WASHINGTON STATE Recreation and Conservation Office

Final Report

Project #11-1336, Lower White Pine Reconnection

Submitted by Mike Kane on 11/03/2014 Accepted by Marc Duboiski on 11/03/2014

CONTACTS

Primary Sponsor: Chelan Co Natural Resource

Lead Entity: Upper Columbia Sal Rec BD LE

Managing Agency: Rec. and Conserv. Office

Project Contact: Mike Kane
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RCO Grant Manager: Marc Duboiski
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DESCRIPTION OF THE COMPLETED PROJECT

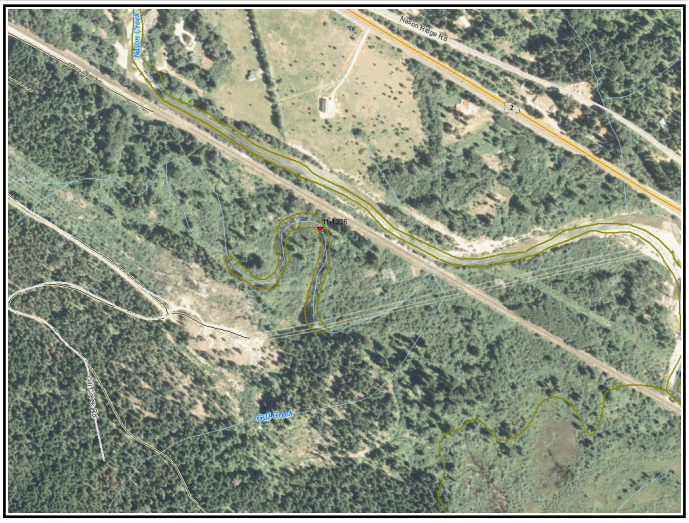
Project Start Date: 12/08/2011 **FundingEnd Date:** 12/31/2014 **RCO Closure Date:**

The project area encompasses the entire Lower White Pine Reach (RM 4.5 - 14.3) of Nason Creek. This is a 2.1-mile-long segment of Nason Creek between river mile (RM) 11.55 and RM 9.45. Construction of the Great Northern Railway in the 1890s disconnected two large channel meanders, the downstream one is 5,494 linear feet and the upstream one is 4,755 linear feet and floodplain areas that total 148 acres. The primary objective of this project is to provide hydraulic connectivity between isolated habitats and the mainstem of Nason Creek. This was achieved through the construction of an opening in the BNSF railroad prism and the installation of an 89' span bridge at the downstream location. The upstream connection had design issues due to higher elevations in the disconnected floodplain than in the existing main channel (a result of 100 years of incision due to channel straightening). In addition other funders wanted to connect the downstream meander section initially with one bridge and then monitor fish use of the off-channel area before committing to reconnecting at the upstream (B+) connection. The improved hydraulic connectivity connects surface flows from the Coulter, Roaring, and Gill Creek basins to Nason Creek resulting in the reconnection of 14.9% of the Upper Nason Creek Basin. In addition, it will allow juvenile and adult Chinook and Steelhead access to 83.1 acres of high flow and 6.8 acres of low flow rearing and refuge habitat. In addition, it will provide steelhead access to 1 mile of lower Coulter Creek and steelhead and Chinook access to 0.75 mile of lower Roaring Creek.

SITE LOCATION

General Area of Project: Upper Nason Creek, above Lake Wenatchee

Waterbodies:



Cong District 2012:	08
County:	Chelan
HUC:	Wenatchee
Leg District 2012:	12
Salmon Recov Reg 05:	Upper Columbia
Section:	10
Township/Range:	T26NR16E
WAU:	NASON, LOWER
WRIA:	Wenatchee

Sponsor Clarifications:

Sponsor verified the above information is correct and complete.

PROJECT NARRATIVE

Project Description

Construction of the Burlington Northern Sante Fe (BNSF) railroad in the 1890's disconnected Nason Creek from152 acres of floodplain wetland. In addition, the railroad prism blocked access to four perennial tributaries, Coulter, Roaring, Gill and Knutson Creek basins which account for 15% of the flows in the Nason Creek basin.

The Bureau of Reclamation (Reclamation) completed the Nason Creek Tributary Assessment in 2008 and the Lower White Pine Reach Assessment in 2009. These assessments identified anthropogenic impacts to Nason Creek and potential project areas that benefit ESA-listed fish species. Following completion of the Reach Assessments, ICF Jones & Stokes worked with Chelan County Natural Resources Department (CCNRD), the Wenatchee Habitat Sub-Committee, and the Regional Technical Team to complete a prioritization of all potential project areas in Nason Creek. The Lower White Pine floodplain reconnection project ranked as one of three projects in Nason Creek that is anticipated to provide the highest biological benefit to ESA listed salmon. This is the largest single project for floodplain reconnection within the Nason Creek subbasin. Thus, CCNRD has been working with Reclamation to design and obtain permits for project implementation in 2013.

Multiple alternatives were evaluated during project development and design to reconnect the two cut-off meanders. Design for two connection locations (downstream and B+) were taken to 30% design and the downstream connection point was selected as the preferred alternative by the Design Team in March 2011, based on construction feasibility and landowner constraints associated with the B+ upstream location. Project engineering, final design and permitting was completed by the Bureau of Reclamation in the spring of 2013.

Project construction included the following elements:

· Construction of a bridge under the BNSF road prism to replace undersized culverts to reconnect surface waters of Nason Creek and 152 acres of floodplain wetland
· Excavation within the floodplain to enhance the surface water connection between Nason Creek and the floodplain wetland (removal of RR prism)
· Site restoration including revegetation

The project provides the following benefits to ESA listed spring Chinook, steelhead, and bull trout:

· Hydraulic reconnection of the 152 acres of floodplain area which reconnects 39% of the 385 acres of disconnected floodplain within the Nason Creek subbasin.
· Hydraulic reconnection of the Coulter, Roaring, Gill, and Knutson creek basins, accounting for a reconnection of 15% of the Upper Nason Creek subbasin.
· Fish access to 72.7 acres of high flow and 6.8 acres of low-flow rearing and refuge habitat.
· Steelhead access to 1 mile of lower Coulter Creek.
· Steelhead and Chinook access to 0.75 mile of lower Roaring Creek.

The Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan recognizes that the lack of off-channel/floodplain habitat as a primary habitat-limiting factor for listed salmonids in Nason Creek. Thus, the project goals are to reconnect flows and fish to off-channel refuge and foraging habitat, directly addressing the primary habitat-limiting factor affecting anadromous fish populations in Nason Creek.

Reclamation has funded project design, permitting and project management. CCNRD has facilitated project development and permitting with landowners, stakeholders, and permitting agencies.

Project partners include:

· Bonneville Power Administration - Construction Funding, project support and stakeholder.
· Bureau of Reclamation -Design, engineering, technical studies and project support.
· Burlington Northern Santa Fe Railway - Landowner
· Chelan County Natural Resource Department -Project Sponsor
· Coordination Team (Multiple Agencies) - Funding coordination
· Design Team (Multiple Agencies) - Selection of preferred alternatives
· ICF - Project Manager: Design, technical support, and permitting.
· Private Landowners - Landowners
· Salmon Recovery Funding Board-Funder
· United States Forest Service -Monitoring plan development
· Yakama Nations -Fish use monitoring.

Project Design and Engineering

Engineering and technical assistance for this project was provided to the CCNRD by the U.S. Bureau of Reclamation (Reclamation) and Reclamation's subcontractors (ICF International, Hanson Professional Services, and CH2M HILL).

The CCNRD has been working with Burlington Northern Santa Fe (BNSF) Railway Company representatives since 2007 to develop feasible methods for reconnecting flows from Nason Creek to abandoned floodplain and habitats adjacent to the BNSF Railway tracks near Merritt, Washington. Throughout this time BNSF provided detailed feedback concerning its requirements, which the project team used during the evaluation of the project alternatives. This concept submittal follows closely the criteria for design and construction as outlined in the Guidelines for Railroad Grade Separation Projects (BNSF - Union Pacific Railroad 2007).

An analysis of connection alternatives identified the location at BNSF MP 1690.58 as the preferred location for reconnection at the downstream end of the historic Nason Creek channel (ICF International 2010, 2011a). This location has several advantages, including the following:

· This bridge would allow the elimination of three 48-inch-diameter, 60-foot-long concrete pipes and provide a vastly improved hydraulic connection for both flood flow conveyance and fish migration between Nason Creek and the disconnected habitats (U.S. Bureau of Reclamation 2011).
· The bed of Nason Creek and the bed of the disconnected oxbow channel are at the same elevation at this location. This allows the excavated opening under the bridge to connect the two sides with a zero slope channel that will have very low-flow velocity.

The Nason Creek channel and oxbow channel are both directly against the railroad embankment at this location so there is no need to create a channel to connect the two waterbodies once the bridge was in place and the embankment fill under the railroad tracks removed.

Biological Benefits associated with the construction of the Downstream bridge:

· The downstream reconnection has low velocities during typical spring flow events thus allowing juvenile fish passage into the Coulter and Roaring Creek habitat complex areas.

· Juvenile fish access during spring flow events from the downstream opening to the upstream Gill Creek Complex is possible due to the wetted channel connection along the BNSF grade, but access is limited due to the length of the channel (appx. 2,000 feet).

· Overall, the removal of the downstream impoundment will provide hydraulic reconnection of the 152 acres of floodplain area - 39% of the 385 acres of disconnected floodplain within the Nason Creek subbasin. This is the largest single project for floodplain reconnection within the Nason Creek subbasin.

· The improved hydraulic connectivity between the Coulter, Roaring, and Gill Creek basins will reconnect 14.9% of the Upper Nason Creek subbasin.

· Fish will have access to 72.7 acres of high flow and 6.8 acres of low flow rearing and refuge habitat.

· Steelhead will have access to 1 mile of lower Coulter Creek.

· Steelhead and Chinook will have access to 0.75 mile of lower Roaring Creek.

· Hydraulic reconnection of 152 acres of Category 1 wetland to Nason Creek (Hurby 2004)

o 81 acres of Palustrine Forested habitat, 53 acres of Palustrine Scrub-Shrub Habitat, and 18 acres of Palustrine Emergent habitat to Nason Creek.

Public Outreach

BNFS and Landowner Coordination - CCNRD, through a state-awarded Salmon Recovery Funding Board (SRFB) grant and a Cooperative Agreement with Reclamation, began working with Reclamation, BNSF and other stakeholders to assess methods for constructing large openings in the BNSF rail prism to reconnect important and impounded floodplain habitats. CCNRD has focused on coordination efforts with the BNSF Railway, United State Forest Service (USFS) and over 70 total landowners and stakeholders. CCNRD has been working with affected landowners to discuss the project and possible landowner concerns on a regular basis since 2010. In addition to numerous site visits, phone calls and email exchanges with individuals and landowner groups, several public meetings have been held (June 2010, May 2011, May 2012, June 2013) where landowners provided considerable input to the project. Outreach for this project was targeted to the Sunland Estates landowners, Dardanelle's Road landowners, and other adjacent river front property owners between RM 9.5 and 11.1. Pre-construction outreach and construction related outreach have been summarized in more detail in separate documents available upon request.

Project Elements

The construction consisted of:

a) Construction of a three-span CBG bridge with a total span length of 89 feet (spans between piers of 28 feet, 33 feet, and 28 feet at MP 1690.58).

b) Construction of an access road and working platform.

c) Excavation of the railroad prism material between the pilings/abutments to reconnect the mainstem with the tributaries.

d) Removal of a large beaver dam immediately upstream of the proposed bridge opening.

Principal components of the work included mobilization/demobilization, access road construction, bridge construction, isolation of work areas/coffer dams, fish removal, excavation within the railway prism, site clean-up, and reseeding and planting.

Work isolation and fish salvage has been summarized in a separate memorandum available upon request.

Project Construction Schedule

Construction occurred in the summer of 2013. BNSF was responsible for managing the construction of the bridge elements as funded by the Project Sponsor. The Chelan County Natural Resource Department was responsible for contracting and managing the construction of the access road, excavation of the existing railroad prism under the bridge, and construction of the connector channel and habitat elements as agreed to with BNSF.

Completion of this project required coordination of 2 construction efforts, construction of an access road on the south side of the existing BNSF railroad prism (Hurst Construction) and the driving of 16 piles at the bridge site. Pile driving was accomplished from the top of the rail prism by a BNSF construction crew. Access road construction and pile driving was started on July 2 and completed by August 8 allowing a BNSF bridge construction crew to install the pre-cast concrete bridge structure within the permitted work window.

Following completion of the bridge the earthwork contractor excavated under the newly installed bridge and removed a portion of the access road to construct a connecting channel to Nason Creek. Daily observation logs are provided as a separate document.

AMENDMENTS

#	Type	Applied Date	Description
1	Cost Change	10/27/2014	This cost change is to adjust the final grant agreement costs to the actual construction costs to complete the project. The SRFB share dollar amount is reduced, however the SRFB percentage share goes up to 9.3%. The A&E budget is going up to 3.5%.

OVERALL PROJECT COSTS

Funding Formula:	Requested		Original		Final	
Salmon Federal Projects:	$0.00	(0%)	$162,290.00	(8%)	$146,433.97	(9%)
Salmon State Projects:	$162,290.00	(8%)	$0.00	(0%)	$0.00	(0%)
Sponsor Match:	$2,000,000.00	(92%)	$2,000,000.00	(92%)	$1,432,319.71	(91%)
Total:	$2,162,290.00	(100%)	$2,162,290.00	(100%)	$1,578,753.68	(100%)

Paid To Date:	$146,433.97				**Last Released Billing:**	11/03/2014
Remaining RCO Funds:	$0.00				**Pending Billing:**	No
Advance Balance:	$0.00		**Match Bank:**	$0.00	**Number of Billings:**	2
Admin Limit:	$0.00	5.00%	**Admin Spent:**	$0.00		
A&E Limit:	$53,090.63	3.48%	**A&E Spent:**	$53,090.60	3.36%	

Billed Cost Summary:	Original Agreement	Expended	Non-Reimbursable	Total Billed
Restoration				
Construction	$1,525,663.40	$394,254.32	$1,131,408.71	$1,525,663.03
AA&E	$53,090.60		$53,090.60	$53,090.60
Restoration Total	$1,578,754.00	$394,254.32	$1,184,499.31	$1,578,753.63
Total	$1,578,754.00	$394,254.32	$1,184,499.31	$1,578,753.63

Project Cost Metrics:	Original Agreement	Final
PCSRF Federal Funds:	$146,433.97	$146,433.97
State Funds:		
Other Federal Funding:		
Pending Billing - RCO Share Approved:		
Retainage - RCO amount retained:		$0.00
Amount of other monetary funding:	$2,000,000.00	$1,432,320.00
Project identifier for the other monetary funding:	We received 150K from the Tributary Committee and the remaining 1,850,000 has been requested from both the Priest Rapids Coordinating Committee and the UCSRB BPA Non-Accord Funds. It is yet to be determined the amount each funder will contribute.	We received 150K from the Tributary Committee and the remaining 1,850,000 has been requested from both the Priest Rapids Coordinating Committee and the UCSRB BPA Non-Accord Funds. It is yet to be determined the amount each funder will contribute.
Source of other monetary funding:	See above	See above.
Value of Donated Unpaid Labor (Volunteers):	$0.00	$0.00
Source of Donated Un-paid labor contributions:	N/A	NA
Number of hours volunteers contributed to the project:		0
Describe how the value of the volunteers was determined:		NA
Value of Donated Paid Labor:	$0.00	$0.00
Source of Donated Paid Contributions:		NA
Value of Other In-Kind Contributions:	$0.00	$0.00
Source of Other In-Kind Contributions:		NA
Description of other In-Kind contributions:	N/A	NA

PROJECT METRICS

	Original Agreement	Final
Completion Date		
Projected date of completion:	11/01/2012	08/29/2014
Project Goals		
Goals, purpose, and expected benefits:	Reconnect killer off-channel habitat for juvenile salmon.	Reconnect a stream channel to provide off-channel habitat for juvenile salmon. This project will connect Coulter, Roaring, Gill and Knutson Creek basins to Nason Creek, reconnecting nearly 15 percent of the upper Nason Creek basin.

WORKSITE #1: Upstream Connection

Worksite Description: The project area encompasses the entire Lower White Pine Reach of Nason Creek as defined in the Lower White Pine Reach Assessment (USBR 2009). This is a 2.1-mile-long segment of Nason Creek between river mile (RM) 11.55 and RM 9.45 in Township 26 North, Range 16 East, Sections 2, 3, 10, and 11, Willamette Meridian. The focus of this proposal is to seek funding for the upstream B+ connection at RM 10.7 and a short connector channel that will connect the B+ bridge to the existing disconnected channel.

Driving Directions: From Leavenworth, Washington go southwest on US-2 West for 20.2 Mi. Turn Left into the small community of Merritt and cross tracks. Walk East down tracks to site (need BNSF permission and flagger).

Coordinates for Worksite Directions - Latitude: 47.78 **Longitude:** -120.83

Sponsor Clarifications:

Sponsor verified the above information is correct and complete.

WORKSITE #1 COSTS

Worksite Billed Cost:	Estimated	Expended	Non-Reimbursable	Total Billed
AA&E	$70,000.00		$53,090.60	$53,090.60
Construction	$2,092,290.00	$394,254.32	$1,131,408.71	$1,525,663.03
Worksite Total	$2,162,290.00	$394,254.32	$1,184,499.31	$1,578,753.63

Worksite Costs by Category:	Original Agreement	Final
Fish Passage Funding:	$2,077,288.00	$1,500,000.00
Instream Habitat Funding:	$15,000.00	$25,000.00
Cultural resource funding:	$1.00	$600.00
Permits Funding:	$1.00	$63.00
Architectural & Engineering Funding:	$70,000.00	$53,090.60

WORKSITE #1 METRICS

	Original Agreement	Final
Targeted salmonid ESU/DPS:	Chinook Salmon-Upper Columbia River Spring-run ESU, Steelhead-Upper Columbia River DPS	Chinook Salmon-Upper Columbia River Spring-run ESU, Steelhead-Upper Columbia River DPS
Targeted species (non-ESU species):	Bull Trout, Rainbow	Bull Trout
Miles Of Stream Treated/Protected:	0.01	0.01
Project Identified In a Plan or Watershed Assessment:	Restoration of Nason Creek is identified as the top priority for implementation of habitat actions in the Wenatchee Basin (UCRTT 2009) and in the Upper Columbia Salmon Recovery Plan (UCSRB 2007). Within Nason Creek, sidechannel and/or off-channel reconnection is a Tier 1 Action (Implementation Schedule Action ID NC-1880) and top priority for addressing limiting habitat factors and the recovery and long-term viability of salmonids	Restoration of Nason Creek is identified as the top priority for implementation of habitat actions in the Wenatchee Basin (UCRTT 2009) and in the Upper Columbia Salmon Recovery Plan (UCSRB 2007). Within Nason Creek, sidechannel and/or off-channel reconnection is a Tier 1 Action (Implementation Schedule Action ID NC-1880) and top priority for addressing limiting habitat factors and the recovery and long-term viability of salmonids
Type Of Monitoring:	Implementation Monitoring	Implementation Monitoring
Monitoring Location:	Downstream, Onsite, Upstream	Onsite
Fish Passage Improvement		
Number of blockages / impediments / barriers impeding passage:		1
Type Of Barrier:		Culvert
Miles Of Stream Made Accessible:	2.24	2.24
Square Miles Of streambed made accessible:	0.0	0.3
Bridge installed or improved		
Miles of stream made accessible by bridge installation/repair:	2.24	2.24

Number of bridges:	1	1
Total cost for Bridge installed or improved:		
Instream Habitat Project		
Total Miles Of Instream Habitat Treated:	0.00	0.01
Channel reconfiguration and connectivity		
Total cost for Channel reconfiguration and connectivity:		
Type of change to channel configuration and connectivity:	Creation/Connection to Off-Channel Habitat	Creation/Connection to Off-Channel Habitat
Miles of Stream Treated for channel reconfiguration and connectivity:	0.10	0.10
Miles of Off-Channel Stream Created:	0.00	0.00
Acres Of Channel/Off-Channel Connected Or Added:	148.0	148.0
Instream Pools Created/Added:	0	0
Cultural Resources		
Cultural resources		
Cultural resource work completed : Hours of monitoring required:		0
Total cost for Cultural resources:		
Acres surveyed for cultural resources:	0.50	0.50
Permits		
Obtain permits		
Total cost for Obtain permits:		
Number of permits required for implementation of project:	7	7
Architectural & Engineering		
Architectural & Engineering (A&E)		
Total cost for Architectural & Engineering (A&E):		
Did A&E costs exceed billed amount (Yes/No):		No

PROPERTY DESCRIPTION (Nason Creek - BNSF Site)

Activity: Restoration

Control & Tenure:

Instrument Type: Landowner Agreement

Timing: Proposed

Term Length: Perpetuity **# yrs:**

Expiration Date:

Landowner Type: Private **Note:**

Sponsor Clarifications:

Sponsor verified the above information is correct and complete.

Sponsor Clarifications:

SPONSOR CERTIFICATION

[X] I certify that this project has been completed in accordance with the project agreement.

[X] I certify that, to the best of my knowledge, the information in the Final Report is true and correct.

Submitted by Mike Kane on 11/03/2014