Hancock Creek Hydroelectric Project
FERC No. 13994

Terrestrial Resources Management Plan

Prepared By:

Everett, WA

February 2014

Final – This document has been prepared for the District. It has been peer-reviewed by the District for accuracy and formatting based on information known at the time of its preparation and with that understanding is considered complete by the District. The document may be cited as:

District. 2014. Terrestrial Resource Management Plan for the Hancock Creek Hydroelectric Project, FERC No. 13994. February 2014.

Table of Contents

1. INTRODUCTION 1
1.1 Project Background and Description 1
1.2 Plan Goals, Objectives and Organization 3
1.2.1. Avoidance 4
1.2.2. Minimization 4
1.2.3. Rectification 4
1.2.4. Reduction/Elimination Over Time 5
1.2.5. Replacement 5
1.3. Management Lands 5
1.4. Consultation 7
2. ELEMENTS OF THE TERRESTRIAL RESOURCES MANAGEMENT PLAN 11
2.1. Upland Habitat Protection, Mitigation and Enhancement 11
2.1.1. Management Methods 11
2.1.2. Monitoring and Reporting 14
2.1.3. Schedule of Implementation 15
2.2. Wetland and Stream Vegetation Protection, Mitigation and Enhancement 15
2.2.1. Management Methods 18
2.2.2. Monitoring and Reporting 24
2.2.3. Schedule of Implementation 25
2.3. Noxious Weed Management 25
2.3.1. Management Methods 28
2.3.2. Monitoring and Reporting 30
2.3.3. Schedule of Implementation 31
3. LITERATURE CITED 31

List of Appendices

Appendix 1 Cover Type Descriptions
Appendix 2 Consultation Documentation
Appendix 3 Management Methods for Tansy Ragwort
Appendix 4 Weed Prevention Practices for the Hancock Creek Hydroelectric Project

List of Tables

Table 1-1. Pre-construction acreage of cover types, including riparian habitat, wetlands and open water within the Hancock Creek Project Boundary. 5
Table 1-2. Areas of permanent impact on wetlands, streams and upland (including King County buffers) vegetation cover types for the Hancock Creek Hydroelectric Project. 8
Table 1-3. Areas of temporary impact on wetlands, streams and upland (including King County buffers) vegetation cover types for the Hancock Creek Hydroelectric Project. 10
Table 2-1. Erosion Control Seed Mix – long term maintenance areas/no deep rooted vegetation allowed. 13
Table 2-2. Erosion Control Seed Mix – natural revegetation/deep-rooted vegetation allowed. 13
Table 2-3. Wetlands delineated in the study area for the Hancock Creek Hydroelectric Project in King County, WA. 17
Table 2-4. Buffer mitigation calculations. 19
Table 2-5. Wetland mitigation calculations. 19
Table 2-6. Stream mitigation calculations. 19
Table 2-7. Species suggested for planting in wetlands. 23
Table 2-8. Species suggested for planting in buffer areas. 23
Table 2-9. Noxious weeds occurring in the Hancock Creek Project area and 2013 King County Management Status 28

List of Figures

Figure 1-1. Project layout: penstock, powerhouse and intake. 2
Figure 1-2. Pre-construction vegetation cover types of the Hancock Creek Project Area. 6
Figure 1-3. Impacts to vegetation cover types for the Hancock Creek Hydroelectric Project in King County, WA. 9
Figure 2-1. Wetlands and streams delineated in the vegetation study area for the Hancock Creek Hydroelectric Project in King County, WA. 16
Figure 2-2. Wetland, stream, buffer and upland mitigation areas. 21
Figure 2-3. Noxious weed occurrences documented within the vegetation study area for the Hancock Creek Project. 27
Figure A-1. Early successional cover type in Hancock Creek Project Area. 1-1
Figure A-2. Open canopy sapling/pole coniferous forest cover type in Hancock Creek Project Area. 1-2
Figure A-3. Riparian cover type along Hancock Creek. 1-4
Figure A-4. Riparian buffer left adjacent to recent timber harvest. 1-5

List of Acronyms and Abbreviations

dbh	diameter at breast height
DDES	Department of Development and Environmental Services, King County
District	Public Utility District No. 1 of Snohomish County
ESCP	Erosion and Sediment Control Plan
FERC	Federal Energy Regulatory Commission
FLA	Final License Application
HTRG	Hancock Timber Resource Group
KCC	King County Code
NAVD	North American Vertical Datum
NGO	non-governmental organization
Project	Hancock Creek Hydroelectric Project, FERC No. 13994
RM	river mile
ROW	right-of-way
SEPA	Washington State Environmental Policy Act
TRMP	Terrestrial Resource Management Plan
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WRI	Wetland Resources, Inc.

1. INTRODUCTION

This Terrestrial Resource Management Plan (TRMP) describes the actions Public Utility District No.1 of Snohomish County (the District) will take to mitigate impacts to terrestrial resources associated with the construction, operation and maintenance of the Hancock Creek Hydroelectric Project (Project, FERC Project Number 13994). The TRMP supports the District's Final License Application (FLA) filed with the Federal Energy Regulatory Commission (FERC) on August 30, 2013. The TRMP has been prepared in consultation with the U.S. Fish and Wildlife Service (USFWS), the Washington Department of Fish and Wildlife (WDFW), King County, Hancock Timber Resource Group (HTRG),[1] Snoqualmie Tribe, and Tulalip Tribes.

1.1 Project Background and Description

The Project is located approximately 30 miles east of the City of Seattle, Washington, and 7 miles northeast of the City of North Bend. The proposed Project is a run-of-the-river small hydroelectric facility located on Hancock Creek in unincorporated King County, Washington (Figure 1-1). The proposed Project has a nameplate capacity of 6.0 megawatts. A diversion weir and intake structure will be constructed at river mile (RM) 1.6 on Hancock Creek. The weir will consist of a vertical reinforced concrete wall with rockfill placed on the downstream side of the wall without obstruction or effect on the lake level at Hancock Lake, located upstream of the Project. The weir will maintain the normal water surface at elevation 2,172 feet mean sea level (msl, North American Vertical Datum 1988). Built of reinforced concrete, the weir spillway will be approximately 6 feet high above the streambed and approximately 45 feet long.

Water will be conveyed from the intake to the powerhouse through a penstock consisting of approximately 7,310 linear feet of buried 44-inch and 39-inch diameter pipeline. The powerhouse will be sited on the north side of Hancock Creek, about 200 feet upstream from the confluence of Hancock Creek with the North Fork Snoqualmie River. The powerhouse will be a masonry and reinforced concrete structure approximately 48 feet wide by 66 feet long. The building will be approximately 40 feet tall to allow a bridge crane to install or remove pieces of equipment. The elevation of the tailrace where it joins Hancock Creek will be at an approximate elevation of 1,042 feet msl.

Most of the land surrounding the Project is owned by HTRG, and is managed for commercial timber, with the exception of approximately 20 privately-owned lots located on the north shore of Lake Hancock which have private recreational cabins. The District owns lands associated with the Project as previously licensed by the FERC to the Weyerhaeuser Company as Project No. 9025 in the 1990s. The District and HTRG are in the process of amending ownership as described in the District's FLA to obtain necessary ownership and easements consistent with the FLA and this TRMP. No lands associated with the Project are owned by the Federal government.

[1] The Hancock Timber Resource Group (HTRG) is a forest land investment manager of portfolios managed for institutional investors and other land owners for production of commercial forest products and associated natural resources.

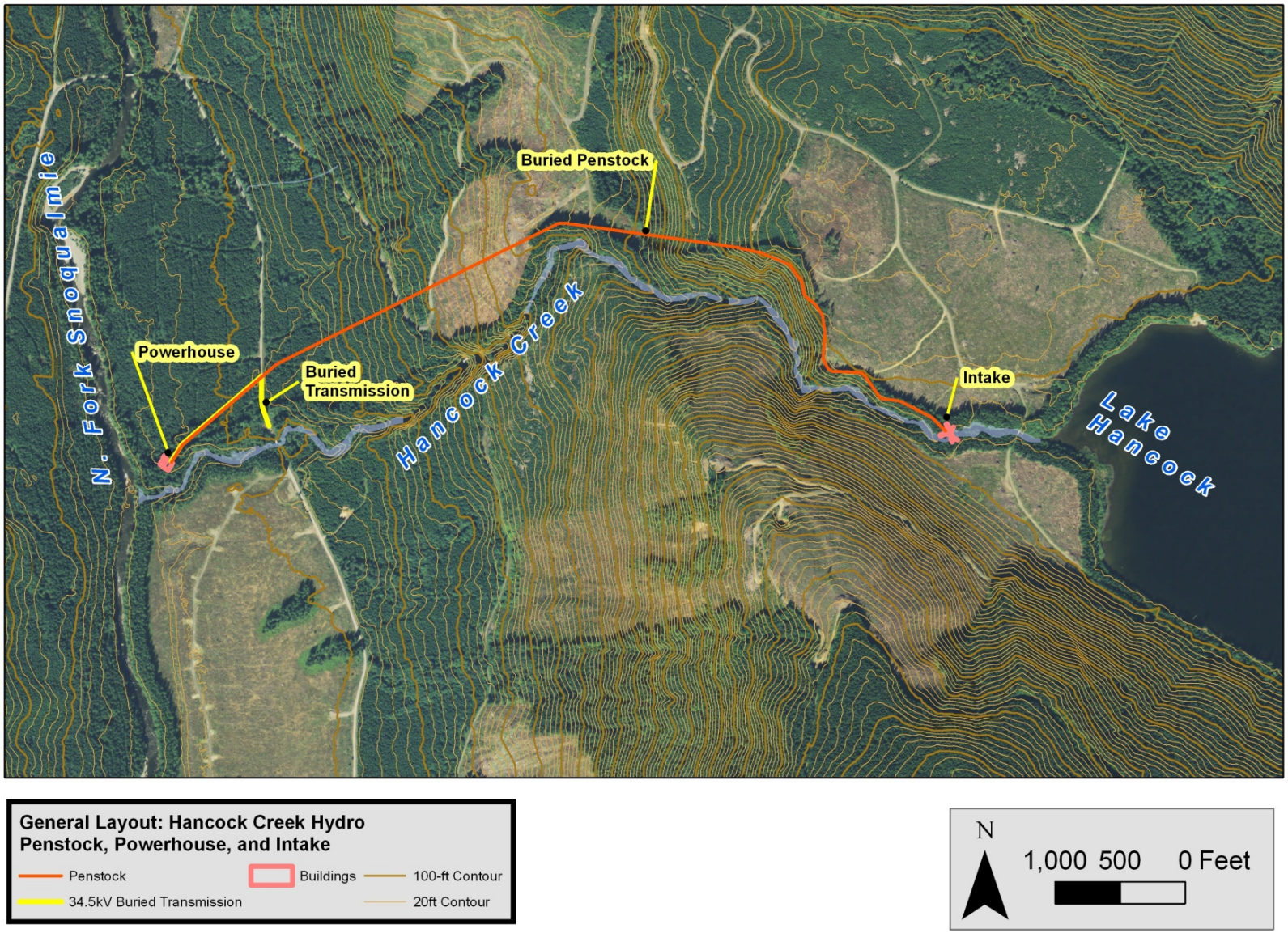


Figure 1-1. Project layout: penstock, powerhouse and intake.

The area within and surrounding the Project Boundary is zoned as Forestry. The Hancock Creek Project Area lies primarily within the Tsuga heterophylla (western hemlock) zone, with transition above 2,000 feet to the Abies amabilis (Pacific silver fir) zone (zones described by Franklin and Dyrness 1988). The Tsuga heterophylla zone in the Western Cascades is dominated by western hemlock, Douglas-fir (*Pseudotsuga menziesii*), and western red cedar (*Thuja plicata*). Hardwoods, particularly red alder (*Alnus rubra*), big-leaf maple (*Acer macrophyllum*), and black cottonwood (*Populus trichocarpa*) characterize riparian sites. These hardwood species are also represented in canopy gaps and other recently disturbed sites. The tree composition of the Abies amabilis zone typically includes Pacific silver fir, western hemlock, Douglas-fir, and noble fir (*Abies procera*).

Most of the drainage area was logged between 1945 and 1970, and more recently in the 2000s. Second and third growth forests are managed for Douglas-fir, and stands in the area are actively harvested under ongoing timber management by HTRG. Access to the Project Area is good via HTRG's numerous logging roads. Public vehicular access to the Project Area is restricted by HTRG's locked gates. Additional Project information is provided in Exhibit E of the District's FLA.

1.2 Plan Goals, Objectives and Organization

The goal of this plan is to describe and direct the management of terrestrial mitigation on Project management lands for the term of the new license.

Objectives for mitigation of the effects of the Project on terrestrial resources can be classified into the five categories outlined in the USFWS Mitigation Policy (USFWS 1981) which serves as a guide throughout project identification, engineering, impact assessment, and the development of protection, mitigation and enhancement measures.

The USFWS definition of mitigation includes: 1) avoiding impacts, 2) minimizing impacts, 3) rectifying impacts by repairing or restoring the affected resource, 4) reducing or eliminating impacts over time, and 5) compensating for impacts through replacement or substitution. Types of mitigation are listed in order of priority, with avoidance being the most desirable and compensation being considered only when the first four options are not available. Most projects involve a combination of two or more types of mitigation, and this is the case with the Hancock Creek Hydroelectric Project. Methods used to avoid or minimize losses are presented in this section. Section 2 describes how the District will rectify impacts, reduce or eliminate impacts over time, and compensate for impacts through replacement or substitution to mitigate for the terrestrial habitat affected by construction and operation of the Project. This will be accomplished through management of the lands within the Project Boundary.

WDFW's mitigation policy (WDFW, undated) is generally consistent with USFWS policy. The definition of mitigation is similar. In addition, on-site and in-kind mitigation is the highest priority, followed by off-site and in-kind, on-site and out-of-kind, and off-site and out-of-kind mitigation.

The TRMP will be in effect for the term of the new license. During that time, the theory and practice of wildlife habitat and vegetation management may change. Also, certain existing techniques may be adapted and prove more effective for the TRMP lands. The TRMP is based

on current theory and practice, but it would have limited long-term value if not open to future change. For that reason, the TRMP is designed to accommodate changes and improvements in wildlife habitat and vegetation management as they become available. The overall objectives of the TRMP will continue to serve as a guide for future management. Adjustments will be made to the management, as appropriate, with new techniques substituting for existing ones if they are more effective and/or economical, but all changes will be made within the constraint of meeting the objectives of the TRMP.

1.2.1. Avoidance

Avoidance is accomplished through locational adjustment of the Project. The first phase of Project development was an assessment by District staff of potential hydroelectric projects over a four-county area. For top potential projects, District staff conducted early consultation with federal and state resource agencies, tribes, and non-governmental organizations (NGOs). The Hancock Creek Project was reviewed and deemed a renewable resource that meets the various needs of the District. Any known fatal flaws and potential development obstacles were noted, including environmental concerns. No substantive Project-specific issues regarding the Hancock Creek Project were identified by consulted resource agencies, tribes, and NGOs (FLA Volume 3 – Appendix A). Following this due-diligence and outreach period, Hancock Power LLC sold the Project assets to the District in 2010.

1.2.2. Minimization

Minimization is achieved through modifications to design and construction. Design modifications of the Project include:

- Burial of approximately 7,310 feet of the penstock to eliminate barriers to animal movement (Section E.4.3.2 of FLA);
- Adjustment of the location of the buried penstock, reduction of the width of the working corridor in sensitive areas adjacent to the penstock, and adjustment of the location of laydown and spoils locations to avoid sensitive wetland and riparian habitat and buffers (Section E.4.3.1 of FLA);
- Adjustment of the location of the powerhouse to avoid riparian forest buffer to the extent feasible;
- Burial of transmission lines to avoid any potential electrocution or collision risks to raptors or other birds (Section E.4.3.2 of FLA);
- Implementation of an Erosion and Sediment Control Plan (ESCP) and minimization of clearing for penstock burial and equipment lay-down consistent with FERC-approved construction plans (Section E.4.3.3 of FLA);
- Placement of spoils areas outside critical areas or buffers. The temporary laydown and spoils areas make-up most of of the temporary impacts. The location of these areas was chosen to fall outside of critical areas or buffers, and in areas of recent harvest; and
- Strict control of litter and waste will be implemented throughout construction and operation of the Project to prevent nuisance wildlife problems.

1.2.3. Rectification

After incorporating avoidance and minimization into siting and design, the Project will have a permanent impact on approximately 1.13 acres for the intake, the powerhouse, and new access

roads. Temporary impacts of 37.40 acres include the penstock route and planned spoils areas, which will be re-vegetated after Project construction. Sections 2.1 through 2.3 will cover details of rectification for impacts.

1.2.4. Reduction/Elimination Over Time

Elimination of impacts over time will largely involve maintenance of mitigation lands and enhanced habitat features. All newly constructed roads to Project facilities will be gated to control vehicular access, and seasonal restrictions will be placed on routine maintenance and repair, as needed to protect sensitive wildlife resources. Sections 2.1 through 2.3 will cover details of reduction or elimination of impacts over time.

1.2.5. Replacement

Approximately 1.08 acres of upland commercial forest, 0.01 acres of wetland and 0.04 acres of stream habitat will not be replanted. These areas will be converted to permanent structures or graveled road surfaces with no habitat value other than providing travel corridors with palatable roadside forage. Permanently impacted habitats require replacement which is addressed in Section 2. Sections 2.1 through 2.3 provide details of compensation for impacts (habitat replacement).

1.3. Management Lands

Management lands include the area within the Project Boundary (Figure 1-2). Lands that will be restored, preserved, or provide additional buffer are addressed in Section 2. Mitigation includes replacement for permanent habitat loss and mitigation for temporary impacts along the penstock right-of-way (ROW). Areas of temporary impact that are within a construction easement with HTRG, such as spoils areas, will be reseeded and planted for forestry purposes as prescribed, and returned to HTRG management.

The major vegetative cover types within the Project Boundary are described in Appendix 1 and mapped in Figure 1-2. Table 1-1 summarizes the pre-construction acreage of each vegetation cover type within the Project Boundary.

Table 1-1. Pre-construction acreage of cover types, including riparian habitat, wetlands and open water within the Hancock Creek Project Boundary.

Cover Type	Total Acreage
Early Successional Conifer	7.95
Open Canopy Sapling/Pole	0.88
Closed Canopy Sapling/Pole	4.10
Small Sawtimber	1.09
Riparian Forest	3.26
Wetlands	0.16
Stream	0.47
Total Acreage	17.91

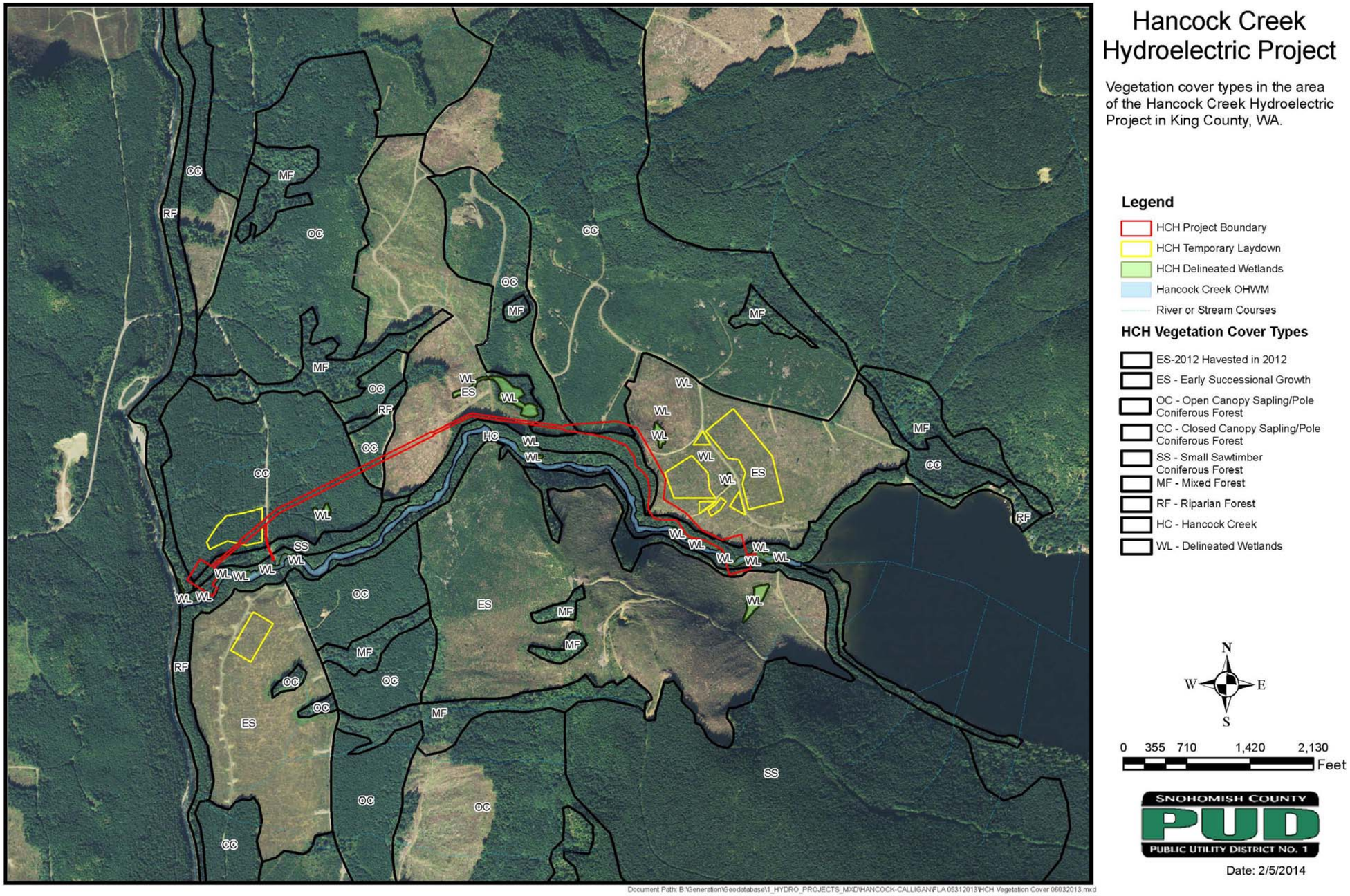


Figure 1-2. Pre-construction vegetation cover types of the Hancock Creek Project Area.

Construction of the Project will remove a total of 1.13 acres of upland, wetland, and stream habitat (1.08 acres of upland, 0.01 acres of wetland and 0.04 acres of stream). The total acreage of permanent habitat loss for each cover type is shown in Table 1-2 and Figure 1-3. For most of the penstock's length, the District will use an open-trenching method, and will back-fill and grade disturbed areas after the penstock is installed. Because the penstock route can be revegetated, there will be very little permanent loss of habitat associated with its construction.

No additional vegetation will be removed for construction of the 34.5-kV transmission line that will extend about 0.3 miles from the powerhouse to an existing vault. The transmission line will be buried within the beds or shoulders of the new powerhouse access road and existing logging roads.

The penstock alignment, laydown and spoils areas, and areas adjacent to the powerhouse and intake will temporarily disturb approximately 37.40 acres (Table 1-3). These surface areas are not permanently occupied by Project features and will be revegetated. The construction width of the 7,310-foot long penstock varies from 30 feet to 220 feet. Within that area the permanent penstock ROW will vary from 30 feet to 50 feet.

1.4. Consultation

USFWS, WDFW, King County, HTRG, Snoqualmie Tribe, and Tulalip Tribes were consulted during the TRMP development. See FLA Volume 3 Appendix A, and this TRMP's Appendix 2.

Table 1-2. Areas of permanent impact on wetlands, streams and upland (including King County buffers) vegetation cover types for the Hancock Creek Hydroelectric Project.

Resource Impacted	Feature Name	Permanent Impact Area (acres)	Ecology Wetland Rating Category/ Stream Type [a]	USFWS Class Impacted	Impact Location
Wetlands	H1a	<0.01	II	PFO	Intake
	H1b	0.01	II	PFO	Intake
	H3	<0.01	II	PFO	Powerhouse
	Total	0.01			
Streams	Hancock Creek	0.04	S	n/a	Intake, powerhouse tailrace
Upland within King County wetland/ stream buffer area	ES	0.12	n/a	n/a	Intake, intake road, powerhouse, powerhouse road
	CC	0.10			
	SS	0.38			
	RF	0.38			
	Total	0.98			
Upland vegetation cover type not within King County buffer area	ES	0.07	n/a	n/a	Powerhouse, powerhouse road
	CC	0.03	n/a	n/a	Intake road
	Total	0.10			
Total Permanent Impact Acres		1.13			

[a] Wetland category is based on the Ecology wetland rating system (Hruby 2004) that is required by King County (21A.24.318). Stream type is based on King County aquatic typing system, per KCC 21A.24.355.

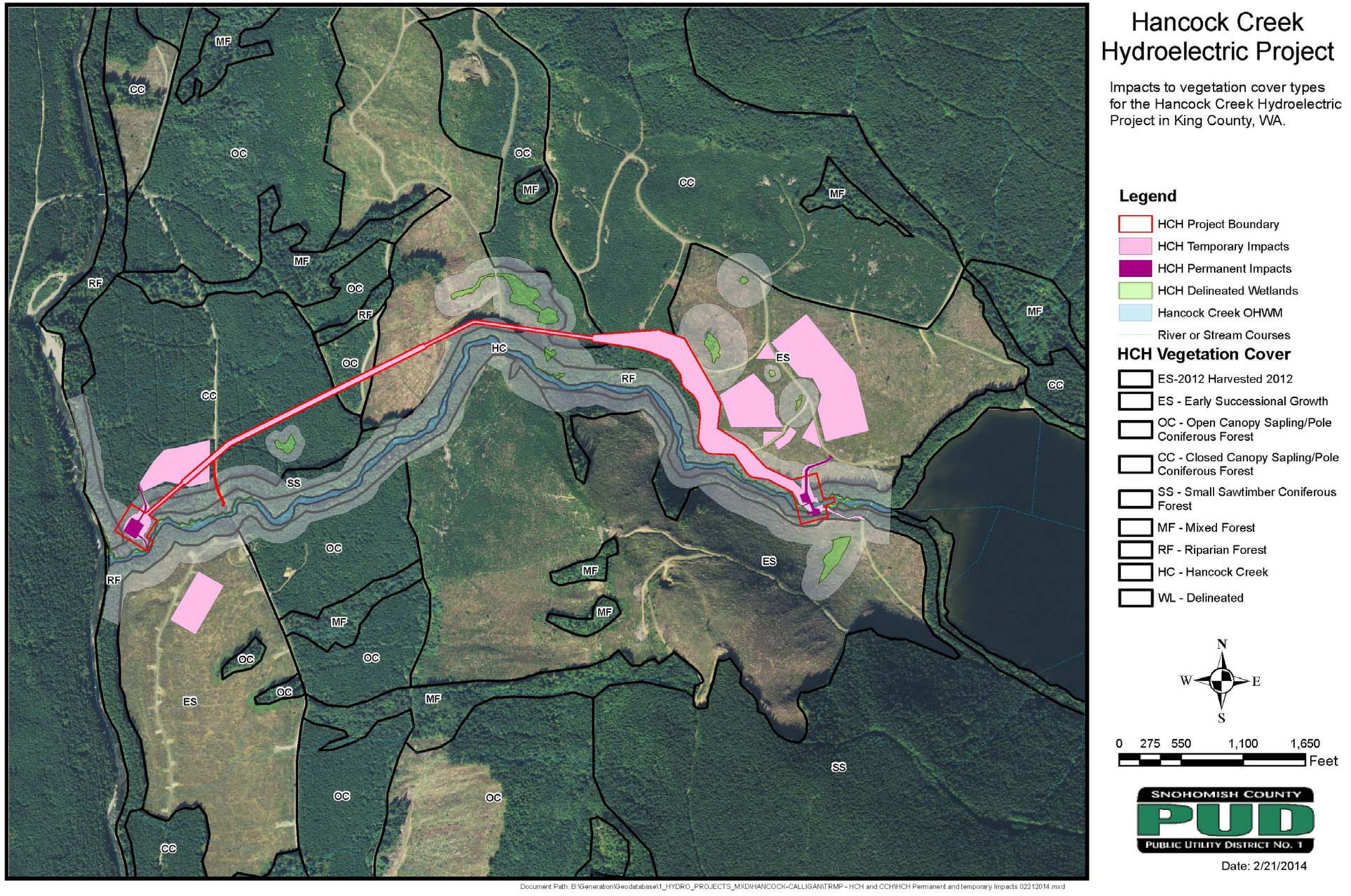


Figure 1-3. Impacts to vegetation cover types for the Hancock Creek Hydroelectric Project in King County, WA.

Table 1-3. Areas of temporary impact on wetlands, streams and upland (including King County buffers) vegetation cover types for the Hancock Creek Hydroelectric Project.

Resource Impacted	Feature Name	Temporary Impact Area (acres)	Ecology Wetland Rating Category/ Stream Type [a]	USFWS Class Impacted	Impact Location
Wetlands	H1a	0.01	II	PFO	Intake
	H1b	0.02	II	PFO	Intake
	H3	<0.01	II	PFO	Powerhouse
	Total	0.03			
Streams	Hancock Creek	0.07	S	n/a	Intake, powerhouse tailrace
Upland within King County wetland/ stream buffers	ES	3.83	n/a	n/a	Penstock, intake, powerhouse, laydown and spoil area
	OC	0.13			
	CC	0.36			
	SS	0.56			
	RF	2.12			
	Total	7.00			
Upland vegetation cover types not within King County buffer area	ES	22.31	n/a	n/a	Penstock, powerhouse, laydown and spoil area
	OC	0.75	n/a	n/a	Laydown and spoil area, penstock, intake
	CC	7.24	n/a	n/a	Penstock
	Total	30.30			
Total Temporary Impact Acres		37.40			

[a] Wetland category is based on the Ecology wetland rating system (Hruby 2004) that is required by King County (21A.24.318). Stream type is based on King County aquatic typing system, per KCC 21A.24.355.

2. ELEMENTS OF THE TERRESTRIAL RESOURCES MANAGEMENT PLAN

2.1. Upland Habitat Protection, Mitigation and Enhancement

2.1.1. Management Methods

2.1.1.1. Land Acquisition/Easements

After incorporating avoidance and minimization into siting and design, the Project will permanently impact approximately 1.13 acres for the intake, the powerhouse, and new access roads. The 1.13 acres includes 1.08 acres of upland habitat, 0.01 acres of wetland and 0.04 acres of stream habitat (Table 1-2). Wetland and stream buffers (as defined by King County) make up 0.98 acres of the 1.08 acres of upland habitat. Wetland and stream habitat and their buffers will be addressed in Section 2.2. Therefore, 0.10 acres of upland habitat (early successional and closed canopy sapling/pole) falls into the USFWS category of mitigation:
5) compensation/replacement. Following the recommendation from WDFW (letter dated June 4, 2010 to Scott Spahr from Mark Hunter) replacement habitat for the 0.10 acres of upland habitat requires a 2:1 replacement, which means that 0.20 acres of upland forest habitat will be required for replacement.

For increased habitat value, logistical purposes and ease of management, the District has included obtaining the management rights to 0.20 acres of upland forest habitat as part of the wetland and stream habitat mitigation described in Section 2.2. The 0.20 acres of upland forest habitat will serve as an additional buffer for wetland and stream habitat.

The Hancock Creek drainage basin is managed as private commercial timberland that is harvested every 35 to 45 years and re-planted. Existing trees in the Project area are the first or second rotation to grow since initial logging. The timberland in the basin is best described in terms of the dynamic process of planting, thinning, and harvesting rather than by any one condition the stand may pass through during the 45-year rotation (e.g. seedling/sapling, pole stage, etc.). District management of this mitigation land will allow the stand to mature over time without harvesting. This will benefit wildlife species that favor older forest stands and larger trees. By combining it with the wetland and stream habitat mitigation it will be adjacent to other management lands, thus creating a larger parcel of land included within the TRMP.

In addition, in consultation with WDFW, another 6.59 acres of preservation buffer area was added to mitigate for permanent and temporal impacts to mature forest (small saw and riparian forest) habitat at both Hancock Creek and Calligan Creek Hydroelectric (FERC No. 13948) Projects. This added preservation buffer area is located near the Calligan Creek Hydroelectric Project powerhouse and is presented in the Calligan Creek Hydroelectric Project's TRMP.

2.1.1.2. Seeding, Planting and Other Measures for Structural Diversity

The intake area, powerhouse site and access roads will result in permanent loss of wildlife habitat because they will be maintained as structures or graveled surfaces, but the penstock route (approximately 13 acres) and portions of the newly constructed roads to Project facilities, and spoils areas (approximately 22 acres) will be re-vegetated after Project construction. This 37.40 acre area of temporary impacts includes 37.30 acres of upland forest, 0.03 acres of wetland and

0.07 acres of streams (Table 1-3). Wetland and stream buffers (as defined by King County) make up 7.0 acres of the upland habitat. Wetland and stream habitat and their buffers will be addressed in Section 2.2. Therefore, approximately 30.30 acres will be seeded or replanted and maintained, as mitigation for temporary impacts to upland vegetation. These activities fall into the USFWS category of mitigation: 3) rectifying impacts by repairing or restoring the affected resource and 4) reducing or eliminating impacts over time. Most of the area that will be reseeded or planted is currently in the early successional growth stage.

The construction width of the approximately 7,310-foot long penstock varies from 30 feet to 220 feet (the wider length corresponding to the deep excavation section). Within that area, the permanent penstock ROW included in the Project Boundary will vary from 30 feet to 50 feet. Following construction, a 30-foot wide corridor centered over the penstock along the penstock route (about 5 acres) will be seeded in grasses and forbs to prevent erosion. To protect and preserve the integrity of the penstock, trees and other deep-rooted vegetation will not be allowed to grow within the 30-foot corridor centered over the penstock. This will prevent damage that could be caused by tree and shrub roots, and will accommodate inspection and maintenance. This 30-foot corridor area will be allowed to revegetate with native or locally adapted (non-invasive), shallow-rooted shrubs, grasses and forbs. Vegetation will be maintained by mowing and other methods along the penstock ROW, and will provide a permanent and locally diverse habitat compared to the commercial forest lands that occupy most of the area. The outer edges of the permanent penstock ROW, outside of the 30-foot corridor maintained in low-growing vegetation, will be seeded to prevent erosion and allowed to revegetate naturally. Trees and other deep-rooted vegetation will be allowed to grow in this outer area as consistent with King County requirements.

Other enhancements within the penstock ROW may include visual barriers (e.g. rock or woody debris piles, clumps of shrubs) to provide additional habitat for small mammals and birds and reduce the line-of-sight, thereby providing a more secure area for foraging or browsing wildlife. The temporary construction laydown areas and spoil sites will be replanted with conifers and returned to HTRG management.

Portions of the intake and powerhouse access road ROWs will be revegetated with low-growing grasses and forbs. Restricting vehicular access to these roads (by installing gates) will minimize disturbance impacts and allow wildlife to use the rights-of-way for travel and/or foraging.

As included in the ESCP, the primary method for revegetating disturbed soils will be reseeding with grasses and legumes (Table 2-1 and Table 2-2). Hydroseeding will be the preferred method of application, but hand broadcast seeding will be used wherever hydroseeding equipment cannot be used. The seed mixes should provide high quality forage for wildlife (particularly big game) within 1 year of planting. These seed mixes may change if it is discovered that a different mix would be of greater value to wildlife or more useful for erosion control in specific locations.

Table 2-1. Erosion Control Seed Mix – long term maintenance areas/no deep rooted vegetation allowed.

Seed variety	% by weight
Annual Ryegrass	25%
Perennial Ryegrass	25%
Creeping Red Fescue	20%
White Clover	15%
Chewings Fescue	15%
TOTAL	100%
*Apply at a rate of 100 lbs/acre	*Must be certified as "free of noxious weeds"

Table 2-2. Erosion Control Seed Mix – natural revegetation/deep-rooted vegetation allowed.

Seed variety	% by weight
Soft white winter wheat	53%
Slender wheatgrass	21%
Annual Ryegrass	21%
Austrian winter peas	5%
TOTAL	100%
*Apply at a rate of 95 lbs/acre	*Must be certified as "free of noxious weeds"

All portions of the penstock ROW will be reseeded within 1 year of penstock burial. The seed mixes shown in Tables 2-1 and 2-2 will be applied. The seed mix listed in Table 2-1 utilizes lower-growing grasses and forbs in an effort to produce adequate ground cover for erosion control while providing habitat for small mammals and reducing maintenance costs by out-competing native trees and deep-rooted vegetation that would otherwise have to be mowed on a regular basis. Table 2-2 lists a seed mix that was developed by the U. S. Forest Service to use in revegetating abandoned roads. This mix is intended to be more short-lived, thus providing forage and protection from erosion while allowing native vegetation to seed in. This seed mix will be used in areas where native vegetation, including trees, will be allowed to grow, primarily within the outer portion of the permanent ROW and on temporary construction sites. These tables may be updated based on changes in recommended management techniques for the given area and habitat, recommendations by WDFW, USFWS, King County, or other agencies with jurisdiction, or based on research by District Biologists.

Shallow-rooted native or locally adapted (non-invasive) shrubs and forbs will be allowed to naturally repopulate the 30-foot corridor over the penstock. The area outside of the 30-foot corridor but within the permanent ROW will be allowed to revegetate with native trees and shrubs. Along the penstock ROW, shrubs (and trees, where permitted) will be allowed to mature and form pockets or clumps which will help to conceal wildlife utilizing the ROW. The long-term presence of palatable herbaceous and shrubby plants on the ROW will provide an early successional habitat type that consistently provides open areas with forage, uncommon in the typically dense coniferous forest stands at varying ages surrounding the Project and managed for commercial timber. Trees and deep-rooted vegetation will be removed or mowed on the 30-foot strip centered over the pipeline as needed.

Placements of woody debris/rock piles or other sight barriers will help to break up the line-of-sight along the penstock ROW. These barriers may be placed along portions of the entire penstock ROW, unless topography prevents such installations or makes them unnecessary to break up the line-of-sight.

Noxious and invasive weed control will be performed as needed to comply with applicable noxious weed regulations as described in Section 2.3.

2.1.1.3. Other Mitigation Measures

If special status species are observed in the Project area in the future, during construction and operation, the District will consult with WDFW. Raptor surveys conducted in 2013 did not identify any special status raptor species in the Project area and the active timber harvesting in the area provides fragmented and marginal raptor habitat (Hamer 2014a and 2014b), therefore no specific raptor mitigation is proposed.

The Amphibian and Reptile Surveys conducted in 2013 indicate that Project construction and operation will not have a significant impact on amphibians and reptiles in the area, given the small footprint of the Project (HDR 2014). Wetland and stream mitigation and enhancement measure described in Section 2.2 are expected to fully mitigate for any effects to amphibians associated with the Project.

2.1.2. Monitoring and Reporting

All mitigation areas will be monitored to ensure the objectives of this plan are met. Monitoring of the upland forest mitigation areas will consist of periodic checks of the overstory vegetation. Revegetated and reseeded areas will be checked annually during the life of the license and observations will be included in an annual summary report to WDFW. Coverage of shrubs and grasses will be visually evaluated. If the estimation of coverage by bare ground or invasive weeds is more than 20%, maintenance activity such as reseeding/ replanting or weed control will occur. Failure of revegetation efforts is highly unlikely given the rapid rate at which vegetation grows in western Washington. Should the revegetation efforts fail, the District will make recommendations to the FERC and the agencies for alternate measures.

The District will provide a written report to the FERC every five years, and will provide a written summary report to WDFW and the USFWS annually. The first final annual monitoring report shall be submitted to WDFW and USFWS by March 31 of the first full year following construction, and then every year thereafter for the duration of the license. The first 5-Year Report shall be filed with FERC by March 31 following five full years post construction, and then every five years thereafter for the duration of the license. For reports filed with the FERC, the District will allow a minimum of 30 days for USFWS and WDFW to comment prior to filing with the FERC.

Reports will summarize activities during the intervening period and identify those planned for the next period. Monitoring data will be presented in summary form and analyzed. Problems and proposed changes in the TRMP, if any, will be discussed in the reports. The District will include with the 5-Year Report any comments or recommendations received from the agencies. If the District does not agree with a recommendation, the report will include the District's reasons, based on Project-specific information.

2.1.3. Schedule of Implementation

Purchase, lease or easements for lands used for mitigation lands will be completed prior to Project construction.

Reseeding of areas disturbed during construction will be completed within 1 year of Project completion.

Additional management measures (described above in Section 2.1.1.2.) within the mitigation areas will be completed within 5 years of Project construction, unless site specific conditions indicate better wildlife habitat can be produced by intervening at a later date.

Gates will be installed during construction, or immediately thereafter.

Monitoring and reporting to the FERC and the wildlife agencies will occur as indicated above under Section 2.1.2.

2.2. Wetland and Stream Vegetation Protection, Mitigation and Enhancement

There are approximately 5.49 acres of wetlands within a 300-foot buffer around the Project footprint (Figure 2-1 and Table 2-3). Herrera Environmental Consultants prepared a preliminary Critical Areas Report and Vegetation Assessment, and Addendum for the District (Herrera 2012a and 2012b); much of the background information for wetland and stream mitigation is based on those reports. Herrera characterized most of the wetlands as palustrine forest, with small areas of palustrine scrub-shrub and palustrine emergent wetland. Four of these (H1a, H1b, H2 and H3) are located along the margins of Hancock Creek, where they are fed by overbank flows as well as seeps from slopes above the creek and precipitation. Five wetlands (H4, H5, H6, H10, and H11) are located in topographic depressions on the glacial terrace northeast of the Project Boundary. Four wetlands (H7, H8a, H8b, and H9) are fed by seeps along the slopes north of Hancock Creek. Wetland H13, south of Hancock Creek, is fed by perennial springs/seeps and precipitation.

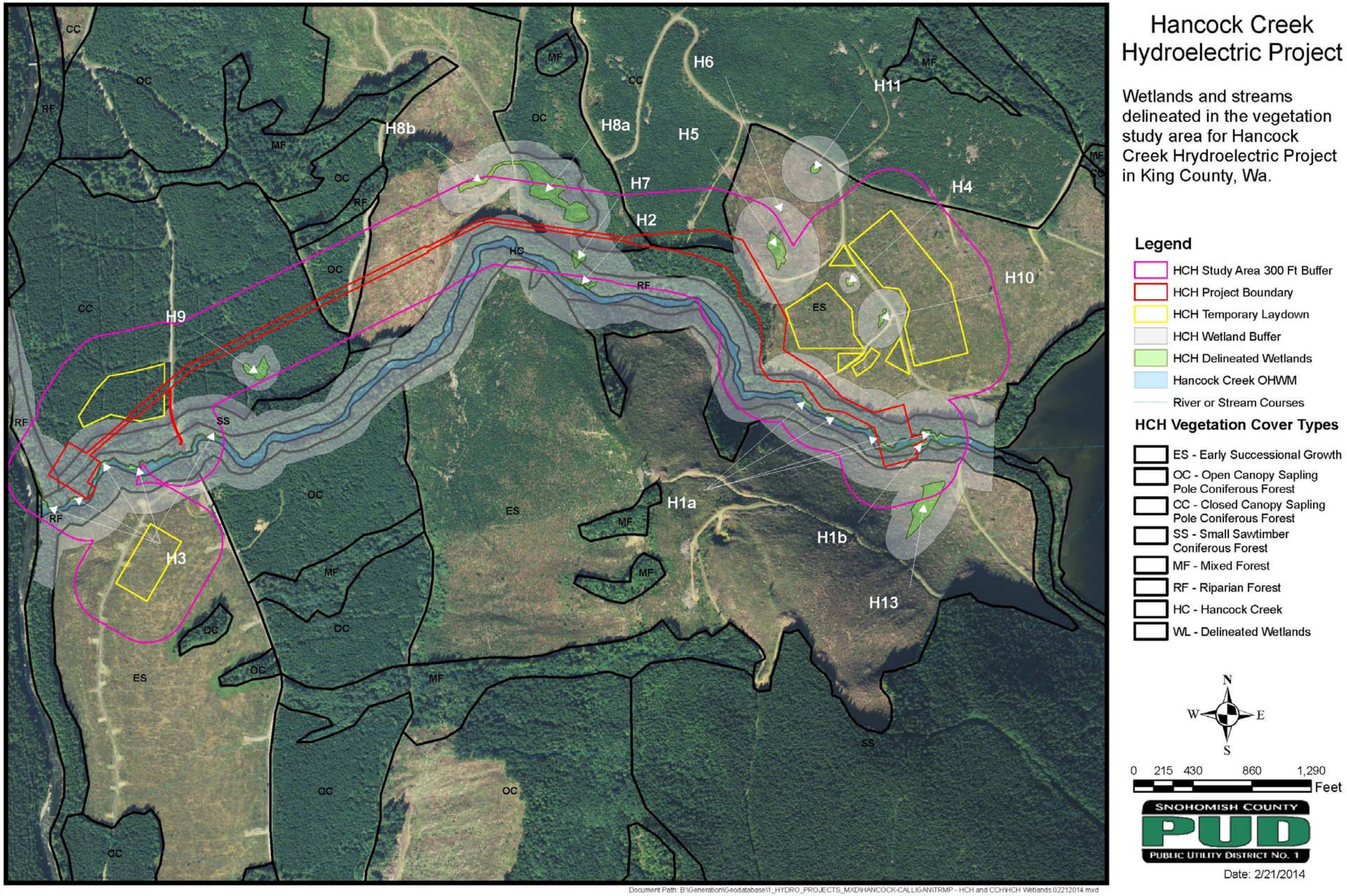


Figure 2-1. Wetlands and streams delineated in the vegetation study area for the Hancock Creek Hydroelectric Project in King County, WA.

Table 2-3. Wetlands delineated in the study area for the Hancock Creek Hydroelectric Project in King County, WA.

Wetland Name	Wetland Size (sq. ft.) [a]	Wetland Size (acre) [a]	USFWS Classification [b]	Hydrogeomorphic Classification [c]	Ecology Rating Category [d]	King County Buffer Width (feet) [e]
H1a	14,951	0.34	PFO	Riverine	II	285
H1b	7,390	0.17	PFO	Riverine	II	285
H2	6,337	0.15	PFO	Riverine	II	285
H3	16,912	0.39	PFO	Riverine	II	285
H4	2,669	0.06	PEM	Depressional	IV	50
H5	20,852	0.48	PFO	Depressional	I/II [f]	250
H6	32	<0.001	PSS	Depressional	III	80
H7	7,359	0.17	PFO	Slope	II	225
H8a	79,045 [a]	1.81 [a]	PFO	Slope	III	150
H8b	15,464 [a]	0.36 [a]	PFO	Slope	III	150
H9	16,511	0.38	PFO	Slope	III	80
H10	3,886	0.09	PSS	Depressional	II	150
H11	3,694	0.08	PFO	Depressional	II	210
H13	44,055	1.01	PSS	Slope	III	150
Total Acres		~5.49				

[a] Wetland size is approximate for indicated wetlands because wetland boundaries were estimated for a portion of the wetland.
[b] USFWS classification is based on Cowardin et al. (1979): palustrine forested (PFO), palustrine scrub-shrub (PSS), and palustrine emergent (PEM).
[c] Hydrogeomorphic classification is based on Brinson (1993).
[d] Wetland category is based on the Ecology wetland rating system (Hruby 2004), as required by King County (21A.24.318).
[e] Wetland buffer widths are based on the Ecology wetland rating, per the King County Code 21A.24.325. Actual buffer widths are subject to change based on King County's review of the Project and site conditions.
[f] Wetland H5 is a Category I wetland based on bog special characteristics, and a Category II wetland based on functions.
Note: Table based on Herrera 2012b. H12 was re-evaluated in June 2013 by Wetland Resources, Inc. and did not meet the criteria for being a wetland.

In addition to USFWS classifications (Cowardin et al. 1979), Table 2-3 also shows classifications based on an Ecology rating system (Hruby 2004). The rating system is used to help determine how wetlands should be managed and the width of protective buffers that may be needed.

Wetland Resources, Inc. prepared a wetland, stream and buffer mitigation plan for the District (WRI 2014). The measures in this plan are based on the prescriptions identified in that plan, and it should be consulted for additional details.

The necessary mitigation sequencing required by King County (King County Code [KCC] 21.A.24.125) and the Washington State Environmental Policy Act (SEPA) (Chapter 43-21C RCW) was employed in developing mitigation measures (WRI 2014). This sequencing is similar to the USFWS mitigation objectives described in Section 1. Compensatory mitigation in accordance with King County critical areas regulations (KCC 21A.24.130) must be implemented

for permanent impacts (and most temporary impacts) on wetlands, streams, and their buffers, such that mitigation results in no net loss of functions for each critical area affected. WDFW mitigation guidelines specify a goal of no net loss of any wildlife habitat functions and values, rather than focusing only on wetlands, streams, and buffer areas.

As part of the proposed Project, certain impacts are unavoidable as part of the design. In-stream work for the diversion is necessary to provide water for the downstream powerhouse. The penstock must run downslope from the intake to the powerhouse in a relatively direct alignment, and the powerhouse must be located near the stream channel for the discharge of hydrology to enter the stream system (WRI 2014).

To minimize impacts, the District shifted the planned penstock alignment, reduced the width of the working corridor in sensitive areas adjacent to the penstock, and moved planned laydown and spoils locations to avoid critical areas and their buffers. Potential impacts have been avoided to the greatest extent possible. Specifically, in order to avoid impacts, the District shifted the penstock alignment away from Wetlands H8 and H9. From the District's initial planning stages, the proposed penstock alignment avoided Wetland H5 (a Category I bog). The maximum penstock excavation depth was reduced from over 100 feet to 41 feet. The District proposed plan also reduces the overall temporary impacts within wetland and stream buffers and places all the laydown and spoils into a cleared area outside of all sensitive areas and buffers. The laydown/spoils areas are located in recently harvested areas. The District will employ Best Management Practices to minimize Project impacts during construction.

The nature of run-of-the-river hydroelectric projects necessitates permanent impacts within the stream and any adjacent wetlands at the intake structure and powerhouse sites. Unavoidable permanent impacts include: the intake and powerhouse facilities, roads, and the tailrace at the powerhouse. The total area of permanent wetland, stream and buffer impacts is 1.03 acres. This includes 0.01 acres of wetland impact, 0.04 acres of stream impact, and 0.98 acres of buffer impact (Table 1-2).

Unavoidable temporary impacts include: clearing for construction, penstock area excavation and the laydown and spoils areas. These actions will impact the stream buffer, some wetland areas, and wetland buffers. The total area of temporary wetland, stream and buffer impacts is 7.10 acres, which includes 0.03 acres of wetland impact, 0.07 acres stream impact, and 7.00 acres of buffer impact (Table 1-3).

2.2.1. Management Methods

Mitigation ratios were determined using the debit/credit method developed by Washington State Department of Ecology. Mitigation methods comprise a combination of restoration of temporary impacts, preservation of Category I/II and III wetlands and buffers by preventing future timber harvest activities. See Tables 2-4, 2-5, and 2-6.

All areas of temporary impacts to wetland and buffer will be restored. Permanent impacts to buffers will be off-set by allocating additional buffer area in the vicinity of the impact. Permanent and temporary impacts to wetlands and streams will be off-set by preserving wetland and buffer areas in the vicinity of the proposed Project site (Figure 2-2). Note that the boundaries are in negotiation and may be shifted to include the same acreages of like habitat.

In addition to the wetland, stream, and wetland/stream buffer mitigation provided related to the debit/credit calculations, replacement mitigation for upland habitat that will be permanently impacted by the Project for the intake, the powerhouse, and new access roads is included in this section for continuity of management (See Table 1-2). For the Hancock Creek Project, of the 1.08 acres of upland habitat, 0.98 acres are within King County wetland and stream buffers that are addressed in the credit/debit calculations. Replacement habitat is needed for the remaining 0.10 acres of upland habitat affected permanently, but not included in buffer areas. Following the recommendation from WDFW (letter dated June 4, 2010 to Scott Spahr from Mark Hunter) replacement habitat for permanent impacts to upland habitat requires a 2:1 replacement. Therefore, 0.20 acres of upland habitat will be required for upland mitigation. For increased habitat value, logistical purposes and ease of management, the District is including the 0.20 acres of upland habitat as an additional buffer area (see Figure 2-2 and Table 2-4), thus creating a larger parcel of mitigation land.

In addition, another 6.59 acres of preservation buffer area was added to mitigate for temporal impacts to mature forest habitat at both Hancock Creek and Calligan Creek Hydroelectric Projects. This added preservation buffer area is located near the Calligan Creek Project powerhouse and is presented in the Calligan Creek Project's TRMP (see Figure 2-2 in the Calligan Creek Project's TRMP).

Table 2-4. Buffer mitigation calculations.

Buffer Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary*	7.0	1:1	7.0	Restoration
Permanent	0.98	2:1	1.96	Buffer Preservation
TRMP*	0.1	2:1	0.20	Buffer Preservation

*****See Calligan Project TRMP Figure 2-2 for added buffer preservation area to mitigate additionally for temporal loss of mature forest habitat.

Table 2-5. Wetland mitigation calculations.

Wetland Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	0.03	3:1	0.09*	Restoration/ Preservation
Permanent	0.01	152:1	1.52	Preservation

*0.03 Restoration/0.06 Preservation

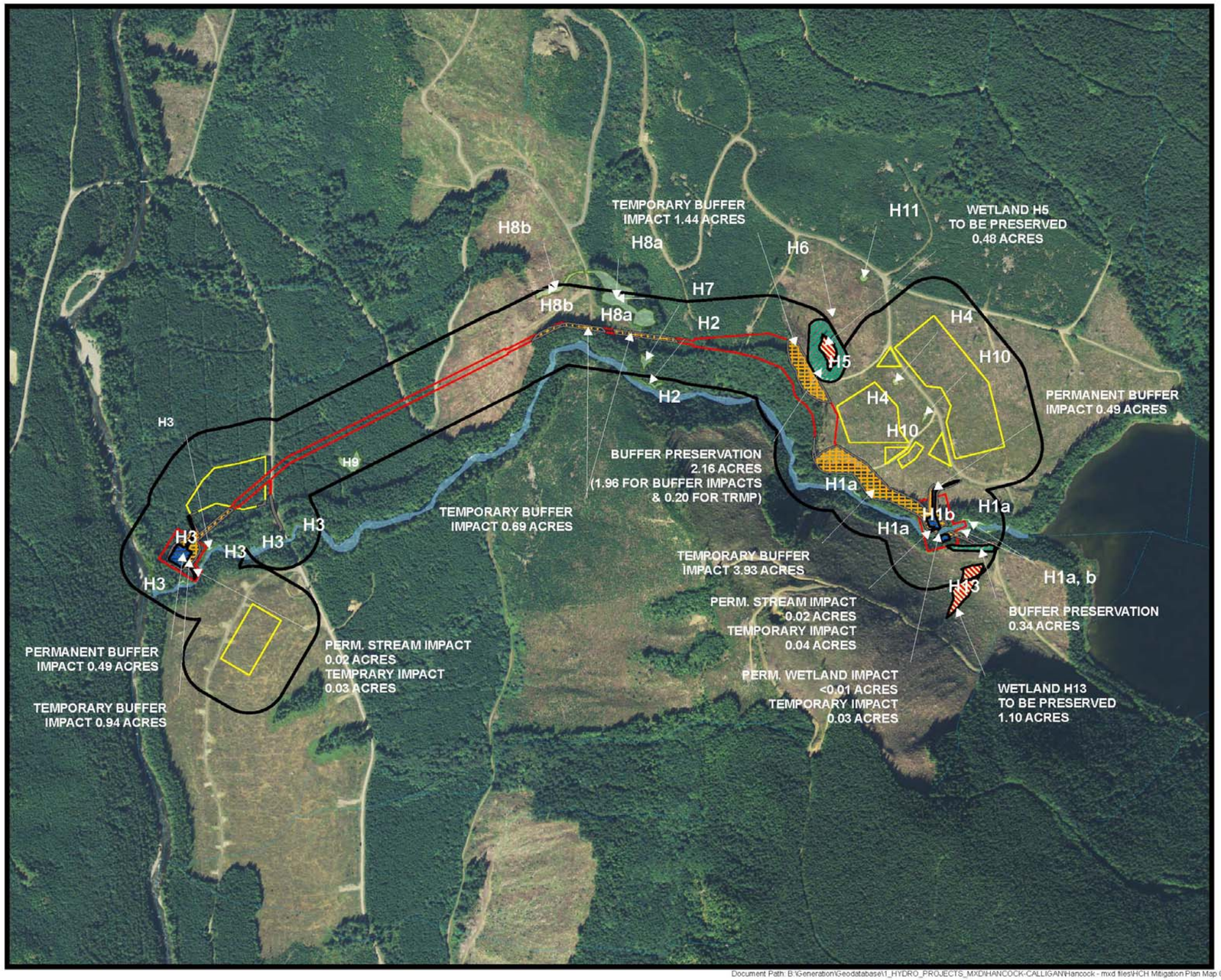
Table 2-6. Stream mitigation calculations.

Stream Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	0.07	2:1	0.14*	Restoration/ Buffer Preservation
Permanent	0.04	>6:1	0.27	Buffer Preservation

*0.07 Restoration/0.07 Preservation

The goal of wetland, stream and buffer mitigation for the Project is to preserve 1.58 acres of Category I/II and III wetland area and 2.5 acres of buffer area, and to restore 7.10 acres of temporarily impacted wetland, stream and buffer to their pre-impact functions and values. The

objectives are to maintain and eventually increase hydrologic, water quality, and habitat functions and values within the surrounding basin over post-harvest conditions. Another objective is to establish a functioning native vegetation community within the temporary impact areas similar to the surrounding undisturbed portions of the site.



Hancock Creek Hydroelectric Project

MITIGATION PLAN MAP
KING COUNTY, WA
WRI #13046

Legend

- 300' Investigation Area
- Wetland Preservation
- Additional Buffer
- Permanent Buffer Impact - To Be Restored
- Temporary Buffer Impact - To Be Restored
- HCH Spoils/Laydown
- Wetlands (Herrera 2011)

N
W E
S

0 255 510 1,020 1,530
Feet

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Date: 2/21/2014

Figure 2-2. Wetland, stream, buffer and upland mitigation areas.

The entire Project area is on HTRG land and is currently used for commercial timber harvesting. Logging and clearing of land increases erosion and removes habitat from the area. Preservation of wetland features and their associated buffers within timber harvest areas will assist in decreasing overall soil erosion and habitat loss. Providing preservation of upland areas near the streams will increase the habitat functions of the area. Ensuring dense, native vegetation remains in these areas will greatly increase all functions of the wetland. Preservation ensures wetland areas will continue to provide crucial water quality, hydrologic and habitat functions. A detailed description of the credit/debit method and functions and values analysis of the impacted area and the mitigation area is discussed in the Mitigation section of the Wetland and Stream Mitigation Plan (WRI 2014).

All potential impacts will be mitigated through a combination of restoration of temporary wetland, stream and buffer impacts, preservation of high quality wetland, stream and buffer areas, and providing additional buffer area adjacent to Hancock Creek.

2.2.1.1. Preservation

The entirety of wetland H5 (0.48 acres) and H13 (1.10 acres) will be preserved for a total of 1.58 acres of wetland preservation. In addition 2.5 acres of buffer preservation will occur adjacent to Wetland H5 and between Wetland H13 and Hancock Creek. Due to the large seed source and native volunteers present in this area, no additional plantings will take place within the preservation area.

Wetland H5 is a Category I/II Bog. The majority of the large trees (70%) within this bog have been removed as part of a recent forest practices activity. Mitigation would preserve Wetland H5 and its associated buffer, preventing future timber harvest activities. This would preserve 0.48 acres (20,908 square feet) of wetland.

Bogs are rare features with irreplaceable functions. Wetland H5 has a high potential to improve water quality and store stormwater that could be potentially damaging to downstream systems. The vegetation and water storage provided by Wetland H5 will increase the water quality within the immediate area and Hancock Creek.

In order to meet the required mitigation area prescribed by the debit/credit system, 1.10 acres of wetland H13 will be preserved as mitigation for the Hancock Creek Project. Wetland H13 is a Category III slope wetland located within the Hancock Creek basin, just upslope of the intake structure. The dense regenerating vegetation in H13 creates the potential for it to perform a bio-filtration function and erosion control. H13 also has a low level of invasive species, high level of special habitat features, and multiple hydroperiods. These characteristics create the potential for this wetland to provide future high quality habitat functions. In addition and to address both temporary and permanent impacts to the stream, additional buffer preservation is proposed between H13 and Hancock Creek. This buffer preservation area will protect the area south of Hancock Creek within a harvestable area for the benefit of water quality as well as fish and wildlife habitat.

By preserving a Category I/II and III wetlands and buffer, this mitigation plan will enhance the functions and values of the surrounding area by providing quality habitat and stormwater storage, which will increase the water quality of the vicinity.

2.2.1.2. Wetland Restoration Planting

During the excavation of the penstock trench, wetland soils will be stockpiled separately. Wetland restoration will be accomplished by returning the soil to roughly its original structure and planting shallow rooted shrub species similar to what was found within these wetland areas prior to disturbance. Trees will not be planted within the temporary impact areas over the top of the penstock (see Section 2.1). In addition, given the potential seed source surrounding these impacts, a significant component of native regeneration is expected to occur. A total of 0.03 acres of temporarily affected wetlands will be planted with the following (or similar species accepted by the District Biologist or a King County representative) as described in Table 2-7:

Table 2-7. Species suggested for planting in wetlands.

Common Name	Latin Name	Size	Spacing	Quantity
Salmonberry	*Rubus spectabilis*	1 gallon	5 feet	26
Twinberry	*Lonicera involucrata*	1 gallon	5 feet	26
Slough sedge	*Carex obnupta*	sprig	1.5 feet	581

2.2.1.3. Buffer Restoration Planting

All temporary impacts will be restored by returning soil to its approximate horizon, planting shrubs, and seeding any open areas within the Project area. The proposed mitigation plan to restore all the temporary impacts provides a 1:1 ratio of mitigation area to affected area. Due to the large seed source and presence of native volunteers in the area, the density of the shrubs planted has been decreased from the 5-foot on center standard. A total of 7.0 acres of temporarily affected buffer will be planted with the following as described in Table 2-8:

Table 2-8. Species suggested for planting in buffer areas.

Common Name	Latin Name	Size	Spacing	Quantity
Red elderberry	*Sambucus racemosa*	1 gallon	9 feet	1,000
Salmonberry	*Rubus spectabilis*	1gallon	9 feet	1,382
Snowberry	*Symphoricarpos albus*	1 gallon	9 feet	1,382

All bare ground within the areas of wetland disturbance shall be seeded with the seed mixtures in Table 2-1 and 2-2. Similar native seed mixes are acceptable, upon approval of the consulting professional. Fertilizer shall not be used unless absolutely necessary. If deemed necessary by the consulting professional and/or the County representative, an appropriate fertilizer shall be applied.

Implementation of measures described above will follow the guidelines specified in WRI 2014. The wetland and buffer restoration areas will support a minimum of 80% of the native plants set forth in the approved mitigation plan by the end of five years. No more than 10% invasive species, including Class A noxious weeds shall be present within the restoration areas by the end of five years. Critical Area signs shall be intact and in good condition at the end of five years.

2.2.1.4. Maintenance

The mitigation areas will require periodic maintenance to replace vegetation mortality as necessary. Maintenance shall be required in accordance with King County Sensitive Areas Restoration Guidelines (2002) and approved plans. Maintenance may include, but not be limited to, removal of competing grasses (by hand if necessary), irrigation, fertilization (if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by King County Department of Development and Environmental Services (DDES) staff, shall be applied by a licensed applicator following all label instructions.

The District will maintain the mitigation area for the duration of the monitoring period (five years). Maintenance will include watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds that require control (see Washington State Noxious Weeds List, WAC 16-750-005 and Section 2.3 of this TRMP) and Himalayan blackberry, and any other measures needed to insure plant survival. The District Biologist will direct all maintenance.

2.2.2. Monitoring and Reporting

The District will be responsible for the health of 100% of all newly installed plants for one growing season after installation has been accepted by the King County DDES Environmental Scientist (see Performance Standards in WRI 2013). A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15, of the following year). For fall installation (often required), the growing season will begin the following spring. The District will replace any plants that are failing, weak, defective in manner of growth, or dead during this growing season.

Replacement plants will be installed between September 15 and January 15, unless otherwise determined by the District Biologist and/or King County DDES Environmental Scientist.

Upon completion of the proposed mitigation project, an inspection by a District Biologist will be made to determine plan compliance. A compliance report will be supplied to King County within 30 days after the completion of planting. A biological scientist will do condition monitoring of the plantings in the fall, annually. A written report describing the monitoring results will be submitted to King County after each site inspection of each monitored year. Final inspection will occur five years after completion of this project. A report as to the success of the project will be prepared.

The wetland and buffer mitigation areas shall support at least 80% of the native plants set forth in the approved mitigation plan by the end of five years. The species mix should resemble that proposed in the planting plans, but strict adherence to obtaining all of the species shall not be a criterion for success. By the end of the fifth growing season, the percent areal coverage of native plants shall be 80% in the mitigation areas. Additional monitoring details are described in WRI 2013.

Reports will include:

- Initial compliance report
- Yearly site inspection (once per year in the fall) for five years
- Annual reports including final report (one report submitted in the fall of each monitored year)

Monitoring reports shall be submitted by October 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

- Site plan and location map
- Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
- Plant survival, vigor, and areal coverage for every plant community (transect data), and explanation of monitoring methodology in the context of assessing performance standards
- Site hydrology, including extent of inundation, saturation, depth to groundwater, function of any hydrologic structures, piezometer or staff gauge data if available, inputs, outlets, etc.
- Slope condition, site stability, any structures or special features
- Buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
- Observed wildlife, including amphibian, avian, and others
- Assessment of nuisance / exotic biota and recommendations for management
- Soils, including texture, Munsell color, rooting, and oxidized rhizospheres
- Receipts for any structural repair or replacement
- Color photographs (4”x 6” in size) taken from permanent photo-points (see WRI 2013 for more detail)

2.2.3. Schedule of Implementation

All mitigation plantings will take place in early spring or late fall following WRI 2013, within 18 months following construction.

Inspections will occur annually in the fall, for the first 5 years following planting.

An initial compliance report will be supplied to King County within 30 days after the completion of planting.

Monitoring reports shall be submitted to King County by October 31 of each year during the first 5 years. These reports will be included in the annual TRMP reports to the resource agencies identified and in the FERC’s first 5-Year Report.

2.3. Noxious Weed Management

Construction and operation of the Project has the potential to increase the risk of introducing or spreading noxious weeds that ultimately degrade wildlife habitat quality. Landowners in Washington are required by State law and County ordinances to control the spread of certain noxious weeds on their property.

The District conducted noxious weed surveys in the Project Area in 2011 and 2012 (Herrera 2012a, 2012b). Noxious weeds are defined as those regulated at the State level by the Washington State Noxious Weed Control Board, and classified as follows by King County:

- Class A weeds include those nonnative species with limited distribution in Washington State, and whose eradication is required by State law.
- Class B weeds include species that are very abundant in some portions of the State, but have limited distribution (or absence) elsewhere in the State. Control of Class B weeds is required in areas where they are not yet widespread, as prevention of new populations is the primary management objective for this weed class designation. In areas where a Class B weed is prolific, the State authorizes the local jurisdiction (in this case King County) to determine control requirements, with the primary objective of containing existing populations and preventing spread.
- Class C weeds are those species that are already widespread in Washington State, and control levels for these species is determined by local jurisdictions; local governments can either require control of Class C weeds or choose to invest resources in educating residents about noxious weed impacts and control.

No Regulated Class A or Class C weeds were identified in the study area. One Regulated Class B noxious weed (not designated by the State Weed Board for control, but selected for control in King County), tansy ragwort (*Senecio jacobaea*), was found in multiple locations within 300 feet of the Project footprint (Figure 2-3).

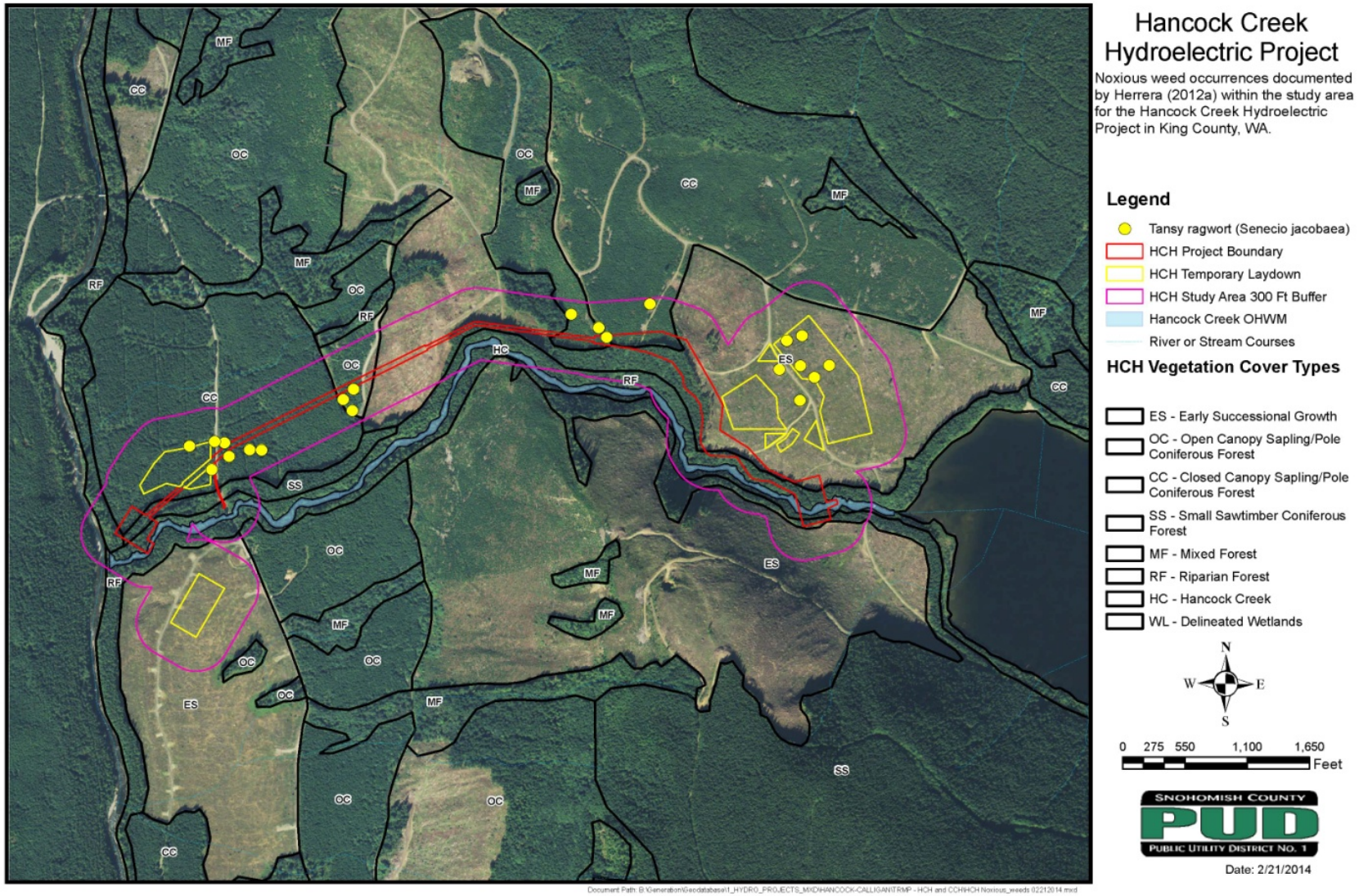


Figure 2-3. Noxious weed occurrences documented within the vegetation study area for the Hancock Creek Project.

There are a number of other invasive species in the study area that are Non-regulated Class B and C noxious weeds (Table 2-9). Control of these weeds is not required in King County. They occur along roadways, in clearcuts, and in young forests, and include Scotch broom (*Cytisus scoparius*), common St. Johnswort (*Hypericum perforatum*), common tansy (*Tanacetum vulgare*), Himalayan blackberry (*Rubus armeniacus*), evergreen blackberry (*Rubus laciniatus*), oxeye daisy (*Leucanthemum vulgare*), and Canada thistle (*Cirsium arvense*).

Table 2-9. Noxious weeds occurring in the Hancock Creek Project area and 2013 King County Management Status.

Scientific Name	Common Name	2013 King County Management Status
Senecio jacobaea	tansy ragwort	Regulated Class B
Cytisus scoparius	Scotch broom	Non-regulated Class B
Hypericum perforatum	St. Johnswort	Non-regulated Class C
Tanacetum vulgare	common tansy	Non-regulated Class C
Rubus armeniacus	Himalayan blackberry	Non-regulated Class C
Rubus laciniatus	evergreen blackberry	Non-regulated Class C
Leucanthemum vulgare	oxeye daisy	Non-regulated Class C
Cirsium arvense	Canada thistle	Non-regulated Class C

Regulated Class B: Control is required (prevention of all seed production)
Non-regulated Class B: No specific management required
Non-regulated Class C: No specific management required

2.3.1. Management Methods

2.3.1.1. Treatment

The District will treat noxious weed sites that were identified during the 2011 and 2012 inventory (Figure 2-3), as well as newly observed noxious weeds that require control, on Project lands. Methods will include pulling, digging, cutting and treatment with herbicides following methods recommended by the King County Noxious Weed Board or other credible sources for a particular weed species (King County 2013 and as updated, U.S. Department of Agriculture 2013 and as updated, Smayda Environmental Associates, Inc. 2009). Management of tansy ragwort, the one species observed during surveys that requires control is described in detail in Appendix 3. This information as well as the measures described below were taken from Smayda Environmental Associates, Inc. (2009).

Treatment will occur annually, during the growing season. In addition to the species on Table 2-9, any regulated species or King County selected noxious weeds that are reported on Project lands during a given year will be incorporated into the plan and managed in accordance with applicable Washington State law and County regulations. Target Weed Species for the Hancock Creek Project will be updated annually to reflect new species occurrences and changes in management status.

When necessary, and where allowed, herbicides are used to treat individual plants and populations, but every attempt is made to preserve the adjacent desirable vegetation. Recurring infestations along segments of the penstock right-of-way and on other Project lands will be treated by herbicide application one or more times during the growing season, as necessary.

Weed treatment locations will be noted on a project map and GPS coordinates will be recorded for the general areas where weed treatment occurs. This information will be entered into the District's GIS database.

2.3.1.2. Disposal of Materials

Plant material from noxious weed species will be disposed of in a way that ensures that no seeds, roots, or other portions of the plant capable of reproduction, are spread. Plant material will be bagged on site if any flowers or seeds are present; paper or plastic bags can be used. Some species, particularly members of the aster family, can produce seed from immature heads on cut plants; these plants should be bagged even if only in bud. Plant material will be transported to a contained disposal site or an approved landfill. Alternatively, noxious weed material may be buried deeply below a 24-inch or greater layer of weed free soil or rock fill. This should be accomplished as close to the originating site of the weeds as possible, to avoid transport of the species to new areas. This method may not be 100% effective, as seed or other propagules may be inadvertently deposited in surface layers.

Soil excavated from sites with noxious weed populations will not be transported to other sites or used as topsoil, to avoid spreading weed seeds or other propagules. The soil can be disposed of at a contained site or an approved landfill. An alternative disposal method is to bury the weed contaminated topsoil as fill below a 24-inch or greater layer of weed-free topsoil, or beneath a similar depth of rock fill. Burial of weed material will be accomplished as close to the originating site of the weeds as possible, to avoid transport of the species to new areas. This method may not be 100% effective, as seed or other propagules may be inadvertently deposited in surface layers.

2.3.1.3. Revegetation

Revegetation of disturbed soils with fast-growing, desirable plant species is a primary method of preventing weed establishment. Soil disturbance can stimulate germination of weed seed that has accumulated in the soil as well as provide substrate for newly introduced seed. Short term erosion control vegetation can provide protection against weed establishment; however, erosion control seed mixes often are comprised of non-native, and sometimes persistent or invasive, species. In developed, human-maintained habitats, such as landscaped areas, non-native species may be appropriate and acceptable. However, in native plant communities, it is often desirable to revegetate with a seed mix comprised of natives or non-native, non-invasive species that will not out-compete native species.

The District will revegetate sites where Project-related activities result in substantial areas of habitat and soil disturbance (See Section 2.1). Revegetation actions will reflect consideration of each site's vegetative condition and future land use, adjacent land uses, habitat management objectives, and site maintenance requirements. The use of native plants will be considered for sites located in relatively undisturbed, native plant-dominated communities. Non-invasive, non-native plant species will be used where their use is consistent with current and expected future

land uses (e.g., frequently disturbed sites, managed forest stands) and where necessary to achieve objectives associated with site management and maintenance activities (e.g., forage production, erosion control, temporary cover, soil conditioning, and weed suppression.).

2.3.1.4. Prevention

Weed management will include the prevention of the introduction and spread of weeds through early detection, effective treatment, education of Project staff about weed issues, and proper planning and management of ground-disturbing activities. Weeds are readily spread from infested to non-infested areas on the tires, tracks, or blades of heavy equipment. Trucks, off-road vehicles, and even hand tools can transport weed propagules. Contaminated soil and rock fill, mulch, and seed also are often responsible for new weed infestations. Conversely, the availability of heavy equipment can be an opportunity for the weed manager to reduce existing populations at a reduced cost. The weed plan manager should be an active participant, with Project engineers and design professionals, throughout the construction planning and implementation process. By incorporating weed prevention design considerations and practices, weed management costs can be reduced.

Weed prevention practices to be implemented at the Project are presented in Appendix 4.

2.3.2. Monitoring and Reporting

Monitoring of weed populations on Project lands will be conducted by District staff during the growing season. Locations of weed infestations will be noted by District staff and treatment measures will be implemented. Project-specific roads and the penstock ROW will be patrolled several times during the growing season to identify areas where weed control is required.

District staff will note the locations of weed infestations on Project maps and enter the location data into the District's GIS database. The dates and specific information related to implementation of control measures will be documented. Weed monitoring and treatment activities will be reported as part of the TRMP reporting process.

Incidental observations of weeds on Project lands will be reported by staff conducting other activities on Project-specific roads, at Project facilities, and on Project mitigation lands. Because weed infestations are most readily eradicated when they are small, early detection will be the key to successful weed management. Incidental observations of target weed species will be reported by District Biologists and other field staff, using a standard District form. Weed sightings will be referred to a trained weed manager so that treatment action can be implemented as soon as possible.

Incidental observations of target weeds within the Project Boundary will be included in the Annual Report. In addition to the target weed species listed in Table 2-9, any species of Class A, Class B designate, or King County selected noxious weeds that are reported on Project lands during a given year will be incorporated into this plan and managed in accordance with applicable Washington State law and King County regulations.

As part of the TRMP reporting process, an annual update will be prepared summarizing the noxious weed treatment and monitoring activities of the previous year and any updates to the plan or its appendices. This summary and update of weed management activities will be

distributed to the parties consulted regarding weed management, as listed in this plan under Section 1.4 Consultation.

Weed management is dynamic in terms of regulatory requirement, weed occurrence, site conditions, and treatment methodology. Specific elements of the plan require annual review and update, including the list of target noxious weed species required to be managed and the list of weed species occurring within the Project boundary. The list of sites to be treated and/or monitored and the list of available treatments and prevention practices also will require periodic review and update. Periodic (5-year) review of plan accomplishments and update of lists and appendices, prepared in consultation with the agencies will be provided to FERC as part of the TRMP 5-Year Report.

2.3.3. Schedule of Implementation

Within the first two years after license issuance, the District will implement treatment at all weed sites requiring management on Project lands that were identified during the 2011 and 2012 inventory, as well as newly observed weeds.

Monitoring of Project-specific roads, facilities, and treated weed sites will be conducted annually by District personnel with most activity occurring during the spring/summer/early fall field season. Newly treated sites as well as those weed sites under management on Project lands will be monitored and retreated as necessary. District personnel will typically survey the most disturbed and weed-prone Project habitats, such as the powerhouse, penstock ROW, and intake area, three to four times per growing season.

3. LITERATURE CITED

Franklin, J.F. and C.T. Dyrness. 1988. Natural vegetation of Oregon and Washington. Gen. Tech. Rep. PNW-8. Portland, OR: US Dept. of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station.

Hamer Environmental. 2014a. Hancock Creek and Calligan Creek northern goshawk survey results. Final Technical Report. Prepared for Snohomish County PUD, Everett, WA.

Hamer Environmental. 2014b. Hancock Creek and Calligan Creek bald eagle, osprey and peregrine falcon survey results. Final Technical Report. Prepared for Snohomish County PUD, Everett, WA.

HDR. 2014. Amphibian and reptile pre-construction surveys and priority species evaluation. Final Technical Report. Hancock Creek Hydroelectric Project FERC No. 13994. Prepared for Snohomish County PUD, Everett, WA.

Herrera (Herrera Environmental Consultants). 2012a. Preliminary Critical Areas Report and Vegetation Assessment. Hancock Creek Hydroelectric Project. Prepared for Snohomish County Public Utility District No. 1 by Herrera Environmental Consultants. February 2, 2012.

Herrera. 2012b. Preliminary Critical Areas Report and Vegetation Assessment: Addendum. Hancock Creek Hydroelectric Project. Prepared for Snohomish County Public Utility District No. 1 by Herrera Environmental Consultants. August 12, 2012.

King County. 2013. Noxious Weeds. (http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/weed-control-practices/bmp.aspx.

Neitro, W.A, V.W. Brinkley, S.P. Cline, RW. Mannan, B.G. Marcot, D. Taylor, and F.F. Wagner. 1985. Snags (Wildlife Trees). In: Brown, E.R (ed.) Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington. U.S.D.A Forest Service, Pac. N.W. Region, Portland, Ore.

Smayda Environmental Associates, Inc. 2009. Henry M. Jackson Hydroelectric Project Noxious Weed Management Plan. Prepared for Public Utility District No. 1 of Snohomish County, Everett, Washington.

U.S. Department of Agriculture. 2013. National Information System for Regional IPM Centers. http://www.wrpmc.ucdavis.edu/.

USFWS. 1981. Federal Register 46:15. January 23, 1981. pp. 7656 to 7663. http://www.fws.gov/habitatconservation/FWS%20Mitigation%20Policy.pdf.

WDFW. Undated. POL-M5002. http://www.ecy.wa.gov/programs/wr/wstf/images/pdf/mitigatn.pdf.

WRI. 2014. Final Mitigation Plan for Hancock Creek Hydroelectric Project, King County, WA. Prepared by Wetland Resources, Inc., Everett, WA. January 24, 2014

Appendix 1
Cover Type Descriptions

Early Successional Growth

The early successional condition is characterized by small coniferous trees, shrubs and herbaceous vegetation (Figure A-1). In the Hancock Creek Project Area, these stands have been recently harvested (i.e., clearcut) and are in early regenerative stages dominated by shrubs, small conifers and herbaceous species common to disturbed sites. Conifers are generally less than 1 inch in diameter, less than 10 feet tall and provide no greater than 30% canopy cover. This stage may last for up to 10 to 15 years after even-aged timber harvest, depending on site conditions and management. In 2012, conifers in early successional stands in the Project Boundary were less than 5 feet tall and less than 5 years of age. The dominant conifer species in these stands include western hemlock and Douglas fir. Dominant shrub species include vine maple (*Acer circinatum*), salal, (*Gaultheria shallon*), tall Oregon grape (*Mahonia aquifolium*), salmonberry (*Rubus spectabilis*), red huckleberry (Vaccinium parvifolium), and thimbleberry (*Rubus parviflorus*). The dominant herbaceous species include sword fern (*Polystichum munitum*), lady fern (*Athyrium filix-femina*), small-flowered woodrush (*Luzula parviflora*), foxglove (*Digitalis purpurea*), and fireweed (*Epilobium angustifolium*).

Figure A-1. Early successional cover type in Hancock Creek Project Area.

Open Canopy Sapling/Pole Coniferous Forest

The open canopy sapling/pole coniferous forests in the Project Area are timber reproduction areas dominated by young conifers, and they exhibit varying ages, diameters, densities, and degrees of canopy closure depending on thinning practices and timing of management activities (Figure A-2). Vegetative cover in these areas, in general, is much higher than in early successional growth stands. Tree canopy closure typically is less than 60% and a shrub understory is present. These stands have yet to reach the closed canopy stage, or are young stands which have been thinned. Undergrowth in thinned stands is limited by a layer of slash. Coniferous trees are between 5 and 40 feet tall. This condition usually follows early-successional forest as a result of tree height growth. Trees are generally between 5 and 40 years of age, and are 1 to 12 inches in diameter, depending on management and site conditions. In 2012, conifers in open canopy sapling/pole stands within the Project Boundary, were between 5 to 30 feet tall and generally between 5 and 20 years old. The dominant conifer species are western hemlock and Douglas fir. The herbaceous and shrub layers are usually sparser and less diverse than in the early-successional stand conditions due to shading by the dominant tree layer, but varies in cover and diversity based on canopy closure. The dominant shrub species are salmonberry, thimbleberry, red elderberry (*Sambucus racemosa*), evergreen blackberry, and trailing blackberry (*Rubus ursinus*). The dominant herbaceous species include sword fern, foxglove, fireweed, and common St. Johnswort.

Figure A-2. Open canopy sapling/pole coniferous forest cover type in Hancock Creek Project Area.

Closed Canopy Sapling/Pole Coniferous Forest

This cover type is composed of second growth forests generally 5 to 40 years old, with tree canopy closure greater than 60%. Average pole diameter at breast height (dbh) in most stands is 1 to 12 inches, with larger trees over 16 inches. Dominant tree species are Douglas-fir and western hemlock, with western red cedar, red alder, and bigleaf maple being common subordinates. Canopy gaps are uncommon and small; they are generally characterized by a dense shrub layer and/or deciduous tree species. Within the densest stands, understory and herbaceous vegetation are sparse, except for a variety of moss species and sword fern. The dominant shrub species include red huckleberry, Alaskan blueberry (*Vaccinium alaskaense*), salal, dull Oregon grape (*Mahonia nervosa*), salmonberry, vine maple, trailing blackberry, devil's club (*Oplopanax horridus*), and false azalea (*Menziesia ferruginea*). The dominant herbaceous species include sword fern, lady fern, deer fern (*Blechnum spicant*), bunchberry (*Cornus canadensis*), Siberian miner's lettuce (*Claytonia sibirica*), false lily of the valley (*Maianthemum dilatatum*), foamflower (*Tiarella trifoliata*), and beadlily (*Clintonia uniflora*).

Small Sawtimber Coniferous Forest

The small sawtimber condition is characterized by trees between 9 and 20 inches dbh, with larger trees exceeding 24 inches dbh. Stands are usually between 40 and 80 years old and conifers are between 50 to 100 feet tall. Understory vegetation is similar to the closed sapling/pole stage, but usually more developed. In denser areas it is still sparse, and often dominated by moss and sword fern. Tree density is less than in younger stands due to mortality of suppressed trees. Canopy closure is generally uniform within the stand, ranging between 60 and 100%.

Mixed Forest

In some stands mixed conifer-hardwood forest is represented as a heterogeneous mixture of conifers (Douglas-fir and western hemlock, with occasional western red cedar) and hardwoods (red alder and bigleaf maple); elsewhere, relatively large gaps filled with hardwoods occur in stands otherwise dominated by conifers. Because of greater light penetration through the canopy, understory trees, shrubs, and ground vegetation are common and sometimes lush. Mixed forests most often occur on moist sites.

Dominant understory tree species and shrubs are vine maple, salmonberry, red elderberry, Cascade Oregon grape, tall Oregon grape, Alaskan blueberry, and devil's club. Herbaceous and low-growing shrub vegetation may be dominated by a few species such as sword fern, dull Oregon grape, or salal, but is often diverse. Other common species include lady fern, deer fern, western springbeauty (*Montia sibirica*), foamflower, and bedstraw (*Galium* sp.).

Riparian Forest

The riparian zone includes those areas adjacent to aquatic habitats that are influenced by, or that directly influence, the aquatic ecosystem (Figure A-3). This includes streamside wetland and upland areas where the vegetation, water tables, soils, microclimate, and wildlife are often influenced by perennial or intermittent water. It may also include a narrow strip of trees excluded from timber harvest as part of a riparian buffer (Figure A-4). Riparian zones along streams may experience fluctuating water levels that can result in flooding, erosion, or scouring of vegetation. Vegetation characteristics in the riparian zone vary depending on number of factors (e.g., level of

inundation, light availability, soil type, degree of disturbance, etc.), which are generally associated with landscape position relative to the aquatic system.

Within the Project Area, stream segments with lower water velocities due to relatively flat topography (such as near the outlet of Lake Hancock and near the confluence with the North Fork Snoqualmie River) exhibit broad riparian zones with wider bands of wetland vegetation lining either side of the stream. In these areas, there is often a gradual transition from the riparian zone to moist, mixed conifer-hardwood forest.

Riparian vegetation throughout the Project Area varies from shrub-dominated to tree-dominated. The dominant tree species are red alder, western red cedar, and western hemlock, with black cottonwood present in some areas. The dominant shrub species at the water's edge include Sitka willow (*Salix sitchensis*), Pacific ninebark (*Physocarpus capitatus*), stink currant (*Ribes bracteosum*), devil's club, and salmonberry. Common shrubs in forested areas include salmonberry, thimbleberry, red elderberry, red huckleberry, Alaskan huckleberry, early blueberry (*Vaccinium ovalifolium*), devil's club, and vine maple. Herbaceous vegetation is lush and includes ferns and forbs such as sword fern, deer fern, lady fern, bracken fern, bunchberry, foamflower, youth-on-age (*Tolmiea menziesii*), enchanter's nightshade (*Circaea alpina*), and large-leaved avens (*Geum macrophyllum*).

Figure A-3. Riparian cover type along Hancock Creek.

Figure A-4. Riparian buffer left adjacent to recent timber harvest.

Stream segments in portions of the Project Area with steeper gradients (such as the majority of the middle reaches of Hancock Creek) are characterized by higher water velocities and a narrower riparian zone. In these areas there is often a sharp transition from the riparian zone to upland forest. However, where seeps flow into streams (which occurs at numerous locations) within steep portions of the Project Area, they broaden the zone of riparian vegetation. Seeps in the riparian zone are dominated by vine maple, devil's club, skunk cabbage, alumroot (*Heuchera* spp.), maidenhair fern (*Adiantum pedatum*), littleleaf montia (*Montia parvifolia*), lady fern, and a variety of moss species.

Appendix 2
Consultation Documentation

Presler, Dawn

From: Presler, Dawn
Sent: Wednesday, October 23, 2013 12:00 PM
To: laura.casey@kingcounty.gov; 'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review
Attachments: HancockTRMPDraftOct2013.pdf

Hello:
Attached is the draft Terrestrial Resource Management Plan (TRMP) for the Hancock Creek Hydro Project. Please take the next 30 days to review and provide comments, if any, on the draft TRMP back to me (cc: Karen Bedrossian) via email by November 22, 2013. If you have any questions regarding the content, please contact Karen Bedrossian (Sr. Environmental Coordinator, wildlife biologist) at (425) 783-1774. Thanks!

Sincerely,
Dawn Presler
Sr. Environmental Coordinator
Generation Resources
(425) 783-1709
****

PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107

Presler, Dawn

From: Matthew Baerwalde <Mattb@snoqualmietribe.us>
Sent: Friday, November 08, 2013 11:35 AM
To: Bedrossian, Karen
Cc: Presler, Dawn; laura.casey@kingcounty.gov; 'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Binkley, Keith
Subject: Re: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hello Karen,

After some consideration following our site visit Monday, I'm fairly confident that in terms of using preservation as part of your proposal, I'd be most comfortable with you concentrating on acquiring harvestable wetland buffer around C10. This would mean putting some of the recently harvested upland area to the east of C10 into preservation status, since the more mature trees surrounding C10 are not readily available for harvest, per our on-site discussion with Larry and Ritch Monday. My reasons for preferring this area for preservation as opposed to some of the other sites we looked at include 1) it is the largest and highest-quality "relatively less disturbed" site in the area, 2) connectivity and proximity of C10 with other habitats is good, as opposed to say C7, C11 or H5 3) you are proposing preservation for stream impacts and C10 does entrain stream habitat whereas other sites do not. Additionally, depending on how the ratios and areal requirements work out, you may want to consider the even-more-recently-harvested area to the west of C10 as potential preservation area.

I recommend your proposal include mitigation at a different site than C10 for direct impacts, since the entire jurisdictional wetland area of C10 is already protected under the Forest Practices Rules. Preservation of upland buffer is not adequate mitigation for direct impacts, which should be compensated for by inclusion of preservation, restoration or enhancement of direct wetland or stream resources.

I'd be interested to see what you might propose with the above considerations in mind. With your next proposal, please include the worksheets for the Credit Debit Method.

Some other thoughts on the Draft TRMPs:

*Please include the Snoqualmie Indian Tribe along with WDFW and USFWS in the list of agencies to whom you will submit monitoring reports and provide opportunity to comment on draft reports to FERC.

*I still agree with Brock that temporary impacts should receive a greater than 1:1 ratio. Brock has proposed a 1.5:1 ratio, which could be adequate. Alternatively, you may wish not to lump buffer impacts with direct impacts. In that case, I recommend you follow ECY's 2006 Wetland Mitigation Guidance document which recommends a ratio that is "one-quarter of the typical ratios for permanent impacts, provided" the plan satisfies a number of other measures (p. 77).

Sincerely,

Matt Baerwalde
Water Quality Manager
Snoqualmie Indian Tribe Environmental & Natural Resources Dept.
office 425-292-0249 ext 2101
mobile 425-495-4111
mattb@snoqualmietribe.us

From: <Presler>, Dawn <DJPresler@SNOPUD.com>
Date: Wednesday, October 23, 2013 10:59 AM
To: "laura.casey@kingcounty.gov" <laura.casey@kingcounty.gov>, "'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov)" <brock.applegate@dfw.wa.gov>, "'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov)" <Tim_Romanski@fws.gov>, "LouEllyn Jones (louellyn_jones@fws.gov)" <louellyn_jones@fws.gov>, "dwilliams@tulaliptribes-nsn.gov" <dwilliams@tulaliptribes-nsn.gov>, Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Bedrossian, Karen" <KLBedrossian@SNOPUD.com>, "Binkley, Keith" <KMBinkley@SNOPUD.com>
Subject: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hello:
Attached is the draft Terrestrial Resource Management Plan (TRMP) for the Hancock Creek Hydro Project. Please take the next 30 days to review and provide comments, if any, on the draft TRMP back to me (cc: Karen Bedrossian) via email by November 22, 2013. If you have any questions regarding the content, please contact Karen Bedrossian (Sr. Environmental Coordinator, wildlife biologist) at (425) 783-1774. Thanks!

Sincerely,
Dawn Presler
Sr. Environmental Coordinator
Generation Resources
(425) 783-1709
****
PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107

Presler, Dawn

From: Presler, Dawn
Sent: Wednesday, October 23, 2013 2:07 PM
To: 'Applegate, Brock A (DFW)'; laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: RE: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

The TRMPs are proposed in the Final License Applications as a PM&E – see Section E.4.3.4. – so no amendment is needed. These will be reviewed as part of FERC's EA and incorporated into the license as appropriate for each project. The technical reports support the measures proposed within the TRMPs based on impacts (or lack thereof) specific to the projects. So, I'd encourage you to review the technical reports first so you can understand why we're proposing what we do in the TRMPs.

Dawn

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Wednesday, October 23, 2013 1:57 PM
To: Presler, Dawn; laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: RE: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hi Dawn, I am trying to understand the importance of these documents, so I can prioritize them. Are you planning on making this part of the amendment to the license or any part of the license at all? I guess the same can be asked of the technical reports. Are they going to be part of the license package or amendment?

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Presler, Dawn [mailto:DJPresler@SNOPUD.com]
Sent: Wednesday, October 23, 2013 12:00 PM
To: laura.casey@kingcounty.gov; Applegate, Brock A (DFW); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hello:
Attached is the draft Terrestrial Resource Management Plan (TRMP) for the Hancock Creek Hydro Project. Please take the next 30 days to review and provide comments, if any, on the draft TRMP back to me (cc: Karen Bedrossian) via email by November 22, 2013. If you have any questions

regarding the content, please contact Karen Bedrossian (Sr. Environmental Coordinator, wildlife biologist) at (425) 783-1774. Thanks!

Sincerely,
Dawn Presler
Sr. Environmental Coordinator
Generation Resources
(425) 783-1709
****
PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107

Presler, Dawn

From: Presler, Dawn
Sent: Thursday, October 24, 2013 7:52 AM
To: 'Applegate, Brock A (DFW)'; laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: RE: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Brock – The District's desire is for a 30-day review and comment period. That will allow these documents to be submitted to the FERC for their scoping/environmental analysis process. As you review, you will find that the reports are actually quick reads reflecting the scope of impact and consideration of the surrounding areas being under Hancock Forest Management. Don't hesitate to give Karen a call with questions during your review.

Dawn

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Wednesday, October 23, 2013 2:14 PM
To: Presler, Dawn; laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: RE: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hi Dawn, So any thoughts on letting some of these reviews being due in December, say a 45- or 60-day review? I am sure the federal agencies, who have been out of work for two weeks, might appreciate some extra time to catch up on their work that piled up while gone.

Thanks for your consideration on these matters.

Sincerely, Brock

From: Presler, Dawn [mailto:DJPresler@SNOPUD.com]
Sent: Wednesday, October 23, 2013 2:07 PM
To: Applegate, Brock A (DFW); laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: RE: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

The TRMPs are proposed in the Final License Applications as a PM&E – see Section E.4.3.4. – so no amendment is needed. These will be reviewed as part of FERC's EA and incorporated into the license as appropriate for each project. The technical reports support the measures proposed within the TRMPs based on impacts (or lack thereof) specific to the projects. So, I'd encourage you to review the technical reports first so you can understand why we're proposing what we do in the TRMPs.

Dawn

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Wednesday, October 23, 2013 1:57 PM

To: Presler, Dawn; laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: RE: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hi Dawn, I am trying to understand the importance of these documents, so I can prioritize them. Are you planning on making this part of the amendment to the license or any part of the license at all? I guess the same can be asked of the technical reports. Are they going to be part of the license package or amendment?

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Presler, Dawn [mailto:DJPresler@SNOPUD.com]
Sent: Wednesday, October 23, 2013 12:00 PM
To: laura.casey@kingcounty.gov; Applegate, Brock A (DFW); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hello:
Attached is the draft Terrestrial Resource Management Plan (TRMP) for the Hancock Creek Hydro Project. Please take the next 30 days to review and provide comments, if any, on the draft TRMP back to me (cc: Karen Bedrossian) via email by November 22, 2013. If you have any questions regarding the content, please contact Karen Bedrossian (Sr. Environmental Coordinator, wildlife biologist) at (425) 783-1774. Thanks!

Sincerely,
Dawn Presler
Sr. Environmental Coordinator
Generation Resources
(425) 783-1709
****
PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107

Presler, Dawn

From: Applegate, Brock A (DFW) <Brock.Applegate@dfw.wa.gov>
Sent: Monday, October 28, 2013 5:05 PM
To: Bedrossian, Karen
Subject: RE: Terrestrial Tour of Hancock and Calligan October 30

Beginning of December works for sure, right now.

Brock

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Monday, October 28, 2013 5:04 PM
To: Applegate, Brock A (DFW)
Cc: Spahr, Scott; Presler, Dawn; Anderson, Christopher D (DFW)
Subject: RE: Terrestrial Tour of Hancock and Calligan October 30

Thanks for letting me know Brock. Let me know if you want to reschedule.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Monday, October 28, 2013 2:55 PM
To: Bedrossian, Karen
Cc: Spahr, Scott; Presler, Dawn; Anderson, Christopher D (DFW)
Subject: RE: Terrestrial Tour of Hancock and Calligan October 30

Sorry Karen, I am not able to make it. I am overscheduled on my calendar and I must get reviews and comments back.

Thanks for your understanding.

Sincerely, Brock

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Monday, October 28, 2013 11:17 AM
To: Applegate, Brock A (DFW)
Cc: Spahr, Scott
Subject: RE: Terrestrial Tour of Hancock and Calligan October 30

Hi Brock,

Do you know yet how many others will be joining us on Wednesday. We can arrange for vehicles accordingly. Thanks!

Karen

Karen Bedrossian
Senior Environmental Coordinator

Snohomish County PUD
425 783-1774

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Thursday, October 17, 2013 1:34 PM
To: Bedrossian, Karen
Subject: RE: Terrestrial Tour of Hancock and Calligan October 30

Thanks Karen. 9:00 sounds good at the Monroe P&R. I invited a couple of others along, but not sure if they will show. I will let you know if anyone else is going as they tell me.

Thanks for looking into the review deadline extension.

Sincerely, Brock

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Thursday, October 17, 2013 1:00 PM
To: Applegate, Brock A (DFW)
Subject: RE: Terrestrial Tour of Hancock and Calligan

Hi Brock,

I'm glad that Wednesday, October 30 works! We go to the site via Monroe so I am thinking that we could meet you at the Monroe park and ride if that sounds good to you. What time would you like to meet there – does 8:30 or 9:00 work?

Dawn said she got back to you regarding the December 15 request.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Wednesday, October 16, 2013 4:33 PM
To: Bedrossian, Karen
Subject: RE: Terrestrial Tour of Hancock and Calligan

Hi Karen, Works for me. Thanks for arranging. Of course, it helps if you could move forward the review time on the reports… how about Dec 15?

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Tuesday, October 15, 2013 1:43 PM
To: Applegate, Brock A (DFW)
Subject: Terrestrial Tour of Hancock and Calligan
Importance: High

Hi Brock,

We should be sending the official reports and the TRMPs for Hancock and Calligan out this week or the first of next week. We have revised the goshawk report to provide more information regarding the protocols used, so please make sure you toss the old version and pass on the new version to Steve if appropriate.

If you are still available on Wednesday, October 30, 2013 to visit the sites, that day works for Scott, Keith and I. Please let me know if that day works for you or provide new alternative dates.

Thank you,

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

Presler, Dawn

From: Bedrossian, Karen
Sent: Tuesday, October 29, 2013 2:19 PM
To: 'Applegate, Brock A (DFW)'; 'Matthew Baerwalde'; Spahr, Scott
Subject: RE: Calligan/Hancock TRMPs
Attachments: 13046 Hancock Basemap Rev1.pdf; 13045 Calligan JUNE 2013MitMap.pdf

We should – I am working on it. Look for an email before 3 with the number to call. He are some draft revised maps that will illustrate what we are considering.

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Tuesday, October 29, 2013 2:10 PM
To: Bedrossian, Karen; 'Matthew Baerwalde'; Spahr, Scott
Subject: RE: Calligan/Hancock TRMPs

Hi Everyone, I will call in at 3 at the number below. Hopefully you have a conference call line.

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Tuesday, October 29, 2013 1:59 PM
To: 'Matthew Baerwalde'; Spahr, Scott; Applegate, Brock A (DFW)
Subject: RE: Calligan/Hancock TRMPs

Hi Matt,

I will be waiting for your call at 3, unless we hear from Brock before then. That number will be good.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Tuesday, October 29, 2013 1:35 PM

To: Bedrossian, Karen; Spahr, Scott; Applegate, Brock A (DFW)
Subject: Re: Calligan/Hancock TRMPs

Karen,

I'm available tomorrow as well, but unless we hear from Brock I'll go ahead and call you today at 3. We can catch Brock up later if need be. Let me know if I should call a different number than 425 783-1774

-MB

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Tuesday, October 29, 2013 1:27 PM
To: "Spahr, Scott" <SDSpahr@snopud.com>, Matt Baerwalde <mattb@snoqualmietribe.us>, "Applegate, Brock A (DFW)" <Brock.Applegate@dfw.wa.gov>
Subject: RE: Calligan/Hancock TRMPs

Matt, Scott and Brock,

I left phone messages on Brock's office and cell phones. I know he is busy. Scott and I have some time from 3 to 4 today and are fairly wide open for tomorrow, October 30. Brock and Matt, let us know what times might work for you tomorrow. I don't think it will need to be a long call, but it can help us direct our efforts, and might expedite your review of the Hancock and Calligan TRMPs. As you know you are also welcome to call me anytime with questions or comments.

Thanks.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Spahr, Scott
Sent: Tuesday, October 29, 2013 12:12 PM
To: Matthew Baerwalde; Bedrossian, Karen
Cc: Applegate, Brock A (DFW)
Subject: RE: Calligan/Hancock TRMPs

Matt & Karen,
I have a gap between 1-2 today, but no need to plan around my schedule. From my perspective we're at an ideal time to get input from Matt & Brock on where we get the greatest benefit from the land we protect from harvest.

If I can't join in the call, I look forward to hearing the outcome of the discussion.
Thanks,
-Scott

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Tuesday, October 29, 2013 11:53 AM
To: Bedrossian, Karen
Cc: Applegate, Brock A (DFW); Spahr, Scott
Subject: Re: Calligan/Hancock TRMPs

Karen,

Thank you. I would like to speak more about the TRMP. This afternoon would be good, and I would be open to a conference call including Brock if he is available. I would also be amenable to a conference call later in the week if Brock prefers.

-Matt
425-495-4111

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Tuesday, October 29, 2013 11:46 AM
To: Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Applegate, Brock A (DFW)" <Brock.Applegate@dfw.wa.gov>, "Spahr, Scott" <SDSpahr@snopud.com>
Subject: RE: Calligan/Hancock TRMPs

Hi Matt,

Good questions.

1. The District is in discussions with HTRG regarding easements for the additional buffer areas (1.66 acres at Calligan, 2.16 acres at Hancock) and wetlands to be preserved (0.70 for Calligan plus 0.75 for Hancock at C10, and 0.48 acres at H5), as shown in Figure 2-2 and described in Tables 2-4, 2-5, and 2-6 of both TRMPs. The District is also discussing trade or easements for the proposed changes to the Project Boundary/permanent footprint that occurred during the process of trying to avoid and minimize impacts.
2. As described above, the District is proposing to obtain an easement from HTRG for the portion of C10, H5, and the additional buffer areas described in Figure 2-2 of both the Calligan and Hancock TRMPs. When we moved the penstock to avoid wetlands C5 and C7 (and H8 and H9), we decided to mitigate for all of the permanent wetland and stream impacts by preserving the entire 0.70 acres at C10 for Calligan, as shown in Figure 2-2. I inadvertently forgot to change the text in the Calligan and Hancock TRMPs to reflect that change. In other words the first paragraph of Section 2.2.1.1. in the Calligan TRMP should be removed, and the fourth paragraph in Section 2.2.1.1 of the Hancock TRMP should be removed. Figures 2-2 and Tables 2-4, 2-5, and 2-6 of both TRMPs are correct.
3. The preserved wetlands include only the wetlands. We are currently looking into the possibility of moving and possibly combining the 0.81 acre and 0.85 acre Additional Buffer areas at Calligan to provide a buffer adjacent to C10. We are looking at moving the Additional Buffer area at Hancock to become a buffer around H5 as well. We are making the assumption that setting aside these buffers closer to wetlands creates more value than the areas originally shown, but would value your feedback before we confirm with the current landowner.

Let me know if you have any additional questions. If you're available, maybe we can speak more on the TRMP soon, possibly even this afternoon.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Thursday, October 24, 2013 2:50 PM
To: Bedrossian, Karen
Subject: Calligan/Hancock TRMPs

Hi Karen,

Couple questions regarding the wetland mitigation proposed, specifically the Preservation piece:

1. How much property (if any) is SnoPUD proposing to acquire from HTRG for the projects? Is this strictly the project's permanent footprint?
2. Is SnoPUD proposing to acquire wetland C7, part of C10, and the additional buffer areas from HTRG in order to put them into preservation status?
3. How much buffer (if any) for the preserved wetlands is going to be acquired and put into preservation status?

Thanks!

Matt Baerwalde
Water Quality Manager
Snoqualmie Tribe Environmental & Natural Resources Dept.
office 425-292-0249 ext 2101
mobile 425-495-4111

Presler, Dawn

From: Matthew Baerwalde <Mattb@snoqualmietribe.us>
Sent: Thursday, October 31, 2013 9:07 AM
To: Bedrossian, Karen
Cc: Spahr, Scott; Larry Fry
Subject: Re: Site visit to Hancock and Calligan

Thank you Karen. I'm Ccing Larry Fry here (partly to confirm our appointment). I appreciate you all taking the time to look into my concerns.

Matt Baerwalde
Water Quality Manager
Snoqualmie Indian Tribe Environmental & Natural Resources Dept.
office 425-292-0249 ext 2101
mobile 425-495-4111
Mattb@snoqualmietribe.us

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Thursday, October 31, 2013 8:59 AM
To: Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Spahr, Scott" <SDSpahr@snopud.com>
Subject: RE: Site visit to Hancock and Calligan

Good Morning Matt,

We will meet you at the Snoqualmie Fire Station at noon on Monday 11/4. Thanks for the map.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Thursday, October 31, 2013 8:40 AM
To: Bedrossian, Karen
Cc: Spahr, Scott
Subject: Re: Site visit to Hancock and Calligan

Hi Karen,

Larry Fry can join us on Monday 11/4. Can you meet us at noon at the Snoqualmie Fire Station on Snoqualmie Parkway? There's a little overflow parking lot on the east side of the facility. Let's meet there.

Google snoqualmie fire station

Get directions | My places

Driving directions to Snoqualmie Fire Department

3D

Snohomish County PUD Headquarters
2320 California St
Everett, WA 98201

1. Head **east** on **California St** toward **Virginia Ave**

200 ft

2. Take the 1st right onto **Virginia Ave**

0.1 mi

3. Turn left onto **Hewitt Ave**

0.3 mi

4. Turn right onto **Maple St**

0.2 mi

5. Take the ramp onto **I-5 S**

10.5 mi

6. Take exit **182** for **Interstate 405 S** toward **Bellevue/Renton**

0.9 mi

7. Merge onto **I-405 S**

18.1 mi

8. Take exit **11** to merge onto **I-90 E** toward **Spokane**

16.0 mi

9. Take exit **25** for **WA-18 W** toward **Snoqualmie Pkwy**

0.3 mi

10. Turn left onto **WA-18 E**

0.1 mi

11. Continue onto **Snoqualmie Pkwy**

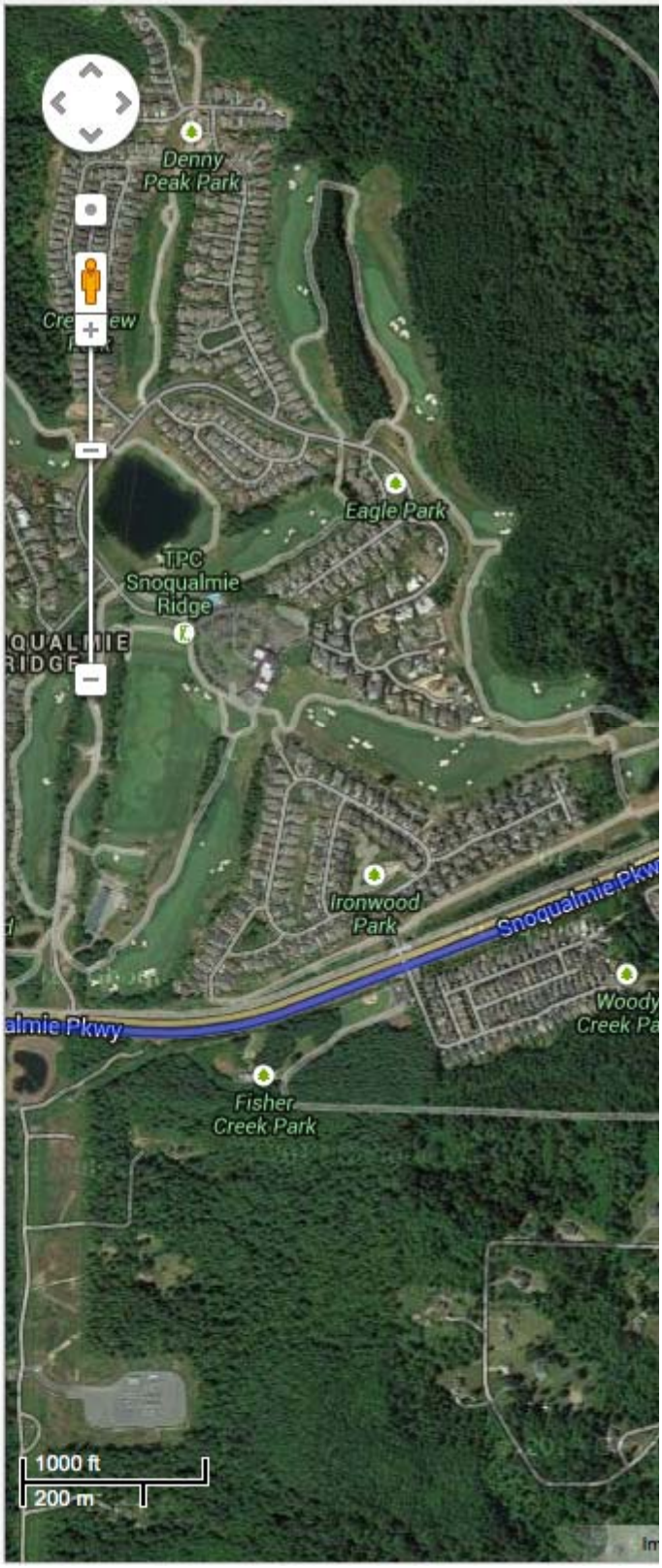
3.5 mi

12. Make a U-turn

0.2 mi

Snoqualmie Fire Department
37600 SE Snoqualmie Pkwy , Snoqualmie, WA 98065
98065

javascript:void(0)



From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Wednesday, October 30, 2013 4:58 PM
To: Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Spahr, Scott" <SDSpahr@snopud.com>
Subject: RE: Site visit to Hancock and Calligan

Hi Matt,

Days from your selection that work for us: 11/4, 11/13, 11/15.

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Wednesday, October 30, 2013 2:06 PM
To: Bedrossian, Karen
Cc: Spahr, Scott
Subject: Re: Site visit to Hancock and Calligan

Karen,

While I wait to hear back from Larry, let's see which dates might work for you all.

My availability:
11/1; 11/4 after 12pm; 11/6, 11/7, 11/8; 11/13, 11/14, 11/15

Thanks,
Matt

From: Matt Baerwalde <mattb@snoqualmietribe.us>
Date: Wednesday, October 30, 2013 12:43 PM
To: "Bedrossian, Karen" <KLBedrossian@snopud.com>
Cc: "Spahr, Scott" <SDSpahr@snopud.com>
Subject: Re: Site visit to Hancock and Calligan

Sounds good—I will contact Larry Fry who is the Resource Protection Forester for the area and approves FPAs and confirms questions on the ground. -MB

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Wednesday, October 30, 2013 12:38 PM
To: Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Spahr, Scott" <SDSpahr@snopud.com>
Subject: RE: Site visit to Hancock and Calligan

Thanks Matt.

Sure, go ahead and see if you can have a DNR representative join us. It would be great if you could line up the forester most familiar with the site (who has been approving the recent harvest areas). I noticed that the onsite meeting you

attended was two years ago. A lot of the area has been harvested since then, so it will be good for you to see the project locations again.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Wednesday, October 30, 2013 11:43 AM
To: Bedrossian, Karen
Cc: Spahr, Scott
Subject: Re: Site visit to Hancock and Calligan

Karen,

Got your message just now. Thank you for the offer. I am sorry that I am not available. I will get back to you with a large block of alternative dates soon. Would it be okay if a DNR representative joined us pending availability?

-Matt

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Wednesday, October 30, 2013 10:34 AM
To: Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Spahr, Scott" <SDSpahr@snopud.com>
Subject: Site visit to Hancock and Calligan

Hi Matt,

I left you a message on your cell – Scott and I could meet you today for a site visit if you are available. Let us know.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

Presler, Dawn

From: Applegate, Brock A (DFW) <Brock.Applegate@dfw.wa.gov>
Sent: Thursday, October 31, 2013 5:03 PM
To: Bedrossian, Karen
Cc: Spahr, Scott; Binkley, Keith; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Subject: RE: Summary of October 29, 2013 Conference Call

Hi Karen, I am advocating for extra protection around C10, up to 300-feet if possible, so please don't reduce any buffers around it.

I am not sure about Wetland H5 species and habitat findings yet as I am just starting to jump into the technical reports.

Matt and I both agreed that we would like to see a 1: 1.5 mitigation ratio for temporary impacts. A higher than 1:1.5 ratio is needed to help replace the lost habitat function after habitat is removed. We request mitigation for the lost habitat function while the habitat recovers and can support the current habitat function again.

Brock will read the TRMP's, but at first glance the District's mitigation acreage seemed to fall short by almost half.

Brock will be available in December or after the snow melts for a site visit.

Thanks Karen for writing up these conference call notes.

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Thursday, October 31, 2013 2:19 PM
To: Matthew Baerwalde; Applegate, Brock A (DFW)
Cc: Spahr, Scott; Binkley, Keith
Subject: Summary of October 29, 2013 Conference Call

Hi Matt and Brock,

I thought it would be good to summarize our call on Tuesday. Let me know if I missed something important.

Matt expressed concern that preservation wetlands need buffers appropriate for their ratings, to preserve their functions. The District offered to move the additional buffer areas in Figures 2-2 to provide buffers adjacent to the wetland preservation areas (C10 and H5). Maps were provided showing what that would look like. Both Matt and Brock approved of that approach. Karen and Scott will pursue moving the additional buffer areas from locations shown in Figure 2-2 of both Terrestrial Resource Management Plans (TRMPs) to provide buffers adjacent to the wetland preservation areas (C10 and H5).

Matt is concerned with preserving just part of a wetland (C10) because it is just part of the entire wetland system and could be influenced by other activities within the entire wetland system. Karen explained that wetland C10 is one of the more valuable wetlands in the project area but that we could move the protection to one of the smaller wetlands if that was the preference.

Matt is concerned that the preservation wetlands and additional buffers are not "under a demonstrable threat" and that they are already preserved. Scott assured Matt that the District was not in any way intending to protect areas that are already protected. Karen explained that we were trying to protect areas that could be harvested under Forest Practice Rules, but that might otherwise (if they were not under Forest Practices Rules) be protected under King County Critical Areas Ordinance. The District has discussed this concept with Laura Casey (King County Department of Development and Environmental Services) and she agreed that it would be a good approach and was not in favor of using mitigation banking, but wanted protection, mitigation and enhancement to occur in the area of the projects.

Brock would like to see mitigation for temporal impacts that are not accounted for with a 1:1 mitigation ratio for temporary impacts. He referenced the Wind Power Guidelines on WDFW's website, page 11. He requested a 1.5:1 mitigation ratio. Karen directed him to Tables 2-4, 2-5 and 2-6 in both TRMPs. The 1:1 mitigation ratios are acceptable to King County for temporary impacts. She also directed him to the letter from Mark Hunter of WDFW (June 4, 2010) cited in section 2.1.1.1 of the TRMP, requesting a 1:1 mitigation ratio for temporary impacts. Both Matt and Brock restated at the end of the meeting that they would like to see greater than a 1:1 mitigation ratio for temporary impacts.

Matt would like to get out to the sites and look around to be convinced that they are actually harvestable. Matt, Karen and Scott will conduct site visit to update Matt on location of projects and current habitat conditions, and so Matt can look at preservation/mitigation sites. Matt will provide a window of times that he is available.

Post meeting note: the field visit is scheduled for November 4 and will include Larry Fry, DNR, Resource Protection Forester. Brock, let me know when you want a site tour and provide some alternate dates.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

Presler, Dawn

From: Matthew Baerwalde <Mattb@snoqualmietribe.us>
Sent: Friday, November 08, 2013 11:35 AM
To: Bedrossian, Karen
Cc: Presler, Dawn; laura.casey@kingcounty.gov; 'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Binkley, Keith
Subject: Re: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hello Karen,

After some consideration following our site visit Monday, I'm fairly confident that in terms of using preservation as part of your proposal, I'd be most comfortable with you concentrating on acquiring harvestable wetland buffer around C10. This would mean putting some of the recently harvested upland area to the east of C10 into preservation status, since the more mature trees surrounding C10 are not readily available for harvest, per our on-site discussion with Larry and Ritch Monday. My reasons for preferring this area for preservation as opposed to some of the other sites we looked at include 1) it is the largest and highest-quality "relatively less disturbed" site in the area, 2) connectivity and proximity of C10 with other habitats is good, as opposed to say C7, C11 or H5 3) you are proposing preservation for stream impacts and C10 does entrain stream habitat whereas other sites do not. Additionally, depending on how the ratios and areal requirements work out, you may want to consider the even-more-recently-harvested area to the west of C10 as potential preservation area.

I recommend your proposal include mitigation at a different site than C10 for direct impacts, since the entire jurisdictional wetland area of C10 is already protected under the Forest Practices Rules. Preservation of upland buffer is not adequate mitigation for direct impacts, which should be compensated for by inclusion of preservation, restoration or enhancement of direct wetland or stream resources.

I'd be interested to see what you might propose with the above considerations in mind. With your next proposal, please include the worksheets for the Credit Debit Method.

Some other thoughts on the Draft TRMPs:

*Please include the Snoqualmie Indian Tribe along with WDFW and USFWS in the list of agencies to whom you will submit monitoring reports and provide opportunity to comment on draft reports to FERC.

*I still agree with Brock that temporary impacts should receive a greater than 1:1 ratio. Brock has proposed a 1.5:1 ratio, which could be adequate. Alternatively, you may wish not to lump buffer impacts with direct impacts. In that case, I recommend you follow ECY's 2006 Wetland Mitigation Guidance document which recommends a ratio that is "one-quarter of the typical ratios for permanent impacts, provided" the plan satisfies a number of other measures (p. 77).

Sincerely,

Matt Baerwalde
Water Quality Manager
Snoqualmie Indian Tribe Environmental & Natural Resources Dept.
office 425-292-0249 ext 2101
mobile 425-495-4111
mattb@snoqualmietribe.us

From: <Presler>, Dawn <DJPresler@SNOPUD.com>
Date: Wednesday, October 23, 2013 10:59 AM
To: "laura.casey@kingcounty.gov" <laura.casey@kingcounty.gov>, "'brock.applegate@dfw.wa.gov' (brock.applegate@dfw.wa.gov)" <brock.applegate@dfw.wa.gov>, "'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov)" <Tim_Romanski@fws.gov>, "LouEllyn Jones (louellyn_jones@fws.gov)" <louellyn_jones@fws.gov>, "dwilliams@tulaliptribes-nsn.gov" <dwilliams@tulaliptribes-nsn.gov>, Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Bedrossian, Karen" <KLBedrossian@SNOPUD.com>, "Binkley, Keith" <KMBinkley@SNOPUD.com>
Subject: Hancock Creek Hydro (FERC No. 13994) - draft TRMP for your 30-day review

Hello:
Attached is the draft Terrestrial Resource Management Plan (TRMP) for the Hancock Creek Hydro Project. Please take the next 30 days to review and provide comments, if any, on the draft TRMP back to me (cc: Karen Bedrossian) via email by November 22, 2013. If you have any questions regarding the content, please contact Karen Bedrossian (Sr. Environmental Coordinator, wildlife biologist) at (425) 783-1774. Thanks!

Sincerely,
Dawn Presler
Sr. Environmental Coordinator
Generation Resources
(425) 783-1709
****
PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107

Presler, Dawn

From: Bedrossian, Karen
Sent: Wednesday, November 27, 2013 2:32 PM
To: 'Applegate, Brock A (DFW)'
Cc: Allegro, Justin K (DFW); Binkley, Keith
Subject: RE: Calligan Creek Hydro (FERC No. 13948) and Hancock Creek Hydro (FERC No. 13994) - draft TRMP's for your 30-day review

Hi Brock,

We received your comments and are in the process of reviewing them. We are looking forward to meeting with you on site to discuss the TRMP. As you and Justin will notice during the upcoming site visit, the majority of the project lands are located directly within intensely managed commercial forest and most have been recently clearcut.

In terms of mitigation ratios, we were under the impression that the requirements specified by Mark Hunter of WDFW, to us in a letter dated June 4, 2010 (attached) would be followed. In that letter, Mark indicated that 1:1 mitigation would be adequate for temporary impacts and that further studies would not be required. In light of that, could you please provide us with a citation or a copy of WDFW's small hydropower guidelines so that we can understand where your recommended mitigation ratios are coming from? We question the need for a mitigation ratio greater than 1:1 for short-term temporary impacts, especially in areas that have been recently clearcut.

As you know, we have hired well-qualified, reputable consultants to conduct the studies you requested following the filing of our Draft License Application. We have also redesigned the projects to minimize impacts to wetlands and riparian areas. We have been working with King County and they have preliminarily approved of our mitigation ratios.

As we mentioned when we spoke it was not our intention to set aside any area already protected by Forest Practices. Since we met with DNR onsite and determined that the portion of C10 we proposed for protection was already protected under state Forest Practices we are currently in the process of relocating our wetland mitigation area somewhere other than C10. Because C10 is such a valuable wetland we have been requested by Matt Baerwalde (Snoqualmie Tribe) to provide wetland buffer around it, where harvesting is not restricted. We are looking into that option.

We will look into your comments in more detail prior to meeting with you on December 11. We look forward to a productive discussion and pragmatic resolution to these issues.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Applegate, Brock A (DFW) [mailto:Brock.Applegate@dfw.wa.gov]
Sent: Friday, November 22, 2013 3:55 PM
To: Presler, Dawn; laura.casey@kingcounty.gov; 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith; Anderson, Christopher D (DFW); Allegro, Justin K (DFW)
Subject: RE: Calligan Creek Hydro (FERC No. 13948) and Hancock Creek Hydro (FERC No. 13994) - draft TRMP's for your 30-day review

Hi Dawn, I have read through the Terrestrial Resource Management Plans (TRMP) for the proposed Calligan Creek and Hancock Creek Hydroelectric Projects. I have the following comments. Overall, WDFW does not agree with the mitigation ratios, nor the acquisition of wetlands, stream or buffers that already receive protection from Forest Practice Rules. SnoPUD should acquire habitat that will not receive protection under Forest Practice Rules (FPR) or increase the protection around the FPR buffers like around Wetland C10. Perhaps your site visit with the Snoqualmie Tribe has presented some ideas on wetlands, streams, and buffers, that do not receive protection under the Forest Practice Rules. Please use comments in corresponding sections with both TRMP's for both Calligan Creek and Hancock Creek.

Calligan Creek TRMP

1.2.5. Replacement, First Sentence: Your definition of upland commercial forest includes Riparian Forest Vegetation Type designation and wetland and stream buffers. WDFW suggests that these areas receive a classification other than upland commercial forest and receives a higher mitigation ratio. Please separate the upland commercial forest by vegetation type so that Snohomish County Public Utility District #1 (SnoPUD) applies the proper mitigation ratios to their respective vegetation types.

1.3. Management Lands, 4th paragraph, second sentence: WDFW disagrees with this particular sentence. SnoPUD will take a forested or partially forested vegetation type and convert it to an eventual manipulated grass and shrub habitat type in the Right-of-Ways (ROW). SnoPUD will change vegetation cover types so the area will lose forest habitat. Additionally, the vegetation removal starts with no habitat and mostly bare ground. The vegetation will not supply good habitat until it grows from at least a few seasons with planted and wild volunteer plant species. SnoPUD will create a temporary loss of habitat and should mitigate as such.

2.1.1.1. Land Acquisition/Easements, third sentence: WDFW disagrees with SnoPUD's classification of wetland and stream buffers as upland habitat. Please separate your "upland habitat" into vegetation types and mitigate as such.

2.1.1.2. Seedling, Planting and Other Measures for Structural Diversity, second sentence: Please break your "Upland forest" into vegetation types and mitigate as such. Biologists measure mitigation through Vegetation Types as seen in Habitat Evaluation Procedures (HEP) as used by the U.S. Fish and Wildlife Service.

2.1.1.2. Seedling, Planting and Other Measures for Structural Diversity, third sentence: WDFW disagrees with SnoPUD's classification of wetland and stream buffers as upland habitat. Please separate your "upland habitat" into vegetation types and mitigate as such.

2.1.1.2. Seedling, Planting and Other Measures for Structural Diversity, fourth sentence: Restoration partially mitigates for temporary impacts. SnoPUD must mitigate for the temporary loss of habitat, particularly since wetland and stream buffers will lose trees. You cannot replace trees with grass and shrubs and have the same habitat type. Please mitigate for your temporary impacts.

2.1.1.3. Other Mitigation Measures, first paragraph, second sentence: SnoPUD cannot conclude anything from one season of survey for goshawks. The survey method you chose requires two seasons of survey to conclude with any high probability that goshawks do not nest there. You cannot propose no mitigation when you have not completed your survey study. WDFW also recommended another general raptor survey the season before construction or conduct construction out of the breeding season.

2.1.1.3. Other Mitigation Measures, second paragraph, first sentence: SnoPUD has found Western toads in the project area and WDFW has recommended SnoPUD conducts another season of survey to identify the breeding areas for toads. Additionally, SnoPUD has said it will conduct another survey season for Oregon spotted frogs. You cannot propose no mitigation when you have not completed your survey study. In addition, WDFW has recommended you protect a large concentration of western red-backed salamanders and tailed

frogs near the proposed Hancock Creek Intake Area and remains unsure of the impacts to these populations. WDFW assumes you will conduct survey simultaneously at both proposed project sites.

2.2 Wetland and Stream Vegetation Protection, Mitigation, and Enhancement, first paragraph, fourth sentence: You have two riverine wetlands (C1a and C2) located in the margins of Calligan Creek and some located within the bypass reach and fed by overbank flow. You will reduce flows during operation when the creek will flow over it's banks. WDFW requests you describe the impact to these wetlands. Please describe the impacts of reduced flow on the size of the wetland and the area with hydrophytic plants..

2.2 Wetland and Stream Vegetation Protection, Mitigation, and Enhancement, fifth paragraph, third sentence: "Compensatory mitigation in accordance with King County critical areas regulations (KCC 21A.24.130) must be implemented for permanent impacts (and most temporary impacts) on wetlands, streams, and their buffers, such that mitigation results in no net loss of functions for each critical area affected." SnoPUD proposes to use restoration for the stream and wetland buffers to mitigate for temporary impacts. Perhaps SnoPUD has misinterpreted the mitigation protocol. If SnoPUD adheres to the current interpretation of the mitigaoitn ratio, WDFW proposed they use at least a 1.5:1 ratio for temporary impacts to stream and wetland buffers.

2.2.1 Management Methods, Tables 2-4 through 2-6: WDFW recommends the tables should read:

Habitat	Acres	Mitigation Ratio	Mitigation Acres	Mitigation Type
Buffer Temporary	8.33	1:5: 1	12.5	Restoration/Acquisition
Buffer Permanent	.83	4:1	3.32	Acquisition
Wetland Temp	.05	2:1	.1	Restoration/Acquisition
Wetland Perm	.01	50.1	.5	Acquisition
Stream Temp	.04	2:1	.08	Restoration/Acquisition
Stream Perm	.01	20:1	.2	Acquisition
Forest Hab Temp	13.04	2: 1	26.08	Restoration/Acquisition

2.2.1.2 Wetland Restoration Planting : WDFW recommends SnoPUD restore wetlands with plants that keeps the same wetland type. We recommend more wetland emergent plants to make (PEM) wetlands if SnoPUD will convert wetland type.

2.2.2. Monitoring and Reporting and 2.2.3 Schedule and Implentation: Please include WDFW in all of your reports that you will send.

Hancock Creek TRMP

1.3 Management Lands, third paragraph, last sentence: WDFW disagrees with this particular sentence. SnoPUD will take a forested or partially forested vegetation type and convert it to an eventual manipulated grass and shrub habitat type in the Right-of-Ways (ROW). SnoPUD will change vegetation cover types so the area will lose forest habitat. Additionally, the vegetation removal starts with no habitat and mostly bare ground. The vegetation will not supply good habitat until it grows from at least a few seasons with planted and wild volunteer plant species. SnoPUD will create a temporary loss of habitat and should mitigate as such.

2.1.1.1. Land Acquisition and Easement, first paragraph, last sentence: In a past letter, WFW recommended a 2:1 mitigation ratio for upland forest habitat. SnoPUD has included riparian forest as forest habitat. SnoPUD has also recommended a 2:1 mitigation ratio for wetland and stream buffers. We find upland forest habitat unlike wetland and stream buffers and riparian habitat. Please increase those ratios to 4:1.

2.1.1.3. Other Mitigation Measures, first paragraph, last sentence: WDFW would like to point out that you have marginal raptor habitat for the surveyed raptors, but not all raptors. SnoPUD cannot conclude anything

from one season of survey for goshawks. The survey method you chose requires two seasons of survey to conclude with any high probability that goshawks do not nest there. You cannot propose no mitigation when you have not completed your survey study. WDFW also recommended another general raptor survey the season before construction or conduct construction out of the breeding season.

2.2 Wetland and Stream Vegetation Protection, Mitigation, and Enhancement, first paragraph, fourth sentence: You have four riverine wetlands (H1a, H1b, H2, and H3) located in the margins of Calligan Creek and some located within the bypass reach and fed by overbank flow. You will reduce flows during operation when the creek will flow over it's banks. WDFW requests you describe the impact to these wetlands. Please describe the impacts of reduced flow on the size of the wetland and the area with hydrophytic plants.

2.2.1 Management Methods, Tables 2-4 through 2-6: WDFW recommends the tables should read:

Habitat	Acres	Mitigation Ratio	Mitigation Acres	Mitigation Type
Buffer Temporary	7.0	1.5:1	10.5	Restoration/Acquisition
Buffer Permanent	.98	4:1	3.92	Acquisition
Wetland Temp	.03	2:1	.06	Restoration/Acquisition
Wetland Perm	.01	100:1	1	Acquisition
Stream Temp	.07	2:1	.14	Restoration/Acquisition
Stream Perm	.04	>5.1	.23	Acquisition
Forest Hab Perm	.1	4:1	.4	Acquisition
Forest Hab Temp	30.3	2:1	60.6	Restoration/Acquisition

The Forest Habitat contains Riparian Forest and Small Sawtimber Vegetation types which should have a higher mitigation ratio than the average "upland forest" classification.

Please use the same comments for wetland plantings and reporting from Calligan Creek TRMP's.

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Presler, Dawn [mailto:DJPresler@SNOPUD.com]
Sent: Wednesday, October 23, 2013 11:57 AM
To: laura.casey@kingcounty.gov; Applegate, Brock A (DFW); 'Tim_Romanski@fws.gov' (Tim_Romanski@fws.gov); LouEllyn Jones (louellyn_jones@fws.gov); dwilliams@tulaliptribes-nsn.gov; Matthew Baerwalde (Mattb@snoqualmietribe.us)
Cc: Bedrossian, Karen; Binkley, Keith
Subject: Calligan Creek Hydro (FERC No. 13948) - draft TRMP for your 30-day review

Hello:
Attached is the draft Terrestrial Resource Management Plan (TRMP) for the Calligan Creek Hydro Project. Please take the next 30 days to review and provide comments, if any, back to me (cc: Karen

Bedrossian) via email by November 22, 2013. If you have any questions regarding the content, please contact Karen Bedrossian (Sr. Environmental Coordinator, wildlife biologist) at (425) 783-1774. Thanks!

Sincerely,
Dawn Presler
Sr. Environmental Coordinator
Generation Resources
(425) 783-1709
****

PUD No. 1 of Snohomish County
PO Box 1107
Everett, WA 98206-1107

Presler, Dawn

From: Flury, Mark
Sent: Friday, December 20, 2013 9:23 AM
To: Scott Mahnken (mahnken@eesconsulting.com)
Cc: Eli Wilson (wilson@eesconsulting.com); Bedrossian, Karen; Spahr, Scott
Subject: King County Preapp Mtg (12/19/13) Minutes
Attachments: HCH CCH Preapp Notes.pdf; Hammerhead.pdf

Scott,
We met yesterday afternoon with King County for part one of our two part pre-application meeting. In attendance were:

Scott & Mark – Sno PUD
Steve Bottheim – KC Environmental Scientist
Jim Huntsberry – KC Building Plans Examiner
Laura Casey – KC Critical Areas and Shorelines
Mark Ossewaarde – KC Fire Marshall
Fereshteh Dehkordi – KC Project Manager (zoning)

A sign in sheet is included in the attachment to this email with contact info. We have tentatively scheduled part two the meeting for the afternoon of January 6th, which is a Monday. In general the meeting went very well and there was limited new information provided. This was our expectation, given that the grading and drainage reviewers were not available. Scott provided an overview power point presentation to refresh memories and introduce the project to KC staff who hadn't worked on the land use approvals.

I've summarized below the comments that were received and not provided in writing. Also attached to this email are scans of the formal written comments.

- The fact that the powerhouse will not be insulated and will not meet WSEC was discussed. The plans examiner understood that the powerhouse is an unoccupied building and will not require that it meet the energy code. We also discussed the office and explained that we would likely provide a space heater for that area. He suggested that we insulate the office only (separate from the rest of the building), but this wouldn't be a requirement. We need to look to see what was done at YC and get some input from Danny as to whether we need to make any changes.
- All of the structures to include each emergency generator building will require building permits. The 200 sf threshold applies to residential storage structures and not commercial buildings.
- Structural review of the project will be performed by Reid Middleton. They have a consulting contract with KC to perform their structural reviews. During this discussion we explained that the diversion structure and thrust block were under FERC jurisdiction and that we wouldn't expect comments on these items. Steve Bottheim suggested that we could have a rep from Reid Middleton attend the second pre-application meeting in January. Alternatively we suggested that we could stop into their office here in Everett and brief them on the projects. This is not standard operating procedure, however we all agreed that it might expedite the review given the uniqueness of the projects.
- You do not need to use the KC title block for your cover sheet. That is only required for projects that include public improvements.
- In the forestry zone building height is limited to 35 feet. However, there is this provision in the code: *Height limits may be increased if portions of the structure that exceed the base height limit provide one additional foot of street and interior setback for each foot above the base height limit, but the maximum height may not exceed seventy-five feet. Netting or fencing and support structures for the netting or fencing used to contain golf balls in the operation of golf courses or golf driving ranges are exempt from the additional interior setback requirements but the maximum height shall not exceed seventy-five feet, except for large active recreation and multiuse parks, where the maximum height shall not exceed one hundred twenty-five feet, unless a golf ball trajectory study*

requires a higher fence. The setbacks for this zone are 5 feet, so we will gain one foot of allowable building height for each foot of setback that we are providing above the mandatory five feet. My suggestion is that you add to your code summary sheet where you list the proposed building height: "In accordance with KCC21A.12.040B.4.10 xx feet of additional building setback are provided, therefore the allowable building height is xx feet."

- You'll note that we won't meet most of the Fire Marshall's requirements which list, among others, fire lane signage, no locking gates and fire hydrants. We discussed this fact with him and most of the requirements will be waived. However he did want us to try to achieve a hammerhead style turnaround in the powerhouse vicinity. You might already meet these criteria (see attached – offset style), however if you don't and want to discuss this please give me a call.
- Laura Casey said that we wouldn't need a landscape plan for the buffer plantings however a typical planting swatch should be provided in the final mitigation plan. I'll coordinate with Karen on this.

Please call me with any questions or concerns.
Thanks,
Mark

Mark Flury, P.E.
Principal Engineer – Generation Division
Snohomish County PUD #1
PH: (425) 783-1722
Cell: (425) 293-6301
mmflury@snopud.com

Presler, Dawn

From: Bedrossian, Karen
Sent: Friday, January 10, 2014 11:41 AM
To: 'Matthew Baerwalde'
Cc: Spahr, Scott
Subject: Revised TRMP mitigation maps and additional mitigation acreages for Hancock and Calligan Creek Hydo Projects

Hi Matt,

The following summarizes the conversation we had yesterday regarding the revised Hancock and Calligan Hydro Projects Terrestrial Resource Management Plans (TRMPs) mitigation maps and additional mitigation acreages:

- The 6.59 acres of added preservation buffer area between Wetland C10 and the North Fork is in addition to the acreages described in the revised tables Matt received, to accommodate temporal effects on cutting mature trees. The District will add that acreage to the tables included in the final TRMPs.

- Karen will prepare the final versions (including the revisions discussed) of the TRMPs which will be filed with the FERC. The Snoqualmie Tribe can submit any comments regarding those versions of the TRMPS with the FERC. Matt does not anticipate additional comments, and will call Karen if there are further questions.

- Matt thinks the latest proposal looks good and appreciated the cooperative work on it. He thinks the added preservation buffer area between Wetland C10 and the North Fork will provide a lot of value for wildlife. Scott said he appreciated Matt's input and working with him to resolve issues.

Thanks Matt,

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Bedrossian, Karen
Sent: Wednesday, January 08, 2014 4:45 PM
To: 'Matthew Baerwalde'
Cc: Spahr, Scott
Subject: RE: Revised TRMP mitigation maps and new mitigation acreage

Hi Matt,

Attached you will find the tables for Hancock and also for Calligan. The numbers in the table for Calligan are the same, I just corrected the file and table names to reflect the correct year. Too many numbers to keep track of!

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Bedrossian, Karen
Sent: Wednesday, January 08, 2014 1:17 PM
To: 'Matthew Baerwalde'
Cc: Spahr, Scott
Subject: RE: Revised TRMP mitigation maps and new mitigation acreage

Hi Matt,

CCH refers to Calligan Creek Hydroelectric Project. I have attached the tables for the Calligan plan and will send the tables for Hancock as soon as I go over them again. I discovered a couple of mistakes on the maps for Calligan that occurred when they got transferred to our GIS system. The buffer preservation area for C10 that says 1.75 acres on the map should say 1.94. That is the original amount based on the King County calculations (the 6.59 acres that we have added correct). Also the C7 acres on the map should read 0.20 acres and not 0.02 acres.

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Tuesday, January 07, 2014 2:50 PM
To: Bedrossian, Karen
Subject: Re: Revised TRMP mitigation maps and new mitigation acreage

Hi Karen,

What's "CCH"?

Can you please send tables for the final plan?

Thanks!

-Matt

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Tuesday, January 7, 2014 12:57 PM
To: Matt Baerwalde <mattb@snoqualmietribe.us>, "Spahr, Scott" <SDSpahr@snopud.com>
Subject: Revised TRMP mitigation maps and new mitigation acreage

Hi Matt and Scott,

I have set up a conference call with you to discuss the revised mitigation maps for Hancock and Calligan wetlands and riparian areas at 8:10 Thursday morning, January 9, 2013. Scott and I will call Matt on his cell.

Matt, we met with WDFW on December 18, and agreed to the mitigation areas shown on the most recent (12/17/2013) figures developed by Wetland Resources, with an additional 6.59-acres of land to expand buffers. This constitutes a 1.5:1 total mitigation ratio for the 5.18 acres of temporary impacts to more mature forest (designated as riparian forest and small saw coniferous forest in the FLA and TRMP), and a 4:1 additional mitigation ratio for the 1.0 acre of permanent impacts to these more mature forests. Given your request (email dated November 8, 2013) and the value of

the C10 wetland, we have selected the area adjacent to both C10 and the buffer along the North Fork for the additional 6.59 acres. I have attached a map to show the additional buffer acreage.

Talk to you on Thursday.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Bedrossian, Karen
Sent: Thursday, December 19, 2013 4:35 PM
To: 'Matthew Baerwalde'
Subject: RE: Revised TRMP mitigation maps

Thanks Matt,

Enjoy the holidays!!

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

From: Matthew Baerwalde [mailto:Mattb@snoqualmietribe.us]
Sent: Thursday, December 19, 2013 3:26 PM
To: Bedrossian, Karen
Subject: Re: Revised TRMP mitigation maps

Thank you for your message. I will be out of the office until January 2nd, 2014. The Snoqualmie Tribal Offices will be closed between 12/24 and 1/1.

For urgent issues, you may contact Cindy Spiry (cindy@snoqualmietribe.us) before 12/24.

Matt Baerwalde
Water Quality Manager
Snoqualmie Indian Tribe Environmental & Natural Resources Dept.
office 425-292-0249 ext 2101
mobile 425-495-4111
mattb@snoqualmietribe.us

From: <Bedrossian>, Karen <KLBedrossian@snopud.com>
Date: Thursday, December 19, 2013 3:21 PM
To: Matt Baerwalde <mattb@snoqualmietribe.us>
Cc: "Spahr, Scott" <SDSpahr@snopud.com>
Subject: Revised TRMP mitigation maps

Hi Matt,

Wetland Resources has revised the mitigation maps to move the wetland mitigation at C10 to other wetlands and has moved the additional buffer so that it would increase the buffer size and connectivity of the buffers along Calligan Creek

and the North Fork, and provide a buffer around the H5 wetland and widen the buffer along Hancock Creek south of the intake area. I have attached the maps so that you can see what it looks like.

Scot Spahr and I would like to talk to you about the changes and the potential location for some additional buffer acreage. I left you a phone message. Would you be available to discuss this by phone tomorrow, Friday December 20, at 9:30? Please call me if you receive this message today, or call Scott Spahr at 425 783- 1746 tomorrow or next week (I will be out on vacation).

Thanks Matt!

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

Presler, Dawn

From: Bedrossian, Karen
Sent: Wednesday, January 15, 2014 10:55 AM
To: Applegate, Brock A (DFW)
Subject: Updated Hancock and Calligan figures and tables
Attachments: CCH Mitigation Plan Map 011414.jpg; HCH Mitigation Plan Map 011414.jpg; CCHrevWetlandMitTables20140110.docx; HCHrevWetlandMitTables20140110.docx

Hi Brock,

To keep you up to date, here are the revised tables and maps for the Hancock and Calligan TRMPs. They include the 6.59 acres of added preservation buffer area between Wetland C10 and the North Fork, which we agreed to on December 17, to accommodate temporal effects on cutting mature trees (mitigation ratio of 1.5:1 for temporary and 4:1 for permanent).

Scott Spahr and I had a conference call on January 9, 2014, with Matt Baerwalde from the Snoqualmie Tribe and Matt said he was good with the changes and thought that the added preservation buffer area between Wetland C10 and the North Fork would provide a lot of value for wildlife.

I will revise the text of the TRMPs accordingly and we will submit them to FERC as agreed to when we met December 17, 2013.

Please call me if you have any questions. I will be in the office Wednesday and Thursday if you would like to talk.

Thanks,
Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

Presler, Dawn

From: Applegate, Brock A (DFW) <Brock.Applegate@dfw.wa.gov>
Sent: Wednesday, January 15, 2014 4:32 PM
To: Bedrossian, Karen
Cc: Matthew Baerwalde (Mattb@snoqualmietribe.us); Anderson, Christopher D (DFW); Allegro, Justin K (DFW); Maynard, Chris (ECY)
Subject: FW: Updated Hancock and Calligan figures and tables
Attachments: CCH Mitigation Plan Map 011414.jpg; HCH Mitigation Plan Map 011414.jpg; CCHrevWetlandMitTables20140110.docx; HCHrevWetlandMitTables20140110.docx

Hi Karen, Overall, I think this looks good. Thanks for protecting habitat at the confluence of Calligan Creek, the North Fork, and Wetland C10. If all your wetlands and buffers are outside of the FPR protections and Matt is good with the proposal, I am good with it.

Will SnoPUD be purchasing fee title for the mitigation acreage? If you are unable to buy the land, will you be replacing elsewhere with the same quality and quantity of habitat?

I appreciate your efforts in putting the maps and tables together. Thanks.

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Wednesday, January 15, 2014 10:55 AM
To: Applegate, Brock A (DFW)
Subject: Updated Hancock and Calligan figures and tables

Hi Brock,

To keep you up to date, here are the revised tables and maps for the Hancock and Calligan TRMPs. They include the 6.59 acres of added preservation buffer area between Wetland C10 and the North Fork, which we agreed to on December 17, to accommodate temporal effects on cutting mature trees (mitigation ratio of 1.5:1 for temporary and 4:1 for permanent).

Scott Spahr and I had a conference call on January 9, 2014, with Matt Baerwalde from the Snoqualmie Tribe and Matt said he was good with the changes and thought that the added preservation buffer area between Wetland C10 and the North Fork would provide a lot of value for wildlife.

I will revise the text of the TRMPs accordingly and we will submit them to FERC as agreed to when we met December 17, 2013.

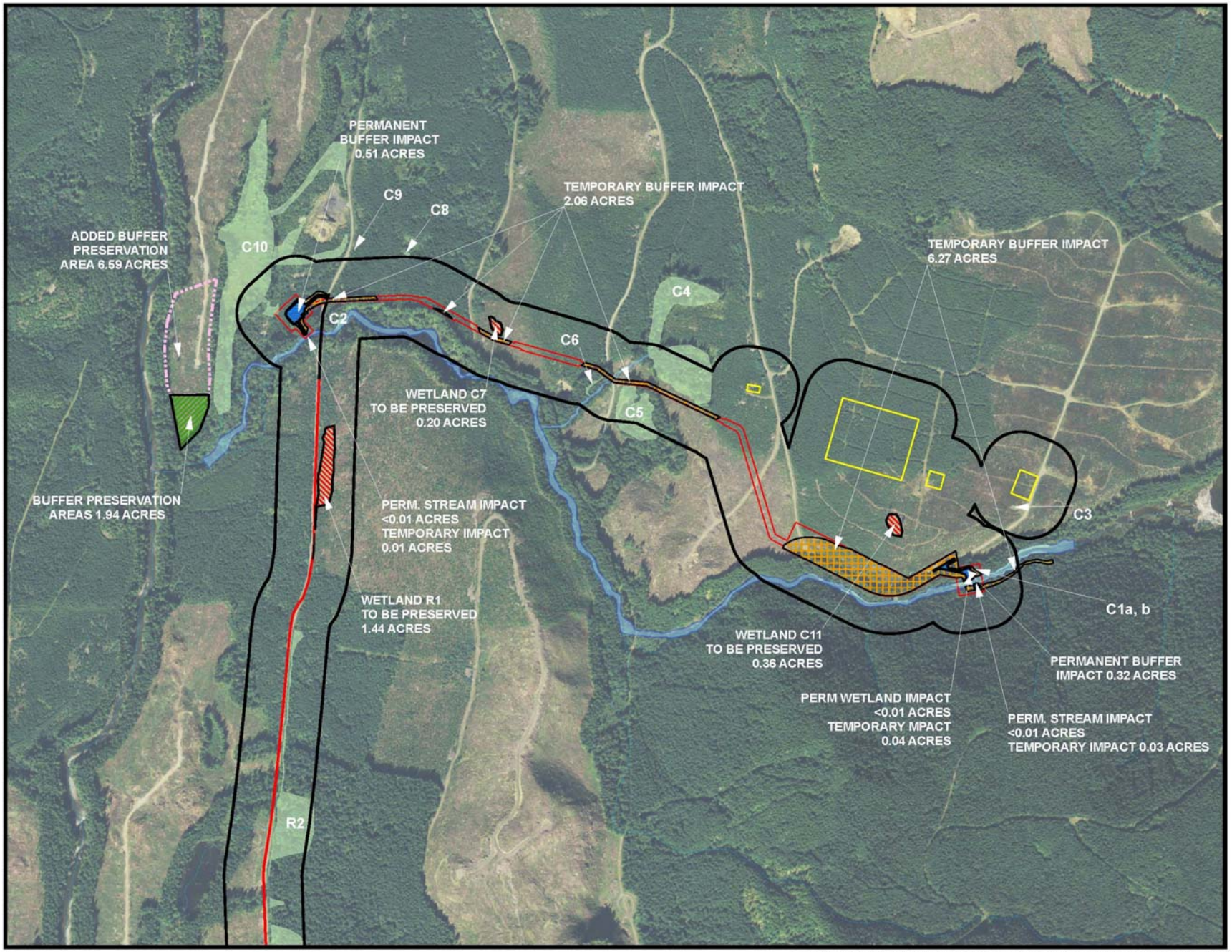
Please call me if you have any questions. I will be in the office Wednesday and Thursday if you would like to talk.

Thanks,
Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD
425 783-1774

Calligan Creek Hydroelectric Project

Conceptual Wetland Mitigation Plan Map
King County, WA
WRI #13045



Legend

- 300' Investigation Area
- Wetland Preservation
- Additional Buffer
- CCH Added Buffer Preservation Area
- Permanent Buffer Impact
- Temporary Buffer Impact to be Restored
- CCH Spoils/Laydown
- Wetlands (Herrera 2011)
- Wetlands (WRI 2013)

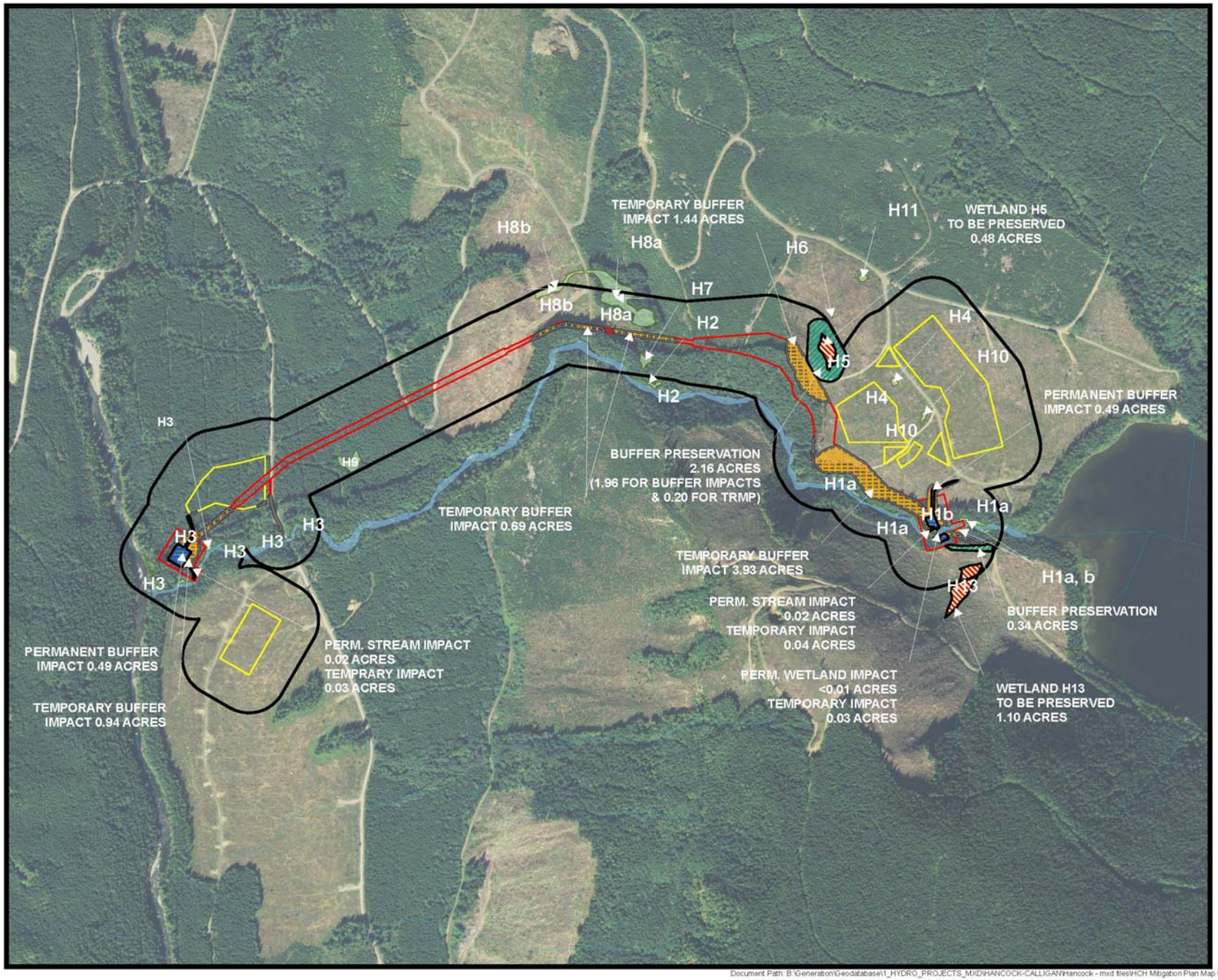
N
W E
S

0 280 560 1,120 1,680
Feet

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Date: 1/14/2014

Document Path: B:\Generation\Geodatabase\1_HYDRO_PROJECTS_MXD\HANCOCK-CALLIGAN\Calligan - mxd files\CCH Mitigation Plan Map 011414.mxd



Hancock Creek Hydroelectric Project

MITIGATION PLAN MAP
KING COUNTY, WA
WRI #13046

Legend

- 300' Investigation Area
- Wetland Preservation
- Additional Buffer
- Permanent Buffer Impact - To Be Restored
- Temporary Buffer Impact - To Be Restored
- HCH Spoils/Laydown
- Wetlands (Herrera 2011)

N
W E
S

0 255 510 1,020 1,530
Feet

SNOHOMISH COUNTY PUD
PUBLIC UTILITY DISTRICT NO. 1

Date: 1/14/2014

Document Path: B:\Generation\Geodatabase\1_HYDRO_PROJECTS_MXD\HANCOCK-CALLIGAN\Hancock - mxd files\HCH Mitigation Plan Map 011414.mxd

Calligan Creek Hydro Project Wetland Mitigation Tables 1/10/2014

Table 1. Buffer impacts.

Buffer Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	8.33	1:1	8.33	Restoration
Permanent	0.83	2:1	1.66	Buffer Preservation
TRMP*	5.18 (temp.) 1.00 (perm.)	1.5:1 4:1	6.59	Added Buffer Preservation

*This includes additional mitigation for temporal loss of mature forest habitat at Hancock Project as well as Calligan Project.

Table 2. Wetland impacts.

Wetland Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	0.05	2:1	0.10*	Restoration/ Preservation
Permanent	<0.01	195:1	>1.95	Preservation

*0.05 Restoration/0.05 Preservation

Table 3. Stream impacts.

Stream Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	0.04	2:1	0.08	Buffer Preservation
Permanent	0.01	5:1	0.20	Buffer Preservation

Hancock Creek Hydro Project Wetland Mitigation Tables 1/10/2014

Table 1: Buffer Impacts

Buffer Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary*	7.0	1:1	7.0	Restoration
Permanent	0.98	2:1	1.96	Buffer Preservation
TRMP*	0.1	2:1	0.20	Buffer Preservation

*****See Calligan Project TRMP for added buffer preservation area to mitigate additionally for temporal loss of mature forest habitat.

Table 2: Wetland Impacts

Wetland Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	0.03	3:1	0.09*	Restoration/ Preservation
Permanent	0.01	152:1	1.52	Preservation

*0.03 Restoration/0.06 Preservation

Table 3: Stream Impacts

Stream Impacts	Area (acres)	Mitigation Ratio	Mitigation Area (acres)	Type of Mitigation
Temporary	0.07	2:1	0.14*	Restoration/ Buffer Preservation
Permanent	0.04	>6:1	0.27	Buffer Preservation

*0.07 Restoration/0.07 Preservation

Presler, Dawn

From: Applegate, Brock A (DFW) <Brock.Applegate@dfw.wa.gov>
Sent: Tuesday, February 25, 2014 7:28 AM
To: Bedrossian, Karen
Cc: Presler, Dawn; Allegro, Justin K (DFW)
Subject: RE: Hancock and Calligan Creek Projects Amphibian and Reptile Study, Goshawk, and Aerial Raptor Surveys

Hi Karen, Yes, Washington Department of Fish and Wildlife (WDFW) has consulted with Snohomish County Public Utility District No. 1 (SnoPUD) on the Northern goshawk and amphibian surveys, since the dispersal of the respective reports. SnoPUD is proceeding in a good direction with their Protection, Mitigation, and Enhancement (PM&E) Measures for goshawks and amphibians and their associated habitat. SnoPUD has conducted consultation with WDFW on these species. We have no further comments or recommendations with the current information provided to us.

WDFW appreciates your willingness to collaborate on these projects and future ones.

Thanks Karen.

Sincerely, Brock

Brock Applegate
Major Projects Mitigation Biologist
Washington Department of Fish and Wildlife
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1541

(425) 775-1311 x310
(360) 789-0578 (cell)
(425) 338-1066 (fax)

From: Bedrossian, Karen [mailto:KLBedrossian@snopud.com]
Sent: Monday, February 24, 2014 4:41 PM
To: Applegate, Brock A (DFW)
Cc: Presler, Dawn
Subject: Hancock and Calligan Creek Projects Amphibian and Reptile Study, Goshawk, and Aerial Raptor Surveys

Hi Brock,

On December 16, 2013 we sent you our consultants' responses to your comments on our draft Hancock and Calligan Creek projects Amphibian and Reptile Studies, Goshawk Survey and Bald Eagle, Osprey and Peregrine Falcon Survey Results Final Technical Reports. Since that time we have had several discussions regarding these reports and the study results, and we have incorporated your suggestions into the study area maps for the amphibian studies final reports.

Given the progress we have made, it would be good you have your acceptance of these reports in the consultation documentation record included with the final technical reports.
We will be filing these reports with FERC tomorrow. Thanks.

Karen

Karen Bedrossian
Senior Environmental Coordinator
Snohomish County PUD

Appendix 3

Management Methods for Tansy Ragwort (*Senecio jacobaea*)

(Smayda 2009)

Known Sites: See Figure 2-3.

Habitat and Threats: Tansy ragwort typically grows in disturbed habitats from full sun to partial shade, including pastures, roadsides, trails, and cleared lands, and along their forested margins. Tansy ragwort spreads quickly in overgrazed pastures. The species contains toxic alkaloids that cause irreversible liver damage in livestock and wildlife; the effects are cumulative and prolonged ingestion results in mortality.

Reproduction and Flowering Period: Tansy ragwort is a taprooted biennial or short-lived perennial that dies after producing seed. Typically, a basal rosette is produced during the first year of growth and flowering commences during the second year. The plants can reach six feet in height and produce upwards of 100,000 seeds; seeds can remain viable for 10 years or more. In the Project vicinity, flowering is most likely to occur between June and September.

Identification: First season tansy ragwort plants form basal rosettes of divided leaves. Mature plants range from 18 inches to 4 feet in height, with leafy stems of divided leaves with curled margins. Leaves are dark green on top and whitish green underneath. Flowers have yellow petals and centers. Tansy ragwort is sometimes confused with common tansy; common tansy has uniformly dark green leaves, which are divided but flattened, and flowers with yellow button centers but no petals.

Available Management Methods:

***Prevention*:** Specifying weed-free fill, mulch, and seed whenever possible will help to limit the introduction of seed source to the area. Vehicles and equipment should be cleaned regularly when moving to or from infested areas. Check for basal leaf rosettes in the spring and treat early to prevent flowering.

***Manual*:** Hand pulling, digging or grubbing of plants is effective for small populations. Pull plants after bolting but before flowering, for best results. Hand pulling is most effective when soils are moist. A digging tool should be used on mature plants and rosettes in dry soils to completely remove the root, which will resprout from very small fragments. Viable seed can be produced from flowers after pulling, so plants in bud, flower, and seed should be bagged for removal from the site.

***Mechanical*:** Mowing, by itself, is not effective for long-term management of tansy ragwort. Mowing will remove the flowering stalks, and if performed early in the bolting phase, can slow the occurrence of flower production. However, seeds can set from cut stalks that are already in flower and mowed plants likely will flower again in the same season. Mowing will not kill the basal rosette and may induce flowering below the level of the mower blade.

Cultural: Disturbance of soil and desired vegetation in the vicinity of the known infestation should be minimized to reduce the opportunity for germination of seed in the soil. Application of mulch to sites where tansy has been manually removed will help to reduce germination of seed. Large patches of bare soil (one square meter or more) that are not expected to revegetate naturally with native seed source should be seeded or planted with desired species.

Chemical: Several selective broadleaf herbicides are effective on tansy ragwort.

Currently, herbicide application is available only for populations occurring on Project Facilities lands that are outside of both the City of Everett drinking water supply watershed (Lake Chaplain) and the City of Sultan drinking water supply watershed. Selective herbicide use is retained as an available treatment method under this plan, in the event that large populations of tansy ragwort require management in the future. King County NWCB and the Pacific Northwest Weed Management Handbook should be consulted for specific herbicide application recommendations.

Biological: Biological methods are available for tansy ragwort, including the ragwort flea beetle, the ragwort seed fly, and the cinnabar moth; these controls are most effective on very large weed populations. Due to the small size of the weed populations and the availability of effective manual methods, biological methods are not proposed for use at the Jackson Project.

Management Recommendation for Tansy Ragwort at the Hancock Creek Hydroelectric Project:
Hand pull, dig, or grub out individual plants. Pull plants when soil is moist to facilitate removal of entire root; in dry soil conditions, use a digging tool to remove the entire root. Remove plants prior to seed production to reduce opportunity for seed dispersal. Bag any stalks with buds, flowers, or seeds, and remove from site.

Keep soil disturbance to the minimum possible to reduce the potential for germination of seed. Actively revegetate any sites where weed removal activities result in soil disturbance of 1 square meter or more. Use preventative measures to reduce introduction of tansy ragwort seed onto Project lands.

Long-Term Management Goal: Tansy ragwort is a Regulated Class B noxious weed species selected for control by the King County NWCB. Control of populations with eventual reduction within the Project boundary, is the Project-level goal.

Five-Year Management Objectives:

- Continue treatment along Project-specific roads, penstock right-of-way, and Project facilities.
- Continue to monitor these sites annually and retreat as necessary.
- After two consecutive monitoring events show no presence of tansy ragwort, reduce monitoring frequency and continue to evaluate site as part of ongoing general monitoring.

References:

King County Noxious Weed Control Board. 2013. Noxious Weed Control Program web page, tansy ragwort best management practices bulletin. http://your.kingcounty.gov/dnrp/library/water-and-land/weeds/BMPs/tansy_ragwort-control.pdf. . January 2006. King County Noxious Weed Control Board, Seattle, WA.

King County Noxious Weed Control Board. 2007. Noxious Weed Control Program web page, tansy ragwort weed alert. http://your.kingcounty.gov/dnrp/library/water-and-land/weeds/Brochures/tansy_ragwort.pdf. June 2007. King County Noxious Weed Control Board, Seattle, WA.

Oregon State University. 2008. Pacific Northwest Weed Management Handbook, online edition. http://pnwpest.org/pnw/weeds?01W_INTR06.dat

Washington State Noxious Weed Control Board. 2007. Washington's Noxious Weed List Written Findings web page. Written findings of the WSNWCB for tansy ragwort. http://www.nwcb.wa.gov/detail.asp?weed=119. , updated March 31, 2007. Washington State Noxious Weed Control Board, Olympia, WA.

Whatcom County Noxious Weed Control Board. 2008. Whatcom Weeds Fact Sheets web page, tansy ragwort fact sheet. http://www.co.whatcom.wa.us/publicworks/weeds/pdf/TansyRagwort2.pdf. Whatcom County Noxious Weed Control Board, Bellingham, WA.

Appendix 4
Weed Prevention Practices for the Hancock Creek Hydroelectric Project

(Smayda 2009)

- Consider weed risk factors during planning of proposed ground and habitat disturbing projects, such as road and facility maintenance, road and facility construction and decommissioning, fish and wildlife restoration projects, and recreation developments. Consult weed inventory maps to determine known occurrences of regulated noxious weed species within the Project boundary.

- Clarify the roles and responsibilities of all parties involved in day-to-day maintenance performed by District staff.

- Utilize performance bonds, responsibility clauses, or accountability statements for contractors and subcontractors to effect weed management to a desired condition.

- Seek to minimize ground and habitat disturbance, and removal of overstory shrubs and trees, to reduce opportunity for weed establishment, when feasible and not required for other project purposes or safety.

- When feasible, incorporate weed removal into projects involving excavation; utilize heavy equipment to remove weed infestations, provided that appropriate disposal sites can be secured.

- When feasible, defer disturbance of weed-infested sites until weed treatments have been implemented and allowed appropriate time to take effect. When work in untreated, weed-infested areas is necessary, work from the outer edges of the infestation inward if possible, to avoid spreading the infestation.

- Specify in all contracts that heavy equipment, hand tools, personal vehicles, and off-road vehicles brought onto the Project for construction or maintenance projects outside of the road prism, be free of all dirt, mud, and plant parts.

- Specify in all contracts that all heavy equipment, including mowing equipment, excavators, trucks, personal vehicles, and off-road vehicles used in a weed-infested site be power washed to remove dirt, mud, and plant parts before leaving the area to avoid spreading the infestation. Hand tools, small power tools, and personal gear should also be inspected and manually cleaned to remove all dirt, mud, and plant parts before being transported from the site. To the extent practical, District staff will inspect all District equipment brought onto Project lands and remove dirt, mud and plant parts as needed. Exception to this practice may be made during emergency repairs.

- District Biologists will work with District staff and contractors conducting construction and maintenance work in weed-infested areas to, when feasible, schedule the work to

reduce potential spreading of weeds. This may involve conducting the work outside the flowering/seed production season, or controlling weeds prior to work being conducted. When this is not feasible, equipment will be washed down prior to leaving each weed-infested area.

- Dispose of noxious weed plant material and weed-contaminated soils in a way that ensures that no seeds, roots, or other portions of the plant capable of reproduction, are spread. Material may be disposed of at an approved landfill or contained disposal site. District staff will coordinate with District Biologists regarding appropriate weed disposal.

- Provide contractors, survey crews, inspectors, and visitors weed awareness information and weed transport prevention techniques.

- Specify that contractors use regulated commercial gravel pits and fill sources to reduce the potential for weed transport onto Project lands. Specify that non-commercial gravel pits and fill sources will be inspected to identify weed-free sources; treat weeds at infested sites prior to use or transport.

- To the extent practicable, require that all mulch be weed free. The Washington Wilderness Hay and Mulch (WWHAM) program provides a list of growers whose hay and straw crops have been certified to North American Weed Management (NAWMA) standards. WWHAM/ NAWMA hay and straw bales will have a self-adhesive, tamper-proof WWHAM certification tag attached to the bale twine, or will have at least one strand of purple and yellow proprietary twine encircling the bale. A list of WWHAM producers and sellers is provided at: http://agr.wa.gov/PlantsInsects/WWHAM/WWHAM.aspx.

- Specify in all construction specifications that all seed used on site is certified “free of noxious weeds”.

- Actively revegetate all disturbed sites, using a native seed mix; or a non-native seed mix based on non-invasive species. Apply mulch to conserve moisture and protect seed and soil. Use seed mixes described in Section 2 of the TRMP for temporary site revegetation using commercially available, non-invasive species. These seed mixes include relatively short-lived species that are intended to be replaced over time by natural seeding of natives.