Appendix B-8

LAKE TAHOE RESTORATION PROJECTS
ESTIMATED NECESSARY EXPENSES & KEY MILESTONE DATES

Project Name: **Blackwood Creek Restoration Phase 3 – Site B**
Agency: Forest Service – Lake Tahoe Basin
Prepared by: Craig Oehrli – Hydrologist Phone: 530-543-2681
EIP #: **27.9**
SNPLMA Project #: **F080**
Identify estimated costs of eligible reimbursement expenses:

1. Planning, Environmental Assessment and Research Costs (specialist surveys, reports, monitoring, data collection, analysis, etc.) $ 90,000 = **5** %

2. FWS Consultation—Endangered Species Act $ 0 = **0** %

3. Direct Labor (Payroll) to Perform the Project $ 100,000 = **5.1** %

4. Project Equipment (tools, software, specialized monitoring equipment, etc.) $ 5,000 = **0.24** %

5. Travel (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.) $ 5,000 = **0.24** %

6. Official Vehicle Use (pro rata cost for use of Official Vehicles when required to carry out project) $ 10,000 = **0.52** %

7. **Cost of Contracts, Grants and/or Agreements to Perform the Project** $ 1,290,000 = **74.2** %

8. Other Direct and Contracted Labor: Agency payroll for the Contracting Officer to do project procurement, COR, Project Inspector, Sec. 106 Consultation if required, Subject experts to review contracted surveys, designs/drawings, plans, reports, etc.

$ 50,000 = **2.7** %

9. **Other Necessary Expenses** (See Appendix B-11) $ 216,000 = **12.0%**

TOTAL: $ 1,800,000 100 %

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
Secure heavy equipment service and material supply-haul contracts	**5-15-2009**
Finalize construction permits and initiate installation of BMPs	**7-1-2009**
Initiate construction at Site B	**8-1-2009**
Complete construction and initiate performance monitoring Site B	**10-15-2009**
Complete Project maintenance and performance monitoring Site B	**10/15/2011**
Site B closeout and financial documentation	**3/01/2012**

COMMENTS:

FS secured funds in round 7 for first sub part (SITE A) of Phase 3. Funding requested in this round for the second subpart (SITE B) of Phase 3. On monitoring may indicate the need for a third subpart; if so, the needed funds will be requested in later round.

APPENDIX K
LAKE TAHOE CAPITAL PROJECT PROPOSAL
ROUND 9

Capital Focus Area (2006 Federal Vision): Watershed & Habitat Improvement

Circle a minimum of one category:

1. Continued emphasis on fuels reduction in coordination with projects funded under the 2006 SNPLMA amendment (the "White Pine" amendment).

2. Continued implementation of projects approved in Rounds 5 through 8 which implement the EIP. Project proposal should clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 9.

List project(s):

- EIP 27.8 (SNPLMA Round 6) - Phase 2 - Blackwood Canyon Bridge Replacement
- EIP 27.9 (SNPLMA Round 6) - Phase 3A/B - Blackwood Channel and Floodplain Restoration Planning and Design
- EIP 27.9 (SNPLMA Round 7) - Phase 3A - Blackwood Channel and Floodplain Restoration Implementation

3. Project is consistent with and contributes toward Total Maximum Daily Load (TMDL) pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel).

List category(ies): **stream channel**

4. Control of aquatic invasive species and prevention of new aquatic invasive species.

Project Name: Blackwood Creek Channel Restoration EIP#:27.9
Phase 3 – Site #B

Lead Agency:USDA- Forest Service **Contact: Craig Oehrli**
Threshold: SC, F, W, SR, WQ, V **Phone: 530-543-2681**
Threshold Standard: SC2, F2, W1, W2, SR2, SR3, WQ1-6, V1, V4 **Email: coehrli@fs.fed.us**
Funding Requested in this Round: $1,800,000 **Total Project Cost: $5,141,000**

Is this a multi-year Project? – YES

Project Summary:

This proposal will fund implementation of Phase 3B of the Blackwood Channel and Floodplain Restoration Projects. This project will abandon a ½ mile section of stream channel that was channelized as a result of past land uses associated with a gravel quarry, and restore flows to an adjacent remnant historic channel that is still largely intact. Since this historic channel largely retains desirable channel characteristics in terms of sinuosity, bank/width ratios, and channel stability features, this is expected to result in a more stable channel form, with improved habitat features along this reach of Blackwood Creek, located about a 1/2 mile above the Barker Pass Road Crossing (see Figure 1). In addition, the 7 acre floodplain adjacent to this historic channel will be reshaped and stabilized so that floodplain connectivity along this reach is restored.

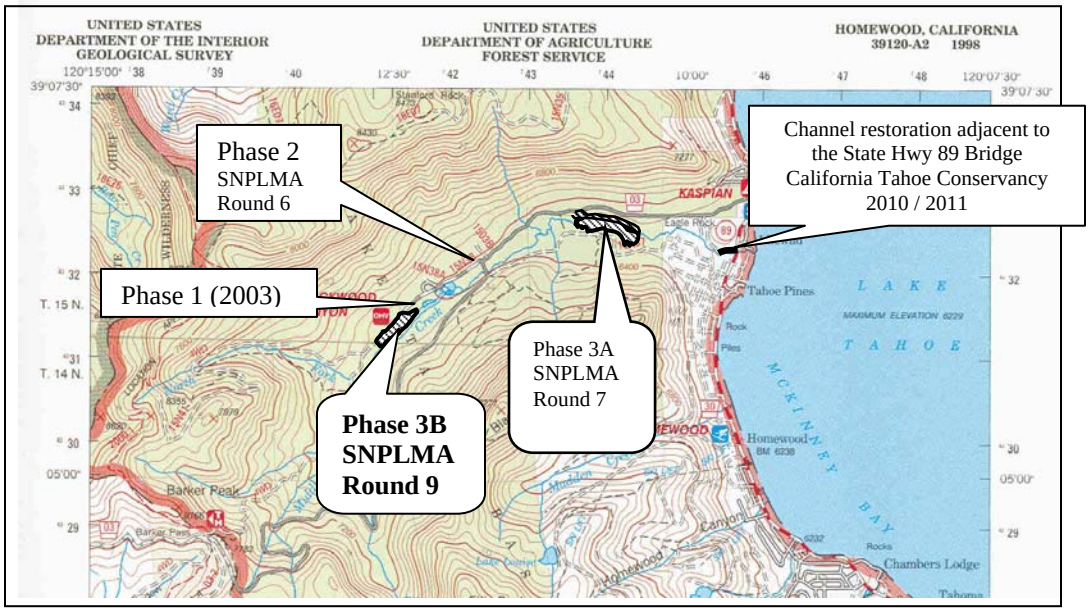


Figure 1: Blackwood Creek Restoration Project Site Map

Detailed Project Description:

This phase of the Blackwood Channel Restoration project will implement actions to restore 0.5 miles of channel, reconstruct 4 acres of floodplain, and reestablish hydrologic connectivity on 13 acres of floodplain. The project is located above the Barker Pass Road Crossing (see Figure 2). Project implementation will include the following actions:

- Plug, re-grade, and establish riparian plants along 2,500 feet of gully channel (south channel) to be abandoned.
- Fill and stabilize an 800 foot section of the incised portion of the historic channel (north channel)
- Construct 700 feet of new channel, and reshape 1,000 cubic yards of fill, to reconnect Blackwood creek to the historic north channel, replacing the abandoned south gully channel.
- Reshape existing flood levee and add 5,000 to 10,000 tons of boulders, and logs, to restore the natural grade of the floodplain (4 acres).

Implementation is expected to be initiated and completed during the 2009 field season. Short term implementation and effectiveness monitoring will occur in 2010 and 2011.

This is one of the last phases of work identified to restore stable stream channel morphology and floodplain connectivity to Blackwood Creek within lands managed by the USFS. The location of all three phases is illustrated on Figure 1. Phase I occurred prior to SNPLMA funding and involved restoration of the channel and removal of a poorly functioning fish ladder, located 0.5 mile above the Barker Pass road crossing, and just below the start of the Phase 3B project. Phase 2 (funded through Round 6), involved the replacement of the Barker Pass road crossing culvert with a bridge, and restoration of the immediately adjacent channel and floodplain. Phase 3A (funded through Round 7), will result in the restoration of one mile of stream channel located one mile below the Barker Pass road crossing, expected to be constructed in 2008**.** Round 7 funding will also be used to complete NEPA analysis for both the Phase 3A and 3B projects. Because Blackwood Creek is a dynamic channel system, additional funding may be requested in future Rounds to perform maintenance or other channel restoration activities identified through ongoing monitoring. However no future funding needs for the Blackwood watershed are currently identified.

Describe the goals and objectives of the project:
The goals of this project are consistent with the Aquatic Management Strategy (AMS) goals presented in the 2004 Sierra Nevada Forest Plan Amendment. Specifically the goals of the project are to restore ecosystem function of this reach of Blackwood in terms of water quality, aquatic and riparian habitat, and natural geomorphic processes that sustain a stable channel morphology.

The objective of this project is to implement actions to replace the existing reach of incised channel at the location of Phase 3B (which is currently disconnected from the adjacent floodplain in all but extreme flood events) with a restored remnant historic channel that exhibits a stable channel morphology, desirable features for fish habitat, and is connected to the floodplain.

Describe the anticipated project accomplishments:
The existing incised channel is currently experiencing some lateral erosion, and provides little opportunity for filtering out sediments and nutrients from upstream sources. In addition flows in this section of channel contain very poor features for aquatic habitat. Replacing the existing incised channel with the restored remnant of historic channel will reduce channel erosion and improve fish habitat. Reconnecting the channel to the floodplain will result in more frequent overbank flows which will settle out fine sediments and nutrients transported from upland erosion, and raise the groundwater level. This will in turn convert the adjacent floodplain to a wetter riparian meadow system, providing higher quality habitat for riparian-dependent wildlife species. Additionally, this action will prevent further migration of a head cut that threatens river and floodplain habitats upstream of the project area.

Describe the "readiness" of this project to move forward:
The TMDL has identified the Blackwood watershed as the second highest sediment producer to Lake Tahoe. In 2003, the Forest Service completed an initial watershed ecosystem assessment and restoration plan for this site. In 2006 and 2007, the restoration approach for this site was revisited, peer reviewed, updated, and a design report completed in October 2007. Design plans for Phase 3B are currently at the 40% level. The Forest completed a [pre-NEPA] Forest Plan Consistency Analysis (NFMA) which presents the proposed action in August 2007.

Round 7 funding is being utilized to complete the environmental planning and analysis for both the Phase 3A and 3B projects. Scoping for the proposed action for both projects will be initiated early in 2008. The scheduled completion of the Environmental Analysis (EA) and final design is summer 2008. Implementation of the Phase 3A project is anticipated to be completed by autumn 2008, utilizing Round 7 funding.

Describe partnerships for this project:
Because of the importance of this watershed to the Tahoe TMDL, The Tahoe Regional Planning Agency (TRPA) and Lahontan Regional Water Quality Control Board (LRWQCB) have been active partners in the development of restoration plans for the drainage. Furthermore, the California Tahoe Conservancy (CTC) is a downstream landowner and is developing restoration plans for the lower reaches of Blackwood Creek, one mile below the Phase 3A project. Because of this adjacent ownership, members of both the CTC and USFS are members of each other's Technical Advisory Groups in order to coordinate and plan the restoration efforts. However, no partner funding is involved in the Phase 3B project.

Describe the project monitoring that will be implemented as part of this project including:

1) **The questions the monitoring program is designed to answer are:**

- Are state sediment and turbidity standards being achieved during construction and in the first year after construction for channel restoration projects?
- To what degree have restoration efforts been successful in restoring floodplain connectivity, stabilizing stream banks, and reducing fine sediment loads?

2) **The monitoring approach**

This proposal will include funding for short-term monitoring of project effectiveness, for the first two years post-construction of the Phase 3B project. The parameters to be examined include:

- channel and floodplain sediment storage
- groundwater elevations
- vegetation composition and cover
- channel morphology
- macroinvertebrates
- suspended sediment and turbidity in stream flows

Many of these metrics have and will be measured pre-project to enable pre- and post-project comparisons. The funding requested in this proposal is intended to cover two years [only] of post-project monitoring to determine whether short-term goals and objectives have been met, and may trigger maintenance actions if these are not met.

Longer term effectiveness monitoring, which could include some of these parameters (as well as others, such as terrestrial wildlife response), will need to be to be funded through other avenues, such as the science /research program administered by the TSC, and above-project / programmatic monitoring conducted by USFS and others.

3) **Whether this project monitoring fits into a larger monitoring or research program**

The monitoring identified for this project is part of the overall Forest Plan monitoring effort for the Lake Tahoe Basin Management Unit. Results and accomplishments of all Forest Monitoring are summarized every year in the Annual Forest Monitoring Report. When appropriate, interpretation of results is integrated at the programmatic, local forest, and Regional level; additional reporting is also required to comply with the Lake Tahoe TMDL.

The USFS is utilizing or planning to utilize similar monitoring approaches (with appropriate site-specifics) for its other large-scale stream restoration projects (e.g., Cookhouse Meadow, Upper Truckee, and Cold Creek/High Meadows). Evaluations can then be performed to evaluate individual project effectiveness (and identify maintenance needs, or improvements in future design) as well as effectiveness of these types of streams restorations as a whole; specifically, the ecosystem response resulting from replacing incised stream channels, which have been disconnected from adjacent floodplains, with more stable channel forms that are reconnected to adjacent floodplains.

Describe these two items which will be considered along with the above project monitoring information by the Tahoe Science Consortium related to research and monitoring resource areas and the effectiveness of environmental restoration activities:

1) Describe the specific goals and objectives of the project and describe how fulfilling those objectives will contribute to the achievement of one or more environmental thresholds.

The project goals and objectives are described previously in this document. The environmental thresholds affected are:

Water Quality (W)
Fine sediment storage on the floodplain and nutrient uptake capabilities will be enhanced, resulting in a reduction of sediment and nutrient loading to Lake Tahoe.

Soil Conservation (SC)
This project will restore soil building and maintenance characteristics along Blackwood Creek by increasing sediment storage in the floodplain.

Fisheries (F)
Fisheries habitat (pools, cover, water temperature, and spawning gravels) will be enhanced for local fish populations and native amphibians.

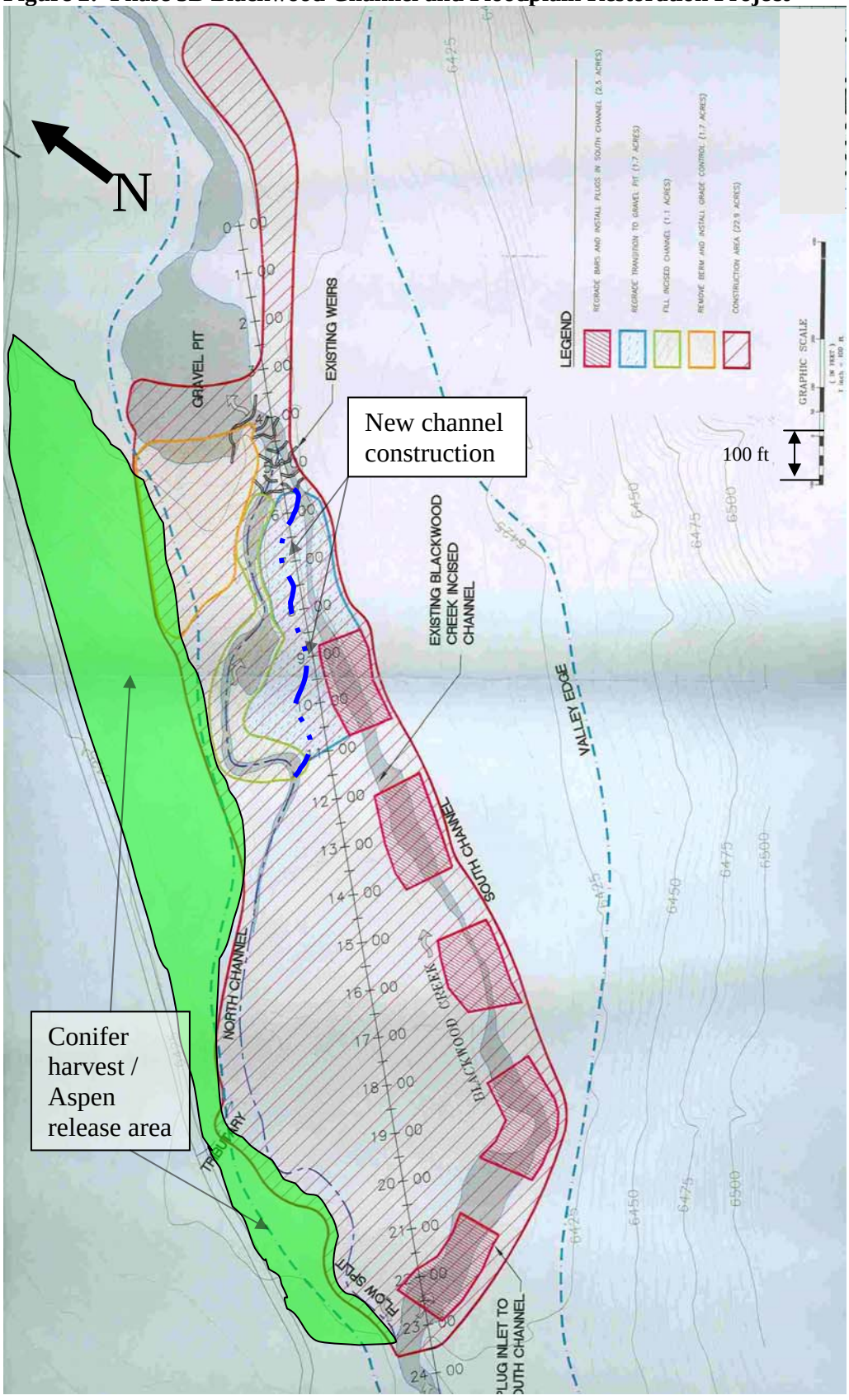
Wildlife (W)
Riparian and meadow system habitats for wildlife species, such as willow flycatcher, will be enhanced.

Vegetation (V)
Riparian and meadow vegetation types will shift toward those found in a wetter meadow community.

2) Describe the risk to the environment from failure of the proposed project (i.e. if the project fails what is the environmental consequence).

Fine sediment and nutrient loading will not be reduced from this section of channel reach, and the floodplain will continue to not be utilized to filter fine sediments and nutrients contributed by upstream sources. Aquatic and riparian habitat along this reach will remain in a degraded condition. Blackwood Creek would continue to be one of the highest sediment producers to Lake Tahoe.

Figure 2: Phase 3B Blackwood Channel and Floodplain Restoration Project



Describe how the project results will be communicated and made available to the public.

The information created from this project will be disseminated to three audiences: 1) the general public, 2) other resource agencies, and 3) the broader scientific community. The audiences will be informed respectively through the USFS website, public/interagency meetings, and peer-reviewed publications. Monitoring results will be presented in project specific monitoring reports, and summarized in the Annual Forest Service Monitoring Report.