Collette Mine Stream Restoration Project

Environmental Assessment

USDA Forest Service
Lochsa Ranger District
Nez Perce-Clearwater National Forests
February 2015

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Northern Region, USDA Forest Service

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CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. Chapter 1 identifies the purpose and need for action, the scope of the analysis, and the decisions to be made. Chapter 2 describes the action and no action alternative, and alternatives considered but eliminated from detailed analysis. Chapter 3 characterizes the affected environment and discloses the direct, indirect, and cumulative environmental impacts that would result from the alternatives.

Additional documentation, including more technical reports used in this analysis is available upon request at the Lochsa Ranger District Office in Kooskia, Idaho.

A. Introduction

The Lochsa Ranger District on the Nez Perce-Clearwater National Forests is proposing stream and floodplain restoration activities along Lolo Creek in the former Collette Mine area. Lolo Creek is a tributary of the Clearwater River in Idaho and Clearwater counties. The project is located about 11 miles southeast of Weippe, Idaho. The project area encompasses about 30 acres of riparian/floodplain and 0.6 miles of Lolo Creek. Lolo Creek flows through the former Collette Mine site and has been impacted by past dredge mining activity. The Collette Mine Stream Restoration Project area is located in T35N, R06E, Section 32, primarily in Clearwater County. See attached maps in Appendix A. The design of this project has been completed in partnership with the Nez Perce Tribe Watershed Division.

B. Background

Mining in and around Lolo Creek likely dates as far back as the 1860s, when gold was first discovered in nearby Pierce, Idaho. Limited Forest Service records for mining claims at the proposed project site date back to 1938, with more recent detailed information dating back to the 1970s. During the late 1970s and early 1980s, the stream and floodplain area within the proposed project area was mined by backhoes and dozers leaving behind legacy tailings piles and dredge ponds on the floodplain. Numerous instances of non-compliance with approved operating plans are cited in the records during this more recent time period. The responsible party was eventually unable to retain bonding for the mining operations and their claims were abandoned and voided in 1996. Restoration activities were requested by the Forest Service and occurred prior to abandonment of those claims in 1996, but are not in line with modern reclamation standards and current understanding of stream and floodplain restoration principles. It is also likely given the mining history in the area that some of the conditions at the site were created prior to recorded mining activity. Although a portion of the proposed project area is now claimed as the Dakota #1 Mine, the current claimants are not required to assume liability for the abandoned claimants' activities.

Dredge mining consists of removing substrate from the streambed and riparian areas, running them through a sluice to extract the gold and then depositing the washed substrate in large piles adjacent to the stream. The compacted piles at the proposed project site lack topsoil and nutrients making them good growing sites for noxious weeds, particularly knapweed, and poor sites for growing native vegetation. The tailings also restrict access to the Lolo Creek floodplain creating a constriction in the stream which forces Lolo Creek into the stream bank. This has led to streambank destabilization which annually washes away soil and prevents willows or other vegetation from growing. This results in a chronic source of sediment into Lolo Creek. This, in turn, can negatively affect fish spawning and rearing by increasing fine sediments in the stream channel. Excessive fine sediment can smother fish eggs laid in the gravel. It can also fill the interstitial spaces in the gravel which reduces the quality of winter rearing habitat used by salmon and trout species as well as other aquatic organisms (Reiser and White, 1988; Suttle et al, 2004). Additionally, dredge ponds at the site provide low quality aquatic habitat with the majority of these ponds connected to Lolo Creek only via groundwater flow; thus, limiting the amount of off-channel habitat for juvenile fish rearing.

The project occurs entirely within a grazing allotment. Cattle use in the area has reduced the diversity of native vegetation in the meadow. Cattle grazing would continue into the future.

C. Purpose and Need

The purpose of the project is to re-establish natural hydrologic processes including floodplain access and stream channel migration patterns; improve fish habitat and reduce chronic sediment delivery to Lolo Creek; improve soil conditions; and restore native plant communities at the former Collette Mine site.

There is a need to return the hydrologic and riparian processes to more natural conditions at the proposed project site. Currently the stream is constricted by mine tailing piles and has only minimal access to its floodplain, off channel habitats and wetland areas. The stream bank lacks stability at the site and is annually contributing sediment to Lolo Creek especially during high spring flows. Riparian vegetation is sparse with a high component of non-native spotted knapweed and grasses. It lacks much of the native shrub component. Shrubs contribute greatly to bank stability and overhead cover for fish and other aquatic organisms. Re-contouring and re-grading the tailing piles would reconnect Lolo Creek to its historic floodplain and wetlands, would restore natural channel migration zones and would improve stream bank and channel stability. It would also reduce sediment delivery into Lolo Creek and allow for improvements to soil functions, including better growing conditions for native riparian vegetation.

There is a need to create more natural instream habitat just below the mine site. Log weir structures were installed in Lolo Creek just downstream of the Collette Mine site in 1983 and 1984 in an attempt to improve aquatic habitat conditions. The structures were placed perpendicular to the flow and have created a sequence of pools throughout the reach. The structures do not mimic the natural placement of wood in the stream channel and provide only limited hiding cover for fish as a result. Habitat complexity is lacking overall in the project area due to a lack of overhead, wood, and bank cover. Increasing the amount of woody material in the channel and placing it in more natural configurations (clusters of many pieces of wood) would provide higher quality habitat for fish, especially juvenile salmon and trout.

D. Proposed Action

The proposed action would:

- Restore floodplain connectivity, bankfull and low flow width to depth ratios to 0.6 miles of Lolo Creek by re-contouring tailing piles on 7 acres of historic floodplain. About 2,800 linear feet of disturbed streambanks would be recontoured to natural gradients and vegetated to provide for long-term streambank stability.
- Reconnect 1,200 feet of Lolo Creek into its original channel in the lower section of the project area. This would increase the sinuosity of Lolo Creek and the amount of available in-stream habitat for fish and other aquatic organisms.
- Increase in-stream large woody material (greater than 12 inches in diameter) by installing18 large and small wood structures in association with the creation of pool habitats. This would increase the quantity and complexity of juvenile rearing habitat in the stream.
- Plant and protect riparian zones to enhance stream bank stability and reduce excessive bank erosion rates; to provide for long term recruitment of wood; and to restore native plant diversity.
- Install up to 4,000 feet of additional fence along new channel segments to remove ungulate browse pressure for maximum plant growth for ten years or until vegetation is sufficiently established.

E. Desired Condition

The desired condition for the project area is to have dynamic hydrologic processes occurring in this reach of Lolo Creek. Processes include properly functioning floodplains, unconstricted stream migration patterns, well vegetated and stable stream banks, and riparian and wetland areas that provide habitat for native plants and animals. Well-vegetated riparian areas are necessary for long term stream shading, bank stabilization and large woody material recruitment. Dynamic hydrologic processes in turn provide for optimal aquatic habitat, such as clean spawning substrate, deep pools and off-channel habitat during high flows.

Specific measurable stream features desired are as follows (see Figure 1 below for visual description of where these measurements are assessed):

Bankfull average width- 48 feet
Bankfull average depth- 2 feet
Bankfull width/depth ratio- 17 to 34
Flood prone width- 230 to 330 feet

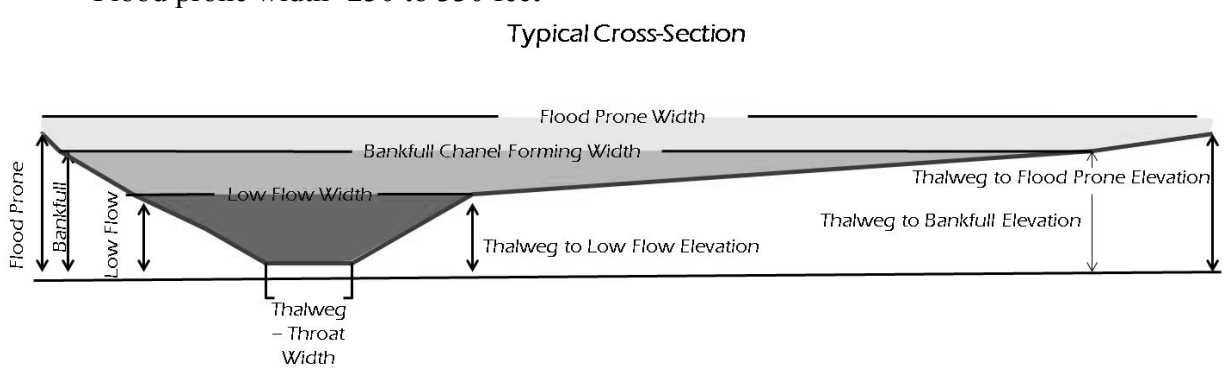


Figure 1. Conceptual Stream Cross-Section Diagram

F. Existing Condition

Lolo Creek has been constricted by mine tailing piles, primarily on the western edge in the upper reach, and also straightened and constricted in the lower reach. These piles have reduced access to the historic floodplain and have prevented natural stream channel migration across the valley floor, thus disconnecting off channel habitat and wetlands from the stream. This constriction also increases stream velocities and erodes the stream bed and tailings piles during springtime high flows.

Soil and vegetation in the riparian area have been heavily impacted by past mining. Riparian species composition currently consists of grasses and forbs with sporadic willow and mixed conifer species. Introduced weedy species, including spotted knapweed and hounds tongue, are found throughout project area, especially along compacted areas previously disturbed by machinery. Pre-treatment of weeds, (a combination of pulling and spraying) occurred in 2013 and 2014.

G. Public Involvement

On April 12, 2012 a scoping letter describing the proposed action, location and purpose and need were sent to 274 interested individuals, businesses, organizations and agencies including the Nez Perce Tribe. In addition, letters were sent to the 4 mining claimants associated with the Dakota #1 Mine claim (within the former Collette Mine area). A legal notice and request for public comment also appeared in the Lewiston Tribune on that date. Letters or messages received from six commenters were considered in the analysis.

On December 12, 2014 the Draft Environmental Assessment was made available to the public. A legal notice and request for public comment also appeared in the Lewiston Tribune on that date. Printed versions of the document were mailed to those who made comments during the scoping period and also to the Nez Perce Tribe. No comments were received on the project.

H. Environmental Issues

Project issues were identified by the interdisciplinary team and through public scoping and are grouped into one of the following categories: 1) issues used to develop alternatives to the proposed action, 2) issues used to develop design criteria or 3) issues that are outside the scope, decided by law or policy, or not affected by the proposal. Indicators have been identified for each issue and are tracked through the analysis. Indicators are quantitative or qualitative measurements used to describe the affected environment, measure the environmental consequences, and compare the alternatives.

The proposed action was initially developed from preliminary issues, concerns, and existing conditions identified by the interdisciplinary team (IDT). The Nez Perce Tribe also provided input on the design and implementation of the project. Resource specialists and the District Ranger reviewed public comments and incorporated some of them as design features.

1. Issues Used to Develop Alternatives to the Proposed Action

The project may not be necessary since there are thousands of acres of unused habitat already and the project area is small. One commenter questioned the need for the project given the large amount of currently unused habitat and another commenter suggested not spending money on such a small area. These issues are addressed by the No Action Alternative.

There were no other issues raised by the public or internally that lead to the development of an additional action alternative.

2. Issues Used to Develop Design Criteria

Properly functioning riparian/wetland and aquatic habitat. Lolo Creek is disconnected from its floodplain and wetlands during much of the year as a result of the mine tailing piles and its streambanks are raw, unvegetated and eroding. Re-grading the tailing piles to create more of a floodplain and re-meandering Lolo Creek would provide more and higher quality habitat for fish and wildlife species (particularly amphibians) at the site. Reconnecting the floodplain and installing vegetation and woody material would also reduce the amount of unstable streambanks by dissipating stream flows over a large area and allowing for riparian vegetation to re-establish and hold the bank together.

Issue Indicator: Acres of connected wetland/floodplains
Issue Indicator: Miles of stable streambank
Issue Indicator: Number of instream pools with complex woody structure

Native vegetation. The former Collette Mine site contains minimal native plant diversity within 200 feet of the stream due to soil disturbance and the presence of non-native plants such as spotted knapweed. Floodplain re-grading, including topsoil salvage, and planting a variety of native species would improve species diversity in the area. Reconnecting the floodplain would increase the water table and annual flooding of the site which would create conditions that are not as conducive to the growth of invasive plants species and are more conducive to native plant growth. Also fencing portions of the area post-planting would remove ungulate browse pressure and provide for native plant establishment.

Issue Indicator: Acres of native species planted

Minimize instream disturbance. One commenter suggested keeping the machinery out of the creek to minimize disturbance to it. No issue indicator was developed for this issue; however design features were included to address it (described in Chapter 2). It is also qualitatively discussed in Chapter 3.

Heavy metal contaminants. One commenter suggested sampling and testing of soils in the tailing pile areas as they may contain contaminants such as mercury and strychnine. No issue indicator was developed for this issue; however monitoring and a design feature were included to address it (described in Chapter 2 and Appendix B). It is also discussed in Chapter 3.

3. Issues outside the scope, decided by law or policy, or not affected by the proposal.

The following issues will not be considered in detail. They have already been decided by law or policy, are outside the scope of the project or are not affected by the proposal.

The miners should be responsible for restoration of the area- There was a concern that the citizens shouldn't have to be responsible for the cost of restoring the area but that the miners should pay for the project. They question whether any citations were issued and fines imposed or collected. The records available on past ownership of the mine claims within the proposed project area indicate that the State of Idaho sought restitution for noncompliance with approved operating plans and loss of bonding during the 1980s. Restoration activities were requested by the Forest Service and occurred prior to abandonment of those claims in 1996, but are not in line with modern reclamation standards and current understanding of stream and floodplain restoration principles. It is also likely given the mining history in the area that some of the conditions at the site were created prior to recorded mining activity. The former claimants no longer have legal responsibility for restoration at the site and cannot be held accountable. The current claimants are not required to assume liability for the abandoned claimants' activities and cannot be held accountable for the cost of restoration to modern day standards.

Under 36 CFR part 228, the Forest Service is required to provide procedures for authorizing operations on the National Forests which are reasonably incidental to mining, provided that such operations be conducted so as to minimize adverse environmental impacts. Should the current claimants propose mineral activities that require a Plan of Operations, the cost of this proposed restoration project will assist in determining a bond on any future disturbance. Guidelines under Forest Service Manual (FSM) 2840 dictate that bonding would be sufficient enough to cover the full cost of reclamation.

Money from the Nez Perce Tribe comes from the Northwest Power Administration who raise electrical rates to pay for projects like this. One commenter was concerned that projects such as this may lead to electrical rate increases since it is in part funded through the Nez Perce Tribe. The Nez Perce Tribe receives money for fish and wildlife restoration projects through the Bonneville Power Administration (BPA), the primary agency which oversees electrical power generation from the Columbia River dam system. The BPA is required to spend a portion of its income to mitigate for the effects of the dam system on fish and wildlife species throughout the Columbia River basin. The Tribe requested dollars from the BPA restoration program to assist with the project. It is beyond the scope of this project to determine if the project would lead to rate increases.

Dredge mining should be discouraged in the area. One commenter recommended that dredge mining not be allowed in the project area to allow it to recover. Another wanted to know if the area had been withdrawn from mineral entry. Several laws and regulations, including the Mining Law of 1872, Forest Service Surface Use Regulations (36 CFR 228 Subpart A), and Forest Service Manual (FSM) 2800 allow the public specific rights to enter, search for, and develop mineral resources on lands open for mineral entry. These regulations do not allow the Forest Service to deny entry or preempt the miners' statutory

right granted under the 1872 Mining Law. The regulations require the Forest Service to develop mitigation measures to minimize adverse impacts related or incidental to mining by imposing reasonable conditions that do not materially interfere with operations. When included in Plans of Operation, these mitigation measures, along with necessary State and Federal permits, will allow the Forest Service to approve the Plans of Operation. Reasonable Plans of Operation must be approved. None of the current claimants have provided a Plan of Operation at this time; however mitigation measures would include the restoration of the area to whatever condition they had found it in and bonding.

Public access. One commenter wondered if the public had access to the area and how it would be affected by the project. Access to the area currently is by foot traffic only. The project would not change public access.

Threatened or Endangered species. Canada lynx, fall Chinook salmon, and water howellia are listed as threatened under the Endangered Species Act. None of these species or their designated critical habitat occurs in the project area and none would be affected by the proposed activities.

Steelhead trout and bull trout are listed as threatened under ESA and are discussed in the effects analysis in Chapter 3 of this document.

Management Indicator Species (MIS)/ Sensitive Wildlife and Plant Species. The following MIS or sensitive wildlife and plant species and their habitat either do not occur in the analysis area or the project would not affect the amount of available habitat; therefore they will not be discussed further in this analysis.

Clearwater National Forest MIS: northern goshawk, pileated woodpecker, American marten, belted kingfisher, elk, moose, white tailed deer, bald eagle, and gray wolf.

Regional Foresters Sensitive Species (Clearwater NF listings): bald eagle, black-backed woodpecker, flammulated owl, harlequin duck, pygmy nuthatch, Coeur d'Alene salamander, ringneck snake, fisher, wolverine, gray wolf, maidenhair spleenwort, deerfern, crenulate moonwort, lance-leaved moonwort, slender moonwort, Mingan moonwort, mountain moonwort, least moonwort, bug-on-a-stick, green bug-on-a-stick, broad-fruit mariposa, Constance's bittercress, bristle-stalked sedge, Anderegg's cladonia, Pacific dogwood, clustered lady's slipper, dasynotus, sticky goldenweed, light hookeria, salmon-flowered desert-parsley, chickweed monkey-flower, spacious monkeyflower, gold-back fern, sweet coltsfoot, licorice fern, naked-stem rhizomnium, evergreen kittentail, Sierra wood-fern, short-style sticky tofieldia, Douglas clover, and Idaho barren strawberry.

The four Sensitive bat species (fringed myotis, long-eared myotis, long-legged myotis, and Townsend's big-eared bat) that may occur on the Clearwater National Forest prefer habitat near rocky areas where caves or abandoned mine tunnels are available. The project area does not contain bat habitat; however the retention of ponds in the project area would continue to provide foraging habitat (insect production areas) for bats.

Western toads, a Regional Foresters Sensitive Species, are discussed in the effects analysis in Chapter 3 of this document.

Climate Change. This issue is outside the scope of the project as the project is too small to affect climate change; however implementing the project would allow Lolo Creek and its floodplain and riparian areas to function and respond to climatic events with increased resilience.

> Over the past 30 years, trends for the area show a warming of the climate with air temperatures increasing an average of 0.13˚C and stream temperatures increasing an average of 0.01˚C, per decade (Isaak et al., 2011, cited in EcoAdapt, 2014). Records show that minimum air temperatures are increasing slightly more than maximum temperatures. Warming is expected to continue and precipitation is forecast to be "more often in the form of rain rather than snow, decreasing seasonal snowpack and increasing flood risk" (EcoAdapt, 2014, p. 29). Additionally, summer low flow periods are expected to be more severe. Proposed project activities such as providing greater access to a well-vegetated floodplain and deepening pool features would provide greater protection against anticipated changes in flow and water temperatures in Lolo Creek.

I. Scope of the Analysis

To determine the scope of this environmental analysis, the interdisciplinary team (IDT) applied the principles of the National Environmental Policy Act (40 CFR 1508.25). The IDT also considered temporal and spatial aspects of the proposed action. The scope of this assessment is limited to the specific management activities described in the proposed action. This proposal is not a general management plan for the area, nor is it a programmatic environmental assessment. If the decision maker selects an action alternative, activities could begin in 2015.

J. Decision to Be Made

The Lochsa District Ranger is the deciding official for this proposal. The decisions to be made are:

- Whether or not to select an action or mix of actions to improve existing conditions in the Collette Mine Stream Restoration Project Area. If implementation of an action alternative is deferred, no other decision is necessary.

- If an action is selected, what design features, management requirements and monitoring are needed for its implementation on the landscape?

CHAPTER 2. ALTERNATIVES

A. Alternative Development Process

This chapter describes and compares the alternatives considered during this analysis. Chapter 2 defines the issues and provides a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14). The important difference between alternatives is based upon the driving issue that is emphasized in each. Alternatives were developed based upon Forest Plan objectives, National and Regional direction and policy, existing conditions and environmental issues.

B. Alternative 1. No Action

This alternative provides a baseline for comparison of environmental consequences of the proposed action to the existing condition and is a management option that could be selected by the Responsible Official. The results of taking no action would be the current condition as it changes over time due to natural forces.

Under the No Action alternative, no floodplain, wetland or instream restoration would occur. Lolo Creek would remain disconnected from its floodplain at the site, streambanks would continue to erode contributing sediment to the creek, poor soil conditions would persist and non-native vegetation would continue to grow on the site. Native vegetation would continue to be sparse. Existing log structures in Lolo Creek would maintain large width to depth ratios and would lack complex habitat for fish and other aquatic species. The log structures provide minimal quality rearing habitat for fish. The No Action alternative does not meet the purpose and need to promote the re-establishment of the floodplain and hydrologic processes, restore natural plant communities or improve the quality of fish habitat as well as the Proposed Action.

C. Alternative 2. Proposed Action

Under this alternative, the Forest Service would meet the project purpose and need by implementing the following activities:

- Restore floodplain connectivity, bankfull and low flow width to depth ratios to 0.6 miles of Lolo Creek by re-contouring tailing piles on 7 acres of historic floodplain. About 2,800 linear feet of disturbed streambanks would be recontoured to natural gradients and vegetated to provide for long-term streambank stability.

- Reconnect 1,200 feet of Lolo Creek into its original channel in the lower section of the project area. This would increase the sinuosity of Lolo Creek and the amount of available in-stream habitat for fish and other aquatic organisms.

- Increase in-stream habitat complexity by installing 18 large complexes of woody material in association with pool habitats. This would increase the quantity and complexity of juvenile rearing habitat in the stream. Wood could be purchased or obtained from other activities occurring on National Forest Lands (temporary road construction/ gravel pit expansion/ road clearing/ existing waste piles).

- Plant and protect riparian zones to enhance stream bank roughness, stability, and enhance long term recruitment of wood, as well as restore native plant diversity.

- Install up to 4,000 feet of additional fence along new channel segments to remove ungulate browse pressure for maximum plant growth for five years.

D. Design Features and Mitigation Measures

The following project design features and mitigation measures have been developed to minimize specific resource effects. Best management practices (BMPs) would be applied to minimize streambank and wetland disturbance, and control erosion and pollutant delivery to Lolo Creek from floodplain reconstruction, channel realignment, and instream wood placement work.

The following design features and mitigation measures would be used during project implementation:

- Noxious weed control would occur in 2015. Pre-treatment of noxious weeds with appropriate chemicals and manual pulling have occurred in 2013 and 2014 where disturbance activities are planned. The effects of weed treatment were analyzed under the Lochsa District Weeds EA, 2004.
- Ground disturbing activities would be conducted during the dry season and would follow an approved 'Stormwater and Erosion Control Plan' to be submitted by the contractor.
- The contractor would have fuel spill containment supplies onsite in the event of a fuel spill and their employees would be trained in the proper application and use of those materials.

- The instream work would be conducted between July 15 and September 15 to minimize impacts to steelhead trout and Chinook salmon spawning and rearing.
- Dewatering would occur along streambank and wet floodplain grading areas to minimize potential sediment delivery into Lolo Creek and would follow an approved 'Work area isolation and dewatering plan' to be submitted by the contractor.
- Streambank reconstruction activities would be staged so that only one area would be isolated and worked at a time. This would limit the amount of instream/floodplain disturbance at any given time.

- Large wood used for bank structures would primarily be obtained from activities occurring outside of PACFISH RHCAs on National Forest Lands (e.g., gravel pit expansion and temporary road construction). Trees salvaged during floodplain grading on 0.6 acres of the western margin of the floodplain would be incorporated into streambank structures or floodplain roughness. This salvage area is distant enough from Lolo Creek that the trees are not providing stream shade, bank stability, or potential future wood contribution to the creek.
- Water would be slowly released into the newly realigned stream channel in the lower portion of the project area to minimize sediment movement into Lolo Creek.

- Electrofishing and fish salvage, as well as mussel salvage, would occur prior to the release of water into the newly realigned channel. Electrofishing activities would occur in accordance with ESA guidelines from NOAA and the State of Idaho Department of Fish and Game Scientific permit. Any fish and mussels collected would be relocated upstream of the new channel.

- Reconstructed floodplains would incorporate woody material, other roughness features, and the planting and seeding of native species for erosion control, floodplain stability and habitat diversity. Machine access areas would be decompacted and also planted and/or seeded with native species.

- Plantings would utilize native shrubs and forbs throughout the area to encourage the growth of a variety of riparian species. In addition to container plantings, shrubs and other desirable wetland plants would be salvaged from the floodplain grading area and would be transplanted after floodplain reconstruction activities are completed.

- Temporary fencing would be installed around portions the project area to exclude livestock grazing and would be maintained for ten years or until vegetation is sufficiently established. An 18" gap between the ground and fence bottom would be used to allow for big game movement.

- A temporary bridge over Lolo Creek would be used to provide access to the upstream project area. This would minimize disturbance to the stream channel and minimize the risk of fuel or other hazardous material from entering Lolo Creek.

- Live-water machine crossing will be designated for excavator access to 2 streambank work locations in the upper project area. Live-water crossings by the excavator will be limited to no more than 10 crossings.

- Equipment used for instream work would be cleaned of external oil, grease, dirt and mud; and leaks repaired; prior to arriving at the project site. All equipment would be inspected by the COR before unloading at site. Equipment would be inspected daily for leaks or accumulations of grease, and identified problems corrected before entering streams or areas that drain directly to streams or wetlands. This cleaning shall also remove all dirt and plant parts to ensure that noxious weeds and aquatic invasive species are not brought to the site.

- Fuel storage and machine fueling would occur a minimum of 100' away from Lolo Creek to minimize the risk of a fuel spill into Lolo Creek.

- If elemental mercury is found during project work, procedures outlined in the Best Management Practices for Mercury Collection from Restoration Activities in Lolo Creek (Appendix B) would be implemented.

- Any required permits for disturbance of water or wetlands would be obtained prior to initiating work (Army Corps of Engineers 404 permit, Idaho Department of Water Resources Stream Alteration Permit). Any additional mitigation measures identified in the permitting process would be incorporated into the project plans.

E. Alternatives Analyzed but Not Considered in Detail

The concerns brought up by the public or internally were used to develop the proposed action, were used to develop design features, or are addressed in the No Action Alternative. There were no other issues raised by the public or internally that lead to the development of an additional action alternative.

F. Alternative Comparison

This section presents a comparison of alternatives by the purpose and need identified in Chapter 1. The table below displays how well the alternatives respond to the purpose and need based on indicators established to measure the responsiveness.

Table 2-1: Alternative Comparison to Purpose and Need

Indicator	No Action	Alternative 2
Purpose: *Re-establish natural hydrologic processes including floodplain access and stream channel migration patterns; improve fish habitat and reduce chronic sediment delivery to Lolo Creek; improve soil conditions; and restore native plant communities at the former Collette Mine site.*		
Acres of connected floodplain/wetlands	6.5	12
Miles of stream with stable streambanks	0.4	0.8
Acres of native species planted	0	10
Aquatic Habitat Complexity		
Number of instream pools with complex woody structure	0	10

Each alternative has been evaluated for its effects on the identified resource issue indicator described in Chapter 1. The action alternative was formulated considering an array of internal and external issues, including effects to water quality, fisheries, soils, wildlife, plants, and cultural resources. The following table provides a comparison of the alternatives in relation to the issues described in Chapter 1.

Table 2-2. Alternative Comparison by Issue

Resource Issue ➢ **Issue indicator**	**Alt. 1** **No Action**	**Alt. 2** **Proposed Action**
Properly Functioning Riparian Habitat		
Acres of connected floodplain	6.5	12
Miles of stream with stable streambanks	0.4	0.8
Native Vegetation		

Resource Issue ➢ **Issue indicator**	**Alt. 1** **No Action**	**Alt. 2** **Proposed Action**
Acres of native species planted	0	10
Aquatic Habitat Complexity		
Number of instream pools with complex woody structure	0	10
Effects to Other Resources		
Sensitive wildlife - boreal toad	None	Pond breeding habitat retained Short-term impacts to tadpoles/froglets
Sediment input to Lolo Creek from activities	None	Minor amounts and short term duration
Streambank erosion	Continues to occur at tailing piles	Reduced to natural levels after riparian vegetation establishment
Threatened fish - steelhead trout	None	Likely To Adversely Affect/Long-term Beneficial
Steelhead Designated Critical Habitat	Continued chronic sediment addition into steelhead habitat	Likely to Adversely Affect/ Long-term Beneficial
Threatened fish- bull trout	None	Not Likely to Adversely Affect
Sensitive aquatic species- spring Chinook salmon, pearlshell mussel	Continued chronic sediment addition into their habitat	May Impact Individuals
Sensitive aquatic species- cutthroat trout, Pacific lamprey	None	No Impact

G. Monitoring

Turbidity monitoring will be conducted at critical periods during project implementation and reported to NMFS and USFWS after the analysis and a summary of results are complete. Idaho Water Quality Standards specify that turbidity cannot exceed 50 NTU instantaneous measurement, or 25 NTU for a 10-day period, over background turbidity (IDAPA 58.01.02; http://adminrules.idaho.gov/rules/current/58/0102.pdf).

Prior to actions that may cause turbidity, a background turbidity reading will be taken 100 feet upstream of the project area and turbidity monitoring will be initiated downstream of the anticipated turbidity source. During actions where turbidity is expected, a sample must be taken at least every 30 minutes and approximately 600 feet downstream from the point of discharge, or most appropriate downstream site, during sediment pulses and be compared against the background measurement. If turbidity levels exceed 50 NTUs over background levels for three consecutive readings (within 90 minutes), the turbidity producing activity will be paused to allow

turbidity to return to near background levels before proceeding and procedures will be modified to reduce turbidity and slow the release of sediment.

Monitoring for isolated fish during stream bank work and relocating fish out of the project area as needed prior to instream channel construction implementation would be conducted.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

This chapter provides a summary of the affected environment and the environmental impacts of the alternatives considered in detail.

A. Aquatic/Wetland Resources

Contractors were hired to survey the Collette Mine Stream Restoration project area in 2011 and 2013 in order to develop a proposed design for the area. Detailed stream channel and riparian information was collected including channel geometries, floodplain elevations, and substrate and riparian plant composition. Stream survey data from 1998 (Clearwater Biostudies, Inc.) was also used. The Zone Fish Biologist and Hydrologist field reviewed riparian/wetland habitat and general stream conditions in 2011. GIS and Google Earth maps, as well as contractor information were used to estimate existing and proposed project activity acreages.

Affected Environment

The project area is 30 acres in size and includes the mainstem of Lolo Creek and the wetland area that surrounds it near and downstream from the Collette Mine Site. Activities, including planting and seeding, are proposed on 12 of those acres.

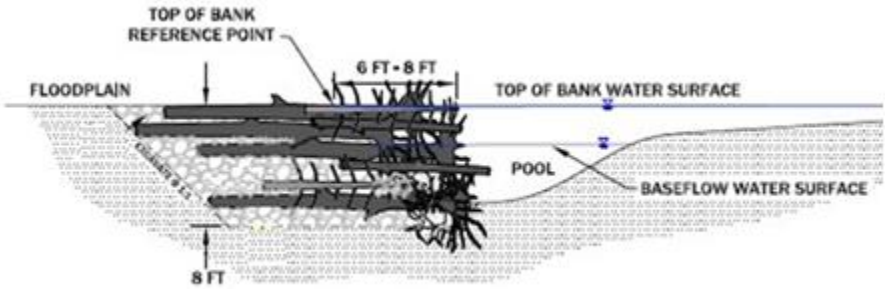
Lolo Creek is highly constricted due to the legacy tailings piles at the project site. The tailings piles have reduced the ability of the Lolo Creek to access the historic flood plain and have prevented natural channel migration across the valley floor, thus disconnecting off channel habitat and wetlands. The containment of the stream channel at normal high stream flows also erodes the stream bed and tailings piles, increasing sediment delivery and deposition in Lolo Creek. In addition, the tailings provide a poor growing site for riparian and forest vegetation. This vegetation is necessary for bank stability, long term stream shading and large woody material recruitment.

Aquatic/Wetland Habitat: Stream survey data from 1998 shows that Lolo Creek (at the project area) is a low gradient (<1.5%) stream channel containing 60% gravel and cobble (1-6" diameter) substrates and 10% sand. Cobble embeddedness levels averaged 46% which does not meet Forest Plan desired conditions of 30% or less (Espinosa, 1992). High levels of cobble embeddedness can reduce egg to parr survival in salmon and trout (Reiser and White, 1988) and reduce the amount of interstitial (within the substrate) habitat that is important for fish winter rearing (Suttle et al, 2004). It is not known how much of the sediment is associated with the Collette Mine site.

Forty-five percent of the project area contains pools but pool quality is fair to moderate due to a lack of complexity (depth and woody material). The existing pools are relatively shallow and generally have only one piece of wood associated with them. The one log structures were installed in the 1980s in order to create pools and spawning and rearing habitat for fish. These structures provide only limited amounts of habitat. Pool habitats with multiple pieces of wood are preferred for rearing by Chinook salmon and all trout species (Figure 2). Clusters of woody material provide greater amounts of slow water resting areas, high quality overhead and hiding cover, and scour pools than single log structures. These high complexity areas are important for

all local fish species and for reducing the risk of predation on fish by predatory birds and mammals.

Figure 2. Complex woody pool example.



Bank cover and instream cover were rated as low due to a lack of complexity such as overhanging vegetation, undercut streambanks or woody material. Bank and instream cover are important in helping to protect fish from predatory birds and mammals. Overhanging vegetation also provides nutrients to the stream when leaves fall and decompose in the stream. The leaves also provide foraging areas for aquatic insects on which the fish feed.

Floodplain connectivity to the stream has been impacted by the tailing piles on Lolo Creek as they create a vertical wall that the stream cannot flood over (Figure 3). The ability of the stream to access its floodplain is important in providing for a stable stream channel and for reducing streambank erosion during high spring and flood flows. Survey data from 2011 indicates that the flood prone width (that area which is accessible by high spring flows and is useful in minimizing channel scour and erosion) ranges from 90 to 330 feet. The desired condition for this measurement is a flood prone width of 230 to 330 feet. The stream is also wider and shallower than desired (bankfull width to depth ratio is 40) which limits the amount of aquatic habitats. Desired conditions are a width to depth ratio of less than 35 feet.

Figure 3. Tailing piles, vertical and eroding streambanks at Collette Mine site.

The area contains about 12 acres of functioning wetland habitat and another 2 acres are not functioning due to the tailing piles. The vertical streambanks associated with the tailing piles along Lolo Creek restrict access to just 6.5 acres of floodplain. There are also about 1.5 acres of pond habitat. The ponds are fishless but provide important habitat for amphibians and aquatic

insects.

Riparian and upland vegetation in the area have been disturbed by past mining activities. Vegetation growing in the affected areas primarily consists of shallow rooted grasses and forbs with sporadic clumps of willow and mixed conifer species. Conifers growing on the tailing piles are about 20 years old. No vegetation is currently growing on the unstable vertical streambanks which are a chronic source of excess sediment to Lolo Creek. Introduced weedy species, including spotted knapweed and houndstongue are found throughout the project area with the highest densities found on disturbed areas. Desired conditions are to have improved soil functions that allow for deep rooted, native woody vegetation to grow along the streambanks and within the adjacent riparian and upland areas to provide for bank stability, shade and long-term woody material. There are currently 0.3 miles of stream with unstable streambanks in the project area of which the majority is associated with the tailing piles.

Endangered Species Act (ESA) Listed Species: There are 2 ESA listed Threatened fish species in or near the project area. Steelhead trout were listed under ESA in 1997 and their designated critical habitat, including Lolo Creek, were listed by NOAA in 2004. Steelhead trout occur in Lolo Creek and in the project area. Numbers are very low and likely a result of low adult returns to the stream. Snorkeling surveys conducted by the Forest throughout Lolo Creek indicate densities of less than 1 fish per 100 square meters since 1996 (CNF Annual Monitoring Report, 2009). Densities within the project area between 1998 and 2008 averaged less than 2 fish/100m^2 which are considered low. Spawning habitat for steelhead is available but in low amounts in the project area. Higher quality and quantities of spawning habitat occur 2 to 5 miles upstream of the project area in the mainstem of Lolo Creek.

The U.S. Fish and Wildlife Service listed bull trout and their designated critical habitat in 1998 and 2010, respectively. A total of 21 juvenile bull trout were captured between 1987 and 2004 in Lolo Creek during the Nez Perce Tribe's juvenile salmon trapping effort. The trapping sites were located 3 miles downstream of the project area. None were found between 2005 and 2009 and 2 were observed in 2010. Use in Lolo Creek appears to be sporadic and densities are extremely low. Habitat conditions and warmer temperature regimes limit bull trout production in the Lolo Creek drainage. There is no designated critical habitat for bull trout in Lolo Creek.

Regional Foresters Aquatic Sensitive Species: The Regional Forester sensitive species list for the Clearwater National Forest contains four fish and one aquatic invertebrate species: westslope cutthroat trout, interior redband trout, Snake River spring chinook salmon, Pacific lamprey, and pearlshell mussel (USFS-R1, 2008 and 2011).

Westslope cutthroat trout are widely distributed in the upper reaches and in all tributaries of Lolo Creek. None have been found in the project area and local data indicates they typically are not found where chinook salmon or steelhead occur (CNF Fish Survey Data, various years). Gravels in the project area are generally too large in size for cutthroat to use for spawning. Spring chinook salmon occur in throughout the mainstem of Lolo Creek, including the project area. About 6 chinook redds were observed annually between 2002 and 2012 by the Nez Perce Tribe who conducted spawning surveys in the area. While the project area provides some habitat, the best quality and highest quantities of spawning and rearing habitat occur 2 to 4 miles upstream from the project area (CNF Snorkel Monitoring Data, Nez Perce Tribe spawning surveys,

various years). A total of 496 Pacific lamprey juveniles were observed in fish traps used by the Nez Perce Tribe between 1994 and 2003 but trapping has failed to detect any since then (IDFG, 2009). None were found during extensive sampling by IDFG between 2002 and 2006 and are believed to be no longer present in Lolo Creek (IDFG, 2009). Interior redband trout are a subspecies of rainbow trout (as are steelhead trout). The Idaho Dept. of Fish and Game considers their distribution as the same for steelhead in the Clearwater drainage due to the difficulty in identifying the juvenile form (IDFG, 2012). Redband trout are therefore not considered separately in this analysis. Pearlshell mussels occur in Lolo Creek, and have been observed in low numbers in the project area. They have been found in moderate to very high densities in other tributaries outside the project area such as Eldorado and Musselshell Creeks.

Environmental Consequences

Alternative 1: No Action- Direct and Indirect Effects

There would be no change from the existing condition with this alternative. Tailing piles would remain in place and would continue to restrict the floodplain from functioning properly. The unvegetated streambanks of Lolo Creek would continue to erode during high flows. This would maintain the existing chronic source of sediment input into Lolo Creek. Functioning wetland and pond habitat would remain at current levels and the area accessible to typical overbank stream flow events would remain limited. Stream depths near existing instream structures would remain shallower than desired and the quality of aquatic habitats at these sites would remain limited due to a lack of complexity (woody material, depth, overhead and bank cover). Disturbed riparian and upland areas would continue to be sparsely vegetated at the site, with compacted soils providing favorable growing conditions for invasive plant species. It could take several more decades to fully re-establish only native vegetation there under this alternative.

Alternative 2: Proposed Action- Direct and Indirect Effects

Re-contouring streambanks to reduce their height and re-grading the tailing piles would reconnect Lolo Creek to its historic floodplain and wetlands, and would improve stream bank and channel stability. It would also reduce erosion into Lolo Creek and allow for better growing conditions for riparian vegetation. Additional stream habitat would be created for use by local fish species. A total of 7 of the 30 project acres will be disturbed as a result of proposed project activities.

The project would re-grade 7 acres of mining disturbance (tailing piles and dredge ponds) so that Lolo Creek can access its floodplain during high flows. Access to the floodplain would help to incrementally reduce the size of flood peaks by temporarily storing water on the floodplain. This in turn reduces the flow volume in the stream and reduces erosion of sediment from the bed and banks of the stream. This results in a more stable stream channel. About 2,800 linear feet of disturbed streambanks (1,000’ in the upper treatment area and 1,800’ in the lower area) would be recontoured to natural gradients and vegetated to provide for long-term streambank stability. This would increase the amount of connected floodplains to 12 acres and the flood prone widths to between 230 to 330 feet. Portions of the old dredge ponds would be filled while others would be enhanced. There would be an overall gain of almost 3 acres of wetlands in the project area. About 0.2 acres of enhanced pond habitat would be connected to Lolo Creek and would provide high flow refugia for fish. In the lower section of the project area, almost a quarter mile of Lolo Creek would be rerouted to its original channel and would increase stream channel habitat by about a tenth of a mile. A total of 18 large and small wood structures would be installed to

increase the number of pools, and quantity and complexity of juvenile rearing habitat in the stream. Width to depth ratios would be reduced to an average of 25 through the creation of new and deep pool habitat. Riparian shrubs, forbs, and trees would be planted over 12 acres on the areas disturbed by project activities. A combination of shallow and deep rooted species would be used in order to minimize surface and streambank erosion and to provide for long term bank stability and shade.

Sediment inputs would occur during project implementation through activities such as excavator crossings of Lolo Creek, streambank work activities, and stream channel relocation. Short-term plumes of fine-grained sand would be released into Lolo Creek resulting in visible turbidity increases. Forest monitoring of culvert removal or replacement projects have shown increased turbidity levels up to 600 feet downstream that last for 1 hour. Turbidity increases are expected to occur during streambank recontouring, pool creation and woody material installation activities. They would also occur when water is diverted into the newly constructed stream channel segment. The majority of turbidity generated would be from the existing sediment that lies within the stream channel. There is the potential for short-term exceedance of state turbidity standards. However, monitoring will take place downstream to ensure that if turbidity standards are exceeded, operations will be suspended until they drop below exceedance standards. Water would also be released slowly in order to minimize the amount of instream sediment mobilized. The addition of sediment from work areas just outside the stream channel would be slight due to the sediment control BMPs at the work site.

Aquatic Species: Direct mortality of fishes may occur when machinery crosses or is working within the steam channel. The risk is low due to the fact that fish tend to move away from large moving objects in the stream. Barriers would also be placed in Lolo Creek where streambank recontouring is occurring to prevent fish access into the work area. This should help to minimize direct fish mortality. Fish may indirectly be affected through turbidity increases; however the effects would be short-term and they would have the ability to move up or downstream of the area to avoid the increase. Anecdotal and personal observations show that fish feeding activities tend to increase in and below areas where machinery is working. Instream activities would be implemented between July 15 and September 15 to minimize the impacts to fish populations. Chinook salmon and steelhead trout are outside of their susceptible early life stages (egg to fry) during this period. The overall risks of negative effects to fish are therefore considered low due to instream work timing restrictions and low numbers of fish in the area. Pearlshell mussels could be crushed or displaced by machinery working in Lolo Creek. The effects are expected to be minor since populations are low in the area.

There would be beneficial effects to fish species in Lolo Creek. The addition of off-channel pond habitat, instream pools and large woody material would more than double the amount and quality of hiding cover, rearing, and resting habitat for fish in the project area. These are especially important for salmon and trout species. There would be a slight increase in habitat for pearlshell mussel directly in Lolo Creek in the newly constructed channel in the downstream treatment area.

ESA listed steelhead trout and their designated critical habitat occur in the project area and minor direct and indirect effects could occur to them as a result of the project. Bull trout are a very rare occurrence in Lolo Creek and habitat in the drainage is relatively unsuitable. They have not been observed in the project area and there is no designated critical habitat for them in Lolo Creek. While the timing restrictions for instream activities are designed to minimize effects to fish and their habitat they could still occur. Project activities would be beneficial in the long-term but

could have short-term effects when machines are working in stream or turbidity is increased. The project ESA determination is therefore **"may effect, likely to adversely affect"** for steelhead trout and their designated critical habitat, **"may effect, not likely to adversely affect"** for bull trout, and **"no effect"** for bull trout designated critical habitat. A Biological Assessment (BA) has been prepared and presented to the regulatory agencies for consultation. The BA can be found in the project record.

The project "**may impact individual"** spring Chinook salmon and pearlshell mussels but would not lead to their listing under ESA due to low numbers of individuals expected in the area. The project would have **"no impact"** on cutthroat trout or Pacific lamprey due to their lack of presence in the project area.

Cumulative Effects

The cumulative effects area is the 79,100 acre Lolo Creek drainage above the US Forest Service boundary. The time frame for cumulative effects is 3 years, the time the project would take to complete the activities (2 summers) plus an additional year for planted streambank vegetation to become established. The activities considered are those that could add sediment to Lolo Creek and subsequently negatively affect fish habitat during the 3 year time frame. The ongoing or proposed projects considered are the Lolo 1st 50 Road Decommissioning project which would decommission 25 miles of road within the Lolo Creek drainage during the cumulative effects timeframe. An estimated 810 pounds (just under 0.8 cubic yards) of sediment could be added to the drainage as a result of this project (Lolo 1st50 Road Decommissioning EA, 2014). Sediment impacts from that project were considered negligible at the cumulative effects analysis scale due to BMP implementation and the large drainage size. The project resulted in beneficial effects to aquatic habitats in that it removed the risk of culvert failures and road surface erosion runoff into Lolo Creek streams. A sediment reduction in streams would be expected from the project.

The potential negative sediment impacts to aquatic habitats from proposed Collette Mine restoration activities in the Lolo Creek drainage are expected to be localized and negligible on the larger scale. This is due to the small area being disturbed in combination with the implementation of proposed design features. The project will also take two seasons to complete which will limit the duration of exposure that fish experience from increased sediment.

The potential negative cumulative effects to instream sediment from current and proposed activities are therefore considered negligible due to the limited amount of sediment added by each of the projects, the relatively small amount of disturbed area compared to the overall watershed size, and the implementation of BMPs to minimize sediment input to streams. No cumulative effects from sediment are therefore expected. There would be positive cumulative effects to aquatic habitats as both projects reduce potential chronic sediment sources and return streambanks and floodplains to natural conditions (slope, form, vegetative cover).

B. Water Quality- Heavy Metals

The presence of heavy metals within historic mining sites is always a concern. Mercury is of particular concern due to the deleterious effects it can have on wildlife and humans. Mercury is a naturally occurring substance with potential widespread effects because of a suspected increase in atmospheric deposition from industrial emissions (USGS, 1995). Mercury has also been used historically in placer mining operations and may have been used during historic dredge mining on Lolo Creek.

Placer mining operations used elemental (liquid) mercury for separating fine gold from the "black sands". Black sands are the densest minerals/materials (including gold) that settle out in the riffles of the sluice box after a volume of gravel has been washed through the sluice box. Fine gold can be separated from the black sands by panning or using other density separation techniques.

In July of 2014, mercury sampling of water and co-located sediment sites was conducted in the project area by the Nez Perce Tribe Water Resources Division (Clark, 2014). One sample site was located at one of dredge ponds and three sites were located in Lolo Creek: upstream of the proposed project activity area, adjacent to the tailings pile berm, and downstream of the dredge pond area. Mercury was not detected in any of the water or sediment samples from Lolo Creek, nor within the water sample from the dredge pond. However, the sediment sample from the edge of the dredge pond showed that mercury was present at 45 parts per billion (ppb). This level was well below the NOAA guideline criterion of 150 ppb for low level effects. This level was also similar to levels measured in sediments from nearby Orofino Creek (30-53 ppb), where the Idaho Department of Environmental Quality concluded that mercury levels were within the range of background levels and that localized mercury toxicity did not appear to be occurring from a source found at a historic dredge mining site (IDEQ, 2007).

Elemental mercury (if present) within the project area would largely continue to reside in place. Some elemental mercury may be disturbed and redistributed during construction. Such redistribution would do little to change existing methyl mercury concentrations in the water or stream sediment as the goal would be to prevent sediment introduction into Lolo Creek. BMP measures to address this issue include dewatering isolated areas where streambanks would be recontoured and revegetated, and dewatering of dredge ponds prior to filling, with installation of a temporary plug at the downstream most pond outlet to prevent construction water from entering Lolo Creek. Additionally, special procedures which are outlined in Appendix B would be put in place in the event of discovering actual conglomerations of mercury during project work.

If an accidental release of mercury did occur, it is very unlikely that it could be delivered into the lower portions of Lolo Creek. In addition, Lolo Creek is not used as a domestic or municipal water source and casual human consumptive uses are very limited and potential mercury in drinking water would be a negligible risk. Elemental mercury is highly insoluble in water. Mercury found in (unfiltered) water samples is generally attached to either organic or inorganic particles in the water. Runoff from the project area is slight, and is hugely diluted by water coming from elsewhere in the 41 square mile Lolo Creek drainage.

C. Western Toad

Idaho Conservation Data Center (ICDC) data was accessed to determine the presence of western toads and other sensitive wildlife species in the area. No other sensitive wildlife species are carried through the analysis because they or their habitat would not be affected by project activities. Bats, although not discussed in detail, would benefit from the retention of ponds and increase in off channel habitat. These habitats are important breeding and rearing areas for insects which are a main food source for bats.

Affected Environment

Western toads are a Regional Foresters Sensitive Species and would be affected by the proposed activities. Western toads utilize wet and moist habitats but can also be found on forested slopes. They prefer slow water habitats such as ponds, lakes, reservoirs, and slow moving streams. Eggs are generally laid in ponds and in slow moving streams. The 1.5 acres of ponds within the project area provide breeding and rearing habitat for toads. Western toadlets have been observed in the project area in the summer of 2014. The entire project area is considered suitable habitat (ICDC, 2011).

Environmental Consequences

Direct and Indirect Effects

Alternative 1: No Action

There would be no direct effects to western toads. The most likely indirect effect is the trampling of individuals by cattle during the grazing season. Due to the lack of known occurrences in the project area, the risk is considered very low.

Alternative 2: Proposed Action

Floodplain re-grading in the proposed action would affect western toads. Breeding habitat would decrease with the filling of dredge ponds. At least one large pond will remain and some marshy sections would be left upon completion of the project.

Timing of the activities would be from July-October, over a period of two seasons. Female toads would be laying their egg strings in May or June. Complete metamorphosis is usually about three months from egg-laying. Therefore, some tadpoles and juveniles would be on-site and susceptible to injury or mortality from project activities. Harm to the toads would be due to indirect effects, not intentional. The whole project area would not be modified at once, rather sections of it over time. This would allow for toad survival and reproduction to occur in unaffected areas. Additionally, the large western pond would not be affected by the project. Upon project completion, breeding habitat would remain in one large pond and areas of marshy habitat.

Cumulative Effects

There would be no cumulative effects from the no-action alternative.

The proposed action would create a short-term (2-3 years) disruption of juvenile cohort survival. However, the project would benefit the local toad population by reducing sedimentation into the stream and waterbodies, and stabilize banks with vegetation. These efforts will indirectly cause an increase in the invertebrate prey base for the toad.

The proposed alternative "**may impact individuals or habitat"**, but would not likely result in a trend toward federal listing or reduced viability for the population species.

CHAPTER 4. CONSULTATION/COORDINATION, AND REGUALTORY COMPLIANCE

This chapter provides the list of required consultation and coordination efforts, and regulatory compliance related to the project.

Consultation and Coordination

The ID Team consulted numerous individuals for input, through either formal scoping or informal contacts with specific resource specialists. Scoping letters were sent to interested publics and organizations on the Nez Perce-Clearwater National Forests' and the Lochsa Ranger District's NEPA mailing lists located in the project file.

Tribal Consultation

On April 12, 2012 a scoping letter was sent to inform the Nez Perce Tribe of the upcoming analysis, and to solicit comments related to proposed activities. The Tribe's Watershed Division was involved in the design of this project.

Federal and State Consultation

Threatened, Endangered, or Sensitive Species: The U.S. Fish and Wildlife Service and NMFS updated species lists were accessed via the World Wide Web on June 2014. The following listed species were identified in Idaho County: fall Chinook salmon, steelhead trout, bull trout, Canada lynx, and water howellia, all of which are listed as threatened. As discussed in Chapter 1, there would be no effect to lynx, water howellia, or fall Chinook salmon, therefore no consultation was required. Potential effects from the project to steelhead trout and their designated critical habitat as well as bull trout were identified. Consultation with the USFWS and National Marine Fisheries Service (NMFS) is currently ongoing and would be completed prior to signing of the decision notice for this project. The project may effect, is likely to adversely affect steelhead trout and their designated critical habitat. The project may effect, not likely to affect bull trout. The application of BMPs would help to minimize effects to this species. Biological Assessments for listed species are located in the project file.

Clean Water Section 404 Permitting: The Forest would consult with the U.S. Army Corps of Engineers and Idaho Department of Water Resources, to obtain any necessary permits related to streams, wetlands, and floodplains prior to implementation.

National Historic Preservation Act: Investigations used for this analysis meet requirements of the National Historic Preservation Act and provisions of the Programmatic Agreement between the Idaho State Historic Preservation Office and Region 1 of the USDA Forest Service. The Cultural Resource Inventory Report was sent to Idaho SHPO for consultation comments in April, 2013. The project is in compliance with Section 106 of the National Historic Preservation Act and consistent with state and federal archaeological statutes (Project Record, *Cultural Resources* Section). There would be no effects to cultural resources from project activities.

Regulatory Compliance

This analysis is tiered to the Final EIS and Record of Decision for the Clearwater Forest Plan, as

amended (USDA-FS 1987) and the Clearwater National Forest Land and resource Management Plan (USDA-FS 1987). Forest Plan standards and how the Collette Mine Stream Restoration project addresses these standards are presented below.

Clearwater Forest Plan

The Forest Plan Management Area (MA) within the project area is Riparian (M2). The goals of this MA are to manage under the principles of multiple use as areas of special consideration, distinctive values, and integrated with adjacent management areas to the extent that water and other riparian dependent resources are protected (FP, III-69). Watershed or stream improvements are to be conducted that will enhance riparian and water resources (FP, III-70).

***Water/Fisheries*:** Forest standards for water and fisheries resources are found in the Clearwater National Forest Plan on pages II-27 through II-29 and include:

- Apply best management practices to project activities to ensure water quality standards are met or exceeded.
- Manage all water in the Forest under appropriate Clearwater Forest Plan, Appendix K designated standards to maintain the physical and biological stability of streams on the Forest. Lolo Creek falls under the "high fish" standard.

PACFISH: The Forest Plan was amended in 1995, following a joint decision (commonly called PACFISH) by the U.S. Forest Service and Bureau of Land Management for managing anadromous fish-producing watersheds on Federal lands, including the Lolo Creek drainage. The standards and guides from PACFISH would be applied to the project. Riparian Management Objectives (RMOs) for "forested streams" include the following stream habitat variables: bank stability, pool frequency (pools per mile), water temperature, large woody debris and width/depth ratio. The project has been designed to have a long-term benefit to these objectives in the Lolo Creek Riparian Habitat Conservation Area.

Activities occur within Forest Plan Management Area M2 (Riparian). This project complies with the Forest Plan and PACFISH with regards to restoration activities. Stream and floodplain restoration and planting would improve aquatic habitat and riparian/wetland function.

Federal and State Water Resources

All Federal and State laws and regulations applicable to water quality would be applied to this stream and riparian restoration project, including 36 CFR 219.27, the Clean Water Act, and Idaho State Water Quality Standards, Idaho Stream Channel Protection Act, and Best Management Practices (BMP's). In addition, laws and regulations require the maintenance of viable populations of aquatic species including the National Forest Management Act (36 CFR 219.19), subsequent Forest Service direction (Fish and Wildlife Policy, 9500-4) and Forest Service manual direction.

Clean Water Act: The Clean Water Act stipulates that states are to adopt water quality standards. Included in these standards are provisions for identifying beneficial uses, establishing the status of beneficial uses, setting water quality criteria, and establishing Best Management Practices (BMPs) to control non-point sources of pollution.

Section 313 of the Clean Water Act requires Federal agencies to comply with all Federal State, interstate, and local requirements, administrative authority, and process and sanctions with

respect to control and abatement of water pollution.

Section 303(d) of the Clean Water Act stipulates that states must identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). For waters identified on this list, states must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards. The Idaho Department of Environmental Quality prepared a TMDL planning document which covers the project area: Lolo Creek Tributaries Subbasin Assessment and TMDL, approved by the EPA in 2011. Lolo Creek was found to be in full support of all beneficial uses and did not require TMDL development and remains a Category 2 water on the most recent 303(d)/305(b) Integrated report (IDEQ, 2012).

Section 404 of the Clean Water Act requires permits to dredge or fill within waters of the United States. Activities that fill, remove, or modify wetland or stream habitat are proposed under the project and would require authorization under Section 404, through application of a site-specific permit.

Executive Orders 11988 and 11990 regarding Floodplain and Wetland Management: EO 11988 directs the Forest to "restore and preserve the natural and beneficial values served by floodplains". The project will restore and enhance floodplain functions at the site; thereby complying with EO 11988.

EO 11990 directs the Forest to "minimize the destruction, loss or degradation of wetlands". The project proposes to enhance and create additional wetland area. As such, the project complies with EO 11990.

The Idaho Stream Channel Protection Act: Regulates stream channel alterations between mean high water marks on perennial streams in Idaho. Instream activities on national forest lands must adhere to the rules pertaining to the Act (IDAPA 37.03.07). The rules are also incorporated as BMPs in the Idaho Water Quality Standards. The project complies with the Act through sediment reduction activities and timing of the project during summer low flows.

Idaho State Water Quality Standards: Lolo Creek has been assessed by the Idaho Department of Environmental Quality (IDEQ Integrated Report, 2012). Beneficial uses for Lolo Creek are cold water aquatic life, primary contact recreation and salmonid spawning. IDEQ has determined that the stream meets its beneficial uses.

The project would cause short term, minor increases in sediment but long term improvements as disturbed streambanks stabilize with vegetation. The action alternative complies with the Clean Water Act and Idaho Department of Environmental Quality water quality standards.

Other Required Analysis

This is not a major Federal action. It would have limited context and intensity (40 CFR 1508.27), individually or cumulatively, to the biological, physical, social or economic components of the human environment. It would have no adverse effect upon public health or safety, consumers, civil rights, minority groups and women, prime farm land, rangeland and

forestland, roadless areas, or to old growth forest options.

A. Effects of Alternatives on Prime Farm land, Rangeland, and Forest land

All alternatives are in keeping with the Secretary of Agriculture memorandum, 1827 for prime land. The analysis area does not contain any prime farm lands or range lands. Range lands in the project area are considered to be “transitory”. “Prime” forest land does not apply to lands within the National Forest system. With both alternatives, National Forest lands would be managed with sensitivity to the effects on adjacent lands.

B. Energy Requirements of Alternatives

There are no unusual energy requirements for implementing any alternative.

C. Effects of Alternatives on Minorities and Women

There are no unusual differences among the effects of any alternative on American Indians, women, other minorities, or the civil rights of any American citizen.

D. Environmental Justice

In regard to Environmental Justice Order 12898, the health and environmental effects of the proposed activities would not disproportionately impact minority and low-income populations. There would be beneficial effect from the proposed activities on the treaty rights of the Nez Perce Tribe and local communities through improvement in fish habitat and potential increases in salmon and trout populations.

E. American Indian Treaty Rights

The Nez Perce-Clearwater National Forests lie completely within the original territory ceded to the US Government by the Nez Perce Tribe in their Treaty of 1855. In this Treaty, the Nez Perce Tribe explicitly retained the right of "...taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle..." on lands now managed by the Nez Perce-Clearwater National Forests. In order for the Nez Perce Tribe to exercise Treaty-reserved rights to these resources, the Forests have a trust responsibility to protect and enhance these resources.

The proposed action alternatives would not conflict with any treaty provisions or guaranteed rights. The activities could potentially improve salmon and steelhead populations over time. These species are important to the Nez Perce Tribe.

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Appendix A: Maps

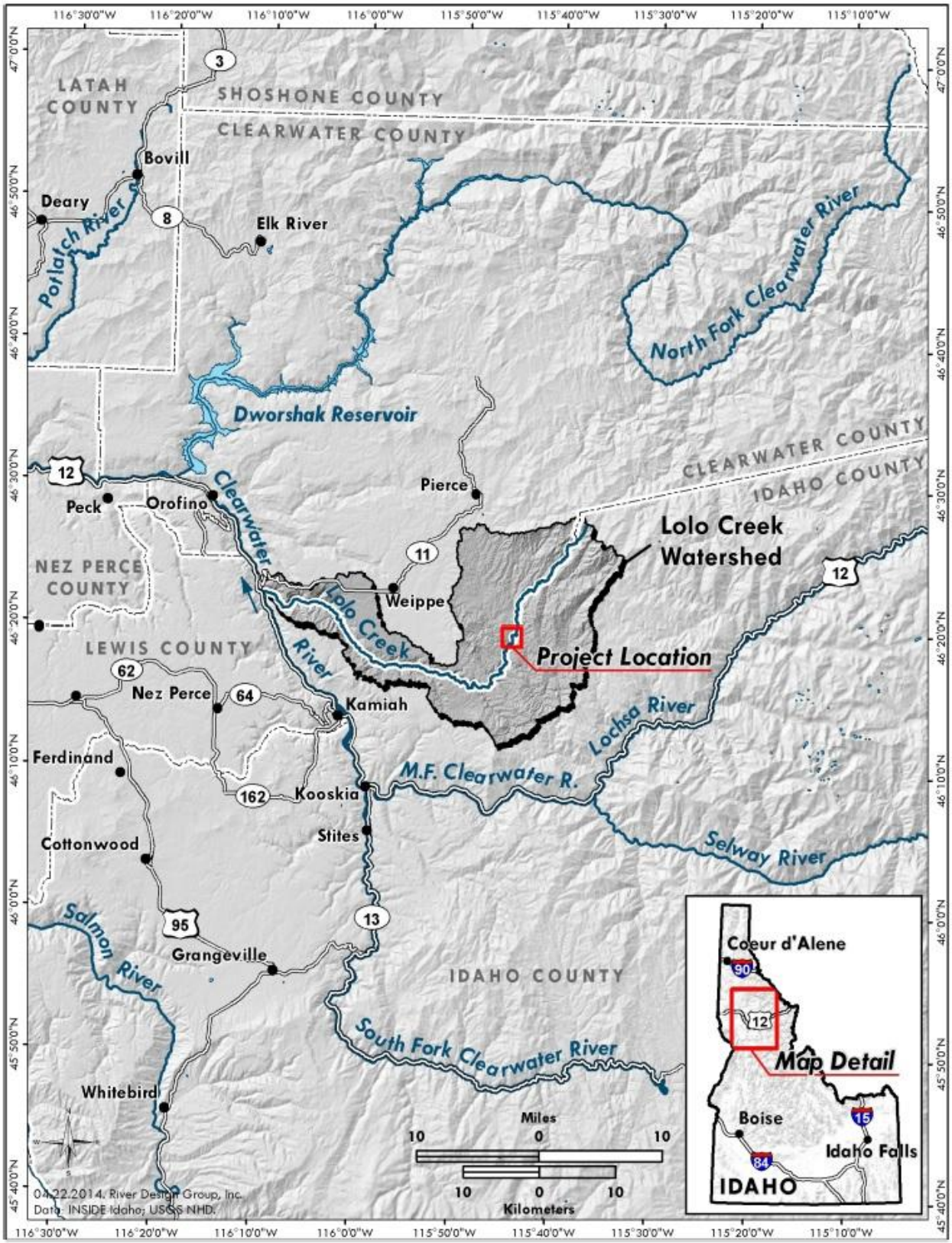

Figure 2. General Project Location for Collette Mine Stream Restoration Project

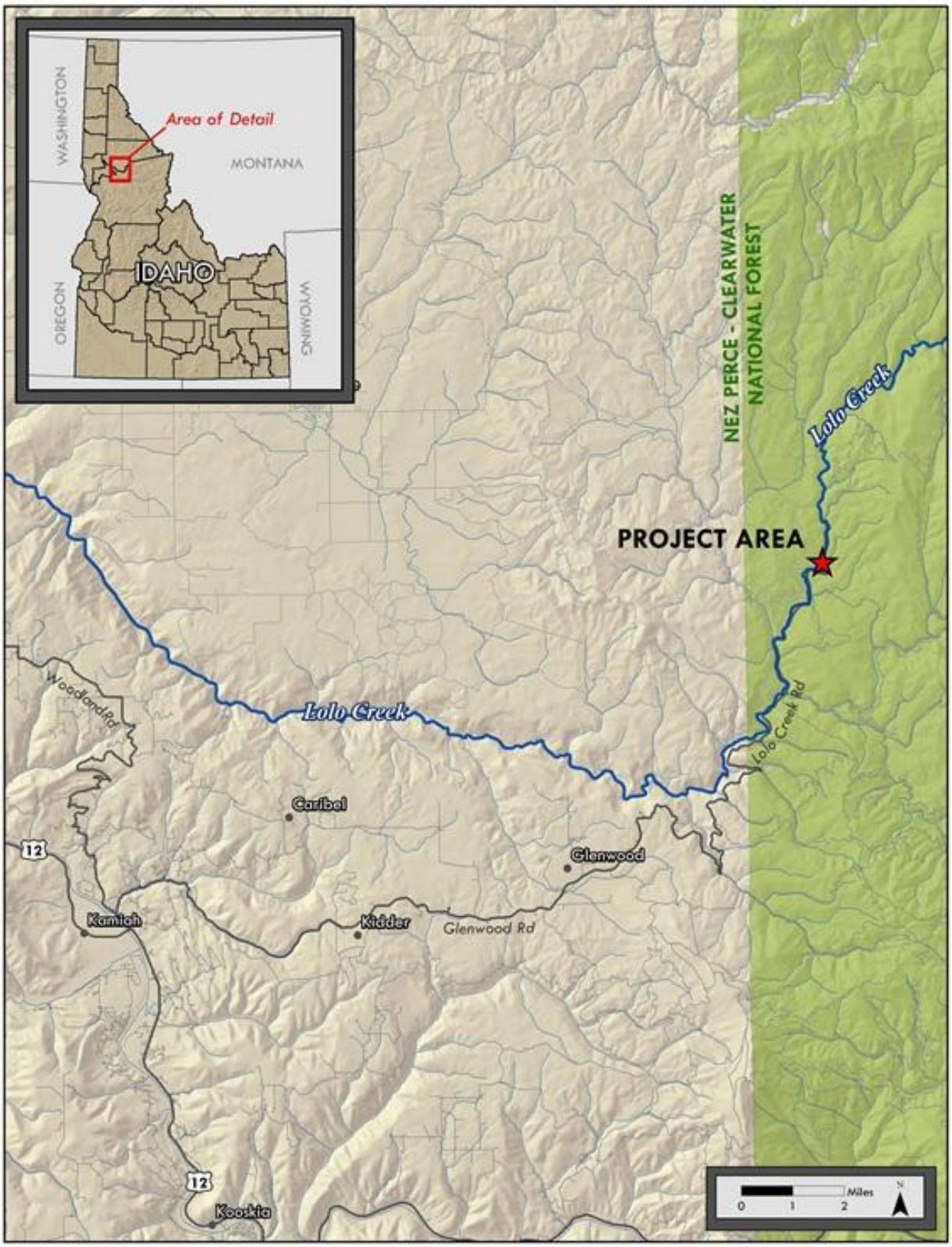

Figure 3. Collette Mine Stream Restoration Project Location on Lolo Creek

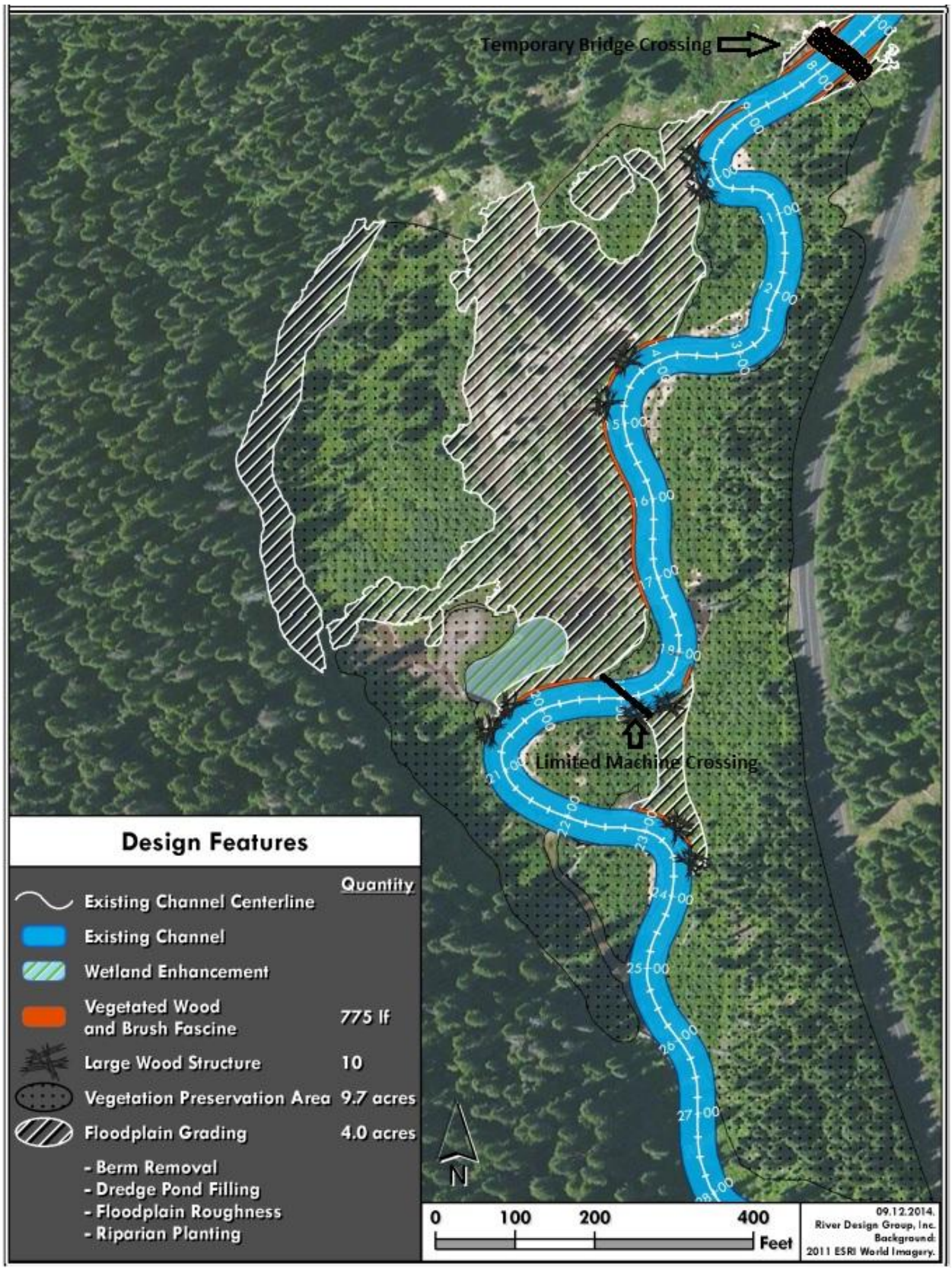

Figure 4. Collette Mine Stream Restoration Project Detail – Upper Project Area

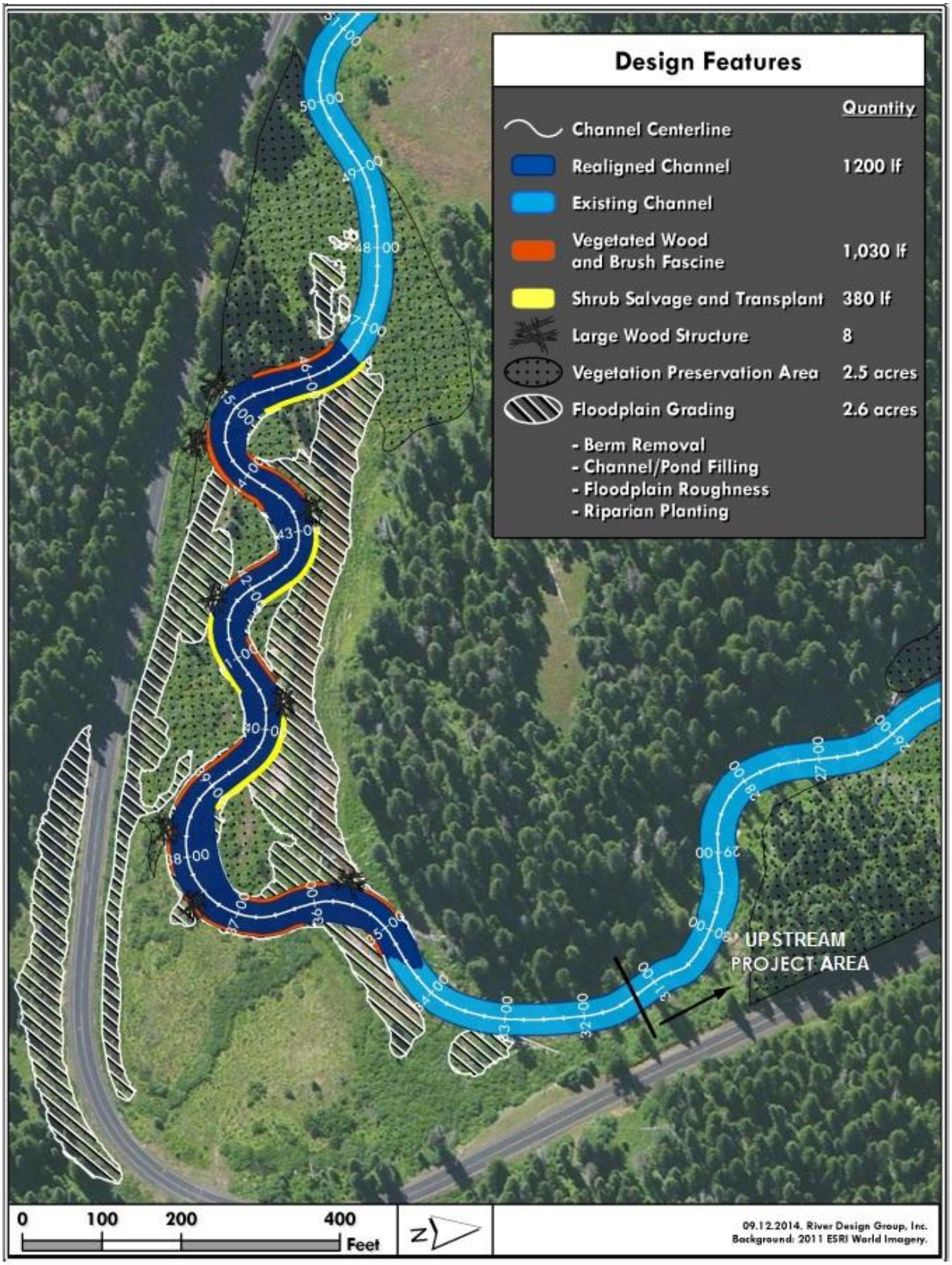

Figure 5. Collette Mine Stream Restoration Project Detail – Lower Project Area

Appendix B: Best Management Practices for Mercury Collection from Restoration Activities in Lolo Creek

Background

Mercury is a naturally occurring element in the environment that has several forms. Metallic mercury is a shiny, silver-white, odorless liquid. Metallic mercury (inorganic mercury and its compounds) enters the air from mining and manufacturing activities and from burning coal and waste. It has also been added to the environment from historic gold mining activities. The State of Idaho has launched a statewide mercury investigation of major rivers, lakes and reservoirs starting in the mid-2000s. Water column and fish tissue sampling are part of the sampling protocol. The State uses the fish tissue concentrations to determine whether or not sufficient levels of mercury are present to cause harm (IDEQ 2005). To date, no mercury advisory warnings have been issued for Clearwater River basin or its tributaries. This includes Lolo Creek which is part of the monitoring network partnership with the USGS (IDEQ 2005).

Collection

During floodplain and stream channel reconstruction, mercury may be found by the contractor. If this occurs, work in the immediate vicinity will stop and every reasonable effort will be made to contain the material in such a manner that it will not reach surface or groundwater. The mercury will be transferred into a vapor-proof, sturdy, unbreakable container by the fish biologist or qualified personnel to be safely stored and disposed of or recycled. Rubber, nitrile, or latex gloves will be kept on site and used when handling mercury to prevent adverse health impacts from mercury exposure to the skin. Depending on the amount collected, the mercury can either be poured directly into a container or an eye dropper can be used to transfer the residual mercury beads to the container. A secondary, unbreakable container will be used when storing and transferring mercury from the project site to an approved disposal site. If clothing or other items come into contact with mercury, they should be considered contaminated. Clothes and shoes brought in contact with contaminated areas may release mercury vapors. The recommended practice is to properly dispose of contaminated clothing and shoes.

The fish biologist or qualified personnel on site will notify Idaho State Communication Center at (800) 632-8000 or (208) 846-7610 if an amount greater that what is contained in a thermometer is found. The amount and location of mercury will be documented, even if less than what is contained in a thermometer, and reported to the Idaho Department of Environmental Quality, Lewiston Field Office. Any other mercury data collection during implementation of the project will be documented and shared with the Idaho Department of Environmental Quality.

Transportation

Transporting the secondary container of mercury from the field or mining collection site to the disposal site or temporary storage site should be done in a manner that does not compromise the containers. It is suggested that the secondary container of mercury be placed in a secure location in the vehicle so that the container does not tip over. This will minimize shifting or sliding during sudden stops or turns. Containers should be transported in the back of a pick-up truck or in a car trunk.

Storage

Mercury and mercury wastes (items contaminated by mercury) should be put in a vapor-proof, sturdy, unbreakable container and stored in secondary containment, such as a second, larger unbreakable container. Anything that touched the liquid mercury should be considered contaminated. Contaminated clothes and shoes may release mercury vapors after touching the element. The recommended practice is to properly dispose of contaminated clothing and shoes. The container should be labeled: "DANGER Toxic Mercury – DO NOT OPEN."

Mercury Waste Management/Recycling

Mercury will be disposed of at one of the following companies. The handing, treatment, and disposal or recycling practice of the facility will be verified prior to transporting mercury to the facility.

Company	Phone Number
Able Clean-up Technologies	(509) 466-5255
Environmental Management Solutions	(208) 895-0326
H2O Environmental Services	(208) 343-7867
Safety Kleen	(208) 234-4002
Specialty Environmental Services	(208) 327-9977

Risk Assessment

Additional mercury monitoring may be required in the project area if significant amounts of mercury are found.