1. Project Title

Lewis River Side Channel Five

2. Project Manager

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3. Identification of problem or opportunity to be addressed

Problem:
Minimal high quality side channel spawning and rearing habitat exists in the Upper North Fork Lewis River. This habitat is essential for species listed under the Endangered Species Act (ESA) that use the Lewis River Basin and include coho and Chinook salmon, steelhead trout, and bull trout. These species have endured many effects that threaten the survival of the species. Effects to their habitats include past land management activities such as logging, road building, and development of hydro-resources, which until recently has blocked all anadromous species access into the Upper North Fork Lewis River. To ensure reintroduction efforts of salmon and steelhead into the watersheds above the dams are successful, the Forest Service has worked with PacifiCorp on a variety of projects including acclimation ponds for juvenile spring Chinook salmon, road decommissioning, replacement of migration blocking culverts with bridges, and various streambank and instream fish habitat restoration projects.

Opportunity:
This project proposal develops the opportunity to ensure fish reintroduction efforts into the upper North Fork Lewis River are successful. This project will restore habitat in an old side channel of the Lewis River. This will restore the side channel to its full potential, and prioritizes opportunities for ESA listed fish species. Enhancement and restoration of instream habitat will increase the overall abundance of functional habitat in the Upper North Fork Lewis River.

The Forest Service proposes to reopen the side channel by removing sediment deposits and using structures created from Large Woody Material (LWM) and boulders to divert water from the Lewis River into the side channel. The structures will be designed to keep water flowing into the side channel year round. Sorting of existing gravels in the side channel will occur when LWM is strategically placed, developing both spawning and rearing opportunities for fish. Structures will also be placed at the side channel outlet location to ensure sediment does not build up in the river and eventually block the outlet. Approximately 100 pieces of LWM with rootwads will be used to create project objectives.

This project is located in the Lewis River, 500 feet downstream of Spencer Creek, and is less than 1 mile downstream of the future Crab Creek acclimation pond. Research has

shown that side channels provide preferred summer and overwintering habitat for juvenile coho (Everest et al. 1985; Everest et al. 1986). Each structure will contain an average of 8-12 pieces of large wood, and be strategically located to maximize summer and winter rearing habitat for coho and spring Chinook salmon, winter steelhead, and possibly bull trout. The project will reopen and improve 800 feet of old side channel. The Forest Service will hire a contractor to log and haul LWM to the site, and use an excavator and skidder to place wood in strategic locations. A tracked excavator and skidder will access the area via an old logging road, and will build the instream structures. Wood for this project will come from USFS lands Peppercat unit 21 and/or from Swift Reservoir cleaning operations.

4. Background

Reconnaissance surveys conducted for this project occurred during the fall of 2013, and October 2014. The side channel is located on the west side of the river and is no longer functional due to the lack of flow. The inlet and outlet are both blocked by sediment deposits, about 20 feet in width. This side channel will provide excellent habitat once flow is reestablished and LWM is added. This side channel width varies from 10 to 20 feet and the location is stabilized by a large gravel bar/terrace with trees and established vegetation. The inlet is approximately 4,000 feet downstream from the Crab Creek Acclimation Pond. This location will directly benefit juvenile fish released from the acclimation pond, and lead to overall success of both the acclimation pond and this side channel restoration project.

Large woody material will provide additional cover in the side channel allowing full use of the channel by juvenile salmonids. In addition to enhancing cover, gravels will be sorted during high flow events increasing spawning opportunities.

The 2009 Lower Columbia Salmon Recovery Plan Six Year Habitat Work Schedule identifies this as a Tier 2 (Medium priority) reach (reach 23). Ecosystem Diagnosis and Treatment (EDT) analysis identifies Medium production potential for spring Chinook, high for winter steelhead, and low potential for coho. EDT results suggest that off channel and side channel habitat and channel structure restoration are high multi-species priorities in the reach. The ACC Synthesis Matrix rated this section of the river as having low restoration potential and as a Primary coho population area, and a low rating for coho reach potential. Habitat needs in this reach were identified as low instream LWM, high competition and predation. It has a Primary population designation for Chinook, coho, and a contributing population designation for winter steelhead.

5. Project Objective(s)

GOAL:
Enhance the quality of fish habitat in the Lewis River by:

- Improving habitat complexity and diversity in the side channel using LWM
- Providing refugia during winter flows for juvenile salmonids.
- Providing rearing opportunities for juvenile salmonids during summer months.
- Providing increased spawning opportunities for adult salmonids.

This project addresses the following Aquatic Fund priorities.

Priority 1: *Benefit fish recovery throughout the North Fork Lewis River, with priority to federal ESA-listed species.*
Chinook, coho, and steelhead trout are listed as a threatened species under the ESA. This project will contribute to the recovery of these species by increasing the amount and quality of rearing pools in side channels. In addition, spawning areas will be associated with the log complexes.
Lower Columbia ESU coho salmon are listed as a threatened species under the ESA
Lower Columbia ESU steelhead trout are listed as a threatened species under the ESA
Lower Columbia ESU Chinook Salmon are listed as a threatened species under the ESA

Priority 2: *Support the reintroduction of anadromous fish throughout the basin.*
Juvenile anadromous salmonids will have a quality rearing and refugia reach when this project is complete, thus ensuring survival and promotion of the various species during reintroduction efforts.

Priority 3*: Enhance fish habitat in the Lewis River Basin-, with priority given to the North Fork Lewis River.*
This project is located in the North Fork Lewis River basin. This project consists of reopening an old side channel and placing large woody material to build structures in the side channel designed specifically to enhance and restore fish habitat. This project will increase instream habitat diversity, and in turn it is expected that this project will contribute to increasing fish production in this area.

6. Tasks:

Task 1: NEPA and required permits.

1) Complete NEPA documentation. Field work for this NEPA document would be accomplished during the fall and winter of 2014/2015. The final document should be completed and signed by winter 2015, and the project would be implemented July 2016.

2) Instream restoration activities are covered within the WDFW-MOU, and the Regional Permit with the Army Corps of Engineers.

3) The Forest Service is the landowner and project sponsor, and permission has been obtained to do this project.

Task 2: Project Design.

1) Finalize project design and project preparation details. Preliminary designs were completed during reconnaissance visits in 2014.
2) An engineer survey using a total station will be done to develop project specific elevations for excavation and inlet/outlet structure design. This includes longitudinal profile and cross-sectional information as we finalize designs.
3) A 35 acre Peppercat timber sale unit is set aside to use for fish habitat restoration activities over the next ten years. An area within this stand will be designated for harvest operations and laid out to thin. Additional material may be acquired from PacifiCorp Swift Reservoir Cleaning operations.

Task 3: Project Implementation

1) Develop equipment and logging contract. A standard RFQ contract will be developed specifying the scope of the project and project requirements. We will use an equipment rental contract to perform the actual work, which will allows us the flexibility to make changes to the project as implementation is occurring.
2) Administer contract. A Fish Biologist or Fisheries Technician will administer the contract to ensure contract compliance and project specifications are met.

Task 4: Monitoring

1) Perform baseline monitoring. This monitoring will occur prior to project implementation and include a longitudinal profile, cross-sections, pebble counts, photo-documentation and snorkel surveys. Mount St. Helens Institute (MSHI) will provide two interns and volunteers including urban youth to perform monitoring work, they will perform most aspects of the monitoring with supervision and training from the Forest Service. Snorkel surveys will be conducted by the Forest Service
2) Perform after project monitoring. This monitoring will occur following project implementation and will continue on an annual basis for several years following project completion. MSHI will provide two interns and volunteers for this portion of the work supervised by the Forest Service
3) Monitoring Report. A monitoring report will be written each year following project implementation. MSHI will provide raw data in excel format, provide analysis of data and will complete the report with USFS assistance.

7. Methods:

The Mt. St. Helens Fisheries department will oversee all phases of this project including project design, implementation and monitoring.

Approximately 100 pieces of LWM would be harvested during thinning operations from a nearby timber sale unit which would allow us to use long stems (60+ feet) with attached rootwads.
Woody material will be trucked via Forest Road 9039 and FR90 spur road (90000480). Wood will be stockpiled at the end of FR 9000480. From there, a skidder will transport the wood to the structure locations. Once at the structure locations, the logs will be moved and placed by an excavator. The excavator would gain access to the Lewis River using FR 9000480 road, and then on a skid trail created through the woods to access the Lewis River. The FR 9000480 will be temporarily opened for this project activity, and will be re-closed after all activities are completed, by re-establishing drainage and blocking vehicular access.

Wood for this project would primarily come from USFS lands; however any opportunity to acquire large wood from Swift Reservoir cleaning operations will also be pursued.

Approximately 8 to 12 pieces of LWM will be used at each structure location to form complex habitat. Structures will protrude 1/2 to 2/3 of the way into the channel to create a meandering thalweg and sort gravels

Key pieces of wood at each location will be anchored into the streambanks by placing logs into trenches (up to 30 feet long) and then buried with an excavator. Other pieces of LWM will be interwoven into these key pieces and riparian vegetation. The overall design will appear natural and meet scenery management objectives.

The FR 9000480 will be opened for the implementation of this project and re-closed after all activities are completed, by re-establishing drainage and blocking vehicular access.

Established US Forest Service protocol to prevent introduction of non- native species will be followed during project implementation. This involves pressure washing machinery offsite to remove all dirt and debris, inspecting machinery prior to project implementation, and mulching exposed areas of dirt to prevent non-native vegetation from establishing itself. Follow up monitoring will occur after project implementation and non-native vegetation treated, if found.

8. Specific Work Products

Deliverable 1: Completed project.

Deliverable 2: A report describing the project. Report to include project narrative, financial information, and photographs of completed projects.

Deliverable 3: Monitoring Report.

9. Project Duration

Monitoring for this project would begin during the summer of 2016. Project implementation would occur July 15th 2016 and is expected to take two weeks to complete. 'As built' documents will be completed by December 31st, 2016. An initial report documenting fish response to the structures will be completed by December 31st, 2017. The first monitoring report with pre and post project data will be available December 31, 2017.

A project closeout meeting would occur at an ACC meeting following project completion.

10. Permits

NEPA- Field work will be completed during the fall and winter of 2014/2015, NEPA document will be completed winter 2015.

The Gifford Pinchot National Forest has a Memorandum of Agreement with the Washington State Department of Ecology (DOE). The agreement recognizes the Forest Service will ensure that 1) all waters on National Forest lands meet or exceed water quality laws and regulations (Sections 301, 302, 303, 306 and 307) of the Clean Water Act and 2) activities on those lands are consistent with the level of protection of the Washington Administrative Code relevant to state and federal water quality requirements. This agreement is neither a fiscal nor a funds obligation document.

The Gifford Pinchot National Forest has a Memorandum of Understanding (MOU) with the Washington State Department of Fish and Wildlife Regarding Hydraulic Projects conducted by USDA Forest Service Northwest Region (2005). Compliance with the instream restoration provisions within this MOU replaces the need for an individual hydraulic project approval (HPA). This fish habitat enhancement project will be conducted within the provisions set forth in this MOU.

The Clean Water Act (as amended by the Water Quality Act of 1987, Public Law 100-4) authorizes the states to regulate the "fill and removal" activities of Federal agencies. In Washington, the Forest Service has authorization for its fill and removal projects through the MOU with WDFW when the projects comply with the provisions of the MOU.

The US Forest Service has a state wide Regional General Permit (RGP) with the Army Corps of Engineers to perform aquatic restoration activities in waterways. Permit CENWS-OD-RG-RGP-8 authorizes the USFS to perform 13 restoration activities including Large Wood, Boulder and Gravel Placement on National Forest Lands.

Land ownership in this section of the Lewis River is comprised of public lands administered by the Forest Service. The project is wholly on public lands.

11. Matching Funds and In-kind Contributions

Partner	**Contribution**	**Funds**
Forest Service	Project development, Contracting, Permitting, Monitoring	$29,000 In-kind
Materials from USFS	Trees with rootwads	$20,000 In-kind
Mt. St. Helens Institute	Monitoring	$3,000 In-kind

12. Professional Review of Proposed Project

This project proposal was reviewed by Gifford Pinchot National Forest (GPNF) Soil and Water program manager, Ruth Tracy, Mt St. Helens Institute Science and Education Programs Manager, Abi Groskopf, and Forest Fisheries program manager Baker Holden.

13. Budget

		NEPA	Final designs	Project Mgmt	Construction	Monitoring/Labor /Reporting/Coord.
Personnel Costs						
FS - Zone Team or Contract		$12,000 (IK) $12,000 (ACC)				
FS –Fish Bio and Hydrologist			$3,000 (IK) $3,000 (ACC)			
FS - Fish Bio and Bio technician				$5,000 (IK) $5,000 (ACC)		$1,000 (IK) $1,000 (ACC)
FS - Contract administrator -					$5,000 (IK) $5,000 (ACC)	
FS - Contract Specialist					$2,000 (IK)	
Mt St. Helens Institute						$3,000 (IK)
Mt. St. Helens Institute Community Education						$3,000 (ACC)
Travel				$1,000 (IK) $1,000 (ACC)		
Materials						
Forest Service 100 Pieces of LWM with rootwads					$20,000 (IK)	
Contract Payables						
Engineer survey/total station					$13,000 (ACC	
Excavator Contract					$21,000 (ACC)	
Logging and hauling of trees					$23, 000 (ACC)	
Materials and Supplies				$ 1,000(ACC)		
Total ACC Funds	**$88,000**	**$12,000**	**$3,000**	**$7,000**	**$62,000**	**$4,000**
Total FS Funds	*$49,000*	*$12,000*	*$3,000*	*$6,000*	*$27,000*	*$1,000*
Total Partner Funds	*$3,000*					*$3,000*
Project Total	***$140,000***					

FS personnel estimated as $400/day.

ACC Funds would be would be $82,000 if both projects are funded ($6,000 less for NEPA)

Lewis River Side Channel Five Expanded Budget 2015

Item	**Personnel**	**Estimated Days/units***	**Cost Per Unit**	**Total***
NEPA Environmental Assessment required by Federal Law	Fish Biologist Wildlife Biologist Hydrologist Botanist Archeologist Soil Scientist Recreation NEPA Coordinator	10 6 5 8 10 3 3 15	$400 per day per person	$12,000 (ACC) $12,000 (IK)
Final Designs	Fish Biologist Hydrologist Fish Technician	7 2 6	$400 per day per person	$3,000 (IK) $3,000 (ACC)
Project Management	Fish Biologist Fish Technician Mileage	15 10	$400 per day per person	$5,000 (IK) $5,000 (ACC)
Travel	½ ton PU	Fleet Cost 2000 miles	$500 $0.75/mile	$1,000 (IK) $1,000 (ACC)
Construction	Contract Administration/Prep Logging contract Equipment contract	30	$400 per day per person	$7,000 (IK) $5,000 (ACC) $23,000(ACC) $21,000 (ACC)
Materials & Supplies	Field Equipment, Notebooks, Misc Supplies			$1,000 (ACC)
Trees with rootwads		100		$20,000 (IK)
Engineer Survey/Total Station	Survey includes inlet and outlet structure design	1 Lump Sum		$13,000 (ACC)
Monitoring *MSHI* *USFS*	Supervisor Assistant Volunteers Travel Fish Biologist Fish Technician	25 20 500 2.5 2.5	$300 per day per person $100/EA 1.00/mile $400/day	$1,000 (IK) $2,500 (ACC) $2,000 (IK) $500 (ACC) $1,000 (IK) $1,000 (ACC)
Total				**$140,000**

*Values are rounded up or down as need to display whole number and days

Lewis Side Channel Five Equipment Budget 2015

Item	Cost per unit	Number of units	ACC cost	Total Cost
Excavator/Skidder Operator/Fuel/ Supplies, misc.	$150 hour	120	$18,000	$18000
Equipment Move in/out (shared cost)	$3,000	1	$3,000	$3,000
Logging and Hauling cost: Based on Previous Contract	$23,000	1	$23,000	$23,000
Total			**$44,000**	**$44,000**

14. Photo Documentation (Per National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects):

    Identify process or methodology project will include to provide photo documentation of habitat conditions at the project site before, during, and after project completion.

    a. Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
    b. Label each photo with date, time, project name, photographer's name, and documentation of the subject activity.

15. Insurance. All qualifying applicants shall comply with PacifiCorp's insurance requirements set forth in Appendix E. The policy limits are deemed sufficient by PacifiCorp for project activities involving significant risk, including placement of large woody debris in navigable waterways, and are presumed to be sufficient for all activities likely to be funded under this RFP.

Should applicant's insurance program not meet these requirements, bid pricing should include any additional costs applicant would incur to comply with these requirements.

Questions from ACC members

All projects: Proposals should demonstrate that the project is scientifically supported, has a clear nexus to the Lewis River hydroelectric projects, and clearly supports the Aquatic Fund objectives. Please prepare the document with the assumption that the reader is not familiar with the Lewis River basin, its issues, or its resources.

Lewis River Side Channel 5
<u>ACC</u>: Provide more detail regarding measures to prevent non-native species.

We will follow established US Forest Service protocol to prevent introduction of non native species during project implementation. This involves pressure washing machinery offsite to remove all dirt and debris, inspecting machinery priori to project implementation, and mulching exposed areas of dirt to prevent non-native vegetation from establishing itself. Follow up monitoring will occur after project implementation and non-native vegetation treated if found.

<u>LCFRB</u>: Gravel is a limiting factor in this location so need to show your project will increase gravel recruitment. Should consider extending wood farther into the stream to capture gravel. Will capturing of gravel fill in side channel too quickly and cause river to quit using side channel?

The Forest Service proposes to reopen the side channel by removing sediment deposits and using structures created from Large Woody Material (LWM) and boulders to divert water from the Lewis River into the side channel. The structures will be designed to keep water flowing into the side channel. Sorting of existing gravels in the side channel will occur when LWM is strategically placed, developing both spawning and rearing opportunities for fish. Structures will also be placed at the side channel outlet location to ensure sediment does not build up in the river and eventually block the outlet. Approximately 100 pieces of LWM with rootwads will be used to create project objectives.

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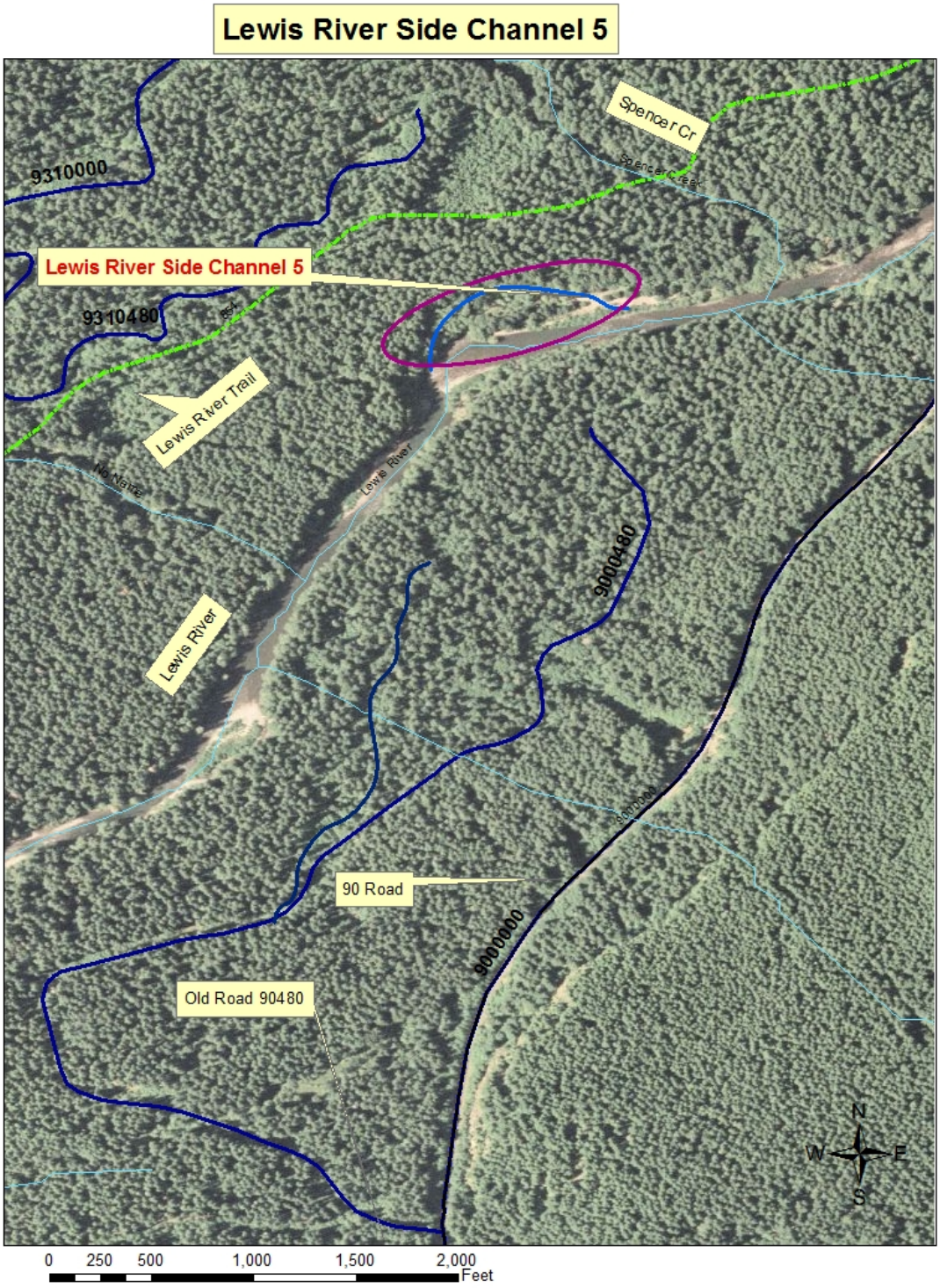

Figure 1. Map of side channel, and road used to access the project

Figure 2. Enlarged view of side channel

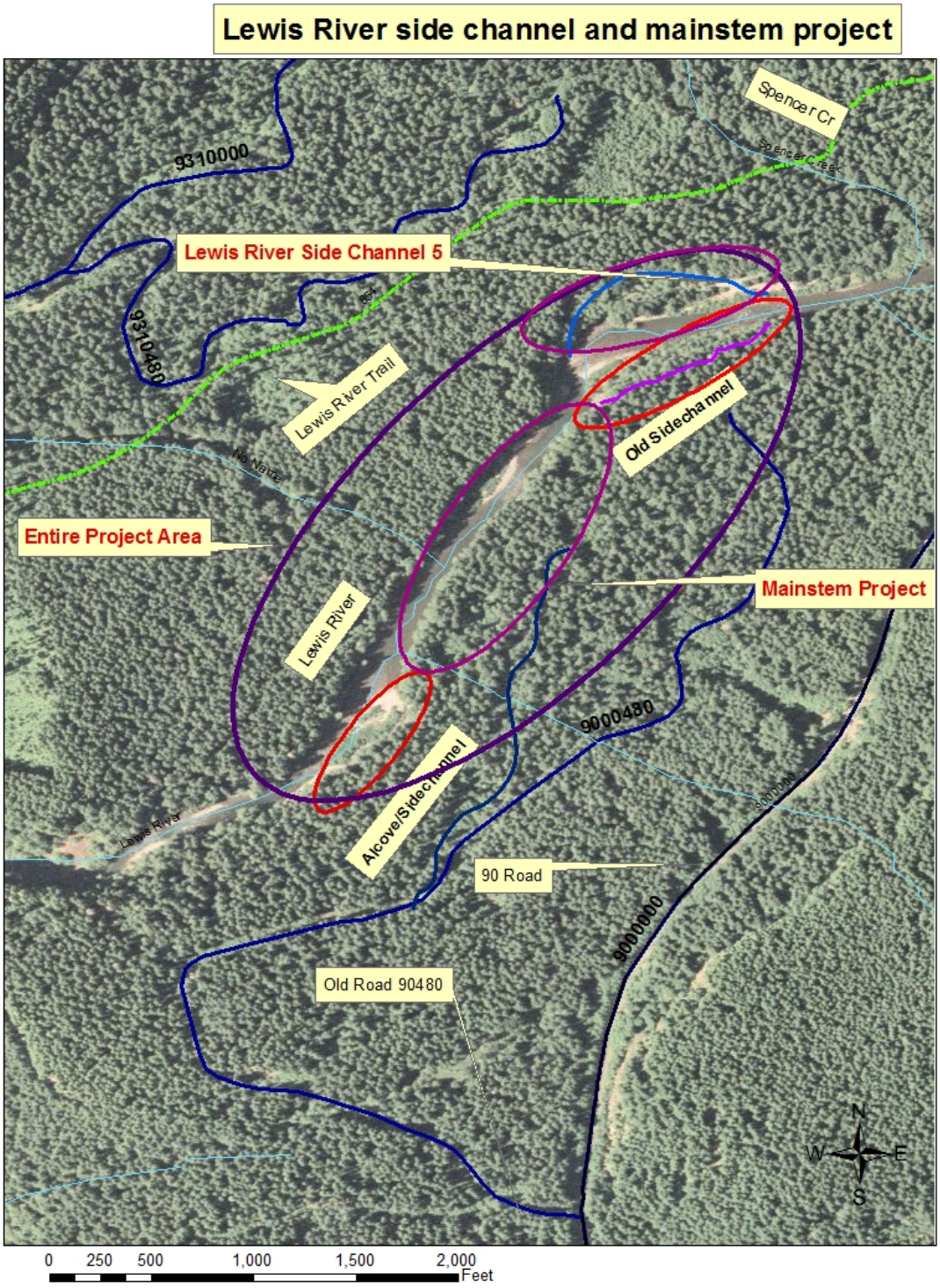

Figure 3. Side channel project in relation to other projects proposed or already funded in the area.

Figure 4. Side Channel to restore

Figure 5. Side channel to restore

Figure 6. Middle section of side channel

References

Everest, Fred, James Sedell, John Wolfe, 1985. “Fisheries Enhancement in the Fish Creek Basin”, Project No. 1984-01100, 234 electronic pages, (BPA report DOE/BP-16726-1)

Everest, Fred H. Gordon H. Reeves, James R. Sedell, Pacific Northwest Forest and Range Experiment Station 1986. Abundance, Behavior, and Habitat Utilization by Coho Salmon and Steelhead in Fish Creek, Oregon as Influenced by Habitat Enhancement 1985 Annual Report.