Nason Creek Lower White Pine Alcove Acquisition (#11-1372A)
12th Round Funding Cycle
June 30, 2011

Anticipated Request from Tributary Committee:	**$ 44,700.00**
Anticipated Request from SRFB:	**$250,000.00**
Anticipated Total Request:	**$294,700.00**
Anticipated Other Contributions/Match (Secured):	$ 0.00
Anticipated Other Contributions/Match (Pending):	$ 0.00
Anticipated TOTAL Project Budget:	$**294,700.00**

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SUMMARY OF PROJECT CHANGES SINCE THE PRE-PROPOSAL

- Based on comments from the preproposal and RTT presentation, the "flats" (Rimson) site has been deleted.

- The 3.16 acre parcel owned by the Washington State Department of Transportation has been added. It is intertwined with the Parker and Click properties and includes both Nason Creek and alcove streambed and floodplain. WaDOT has signed a Landowner Acknowledgment to negotiate with the abutting landowner Parker, who has signed an acknowledgment for this property as well as the parcel he currently owns.

- The budget has been reduced by about $50,000 because of the substitution of the WaDOT parcel for the Flats (Rimson) property.

- The project has been renamed "Nason Creek Lower White Pine Alcove Acquisition" since the "pond" is connected to Nason Creek.

- The draft Stewardship Plan states that the property may receive habitat restoration activities if deemed appropriate. Any proposed restoration activities would need to be approved by technical reviewers and funders. The Stewardship Plan also addresses public access.

SRFB/TRIB Proposal Checklist

Proposal Contents	Page of Application	√ Reviewer Received
A) Title Page	**1**	
B) Summary of project changes since pre-proposal	**2**	
C) Checklist	**3-4**	
D) Scope of Work **(1) Project Overview** **(2) Salmon Recovery Context** **(3) Sources** **(4) Project Design** **(5) Project Development** **(6) Tasks and Schedule** **(7) Constraints and Uncertainties** **(8) Cost Estimate**	**5**	
E) Supplemental Questions	**10**	
F) Maps		
F1 Parcel Map	**13**	
F2 Vicinity Map	**14**	
F3 Vicinity Map with Public Ownership	**15**	
F4 Habitat Survey and Historic Channels, Map Atlas of Bureau of Reclamation Mason Creek Tributary Assessment 2008	**16**	
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H1 Wenatchee WRIA45 Management Plan Nason Creek Map and Habitat Recommendations	**21**	

D) SCOPE OF WORK

1. Project Overview

A. Brief summary of the project:

i. Location of the project in the watershed,

The Project is located at River Mile 11.2-11.5 in of the Lower White Pine Reach of Nason Creek (Map F1), that flows into the Wenatchee River, a tributary of the Columbia River (Map F2).

ii. Overview of current project site conditions.

The property is a total of 23 acres with both sides of the riverbank for 1250 feet (over 2500 feet overall), as well as floodplain and a 850 foot long year-round alcove/pond complex that was the former main channel of Nason Creek. The area that has had significant channel migration over the last 50 years (Map F4, Bureau of Reclamation 2008). A downstream outer meander bend has a significantly eroding bank due to irrigated pasture use over 20 years ago. There is a large log jam at the end of this bend (Map F4, Photos G).

CDLT would acquire up to 18 acres of the 23 acre site. The property is currently configured as 4 parcels, two of which are owned by James and Cathy Click, one by Stone Parker, and one by the Washington Department of Transportation (WaDOT). The WaDOT piece was used as a borrow pit during the construction of Highway 2. The Clicks have an existing home and shop on one of their parcels and would reconfigure their property by means of boundary line adjustment.

iii. Description of the proposed project and primary project objectives:

The primary objective of the project is to maintain the property in its natural state to ensure that it remains as unconfined floodplain, and unrestricted channel migration zone with natural stream complexity. The Bureau of Reclamation recommends protection of the high geomorphic potential, with potential future rehabilitiation (Lower White Pine Reach Assessment Report 2009, Report H5). CDLT would consider future potential restoration actions with sponsor partners and obtain technical and funder approval for any actions.

B. Has any part of this project been previously reviewed by the SRFB? **No.**

2. Salmon Recovery Context

A. Describe the fish resources present at the site and targeted by this project.

Nason Creek is a Category 2 stream, a major spawning area for endangered spring Chinook and steelhead and a core area for threatened bull trout (Revised UC Biological

Strategy 2008). Tier 1 actions are to "protect existing riparian habitat and channel migration floodplain function." Using the Bureau of Reclamation reach assessment recommendations, these properties were highly ranked among some 70 private holdings for protection along the 10 miles constituting the Upper White Pine, Lower White Pine, and Kahler reaches between RM 4.6 and 14.3 (ICF Jones and Stokes, 2009).

Species	Life History Present (egg, juvenile, adult)	Current Population Trend (decline, stable, rising)	ESA Coverage (Y/N)	Life History Target (egg, juvenile, adult)
Upper Columbia Spring Chinook	MaSA, Egg, juvenile, adult	See Note below	Y	Egg, juvenile, adult
Upper Columbia Steelhead	MaSA, Egg, juvenile, adult	See Note below	Y	Egg, juvenile, adult
Bull Trout	Core Area, Egg, juvenile, adult	stable	Y	Egg, juvenile, adult
Cutthroat Trout	Egg, juvenile, adult	stable	N	Egg, juvenile, adult

NOTE regarding "Population Trend":

The current population trend for Upper Columbia spring Chinook and steelhead remains at high risk for viable salmonid parameters such as abundance, productivity, and diversity measures. NOAA Fisheries is currently reviewing the status of the populations but that data is not available yet.

UCRTT and Terraqua. 2010. Upper Columbia Regional Technical Team 2010 Analysis Workshop Report. Page 6 (8 of online pdf). Available online at http://www.ucsrb.com/Editor/assets/ucrtt%202010%20synthesis%20report.pdf

B. The nature, source, and extent of the problem that the project will address.

The project addresses the need to protect functional habitat and to prevent habitat degradation. This stretch is within Reach 3 of Nason Creek, RM 9.42-11.75, although less than 2 miles long, has a high percentage of the spring Chinook and steelhead spawning in all of Nason Creek, which has a high percentage in the entire Wenatchee basin (Reports H2, H3, H4). Because the area is under development pressure as well as the effects of the highway and railroad, it is essential to protect the functional habitat.

C. Discuss how this project fits within your regional recovery plan or local lead entity strategy to restore or protect salmonid habitat in the watershed.

This is a Category 2 watershed and Tier 1 priority habitat action under Biological Strategy of the Upper Columbia Salmon Recovery Plan. The Biological Strategy states "The highest priority for protecting biological productivity should be to allow unrestricted stream channel migration, complexity, and flood plain function. The principal means to meet this objective is to protect riparian habitat--in Category 1 and 2 subwatersheds." As the RTT noted, the area has been impacted by development (housing, railroad, and power lines). The subject property retains a functioning alcove that offers scarce off-channel habitat in this area of Nason Creek. (Map F4, Channel Migration and Floodplain Map, BOR Reach Assessment, 2009; Report H3, Bureau of Reclamation Nason Creek Stream Survey Data Summary, 2009).

D. Describe the consequences of not conducting this project at this time. Consider the current level and imminence of risk to habitat in your discussion.

This property was subdivided in 1990 under local regulations allowing a "short plat" of 4 lots or less with minimal review. The short plat (Map F5) created three lots of 2 acres (Parker), 7.12 acres (Click lot with residence), and 10 acres (Click vacant lot). The present Nason Creek channel and the alcove/historic main channel are stretched across these three lots plus a 3.16 acre oddly shaped "interlocking puzzle piece" owned by the Washington State Department of Transportation. Although Chelan County Zoning now has a minimum lot size of 5 acres (Map F6), the smaller sites are grandfathered lots of record. The two Click parcels could be made into three parcels under the short plat mechanism, creating the possibility of 4 to 5 homesites along NasonCreek and the alcove. This area has been desirable for both primary and secondary homes due to its relative ease of access to the Seattle area via Highway 2, as well as to the Leavenworth/Wenatchee areas.

Development presents a variety of habitat risks including erosion and sedimentation from construction, water withdrawal from domestic wells, pollution, bank hardening, removal of LWD, loss of riparian vegetation and pollution from septic systems and household chemicals.

3. Citations:

UCRTT Biological Strategy Revised (2008);
Federally listed Fish Species for Washington State (WDFW 2009);
"Monitoring and Evaluation of the Chelan PUD Hatchery Programs," Hillman et al, 2011
Nason Creek Tributary Assessment (Bureau of Reclamation, 2008);
Lower White Pine Reach Assessment (Bureau of Reclamation, 2009).

4. Project Design

   A. Describe specific restoration methods and design elements. **N/A**

   B. Restoration phases. **N/A**

   C. Describe the long-term stewardship and maintenance obligations for the project or acquired land.

CDLT provides perpetual stewardship, including: preparation of baseline documentation and environmental assessment, monitoring at least once a year, recording of observations and photo points relating to flora, fauna and channel movement, riparian plantings and/or weed treatment as needed. *See* Draft Stewardship and Management Plan, Attachment I. CDLT requests a stewardship donation from the landowner to CDLT's Stewardship Endowment Fund to support its perpetual stewardship of the property.

5. Project Development

   A. Explain how the project's cost estimates were determined.

The estimate of value is based on consultation with local realtors and examination of public data on sales in the area over the last 2 years.

   B. Other approaches that were considered to achieve the project's objectives:

Mr. Parker has his parcel for sale. He wants to sell it and the WaDOT parcel that he has been negotiating to buy. Discussions with the Clicks have considered both fee and conservation easement options, and their current inclination is to realign their boundaries and to sell the balance of the property.

   C. Community concerns :

Chelan County Natural Resource Deopartment conducted community meetings this spring regarding salmon habitat projects in Nason Creek. CDLT is unaware of any issues raised relating to the potential acquisition.

   D. Include a Partner Contribution Form : **N/A**

   E. List all landowner names:

James and Cathy Click, Stone Parker, Washiington State Department of Transportaton. *See* Landowner Acknowledgements, Attachment J.

   F. Describe your experience managing this type of project.

The Chelan-Douglas Land Trust has been involved in land preservation and stewardship since 1985. It has a total of 2,950 acres in fee lands and 2,513 acres in conservation

easement properties. Of the fee properties, 472 acres of riparian habitat are in the Entiat River and 411 in the White River, funded by the SRFB, Tributary Committees, Preist Rapids Habitat Funds, Icicle Fund and landowner donations over the last 10 years.

CDLT Staff include: Executive Director, Bob Bugert has bachelor's and masters degress in fisheries and wildlife biology. He worked for 9 years with the Governor's Salmon Recovery Office and chaired the UCRTT. CDLT's Land Project Manager Mickey Fleming is an attorney with 30 years' experience in real property-related law. CDLT's Stewardship Coordinator Neal Hedges has a masters in wildlife biology and worked for the Bureau of Land Management for 30 years.

6. Tasks and Schedule

Item/Milestone	Outcome	Target Date (Month/Year)
Option to Purchase	Options (Click, Parker)	March 30, 2012
Appraisal and Review	Determine FMV	June 30, 2012
Environmental Assessment	Phase I	August 30, 2012
Closing	Acquire title	December 31, 2012
Stewardship Plan		June 1, 2013

7. Constraints and Uncertainties: **No known constraints or uncertainties.**

8. Project cost estimate.

Item	Cost/unit	SRFB Fund Request	Trib Fund Request	Donated/Other Source
Fee Acquisition	260,000	220,000	40,000	
Incidentals	21,000	17,850	3,150	
Administration	13,700	12,150	1,550	
TOTAL	294,700	250,000	44,700	

Supplemental Questions

1. Projects involving acquisitions answer the following questions

   A. Describe the habitat types on site : **Nason Creek streambed, off-channel alcove, floodplain with native vegetation, conifer forest, historically grazed meadow. *See* Maps F1, F3, Photos G, Report H5.**

   B. Type of acquisition proposed: **Fee title**

   C. Size of the property to be acquired: **23 acres, less residence and acreage to be retained by Mr. Click following boundary adjustment. *See* Map F1.**

   D. Describe the property's proximity to publically owned or protected properties in the vicinity. Attach a map in PRISM that illustrates this relationship.

   The immediately surrounding properties are private, with US Fiorest Service ownership of the upland forest. *See* Map F3.

   D. If uplands are included on the property to be acquired, state their size and explain why they are essential for protecting salmonid habitat.

Based on the FEMA floodplain maps, 17.5 of the 23 acres is in the stream, alcove and 100 year floodplain. Mr. Click will retain most of the land outside the floodplain when the property line is adjusted.

F. State the percentage of the total project area that is intact and fully functioning habitat: **After boundary line adjustment, about 90%.**

G. Explain the degree to which habitat on site is impaired and the nature and extent of required restoration.

The primary impairments of the site result from the historic channel changes and constriction cause by the construction of the BNSF Railroad to the south and Highway 2 to the north. Unlike many other parcels in the area, this property has not been divided into very small lots, and the existence of a single home leaves open the possibility for acquiring these parcels and putting most of the property into habitat protection where the river can move as naturally as possible.

The property may receive habitat restoration activities in the future if deemed appropriate and approved by technical reviewers and the entities funding the acquisition. CDLT would work with restoration partners to determine the appropriate treatment.

H. List existing structures :

House, shop, well and septic systems on the Clicks' Lot 2 willl be outside the area acquired after boundary line adjustment.

I. Describe adjacent land uses :

Private residential use to the east and west; railroad to the south and Highway 2 to the north.

J. Why is the acquisition is needed; why do regulations do not provide enough protection. State the zoning and Shoreline Master Plan designation.

The effectiveness of zoning depends upon (1) political will to enact and enforce rigorous requirements, and (2) voluntary compliance. As Chelan County Natural Resouces Director Mike Kaputa explained to the Upper Columbia Regional Technical Team in May, 2011, both of these issues pose significant challenges. There is a high percentage of public land in Chelan County, and much of the private land in tributary watersheds is concentrated in the very areas most important for habitat. Accordingly, habitat protection and possible economic development conflict as priorities. As reported by Don McIlvor to the UCSRB:

> **"In contrast to public lands, regulations on private lands, enacted via comprehensive plans, zoning, shoreline master programs, etc., must assure that regulatory or administrative actions do not result in a taking of private property rights (RCW 36.70A.370). This balancing of personal rights against protection of the greater good inherently requires some level of compromise." (UCSRB 2011)**

Examples of this "compromise" are very evident: Chelan County does not have a filling and grading regulation. Chelan County allows construction in the floodplain by placing fill to raise the structure. Moreover, the Development Department's enforcement is only complaint-driven and is a low priority in budget-challenged times.

With regard to this property on Nason Creek, The zoning is RR5 (5 acre lot minimum, although two parcels are lots of record at 2.01 acres (Parker) and 3.16 acres (WaDOT), respectively. The RR5 residential zoning also allows an additional accessory residence of up to 1000 square feet, other accessory structures, agricultural buildings, vehicles, and storage.

The Chelan County Shoreline Master Plan proposed designation in this area is "Conservancy," with a 200 foot buffer for low intensity uses (SMP Draft August 2010). The "Conservancy" designation allows a variety of uses as of right or by conditional use permit: agriculture, aquaculture, boating facilities, mixed use residential and commercial uses, single family and multiple family residential, water related industrial uses, hard and soft shoreline stabilization, upland mining, transportation, parking, utilities, levees and dikes (Table 9.1).

Under the Chelan County Code Section 12.32.050, all lots recorded prior to October 17, 2000 are legal lots of record, as are lots in a short plat, in a major subdivision, greater than 20 acres, or with an approved certificate of exemption, building permit or land use permit. Recently, the County settled a lawsuit with an Entiat River property owner whose proposed residence did not meet setback requirements and is in the potential channel migration zone of the River. The County's "Reasonable use" regulation (Fish and Wildlife Habitat Conservation Overlay District Section 11.78.220, proposed 1.210) states that the habitat regulations are not to be applied to prohibit reasonable use or to constitute a taking of property rights.

There are seventeen (17) exemptions from the current Chelan County Fish and Wildlife Habitat Conservation Area Overlay District (Section 11.78.020). An abbreviated list of these exemptions includes: state-regulated forest harvests; pumping stations and irrigation facilities, existing legal structures, facilities or improved areas; existing streets, highways or roads; site investigative work; passive recreational activities; an access/view corridor per parcel; required fire management; ponds deliberately created from dry sites; riparian habitat and fish/wildlife habitat projects; legal lots of record within the riparian buffer separated from streams or lakes by an intervening legal lot of record; noxious weed control; boundary line adjustments; and modification of a legally constructed single-family residence, with some restrictions.

Non-complaince examples abound. Some landowners avoid the zoning requirements by not building permanent structures for which permits are required. For example, the use of a recreational vehicle as a residence is a non-permitted approach by many property owners, particularly for second homes on the riverfront.

K. A conservation easement to extinguish certain development rights achieve the goals and objectives of the project?

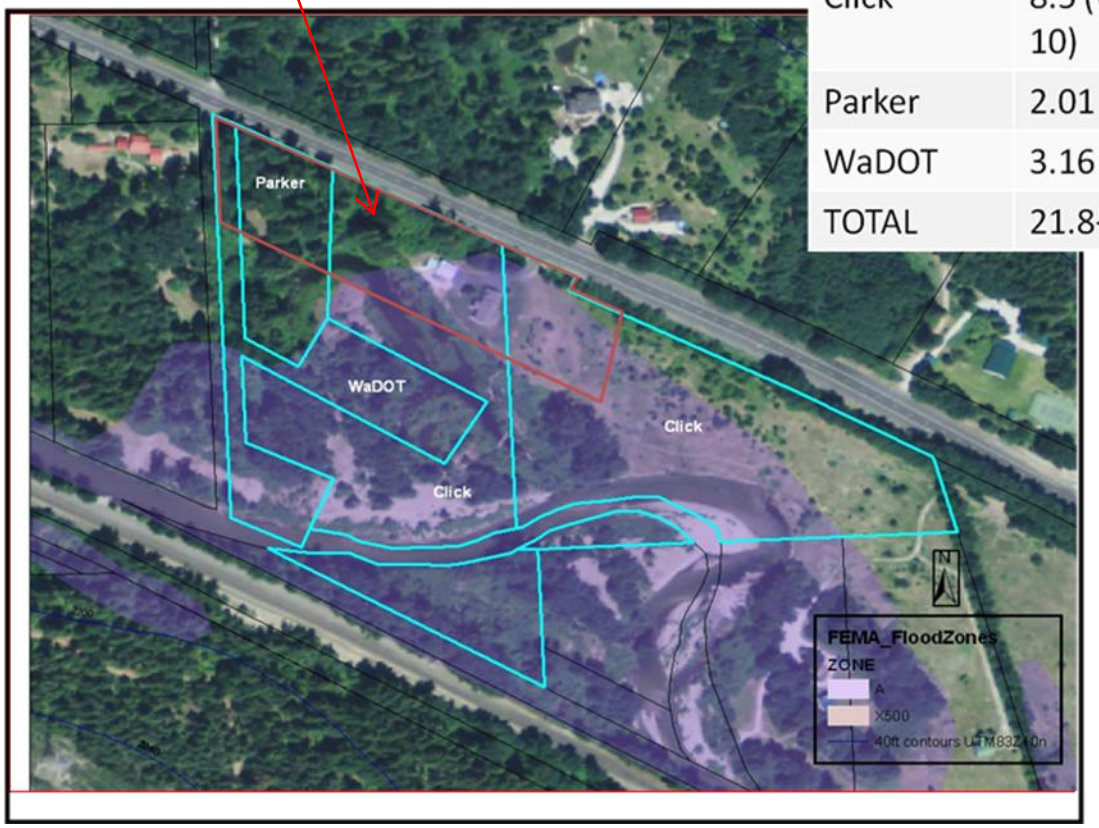
CDLT would consider a conservation easement in this case if the sellers were willing. At present they are interested in selling, but options will continued to be discussed.

L. For multi-site acquisition projects: **N/A.**

Map F1

Four lots to be acquired, less homesite with 5 acres

Possible homesite reconfiguration



Landowner	Acres	Potential Lots
Click	8.14	1 existing
Click	8.5 (was 10)	
Parker	2.01	
WaDOT	3.16	
TOTAL	21.8-23.3	4

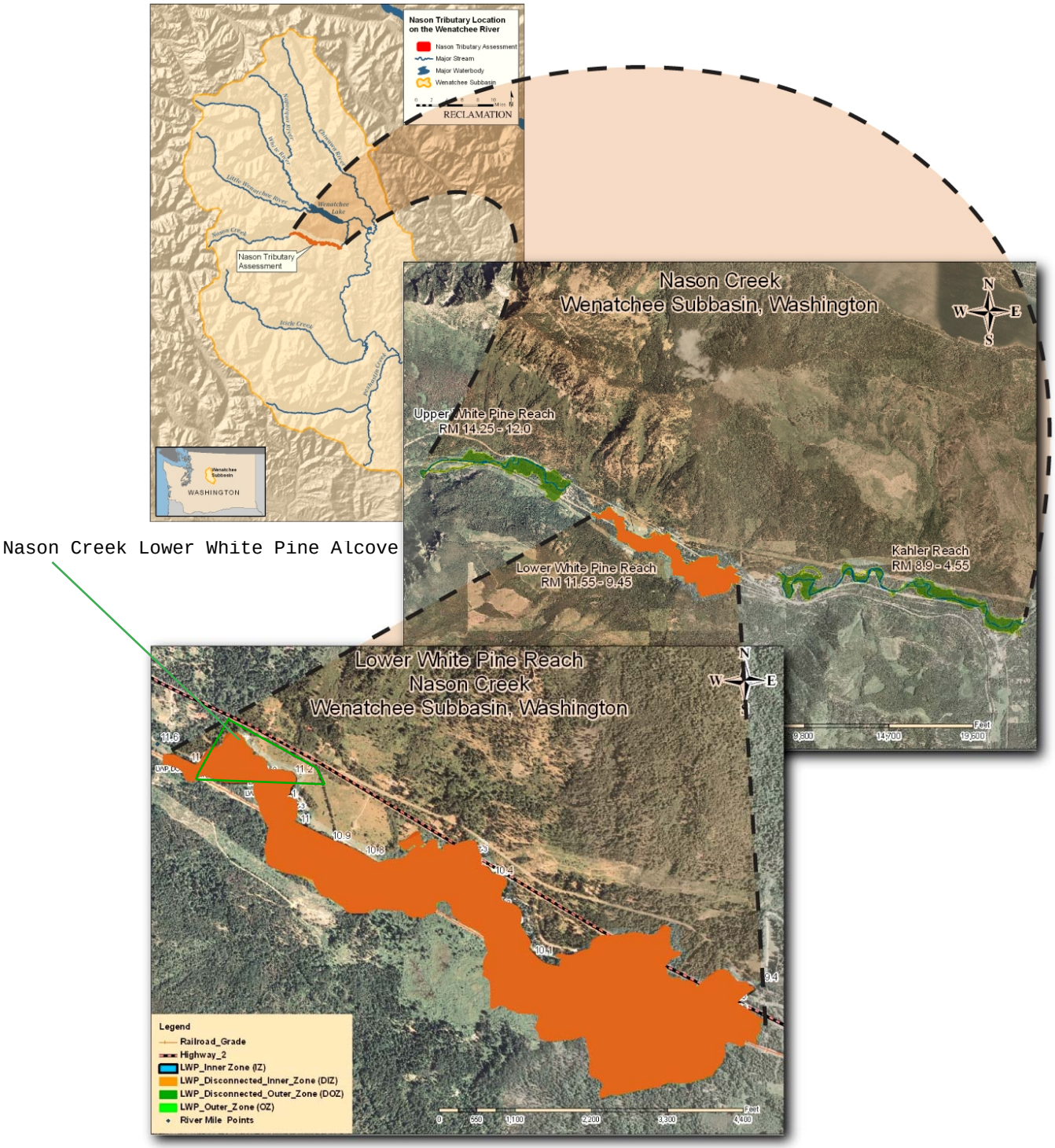
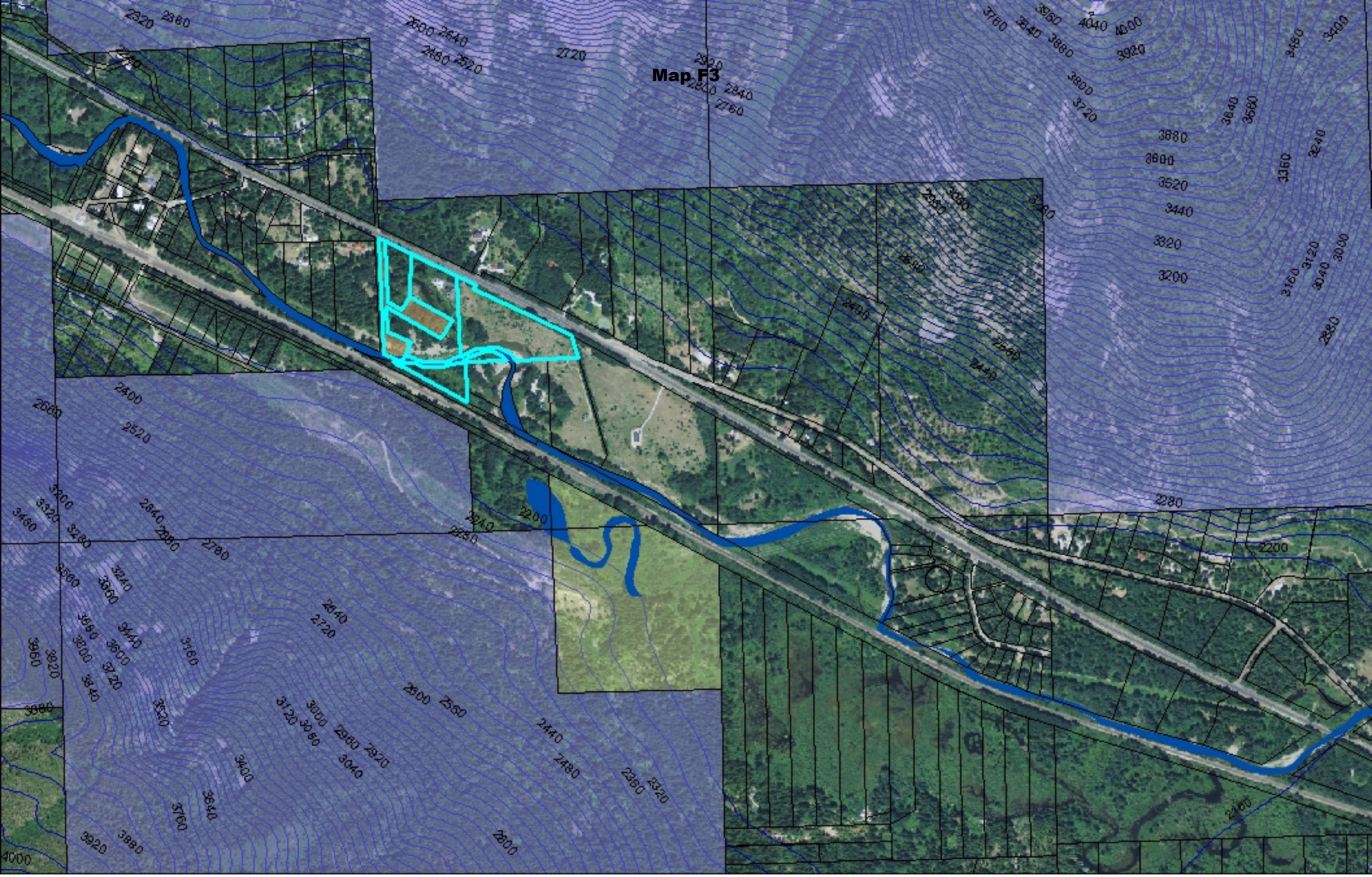


Figure 1 – Lower White Pine Reach. Assessments are spatially nested to address the spatial and temporal scales of an ecosystem. Location map for the Lower White Pine reach assessment demonstrating the nested geographic relationship of the Wenatchee watershed, Nason Creek tributary assessment area at the valley-segment scale and the Lower White Pine reach assessment study area.



N

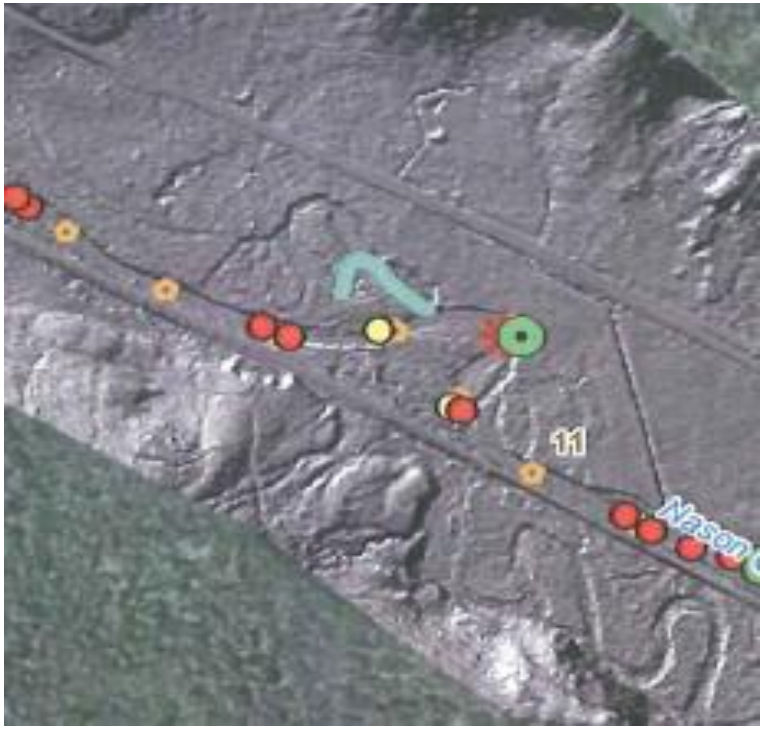
NAIP 2009 ,
1:12,000

Nason Creek Lower White Pine Public Land Ownership

0 650 1,300 2,600 Feet

Map F3

Map F4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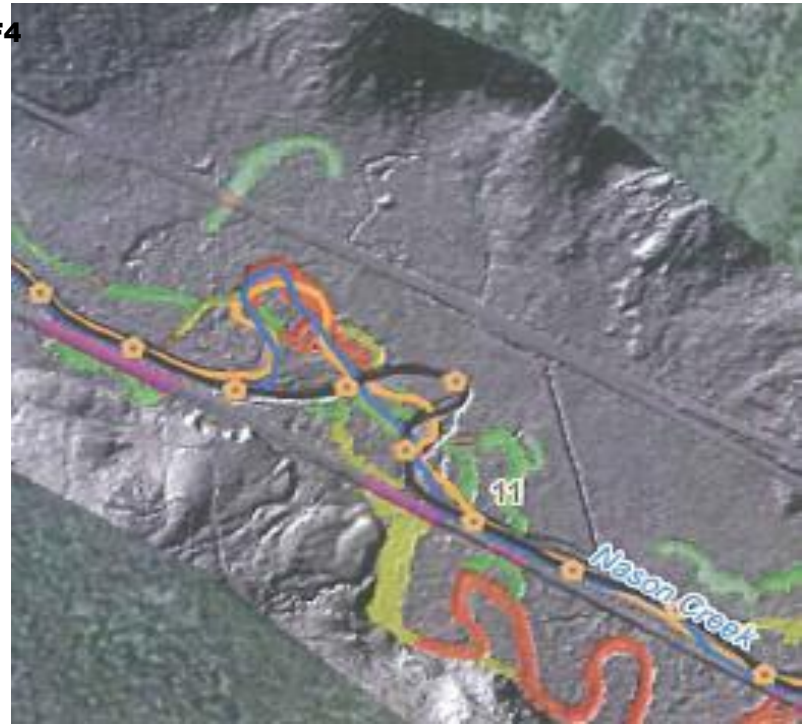
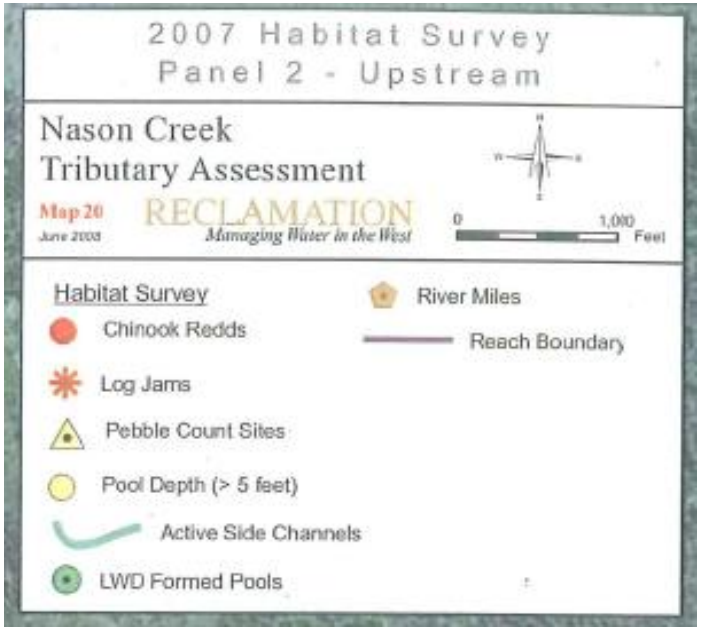
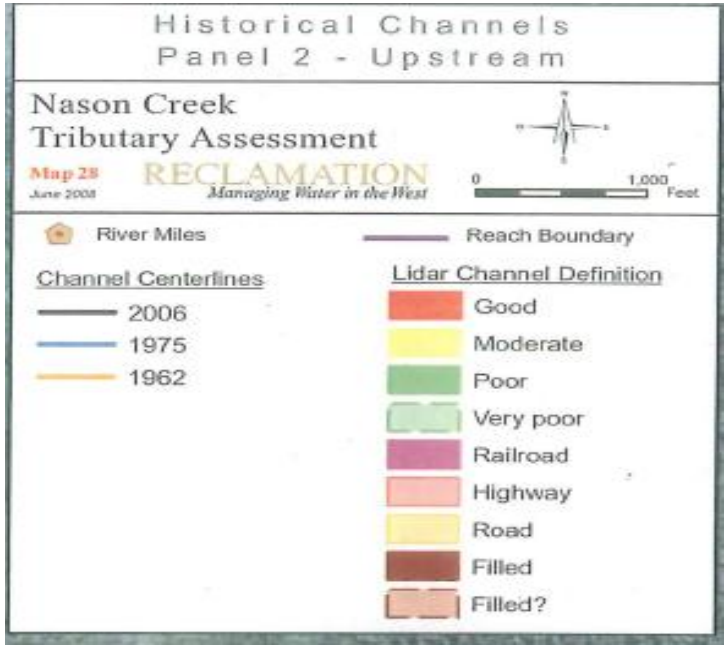
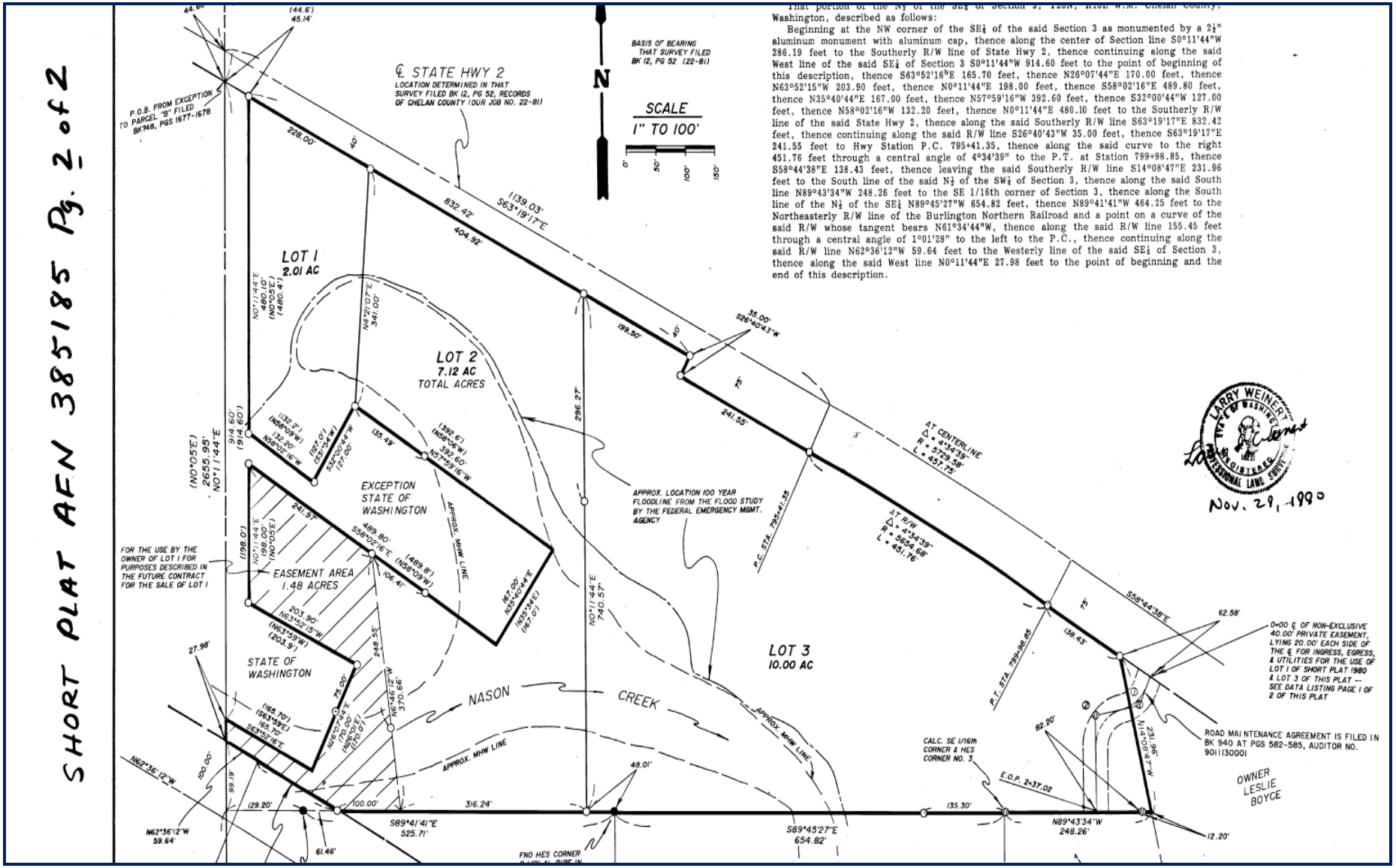

11
Nason Creek


2007 Habitat Survey
Panel 2 - Upstream
Nason Creek
Tributary Assessment
Map 20
June 2008
RECLAMATION
Managing Water in the West
0
1,000
Feet
Habitat Survey
Chinook Redds
Log Jams
Pebble Count Sites
Pool Depth (> 5 feet)
Active Side Channels
LWD Formed Pools
River Miles
Reach Boundary


Historical Channels
Panel 2 - Upstream
Nason Creek
Tributary Assessment
Map 28
June 2008
RECLAMATION
Managing Water in the West
0
1,000
Feet
River Miles
Reach Boundary
Channel Centerlines
2006
1975
1962
Lidar Channel Definition
Good
Moderate
Poor
Very poor
Railroad
Highway
Road
Filled
Filled?

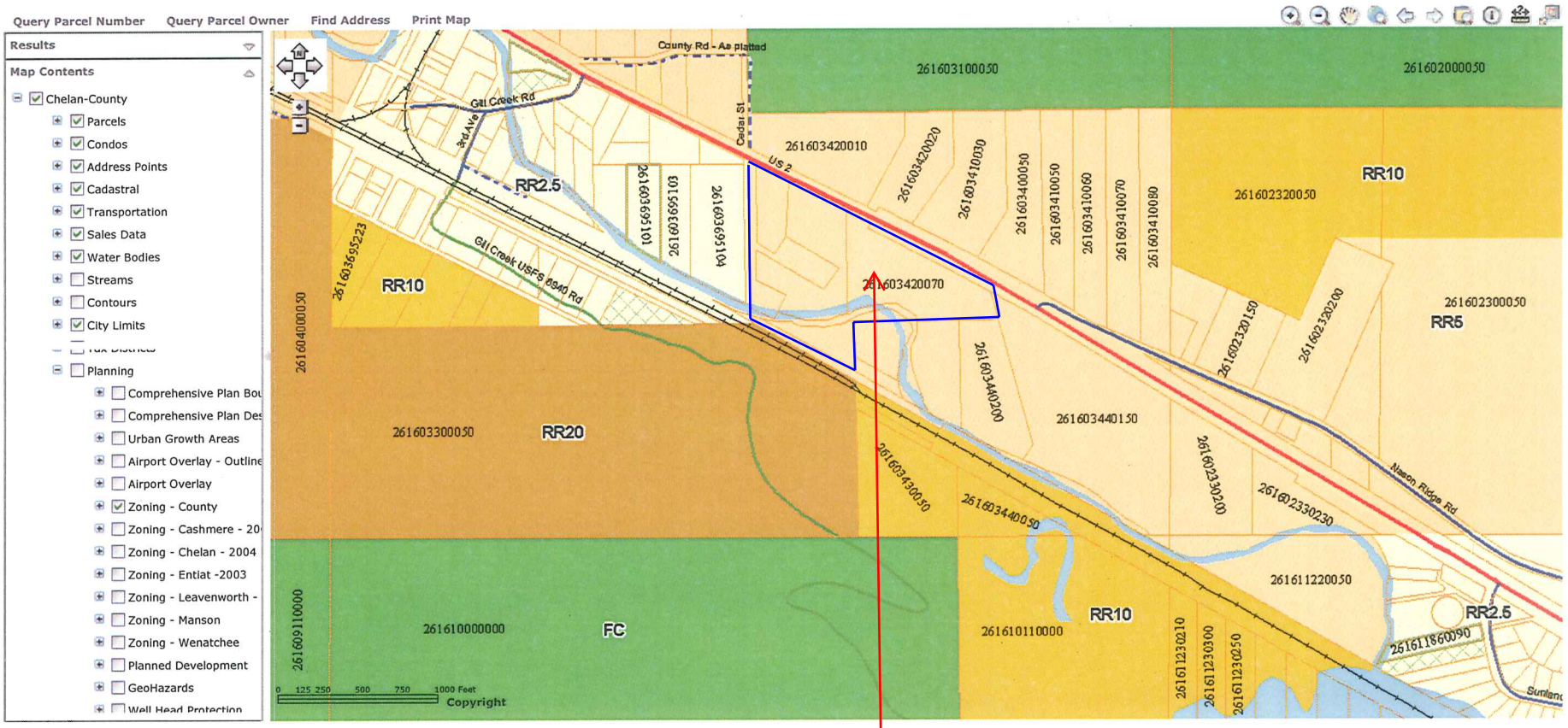


1990 Short Plat showing the Alcove and Main Channel spanning WaDot property and the 3 Lot Subdivision

Chelan County GIS

Chelan County Website Help

Query Parcel Number Query Parcel Owner Find Address Print Map



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Nason Creek Lower White Pine Alcove

Map F6

Alcove (former main channel) on Click, Parker and WaDOT parcels

Upstream main channel

Outside meander bend and log jam at downstream end of Click property

Bank erosion in location for historic irrigated pasture (> 20 yrs. ago)

Report H1

HABITAT RECOMMENDATIONS:

Category 2 Habitat Priority: Supports important aquatic resources and are strongholds for one or more listed species. Compared to Category 1 areas, Category 2 areas have a higher level of fragmentation resulting from habitat disturbance or loss. These areas have a large number of sub-watersheds where native populations have been lost or are at risk for a variety of reasons. Restoring ecosystem function and connectivity within these areas are priorities.

Recommendations from the Draft Upper Columbia Spring Chinook Salmon, Steelhead, and Bull Trout Recovery Plan (UCSRB, 2005) and the Upper Columbia Biological Strategy (UCRTT, 2002):

a) Re-establish connectivity throughout the assessment unit by removing, replacing, or fixing artificial barriers (culverts) (UCSRB, 2005).
b) Increase habitat diversity and natural channel stability by increasing in-channel large wood complexes, restoring riparian habitat, and reconnecting side channels, wetlands, and floodplains to the stream (UCSRB, 2005).
c) Improve road maintenance to reduce fine sediment recruitment to the stream (UCSRB).
d) Reduce high water temperatures by reconnecting side channels and the floodplain and improving riparian habitat conditions (UCSRB, 2005).
e) Protect remaining floodplain and riparian habitat (UCRTT, 2002).

Little Wenatchee River
Rainy Creek
Wenatchee
Nason Creek
NASON
Whitepine Creek
Chiwawa River
Icicle Creek
LWP Alone

LEGEND

Instream Flow Rule
- Proposed New ISF Control Points
- 1983 ISF Flow Rule Control Points

Chelan County Fish Barrier Inventory
- Unknown if Barrier
- Barrier

Stream Gages
- Ecology - Not Telemetry
- Ecology - Telemetry
- USGS - Not Telemetry
- USGS - Telemetry

2004 - 303d List Category 5 Parameters
- 4,4'-DDE
- 4,4'-DDT
- Fecal Coliform
- Temperature
- pH
- Multiple Parameters

USFS Northwest Forest Plan
- Administrative Withdrawn Areas (Not for Harvest)
- USFS - Other
- Late Successional Reserves (Not for Harvest)
- Managed Late Successional Areas (Managed Harvest)
- MATRIX (Active Harvest)
- Congressionally Designated Wilderness

Other Land Use Data
- Channel Migration Zone
- Private Forestland
- WNF Roadless Areas
- Other Land Ownership

Fish Distribution

Documented, Presumed and Potential Fish Distribution per SSHIAP
- Bull Trout Only
- Bull Trout, Spring Chinook and Summer Steelhead
- Bull Trout, Spring and Summer Chinook, Sockeye and Summer Steelhead
- Bull Trout and Summer Steelhead
- Summer Steelhead Only

0 11,000
Scale in Feet

Map Projection: Washington State Plane, North Zone, NAD 83, Feet

Source: Chelan County Conservation District, Chelan County Department of Natural Resources, Normandeau, USFS

N

This figure was originally produced in color. Reproduction in black and white may result in loss of information

NASON CREEK SUB-WATERSHED

Chelan/WRIA 45 Watershed Plan/WA

NASON CREEK WATERSHED ASSESSMENT AND STRATEGY

Species: Spring Chinook salmon, steelhead, bull trout, and cutthroat trout.	Drainage area: 69,000 acres

STATUS: Category 2, Major spawning area for spring Chinook and steelhead, bull trout core area.

SIGNIFICANT SUBWATERSHEDS:
Headwaters Nason, Upper Nason, Lower Nason

FACTORS AFFECTING HABITAT CONDITION:

- The state highway, railroad, and private land development affect woody debris recruitment, channel migration, and gravel recruitment.
- Lower Nason Creek is on the state 303(d) list for water temperature.

LEVEL OF CERTAINTY / DATA GAPS:

- Extensive field surveys and analysis of aerial photographs provide strong evidence of impacts to stream channel function. There is some uncertainty about the most appropriate means to restore floodplain function, given the existing constraints. Recent LIDAR survey should provide additional valuable information for identifying specific opportunities.
- There is some uncertainty of the extent to which oxbows are disconnected, and what efforts should be done to provide access to Nason Creek.
- The cumulative effects of timber harvest, development, and road densities on stream channel function and sediment delivery are not fully known, but of concern.
- The need and magnitude of adding nutrients are not well understood and this assessment unit should be part of an ESU-wide plan to determine where, how, and how much nutrient supplementation is required.

HABITAT ACTION RECOMMENDATIONS:

Tier 1
Protect existing riparian habitat and channel migration floodplain function.

Floodplain restoration

- Increase LWD complexes from Whitepine Creek to mouth
- Reconnect side channels and off-channel habitat, where appropriate, from Whitepine Creek to mouth.

Tier 2

Riparian Restoration

- Focus riparian plantings in floodplain areas, residential developments, and side-channel reconnections from Whitepine Creek to the mouth (certain locations would be at high risk of failure due to channel restriction so individual project scores might vary widely).

Increase nutrients

- Add nutrients using hatchery carcasses and/or carcass analogs within the current and historic range of anadromy consistent with individual stream capacity and recovery objectives.

Provide improved fish passage

- Coulter/Roaring Creek railroad crossing, Mill Creek, lower reaches of Gill and Roaring creeks.

Deleted: ¶

NASON CREEK STREAM SURVEY DATA SUMMARY
Bend at RM 4.56 to Railroad Bridge at RM 14.20
09-17-07 to 09-19-07 AND 09-26-07 to 09-27-07

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Total
Reach Mileage Boundaries (BOR maps)	RM 4.56 to 8.90	RM 8.90 to 9.42	RM 9.42 to 11.75	RM 11.75 to 13.37	RM 13.37 to 14.20	RM 4.56 to 14.20
Reach Length (BOR maps)	4.34	0.52	2.33	1.62	0.83	9.64
Reach Length (measured miles)	4.37	0.56	2.42	1.70	0.88	9.93
Average Wetted Width:	61’	54’	55’	47’	43’	55’
Average Thalweg Depth (riffles):	1.32’	1.25’	1.01’	1.08’	1.46’	1.25’
Average Thalweg Depth (runs):	1.55’	1.40’	1.16’	1.25’	1.43’	1.38’
Habitat Area:						
% Pool	28.6%	54.3%	69.8%	72.6%	36.0%	46.9%
% Riffle	57.5%	35.1%	21.6%	22.3%	48.8%	41.8%
% Runs (non-turbulent riffles)	12.4%	10.6%	7.4%	4.6%	13.8%	10.1%
% Side Channel	1.5%	-	1.2%	0.5%	1.4%	1.2%
Pools:						
Pools per Mile	8.0	10.6	17.4	15.3	5.7	10.6
Pools > 3’ deep per mile	6.9	7.1	11.6	14.1	3.4	9.0
Total # of Pools > 1 meter deep	23	3	21	23	3	73
Pools > 1 meter deep per mile	5.2	5.3	8.7	13.5	3.4	7.4
Pools > 4’ deep per mile	3.2	5.3	7.4	11.7	1.1	5.6
Pools > 5’ deep per mile	1.8	0	4.5	5.3	1.1	2.9
Avg. Pool Maximum Depth	4.1’	3.5’	4.2’	4.6’	3.8’	4.1’
Avg. Pool Residual depth	**2.9’**	2.4’	3.4’	3.6’	**2.3’**	**3.1’**
Riffle to Pool Ratio	2.44 to 1	0.84 to 1	0.42 to 1	0.37 to 1	1.74 to 1	1.11 to 1
Large Wood per Mile:						
Small (>20’ Long, > 6” diameter)	18.1	30.1	21.9	37.6	26.2	23.8
Medium (>35’Long, 12-20” diam.)	8.7	8.8	10.3	12.3	9.1	9.8
Large (>35’ Long, >20” diameter)	1.8	1.8	5.4	13.5	5.7	5.0
Total Large and Medium (>35’ L)	10.5	10.6	15.7	25.8	14.8	14.8
Bank Erosion:						
Total Bank Erosion (both banks)	3,100’	400’	2,585’	695’	0’	6,780’
Linear Length per Mile	710’	708’	1,068’	408’	0’	682’
% Eroding Banks (both banks)	6.7%	6.7%	10.1%	3.9%	0%	6.5%
Bankfull Data:[1]						
-# Bankfull Measurements in Reach	7	2	3	3	2	
-Avg. Bankfull Width	95’	75’	99’	78’	47’	
-Avg. Bankfull Depth (avg. of 7 measurements per bankfull width)	2.15’	2.85’	2.07’	2.16’	2.59’	
-Avg. W/D Ratio	44.0	27.3	47.7	36.0	18.1	
-Avg. Entrenchment ratio[2]	2.38	1.20	4.55	1.55	1.20	

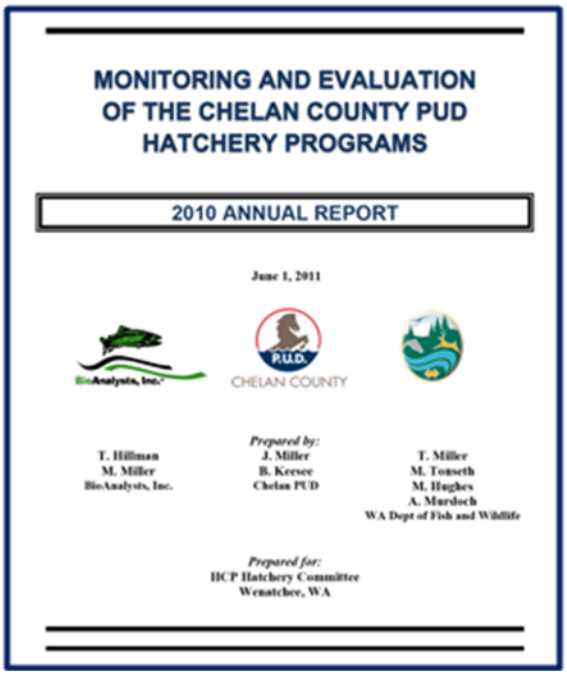
Nason Creek Survey Data page 2	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Total
Sinuosity (estimated from maps)	> 1.30	1.05	1.20	1.30	1.15	
Gradient (estimated)	1%	1%	< 0.5%	< 0.5%	1%	
Substrate (Pebble Count Data):						
-# of Pebble Counts in Reach	2	1	1	1	1	
-% Surface Fines < 6 mm	13%	11%	11%	19%	7%	
-D35	71	45	32	40	118	
-D50	123	103	47	58	171	
-D84	311	325	84	126	415	
Substrate % (Ocular Estimate)						
% Sand	10%	10%	10%	15%	15%	
% Gravel	25%	30%	57%	35%	15%	
% Cobble	40%	35%	30%	35%	40%	
% Boulder	25%	25%	3% (rip-rap)	15% (incl. rr)	30% (incl rr)	
Primary Rosgen Channel Types in Reach:	C3, F3	F3	C4, F4	F3, B3c	F3	
# of Chinook Salmon Redds	17	12	17	8	0	54
# Chinook Salmon Redds per mile	3.9	21.4	7.0	4.7	0	5.4

[1]Rough estimate, two to seven bankfull measurements were taken per reach.
[2]Floodprone width divided by bankfull width.

Nason Creek Reach N3:

Steelhead: 27.9% of the Steelhead redds in the Wenatchee Basin were in Nason Creek, and most of the spawning was in Reach 3.

Spring Chinook: 19% of the 968 spring Chinook in the Wenatchee Basin were in Nason Creek, and 33% of those in Nason Creek were in Reach 3.



MONITORING AND EVALUATION
OF THE CHELAN COUNTY PUD
HATCHERY PROGRAMS

2010 ANNUAL REPORT

June 1, 2011

BioAnalysts, Inc.

P.U.D. CHELAN COUNTY

Prepared by:

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A. Murdoch
WA Dept of Fish and Wildlife

Prepared for:
HCP Hatchery Committee
Wenatchee, WA

There are no anthropogenic features that disconnect the subreach from the active channel. The subreach is considered to be functioning at greater than 80 percent so the subreach is protection-oriented. However, riparian rehabilitation actions can be implemented in tandem with protection strategies to address the low percent of disturbed vegetation. Rehabilitation options are listed in Table 10 and are prioritized to maximize the geomorphic potential of the subreach through the reconnection of both long-term and short- term processes. Rehabilitation actions in this subreach should be considered along with the collective rehabilitation actions recommended in other adjacent subreaches to achieve a holistic rehabilitation at the reach scale.

OZ-2 = Click parcel

OZ-1 = Click, Parker and WaDOT parcels

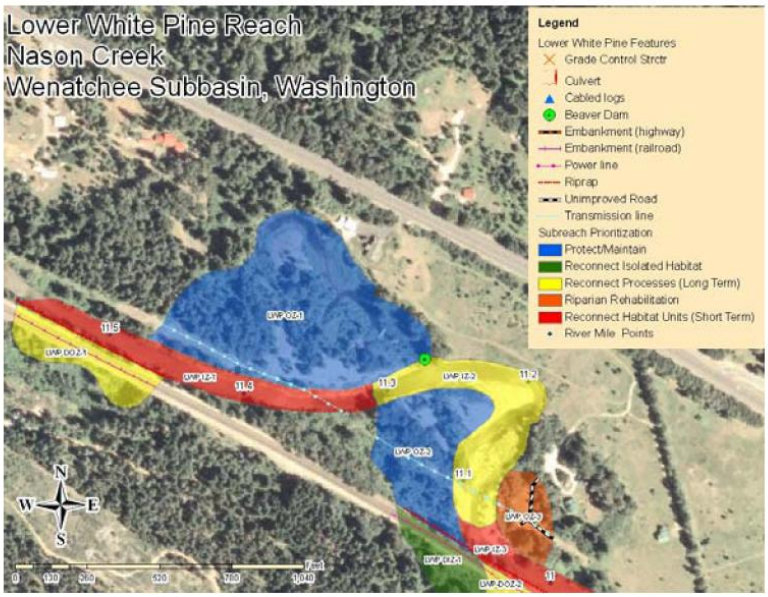

Figure 18 - A plan view showing the location of LWP OZ-2 in the upstream end of the Lower White Pine reach, location of anthropogenic features, and the proximity of adjacent subreaches with the corresponding rehabilitation strategies.

Table 10 - Options for LWP OZ-2.

Option	Habitat Action	Prioritized Habitat Actions	VSP Parameters Addressed	Geomorphic Potential
1	Protection + Rehabilitation	Protect and maintain current levels of geomorphic and hydrologic function. Combine with Riparian Rehabilitation: Replant sections of riparian vegetation at 10-meter, 30-meter, and floodplain widths to address the area impacted by the powerline (about 0.4 acres) and to improve canopy cover, large woody debris recruitment potential, and riparian composition within the floodplain. Address noxious weeds through planting and education/prevention.	4; Productivity, Abundance, Diversity, and Structure	High
2	Rehabilitation	3) Riparian Rehabilitation: Replant sections of riparian vegetation at 10-meter, 30-meter, and floodplain widths to address the area impacted by the powerline (about 0.4 acres) and to improve canopy cover, large woody debris recruitment potential, and riparian composition within the floodplain. Address noxious weeds through planting and education/prevention programs.	2; Productivity and Abundance	Low

LWP OZ-1

LWP OZ-1 is located in the upstream end of the Lower White Pine reach in the left floodplain along RM 11.48 to 11.27 (Figure 19).

The subreach is about 9 acres in size and contains just over 2 acres of wetlands. The vegetation in this subreach, which has been altered or disturbed in association with 556 feet of powerline, is 0.56 acres or about 6 percent of the total area of the subreach. Natural lateral controls for the subreach are alluvial fan structures and higher terraces. There are no anthropogenic features that disconnect the subreach from the active channel. The inundation potential is low. When comparing 5,000 cfs (approximate 20-year recurrence interval) stream flow for existing conditions versus potential conditions (i.e., with anthropogenic features removed), the 2D-hydraulic model results show little change in area of inundation. Most of the subreach is inundated at both modeled flows.

There are no anthropogenic features that disconnect the subreach from the active channel. The subreach is considered to be functioning at greater than 80 percent so the subreach is protection-oriented. However, riparian rehabilitation actions can be implemented in tandem with protection strategies to address the low percent of disturbed vegetation. Rehabilitation options are listed in Table 11 and are prioritized to maximize the geomorphic potential of the subreach through the reconnection and reestablishment of both long-term and short-term processes at the subreach scale. Rehabilitation actions in this subreach should be considered collectively with rehabilitation actions recommended in other adjacent subreaches to achieve a holistic reconnection and reestablishment of processes at the reach scale.

Table 11 - Options for LWP OZ-1.

Option	Habitat Action	Prioritized Habitat Actions	VSP Parameters Addressed	Geomorphic Potential
1	Protection + Rehabilitation	Protect existing wetlands (2 acres) and maintain current levels of geomorphic and hydrologic function. Combined with Riparian Rehabilitation: Replant sections of riparian vegetation at 10-meter, 30-meter, and floodplain widths to address the area impacted by the powerline (about 0.6 acres) and to improve canopy cover, large woody debris recruitment potential, and riparian composition within the floodplain. Address noxious weeds through planting and education/prevention programs.	4; Productivity, Abundance, Diversity, and Structure	High
2	Rehabilitation	3) Riparian Rehabilitation: Replant sections of riparian vegetation at 10 meter, 30 meter and floodplain widths to address the area impacted by the powerline (about 0.6 acres) and to improve canopy cover, large woody debris recruitment potential and riparian composition within the floodplain. Address noxious weeds through planting and education/prevention programs.	2; Productivity and Abundance	Low

IZ2 = Click parcel w/out improvements

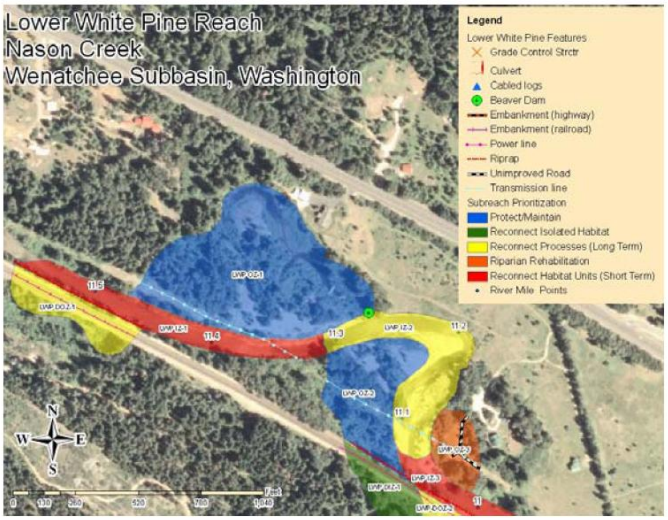

Figure 35 - A plan view showing the location of LWP IZ-2 in the downstream end of the Lower White Pine reach, location of anthropogenic features, and the proximity of adjacent subreaches with the corresponding rehabilitation strategies.

Figure 36 - Accelerated erosion along the cleared left bank, view is to the east looking downstream. Lower White Pine Reach; Subreach IZ-2, Nason Creek - Wenatchee Subbasin, Washington. Bureau of Reclamation Photograph by D. Bennett; August 8, 2007.

Figure 37 - Stratified material in the left bank at a bank profile site, view is to the north. Lower White Pine Reach; Subreach IZ-2, Nason Creek - Wenatchee Subbasin, Washington. Bureau of Reclamation Photograph by D. Bennett; August 8, 2007.

Figure 38 - Large woody debris complexes and pool channel units, view is to the south looking downstream. Lower White Pine Reach; Subreach IZ-2, Nason Creek - Wenatchee Subbasin, Washington. Bureau of Reclamation Photograph by D. Bennett; August 8, 2007.

Nason Creek, Lower White Pine Ponds Draft Stewardship Plan

June 27, 2011

Chelan-Douglas Land Trust
P. O. Box 4461
Wenatchee, WA 98801

Lower White Pine Ponds (Alcove) Stewardship Plan

Property Description

Location:	Along Highway 2 15 miles NW of Leavenworth, WA and 4 miles west of Coles Corner (Hwy 207 intersection with Hwy 2) River Mile 11.2 – 11.5, Nason Creek
Site Address:	18809 State Hwy. 2, Leavenworth, WA 98826
Acquired From:	James Click - APN 261603420060 and 261603420070 Stone Parker - APN 261603420050
Abbreviated Legal:	Portions of South ½ of Sections 3, Township 26 North, Range 16 East, Willamette Meridian.
Habitat Types:	Riparian, aquatic, unconsolidated shore (sand/gravel)

Conservation Values

High quality riparian habitat, floodplain, and channel migration zone that provide spawning and rearing habitat for endangered spring Chinook and steelhead and a core area for threatened bull trout.

These values would be protected by:

1. Prevent any use of, or activity that will significantly impair or interfere with the Conservation Values;
2. Preclude future subdivision and development;
3. Assure that the Property is retained forever predominately in its scenic and open-space condition;
4. Assure that the riparian habitat, floodplain, and channel migration zone will be retained forever in their natural condition as a relatively natural habitat of fish, wildlife, and plants.

Stewardship

A. Management Objectives

The management objectives for the property include:

1. Protect floodplain, channel migration zone and riparian buffer;
2. Extinguish development rights;
3. Encourage or maintain the establishment and growth of native plant species;
4. Strive for appropriate plant succession and species diversity;
5. Promote recruitment and retention of large woody debris within the river.

B. Riparian Habitat

The riparian woodlands and the wildlife species that depend on them are particularly sensitive to human-caused changes, and will benefit most from a hands-off approach

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to management. Some low impact strategies for maintenance and long-term enhancement of the riparian zone include:

1. Allow natural processes such as flooding, snag formation, channel migration to proceed unhindered where possible.
2. Identify and remove weeds and other non-native species and prevent their spread by minimizing human-caused disturbances.
3. Preclude harvest of trees, development, grazing, agriculture, and road building within 200 feet of the ordinary high water mark.
4. Plant only native trees and shrubs propagated from local plant sources in restoration areas.
5. Prohibit riverbank armoring using rip-rap or other permanent, hardened material;
6. Where active management is recommended, work with partner organizations[1] to reconnect creek channels and their aquatic and riparian habitats.

C. Upland Habitat

Manage coniferous forest to maintain its scenic values and ecological functions.

1. Allow snags to form naturally.
2. Allow harvest of some trees for firewood but avoid harvest of large deformed or defective trees that have high value for wildlife.
3. Preclude residential development and new road construction.

D. Recreation

Non-motorized recreation and wildlife viewing are values associated with the property. The following are uses and practices consistent with the conservation values.

1. Walking, skiing, and snowshoeing.
2. Maintain primitive trails around the property and to the river.
3. If new trails are built, limit width to three feet.
4. Do not apply impervious materials to trail surfaces.

E. Weeds

Weed control is not a primary objective on the property but invasion of noxious non-native species could occur at any time. Prevention of the establishment or expansion

[1] U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Yakama Nation, Chelan County Natural Resources Department, Cascadia Conservation District, Cascade Columbia Fisheries Enhancement Group.

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of weed populations is the best weed management tool and the easiest to accomplish if the following measures are taken:

1. Do not disturb the ground unless absolutely necessary for restoration activities.
2. Minimize the size of any new disturbance and quickly replant with native species.
3. Management of established weed populations, especially those classified as Noxious by Chelan County or the State of Washington:
    a. Hand-pull annuals and tap-rooted perennials.
    b. Release bio-control agents if appropriate (available for free through WSU Cooperative Extension).
    c. Mow or cut to reduce flowering and seed production.
    d. Targeted use of selective herbicides in upland areas for weeds that do not yet have effective biocontrol agents.
4. Monitoring: Seasonally evaluate progress and map to demonstrate trends, successes, and failures, and to make management changes as necessary.

F. Rare Plants/Animals

The property supports populations of species of special concern. This section of the river is prime spawning and rearing habitat for spring Chinook (endangered) and steelhead and bull trout (threatened).

1. Protect these fish species and their habitat during critical spawning periods by minimizing human disturbance in and around the river and its side channels.
2. The riparian and forest habitats support a diversity of resident birds and migratory songbirds. During the breeding season (April 15-August 1), avoid unnecessary mowing, brush and tree cutting, and burning.
3. Plan prescribed forest management activities to winter months if possible to minimize effects on wildlife and reduce soil disturbance.
4. Retain snags and logs that are not hazardous to safety.

G. Public Access

Public access will be negotiated and coordinated with the owner of the remaining residential property (Click) for low-impact, non-motorized public use concsistent with ensuring the privacy on their adjacent homesite.

Stewardship Objectives

1. Allow low-intensity recreational, scientific, and educational access.
2. Maintain an appropriate level of use that does not adversely affect the ecological resources or the privacy of the homeowner.

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Landowner Information

Name of Landowner: James Click

Landowner Contact Information:

☑ **Mr.** ☐ Ms. Title:

First Name: **James** Last Name: **Click**

Contact Mailing Address: 18809 State Hwy. 2, Leavenworth, WA 98826

Contact E-Mail Address:click@nwi.net

Property Address or Location: 18809 State Hwy. 2, Portions APN 261603420060 and 261603420070

1. Landowner is the legal owner of property described in this grant application.
2. I am aware that the project is being proposed on my property.
3. If the grant is successfully awarded, I will be contacted and asked to engage in negotiations.
4. My signature does not represent authorization of project implementation.

James E. Click 4-14-11

Landowner Signature Date

Project Sponsor Information

Project Name: Upper White Pine Conservation

Project Applicant Contact Information:

☐ Mr. ☐ **Ms**. Title: Lands Project Manager

First Name: **Mickey** Last Name: **Fleming**

Mailing Address: 18 N. Wenatchee Ave., Wenatchee, WA 98801

E-Mail Address: mickey@cdlandtrust.org

Landowner Information

Name of Landowner: Stone Parker

Landowner Contact Information:

☐ **Mr.** ☐ Ms. Title:

First Name: **Stone** Last Name: **Parker**

Contact Mailing Address: P.O. Box 448, Leavenworth, WA 98826

Contact E-Mail Address: stonezamir@yahoo.com

Property Address or Location: State Hwy. 2, APN 261603420050

1. Landowner is the legal owner of property described in this grant application.
2. I am aware that the project is being proposed on my property.
3. If the grant is successfully awarded, I will be contacted and asked to engage in negotiations.
4. My signature does not represent authorization of project implementation.

Landowner Signature 4-3-11 Date

Project Sponsor Information

Project Name: Upper White Pine Conservation

Project Applicant Contact Information:

☐ Mr. ☐ **Ms.** Title: Lands Project Manager

First Name: **Mickey** Last Name: **Fleming**

Mailing Address: 18 N. Wenatchee Ave., Wenatchee, WA 98801

E-Mail Address: mickey@cdlandtrust.org

Landowner Information

Name of Landowner: Washington State Department of Transportation

Contact Mailing Address:

Contact E-Mail Address:

Property Address or Location: Chelan County APN 261603420000

1. Landowner is the legal owner of property described in this grant application.

2. WaDOT is working with adjoining landowner Stone Parker, who has expressed interested to purchase the parcel with the intent of including it in a salmon recovery project.

2. I am aware that the project is being proposed on my property.

3. ~~If the grant is successfully awarded, I will be contacted and asked to engage in negotiations.~~ J.H. 4/24/11

4. My signature does not represent authorization of project implementation.

Jim Hill WSDOT 4/24/11

Landowner Signature Date

Project Sponsor Information

Project Name: Nason Creek Lower White Pine Alcove Acquisition

Project Applicant Contact Information:

☐ Mr. ☐ **Ms.** Title: Lands Project Manager

First Name: **Mickey** Last Name: **Fleming**

Mailing Address: 18 N. Wenatchee Ave., Wenatchee, WA 98801

E-Mail Address: mickey@cdlandtrust.org

The WSDOT is currently involved in an effort to sell this pit site to Mr. Parker. The WSDOT will first have to appraise the property and then offer it to Sale to Mr. Parker. If successful, the WSDOT will issue a quit claim deed to Mr. Parker for the pit site. The WSDOT will not get involved in any negotiations with the land trust because they are not an abutting owner to the pit. Any sale from Mr. Parker to the Land Trust is a private matter in which the WSDOT will have no involvement. J.H. 4/24/11

Landowner Information

Name of Landowner: Stone Parker

Landowner Contact Information:

☐ **Mr.** ☐ Ms. Title:

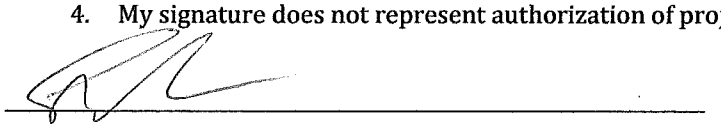
First Name: **Stone** Last Name: **Parker**

Contact Mailing Address: P.O. Box 448, Leavenworth, WA 98826

Contact E-Mail Address: stonezamir@yahoo.com

Property Address or Location: Chelan County APN 261603420000

1. Landowner is in the process of acquiring APN 261603420000 from the Washington Department of Transportation. It is adjacent to my property, APN 261603420050.
2. I am aware that the project is being proposed for both parcels.
3. If the grant is successfully awarded, I will be contacted and asked to engage in negotiations.
4. My signature does not represent authorization of project implementation.



Landowner Signature 6-23-11 Date

Project Sponsor Information

Project Name: Nason Creek Lower White Pine Alcove Acquisition

Project Applicant Contact Information:

☐ Mr. ☐ **Ms.** Title: Lands Project Manager

First Name: **Mickey** Last Name: **Fleming**

Mailing Address: 18 N. Wenatchee Ave., Wenatchee, WA 98801

E-Mail Address: mickey@cdlandtrust.org