

# **Project Proposal for Strawberry River Restoration**

## **Using Willard bay Mitigation Funds**

### **Utah Division of Wildlife Resources (UDWR)**

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1. Project benefits the area within Willard Bay State Park or the ecosystems in close proximity.

Project is located at Strawberry Reservoir which is used to divert water to the Great Basin as an integral part of the Central Utah Project.

2. Project benefits the natural environment.

The primary goals of this project are to reduce phosphorus loading into Strawberry Reservoir and create more favorable habitat conditions for cutthroat trout and kokanee salmon by reducing streambank erosion, narrowing channel width, increasing habitat complexity and lowering of water temperature. These goals will be accomplished through re-vegetation, stabilization fabric installation, streambank protection structures, and channel realignment.

3. Project increases the ecosystem services being provided by the enhanced waterway.

In an effort to improve water quality and fish habitat in the Strawberry River and Strawberry Reservoir, UDWR and USFS plan to restore and stabilize riparian and instream habitats within the drainage and specifically this project area. Restoration efforts will be undertaken according to best management practices. Restoration activities will take place between May 2014 and September 2015.

Historical grazing practices removed vegetation along the Strawberry River through defoliant spraying and overgrazing. Subsequent river migration and channel incision caused excessive bank erosion. This bank erosion increased phosphorus entrainment into the river and its receiving water body, Strawberry Reservoir. Strawberry Reservoir was included on the statewide 303(d) list in 2004 due to high total phosphorus and low dissolved oxygen. A TMDL approved in 2007 identified the Strawberry River as the best option for reduction of phosphorus from contributing water. Prior attempts at stream bank stabilization were met with some success, but many river reaches still contain vertical unvegetated banks, areas very susceptible to erosion. Strawberry River is also an important tributary for adfluvial fish spawning and rearing.

Devegetation created high stream bank erosion rates. Continuing erosion limits natural Re-vegetation. Stream bank materials are considered to be high in phosphorus creating a nutrient loading problem in

Strawberry Reservoir. Further channel morphology lacks heterogeneity needed to support a healthy fishery. Lack of vegetation increases insolation, raising summer stream temperatures above lethal maxima for native and sport fish species. Stream bank protection and Re-vegetation will reduce phosphorus loading into Strawberry Reservoir and produce a complex channel structure. Re-vegetation efforts will protect stream banks and provide shading, returning the system to a healthy environment for fish species. Loss of off-channel habitat is believed to have reduced native amphibian habitat and reconstruction of these environs will be of benefit to Boreal toad (State Sensitive Species).

4. Project has social benefits.

With more than 1 million angler hours spent in Strawberry Valley, DWR needs to increase the system's self-sustainability. Narrow, deeper channels and increased shading from reintroduced native plants will help achieve this goal. Further water quality improvements will help achieve the Strawberry Reservoir TMDL.

5. Project size – how large is the total area that will be directly enhanced by the proposed project? See answer in Question 6

6. Project connectivity – how does the proposed enhanced project area connect to other natural areas or projects.

This proposal is for the current and final phase of Strawberry River Restoration (above Strawberry Reservoir). This phase works on nearly 3 miles of river and the total river length restored at completion, for all project phases, will be greater than 12 miles.

7. Project proposer can leverage additional funds.

<b>Willard Bay Mitigation</b>	\$ 100,000
<b>FY 2014 NPS funds</b>	\$ 150,000
<b>Match (cash and in-kind)</b>	\$ 130,000
<b>Carry-Over of FY13 Funds</b>	<u>\$ 18,864</u>
<b>Total Project Cost</b>	<b>\$ 398,864</b>

## 8. Project cost-effectiveness.

This project has been underway for twelve years. During that period project implementers have constantly analyzed effectiveness of treatments to remove wasteful effort and still achieve desired results, further relationships have been developed with material and labor suppliers. These factors coupled with no management overhead costs, no need for consultation and the State of Utah's competitive bid system have lead to a very cost-effective program.

## 9. Administrative expenses.

None. All administrative costs will be covered by UDWR.

## Strength of the project team

## 10. The proposer has the ability to carry out the project as shown by successful past experience in carrying out similar projects.

Strawberry River Restoration has a proven track record. Started in 2002 this project has restored nearly 9 river miles. Funding has been secured, successfully spent and justified with results and accolades from: USFS, EPA, ARRA, UDWQ, UDWR, Watershed Restoration Initiative, Blue Ribbon Fisheries Advisory Council, Habitat Council and Trout Unlimited. Successful Restoration efforts have taken place during: 2002, 2005, 2008-2010 and 2012- 2013. 2014 will be the final year work will be undertaken in this project.

All projects will be planned at the level of total resource management in accordance with NRCS standards and specifications. The following procedures will be used to achieve project goals:

1. Isolate water quality problems.
2. Select and implement projects for non-point source (NPS) problems.
3. Promote fair, cost-effective NPS pollution control
4. Monitor progress and evaluate economic benefits of implementing water quality improvements
5. Create public awareness of water quality concerns and educate the public on how they can protect water quality for themselves and for the community. Promote community involvement in project implementation activities by using volunteer groups.

## 11. The proposer can ensure, through contract or other written agreement, long term maintenance (if applicable) will sustain the project into the future.

A contract between UDWQ and UDWR would be enter into with UDWR guaranteeing all future maintenance will be our responsibility.

## 12. The project has multi-agency support and collaboration

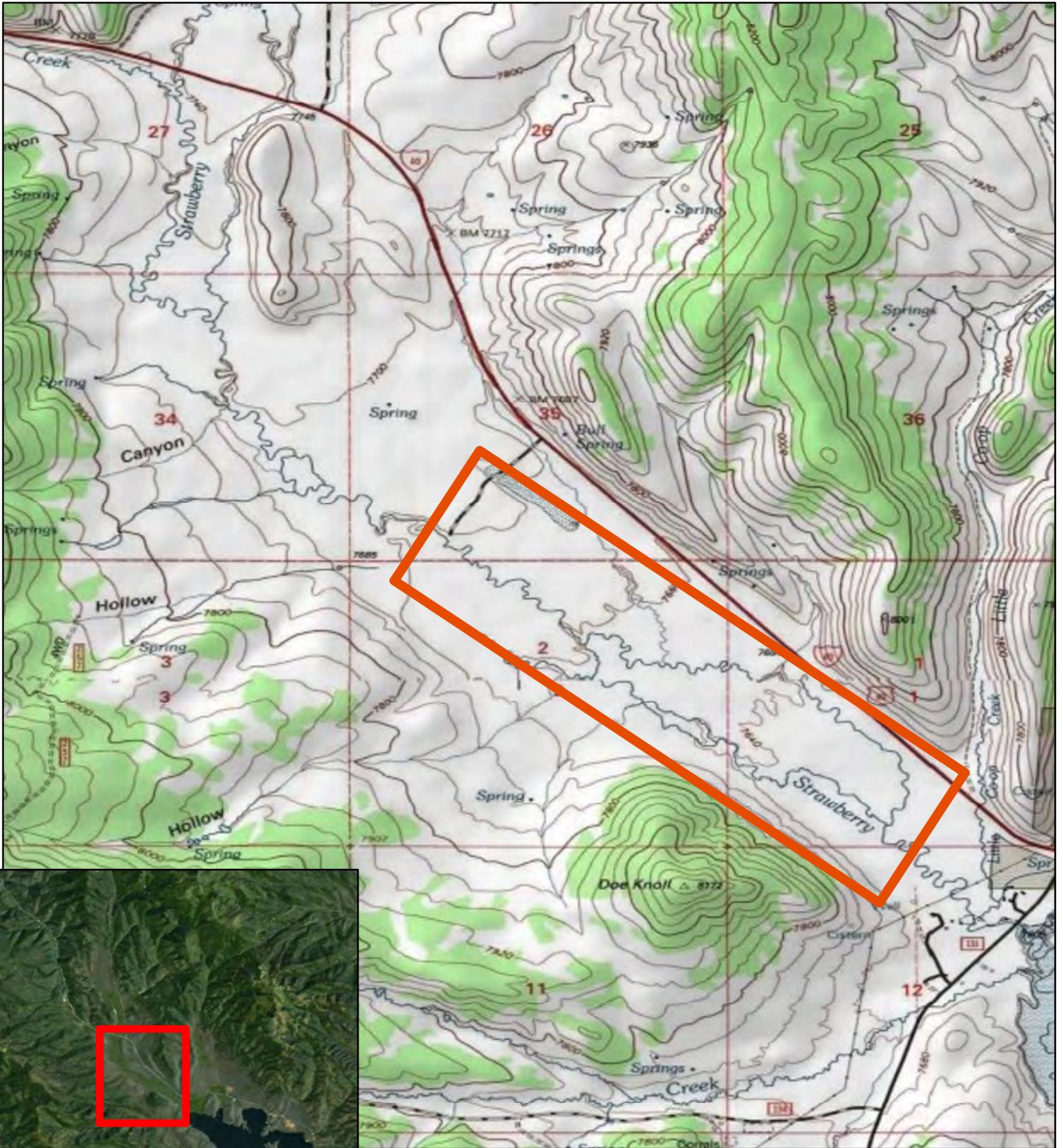
The Utah Division of Wildlife Resources – Coordinate and conduct or contract restoration and monitoring activities associated with the project. The UDWR will adhere to all requirements stipulated by UDWQ during this project and will adhere to mitigation measures outlined in the USFS decision notice or recommended during the project to minimize impacts.

U.S. Department of Agriculture Forest Service – Uinta-Wasatch-Cache National Forest – Has completed any environmental assessment needed and has provide a Decision Notice for this project. The Forest will also work with UDWR to address any additional disturbance, maintenance, and management issues related to the project.

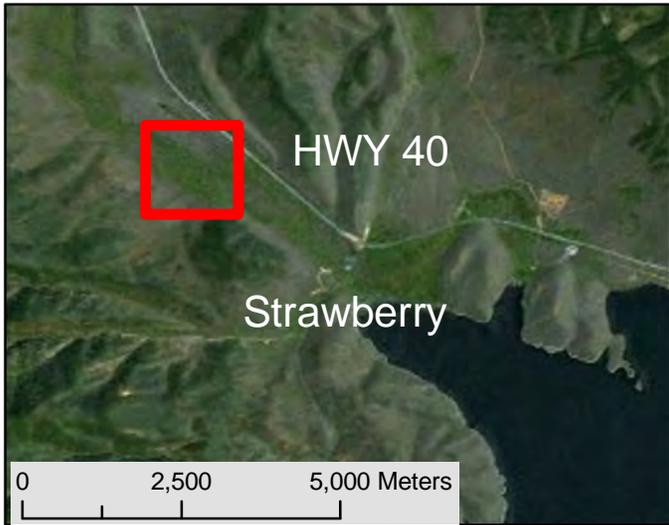
Utah Department of Environmental Quality Division of Water Quality– Provide funding through Statewide NPS and EPA NEPA Section 319 funds. They have an interest in protecting stream corridors that will improve water quality and address TMDL targets at Strawberry Reservoir and technical expertise will be solicited as needed.

Other Partners— Due to the popularity of Strawberry Valley and its multiple uses; many other groups have demonstrated interest in past restoration efforts. Friends of Strawberry Valley (FOSV), a group of resource managers and user groups, Strawberry Anglers Association, Trout Unlimited, Utah Anglers Coalition, Spring Creek Native Nursery, Wasatch Academy and other groups have been involved at various levels with past projects and will be included in Phase IV as well

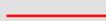
# Strawberry River Restoration 2012

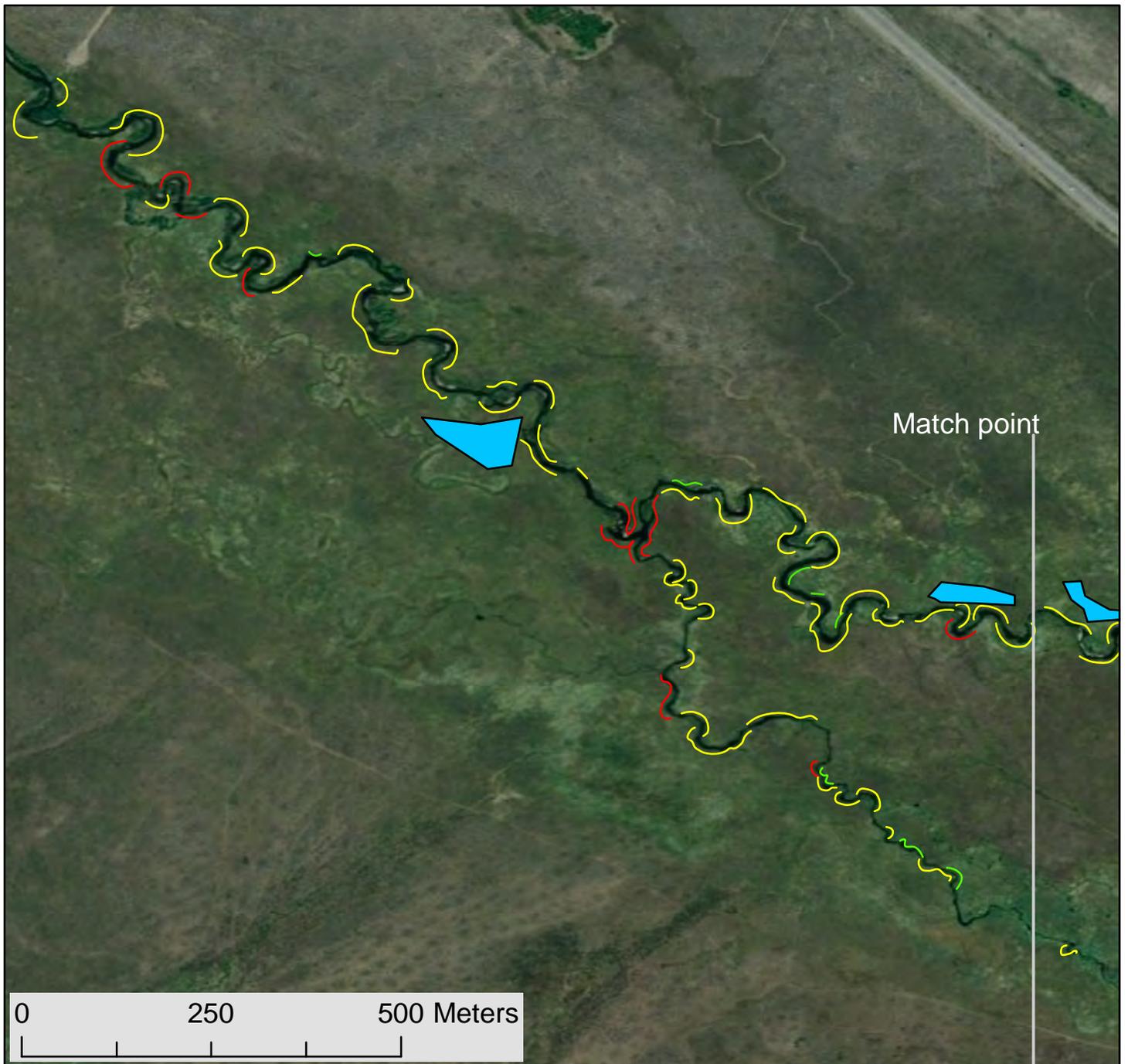


# Strawberry River Restoration 2012

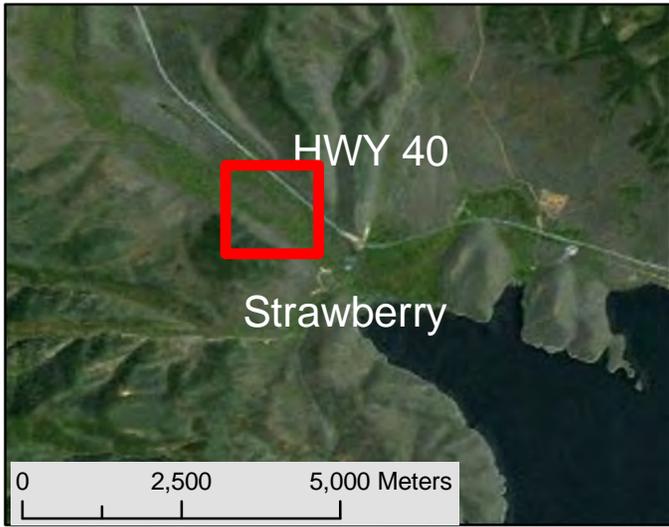


## Legend

- Type 1  Type 3 
- Type 2  Off-stream Oxbow 



# Strawberry River Restoration 2012



## Legend

- Type 1  Type 3 
- Type 2  Off-stream Oxbow 

