

## **2012 BPA-BoR Targeted Solicitation Proposal**

### **PROJECT SPONSOR INFORMATION**

Sponsor: Chelan County Natural Resources Department (CCNRD)  
Contact Person: Jennifer Goodridge  
Address: 316 Washington Street, Suite 401  
City, State Zip Code: Wenatchee, WA 98801  
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### **PROJECT TITLE**

#### **Nason Creek RM 4.6 Side Channel Reconnection**

### **PROJECT SUMMARY (300 word maximum)**

The objective of the Nason Creek RM 4.6 Side Channel Reconnection Project is to provide rearing and high flow refuge habitat for juvenile steelhead and spring Chinook salmon. This project will reconnect a historic 1800' long floodplain side channel in Nason Creek (near RM 4.6). This side channel was historically connected to Nason Creek as adjacent floodplain with a seasonally activated flow-through side channel. This area was disconnected with construction of SR 207. Nason Creek, a tributary to the Wenatchee River, is a Category 2 Watershed and contains spawning, rearing, and migration habitat for spring Chinook, steelhead, and bull trout. Because relocation of highway 207 outside of the floodplain is cost prohibitive at 10-20+ million, CCNRD intends to increase off-channel habitat in order to address the primary limiting factor of juvenile rearing and refuge habitat. This project will reconnect a 4.6 acre flow through side channel with approximately 9 acres of adjacent forested habitat within the 100 year floodplain. Project design and permitting will be completed in 2013 with project construction in 2014.

### **PROJECT BUDGET**

Anticipated Total Request from BPA: \$621,226

Match description: USBR has been funding project development through task orders with CCNRD. In addition, Ecotrust funded the 2010-2011 alternatives analysis on site and BPA funded the 2011-2012 SR 207 relocation feasibility study at this site.

### **PROJECT DESCRIPTION**

#### **1. Project Overview**

- a) List the primary project objectives, such as how this project will improve or maintain habitat conditions and habitat forming processes.

In-stream Habitat: Reconnect an 1800' long historic side-channel to provide 4.6 acres of juvenile spring Chinook and steelhead rearing and refuge habitat.

- b) Briefly state the nature, source, and extent of the problem that the project will address, including the primary causes of the problem (threats), not just the symptoms. Explain how achieving the project objectives will help solve the problem.

SR 207 construction disconnected 13 acres of floodplain adjacent to Nason Creek near RM 4.6. This project proposes to hydraulically reconnect this floodplain to restore fish access to the seasonal flow-through side channel that provides off-channel habitat for rearing and high flow refugia for juvenile spring Chinook and steelhead.

- c) Identify the fish resources/impacted species (species and life-history stages present, unique populations) and habitat conditions (including limiting factors) that will be affected by this project.

Summer steelhead life stages in the project area include a short period of adult holding just prior to spawning (most holding is assumed to occur in the Wenatchee mainstem), spawning, egg incubation, and juvenile rearing during the summer and winter for parr and yearling fingerlings.

Spring Chinook life stages in the project area include adult holding during the late summer, spawning, egg incubation, and juvenile residence during the summer and winter.

Bull trout migrate through this stream reach.

This project aims to increase available habitat for spring-summer rearing and provide high flow refugia for juvenile spring Chinook and steelhead; see Figure 1 which depicts juvenile presence in lower Nason Creek as well as the duration and season of side channel activation.

- d) Discuss how this project fits within the Upper Columbia Recovery Plan.

The Upper Columbia Region Biological Strategy (UCRTT 2008) and the Recovery Plan (UCSRB 2007) have identified Nason Creek as the top priority for habitat restoration in the Wenatchee subbasin. Nason Creek has a high potential to increase salmonid abundance and productivity, therefore, the restoration of ecosystem function through the reconnection of off-channel habitats and floodplain is a priority. Within Nason Creek, side-channel and/or off-channel reconnection is a Tier 1 action and top priority for addressing limiting habitat factors, improving channel function, and the recovery and long-term viability of salmonids in Nason Creek (RTT priorities table 2009).

## **2. Project Design**

- a) Describe the location of the proposed project, and include: (a) a site map; and (b) an aerial photo (preferably with LiDAR).

This project is located approximately .5 mile north of Coles Corner on SR 207 near RM 4.6 on Nason Creek in Chelan County. Figure 2 depicts the site location on an aerial photograph and Figure 3 depicts the site location on LIDAR.

- b) Briefly describe the project design and how it will be implemented. Describe the extent of the project and restoration methods.

This project will replace two existing culverts under the SR 207 highway prism at the upstream and downstream end of the floodplain side channel. The 24" diameter upstream

culvert is not currently fish passable and will be replaced with a 10' diameter metal pipe. The 40" concrete culvert at the downstream end will be replaced with a 30' diameter culvert to increase the duration of connection and improve fish passage. Currently, if fish access the downstream floodplain, there is potential for stranding because there is a ponded area that remains present above the culvert longer than the downstream connection to Nason Creek stays open.

Figure 4 depicts preliminary design concepts and Figure 1 depicts the season and duration of channel activation overlaid with juvenile fish presence in Nason Creek. Figure 1 shows that the flow through channel would be activated annually at 1,000 cfs or greater and that there would be 1 foot or more water in the downstream portion of the floodplain from approximately May – July each year.

The preliminary design (Figure 4) includes shallow excavation of a 40' wide and 600' long backwater habitat at the downstream end of the side channel. This excavation will increase the duration of fish access to the floodplain side channel and it will allow grading for positive drainage towards Nason Creek to reduce the risk of fish stranding. The project sponsor is open to feedback about the width, depth, length, slope, and extent of floodplain excavation. These details could be worked out with RTT and/or WHSC members as part of 30% design development.

This project was designed so that no mature trees (> 6" DBH) will be removed east or west of SR 207 as part of the downstream culvert connection or floodplain excavation. West of Highway 207, the culvert location was sited so that construction would not involve tree removal. East of Highway 207, there is a band of shrubby riparian vegetation consisting of dogwood and willows that would be disturbed by project construction. Photo 1 depicts the shrubby vegetation adjacent to Highway 207. Vegetation removal resulting from excavation within this shrubby area will be less than 0.25 acres. Behind this row of shrubby vegetation, the majority of the excavation proposed east of Highway 207 (approximately 0.65 acres) is dominated by herbaceous species (See photo 2). Excavation and project specifications will be designed to minimize impacts to existing native shrubs and trees. For example, if needed, the excavation footprint can be reduced (made narrower) to further minimize vegetation impacts. Another way to minimize vegetation impacts would be to just cut, rather than remove, shrubby vegetation for site access from SR 207; most of the willows and dogwood will just re-grow from cut stems. These best management practices will be developed and described in more detail at later stages of design. All disturbed areas would be revegetated with native riparian species.

- c) Describe the scale and size of the project, and its proximity to protected, functioning, or restored habitats. If available, please provide quantitative estimates on scale and size (e.g., acres of riparian habitat, kilometers of fencing, etc.).

This project would reconnect an 1800' long floodplain side channel providing a 4.6 acre flow through connection to Nason Creek annually.

This project is located near the 2007 oxbow reconnection project (RM 3.5-3.9) which provides ~3,500 linear feet of off-channel habitat. Monitoring of the 2007 Oxbow has documented salmonid abundance ranging from 2-16 salmonids/100m<sup>2</sup> (Figure 19, page 30 DOE 2011).

### 3. Project Development

- a) List the individuals and methods used to identify the project and its location.

The RTT priorities table (2009) identifies side channel and off-channel reconnection projects as recommended actions in Nason Creek. This disconnected floodplain side channel was also identified in the following documents:

- Lower Nason Creek Assessment of Geomorphic and Ecologic Indicators (USBR 2011) (Figure 3). It is described as LN DIZ-1, or Lower Nason Disconnected Inner Zone - 1 which is a 4.6 acre high flow channel (Figure 5)
- Amendment to the Kahler Reach Assessment (USBR 2009) identified K DIZ-3 and KDOZ-6 at RM 4.6 (Figure 6). KDIZ-3 is a potential disconnected inner zone (former stream channel or active floodplain area) and the adjacent K DOZ-6 is a disconnected outer zone (riparian or floodplain area).
- The Wenatchee River Channel Migration Zone Study (Jones & Stokes 2004) identified N1 as remnant oxbow channel that is disconnected from the active valley flat by SR 207 (Figure 7).
- The Nason Creek Subreach Unit Prioritization (ICF Jones & Stokes 2009) the N1 project site was ranked as the highest reconnection priority in the Kahler Reach.

- b) Explain how the cost estimates for the project were determined.

Project cost estimates were developed by a licensed professional engineer.

- c) List all properties that are part of the project site. Include:

The project is located on US Forest Service land and work will occur within the WSDOT ROW. See the attached landowner acknowledgement form from USFS. WSDOT has reviewed the proposed project and is supportive of the floodplain reconnection. They will review the proposed design plans as part of the WSDOT general permit that will be secured for construction.

- d) List the project partners that will contribute towards the proposed project and define their contribution.

USBR has been providing support for CCNRD staff time associated with project development. USFS will review project design and assist with NEPA. WSDOT will review and approve project design as part of the general construction permit.

### 4. Uncertainties

- a) Experience of the project team in implementing projects of this type and scale.

CCNRD has managed two similar projects, the 2007 oxbow reconnection and the 2009 oxbow reconnection, on Lower Nason Creek. Both of these projects involved placing culverts under SR 207 to reconnect floodplain (and former Nason Creek mainstem) habitat.

- b) Further describe (in addition to 3.c, above), any land ownership rights (e.g., conservation easements, right-of-ways) that could affect the success of the project.

The Chelan PUD (CPUD) has a Special Use Permit with US Forest Service to operate a transmission line along SR 207 within the project area. Project construction should not impact the CPUD lines. There are also two fiber optic lines, Sprint and Frontier, buried in the SR 207 right-of-way. These fiber lines did not need to be cut for the 2007 and 2009 oxbow reconnection projects; there was enough slack in the lines to do construction and re-bury the lines. Therefore, at the conceptual design phase, it is anticipated that similar conditions exist at this site.

## 5. Schedule and Budget:

PROJECT TIMELINE		
Item/Milestone	Outcome	Target Date (Month/Year)
Design	Contracting	January 2013
	30% Design drawings	February – March 2013
	Stakeholder review/comment	March 2013
	Permit ready plan view and cross section drawings	April – June 2013
Permitting	Permit preparation and submittal	July 2013
	Permit authorization	December 2013
Construction	Bid	Spring 2014
	Construction	Summer 2014
	Planting	Fall 2014
Close-out	Adaptive management and implementation monitoring	Summer 2015 and 2016

See attached engineer's cost estimate

### References:

Department of Ecology. 2011. Nason Creek (Chelan County) Oxbow Reconnection Monitoring, 2010. Publication No. 11-03-032. Available online at [www.ecy.wa.gov/biblio/1103032.html](http://www.ecy.wa.gov/biblio/1103032.html)

ICF Jones & Stokes. 2009. Final Report. Nason Creek Subreach Unit Prioritization. June. Prepared for the Chelan County Natural Resources Department. (ICF J&S 00224.09) Bellingham, WA.

Jones & Stokes. 2004. Chelan County Natural Resource Program, Final Wenatchee River Channel Migration Zone Study - Phase II. April 16. (J&S 01243.01) Bellevue, WA. Prepared for the Chelan County Natural Resource Program, Wenatchee, WA.

Upper Columbia Regional Technical Team (UCRTT). 2008 A Biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region. April 30, 2008. Available online at <http://www.ucsrb.com/resources.asp>.

Upper Columbia Regional Technical Team (UCRTT). 2009 Priorities table. Available online at [http://www.ucsrb.com/Editor/assets/priority%20reaches%20and%20actions\\_rtt\\_v6.pdf](http://www.ucsrb.com/Editor/assets/priority%20reaches%20and%20actions_rtt_v6.pdf)

UCSRB. 2007. Upper Columbia Salmon Recovery Board's Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan. August 2007. Available online at <http://www.ucsrb.com/plan.asp> or <http://www.ucsrb.com/UCSRP%20Final%2009-13-2007.pdf>.

U.S. Bureau of Reclamation (USBR). 2009. Kahler Reach Assessment, Chelan County, Washington. Technical Service Center, Denver, CO. and Pacific Northwest Regional Office, Boise, ID. March 2009.

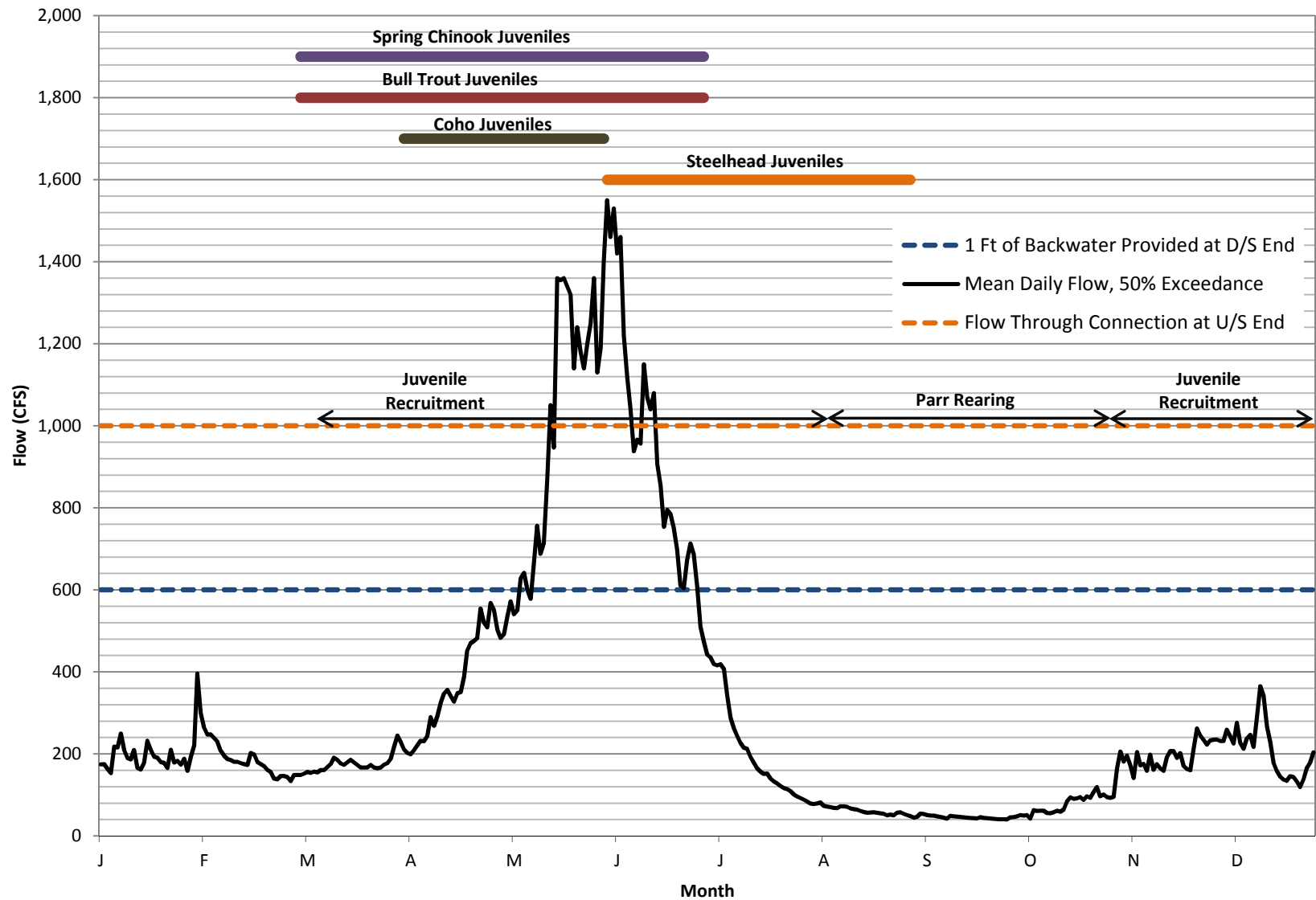
USBR. 2011. Lower Nason Creek Assessment of Geomorphic and Ecologic Indicators, Nason Creek, Wenatchee Subbasin. Chelan County, Washington. Pacific Northwest Regional Office, Boise, ID. March 2011.

**List of Figures Attached:**

1. Biological Benefit Graph: Juvenile Presence and Side channel Activation
2. Site Location on the 1966 Aerial Photograph
3. Site Location on the 2006 Aerial Photograph
4. LIDAR
5. Conceptual Site Plans
6. Project Identification from 2011 USBR
7. Project Identification from 2009 USBR
8. Project Identification from 2004 Jones & Stokes

**Also Attached:**

Photos 1 – 2 Existing Vegetation in the Downstream End of the Side Channel  
Landowner Acknowledgement Form from USFS  
Engineer's Cost Estimate



**Figure 1. RM 4.6 Nason Creek Side Channel Reconnection Project  
Biological Benefit Graph: Juvenile Presence and Side Channel Activation**



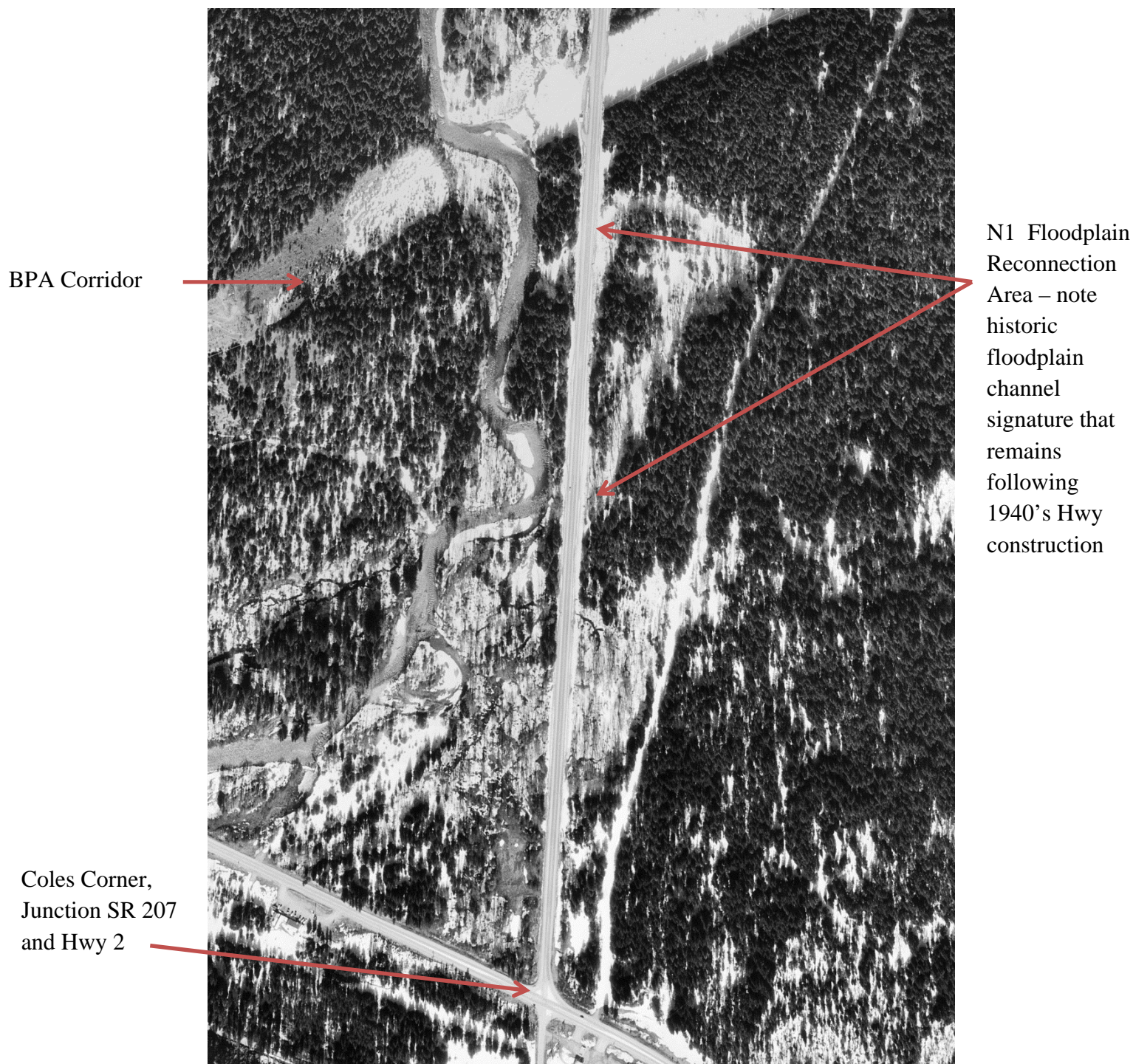


Figure 2: 1966 Aerial Photograph of the Lower Nason RM 4.6 Side Channel Reconnection Project. Source UW. Note the active floodplain side channel path in the vicinity of the project area.



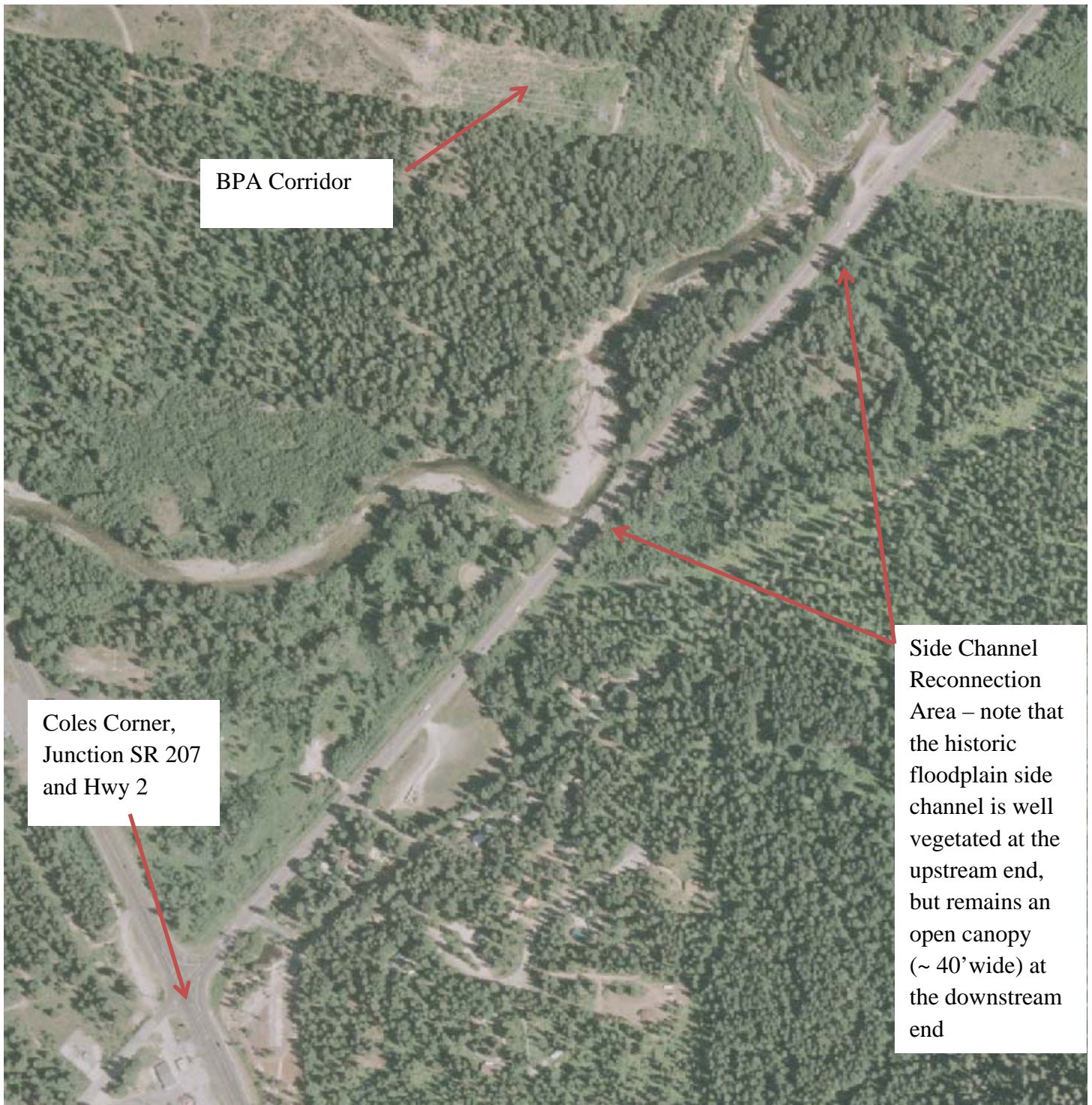


Figure 3: 2006 Aerial Photograph of the RM4.6 side channel reconnection site. Source Chelan County GIS



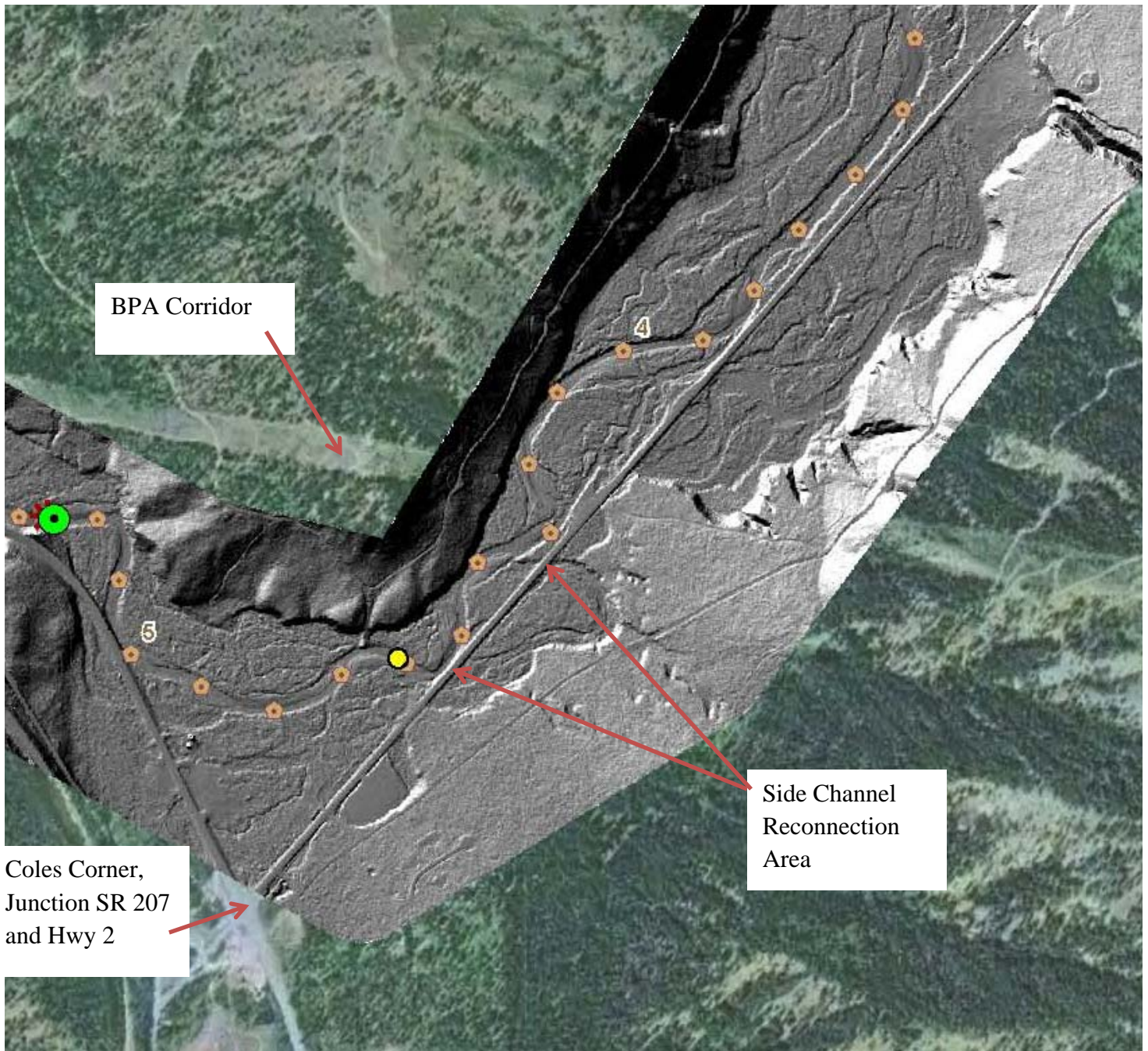


Figure 4: LIDAR the RM4.6 side channel reconnection site. Note the side channel scars within the disconnected floodplain. Source USBR Tributary Assessment 2008.



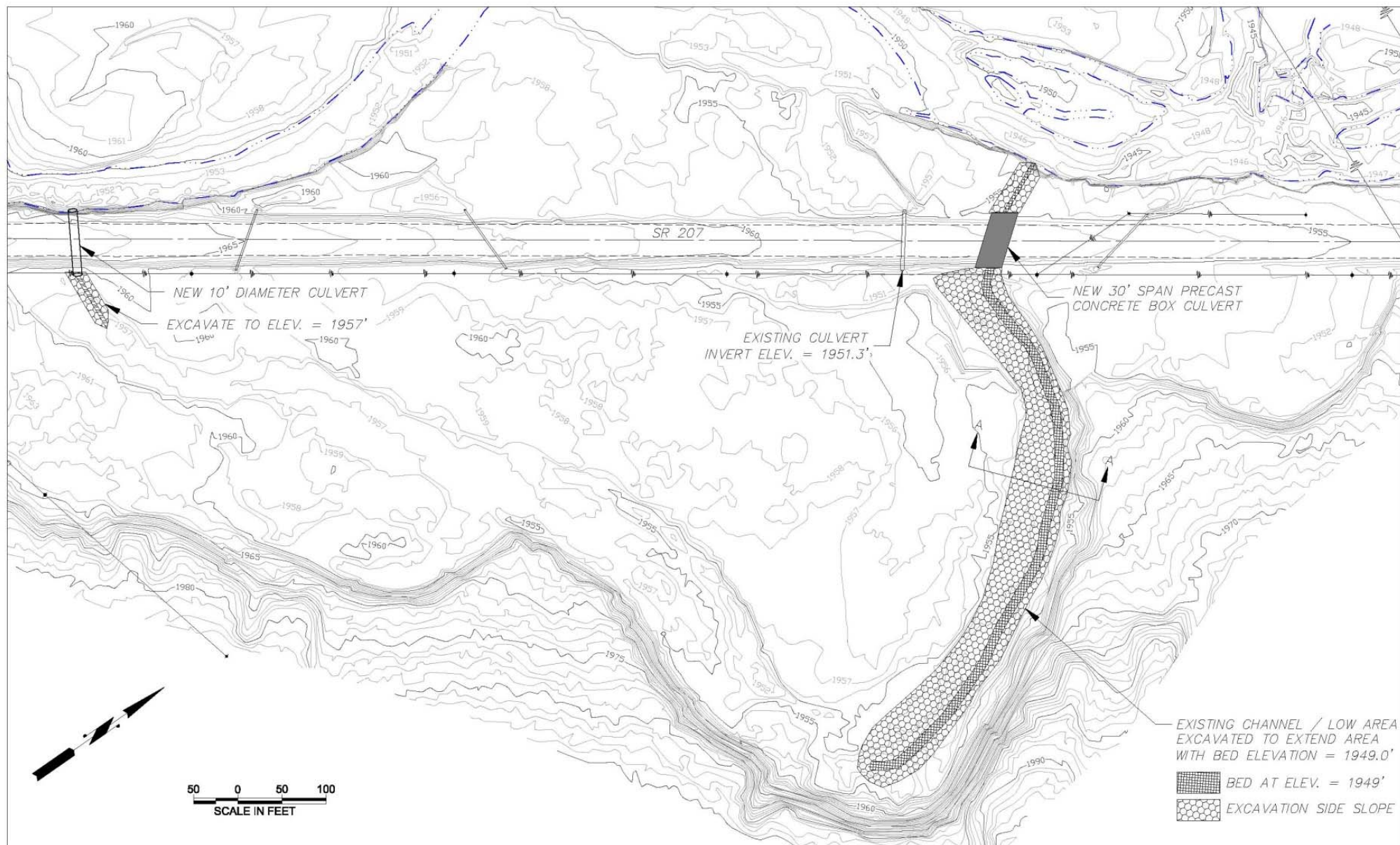


Figure 5. Conceptual site plans for the Lower Nason Creek RM 4.6 Side Channel Reconnection project. Stakeholder input and design revisions can be incorporated into the 30% design drawings.

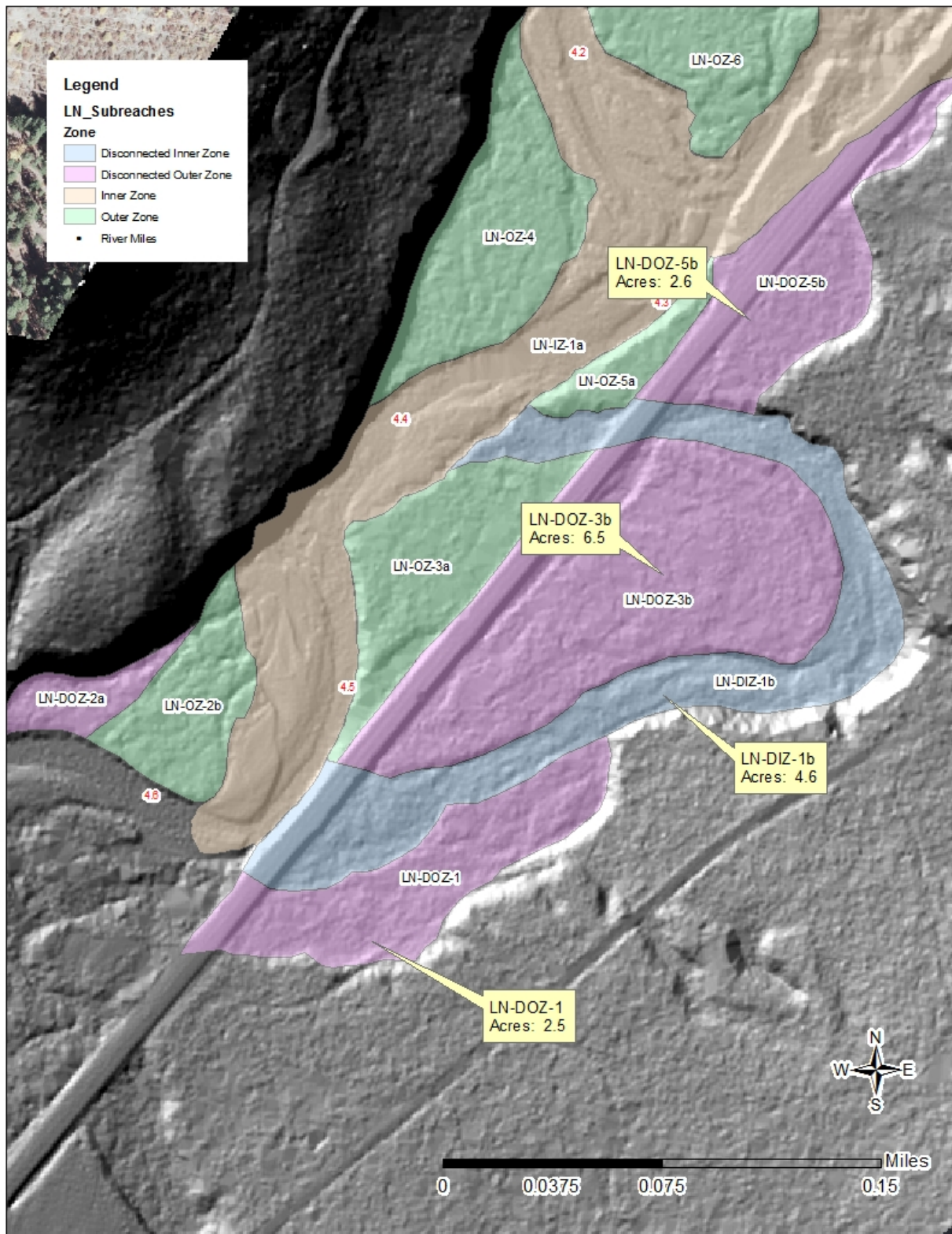


Figure 6. LN DIZ-1b depicts the location of the historic flow through side channel in the floodplain near RM 4.6 in Lower Nason Creek. Source: USBR 2011.



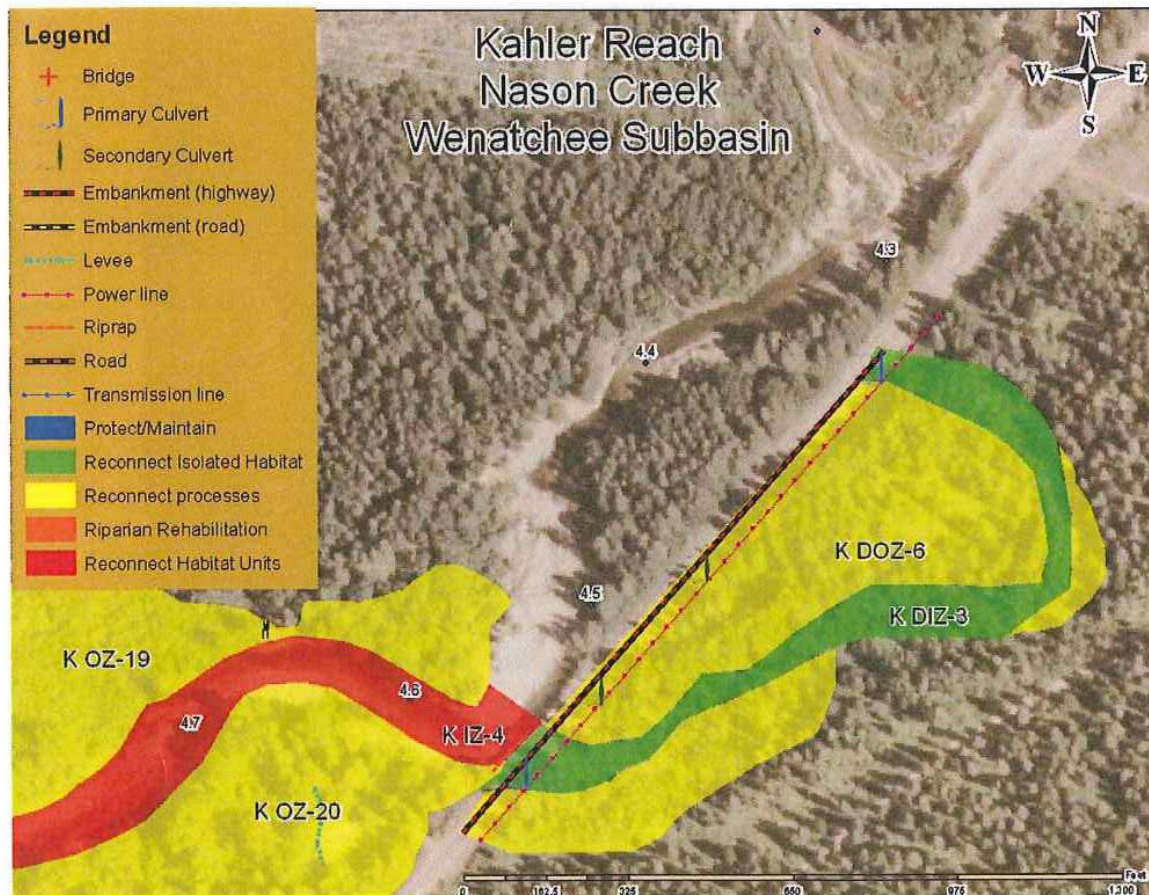


Figure 7: KDIZ-3 depicts the floodplain side channel disconnected from Nason Creek by SR 207. This area would be reconnected by this project. Graphic source: Kahler Reach Assessment USBR 2009

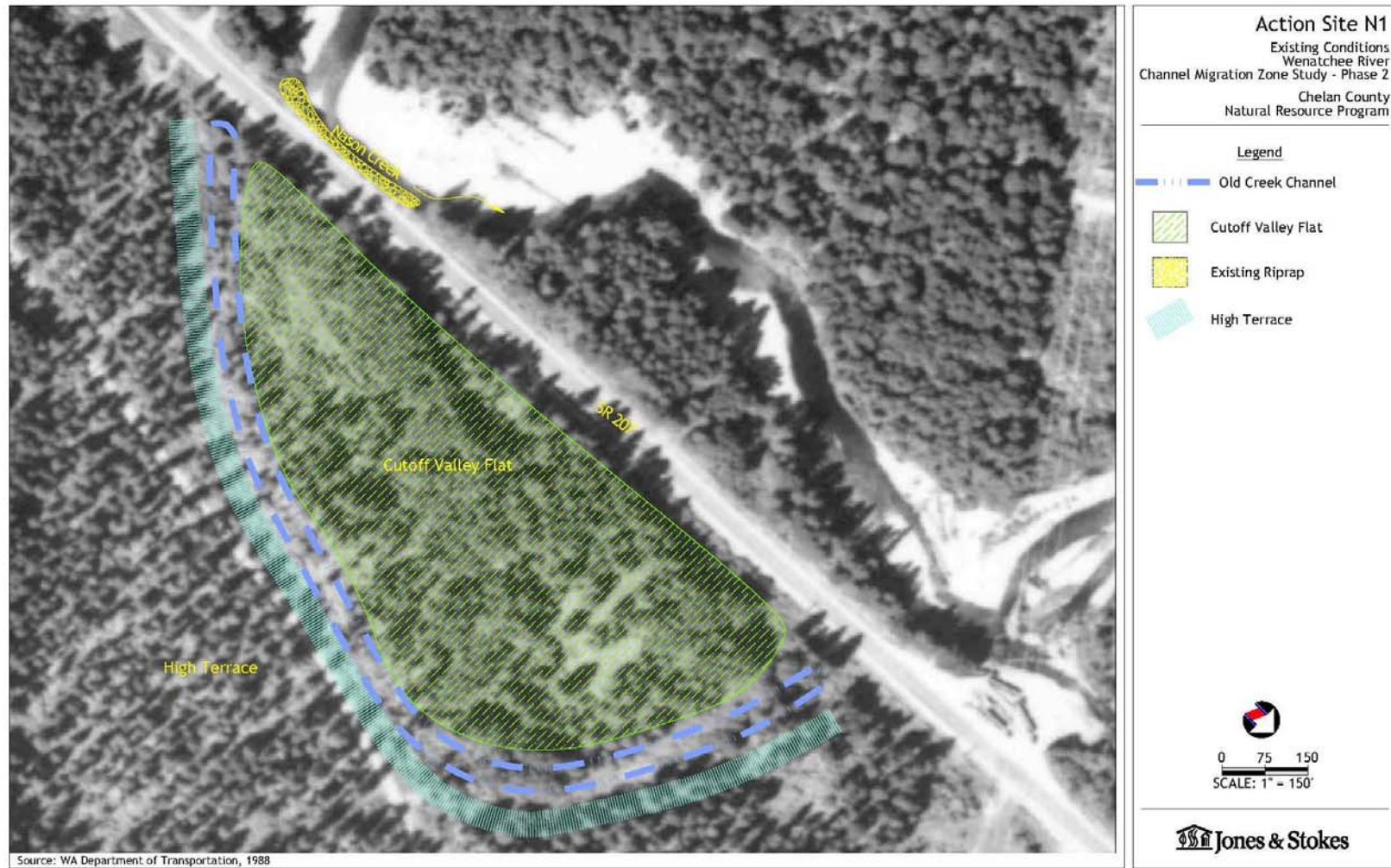


Figure 8: The Channel Migration Zone Study identified the historic flow through side channel that would be reconnected as part of this project (Jones and Stokes 2004).



Lower Nason Creek RM 4.6 Side Channel Reconnection  
Final Design, Permitting, and Construction Cost Estimate

ITEM NO.	TOTAL QUANTITY	UNITS	ITEM	UNIT COST	ITEM COST
1	LUMP SUM	L.S.	CONTRACT ADVERTISEMENT AND AWARD	3,000	3,000
2	LUMP SUM	L.S.	CONSTRUCTION INSPECTION (INCLUDES COMPACTION TESTING)	30,000	30,000
3	LUMP SUM	L.S.	MOBILIZATION (5% of total construction)	19,201	19,201
4	LUMP SUM	L.S.	SURVEYING	5,000	5,000
5	0.95	ACRE	CLEARING AND GRUBBING	4,000	3,800
6	LUMP SUM	L.S.	EROSION / WATER POLLUTION CONTROL (TESC)	3,000	3,000
7	1700.00	L.F.	HIGH VISIBILITY CONSTRUCTION FENCE	3	5,100
8	LUMP SUM	L.S.	SITE ISOLATION AND DEFISHING AT DOWNSTREAM CREEK CONNECTION	1,500	1,500
9	LUMP SUM	L.S.	TRAFFIC CONTROL	50,000	50,000
10	1,500.00	C.Y.	EXCAVATION OF HABITAT AREA INCLUDING HAUL	20	30,000
11	1.00	EACH	60' LONG x 30' WIDE PRECAST CONCRETE BOX CULVERT (DOWNSTREAM)	165,000	165,000
	1.00	EACH	60' LONG 10' DIAMETER CMP CULVERT (UPSTREAM)	18,000	18,000
12	180.00	TON	CRUSHED SURFACING BASE COURSE	35	6,300
13	115.00	TON	HOT MIX ASPHALT	110	12,650
14	1100.00	L.F.	GUARDRAIL	32	35,200
15	8.00	EACH	GUARDRAIL TERMINALS	2,000	16,000
16	225.00	C.Y.	COMPOST	45	10,125
17	0.95	ACRE	SEEDING & MULCHING	5,000	4,750
18			CONTAINER PLANTS (includes installation costs)		12,000
19			LIVE STAKE (includes installation costs)		5,600
				Sub Total =	\$436,226
Design and Engineering					\$80,000
Permitting including NEPA					\$52,000
CCNRD Project Management and Administration					\$ 35,000
Plant Establishment and Implementation Monitoring (2 years)					\$18,000
				Total =	\$621,226



Photo 1: Break in tree canopy and shrubby vegetation located in the proposed excavation area at the downstream floodplain connection area.



Photo 2: Break in tree canopy and herbaceous vegetation located in the proposed excavation area at the downstream floodplain connection area.

## Landowner Information

Name of Landowner: US Forest Service

Landowner Contact Information:

☒ Mr. ☐ Ms. Title: District Ranger, Wenatchee River Ranger District

First Name: Jeff Last Name: Rivera

Contact Mailing Address: 600 Sherbourne, Leavenworth, WA 98826

Contact E-Mail Address: jriversa02@fs.fed.us

Property Address or Location: **Nason Creek RM 3.5 – 4.7**

1. US Forest Service (Landowner or Organization) is the legal owner of some of the 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



Date

## Project Sponsor Information

Project Name: Nason Creek RM 3.5 – 4.7 Reach Based Restoration

Project Applicant Contact Information: Mike Kane

☒ Mr. Title: Natural Resources Specialist, Chelan County Natural Resources Department

First Name: Mike Last Name: Kane

Mailing Address: 316 Washington Street, Suite 401, Wenatchee, WA 98801

E-Mail Address: mike.kane@co.chelan.wa.us