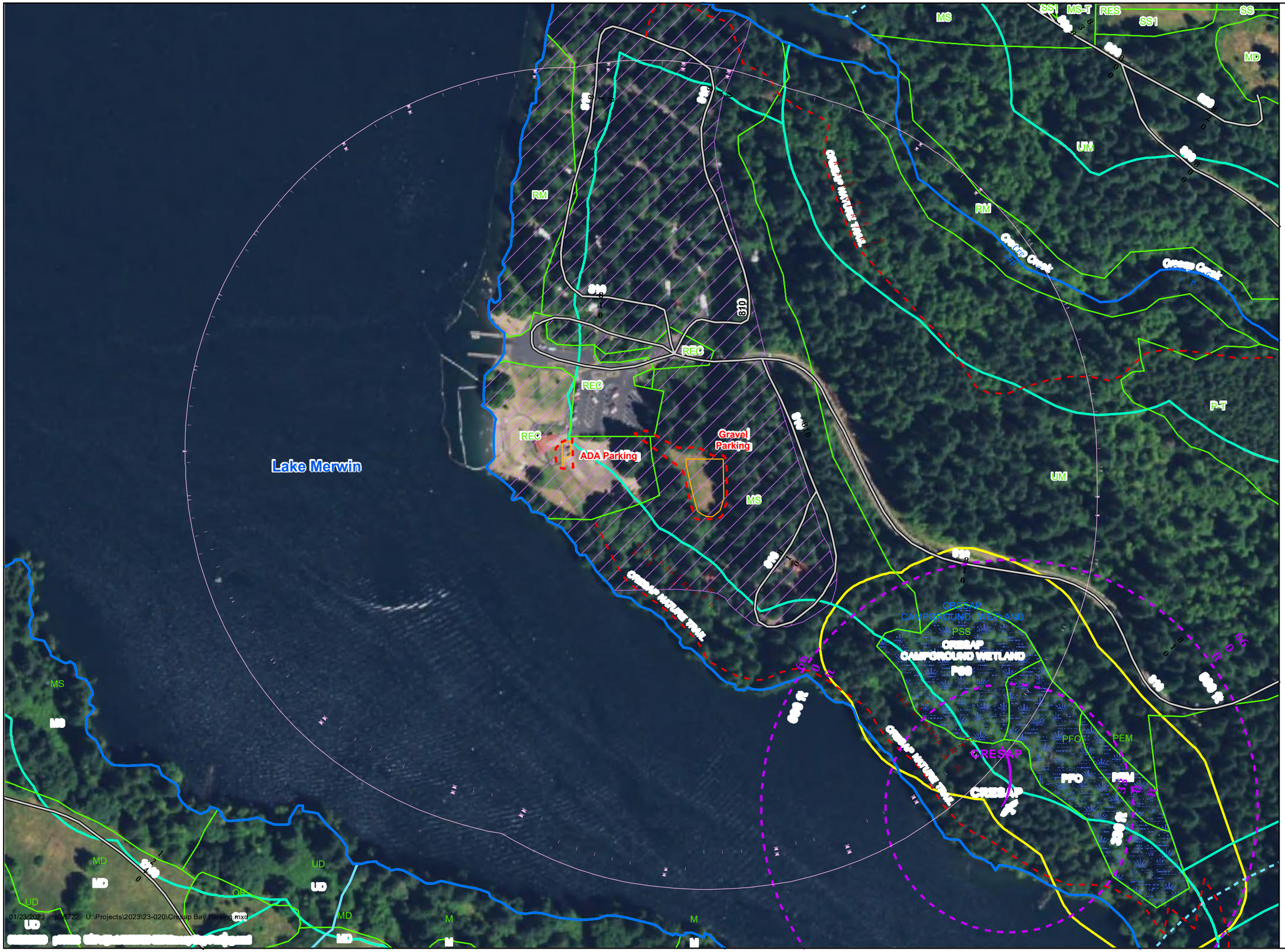
This mitigation strategy for the temporary loss of land available for wildlife use was applied to each of the vegetation cover type within the 300-m buffer, an area of approximately 50 acres in size with the exception of reservoir or excluded acres:

VCT acres within 300-m Disturbance Distance from Parking Construction Buffer and Replacement Value

Vegetation Cover Type and Code	Acres	Replacement Value	Annual Cost for temporary impacts (acres x replacement value x price per acre per ½ year)
Mid-Successional Conifer (MS)	22.74	1.5:1	22.74 x 1.5 x $46.88 = $1,598.94
Palustrine Forested Wetland (PFO)	0.35	3:1	0.35 x 3 x $46.88 = $49.27
Palustrine Scrub-Shrub Wetland (PSS)	2.20	2.5:1	2.20 x 2.5 x $46.88 = $258.28
Recreation (REC)	3.25	1:1	3.26 x 1 x $46.88 = $152.68
Riparian Mixed (RM)	3.56	2:1	3.56 x 2 x $46.88 = $333.80
Upland Mixed Conifer/ Deciduous Forest (UM)	18.40	2:1	18.39 x 2 x $46.88 = $1,724.41
Total Acres		**50.50**	**Total Cost** **$4,117.37**

Total compensatory mitigation will be $8,052.51+$4,117.37 = $12,169.88. These funds will be a lump sum payment and may be used as approved by the TCC for WHMP habitat management or land acquisition or management of WHMP lands. These funds will not accrue interest.

Cresap Bay Campground Parking Extension



Construction Limits
Construction Buffer 300m
Future Parking Area
Eagle Nest
Nest Buffer
Road
Trail
Fish Stream
Non-fish Perennial
Non-fish Seasonal
Vegetation Cover
Shoreline
Wetland
Wetland Buffer
Stream/Shore Buffer
WHMP Seasonal Area

0 100 200

Feet

1:2,840

PacifiCorp