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ENVIRONMENTAL ASSESSMENT  
Fisheries Division  
Montana Fish, Wildlife and Parks  
Prospect Creek Channel Restoration and Bank Stabilization Project

General Purpose: The 1995 Montana Legislature enacted statute 87-1-272 through 273 which directs the Department to administer a Future Fisheries Improvement Program. The program involves physical projects to restore degraded fish habitat in rivers and lakes for the purposes of improving wild fisheries. The legislature established an earmarked funding account to help accomplish this goal. Additionally, the 1999 Montana Legislature amended statute sections 87-1-273, 15-38-202 and Section 5, Chapter 463, Laws of 1995 to create a bull trout and cutthroat trout enhancement program. The program calls for the enhancement of bull trout and cutthroat trout through habitat restoration, natural reproduction and reductions in species competition by way of the Future Fisheries Program. This project is being proposed to restore a six mile reach of Prospect Creek to a proper dimension, pattern and profile. The intent is to provide for the efficient downstream transport of bedload, restore the riparian vegetative community and improve fish habitat. The project site, involving oversight by the Prospect Creek Watershed Council and a private consultant, includes multiple landowners on six stream reaches. The project area is located approximately five miles west of the town of Thompson Falls in Sanders County (Figure 1).

I. Location of Project: This project will be conducted on Prospect Creek located approximately 5 miles west of the town of Thompson Falls within Township 21 North, Range 30 West, Sections 19 through 23 and within Township 21 North, Range 31 West, Sections 25 through 29 in Sanders County.

II. Need for the Project: Department Goal C indicates that a Fisheries Division objective is to "provide and support programs to conserve and enhance high quality aquatic habitat and protect native aquatic species." The Future Fisheries Improvement Program is a tool to help achieve that objective.

Prospect Creek has been straightened and channelized in the past by both highway and pipeline construction. Additionally, past clearing of the riparian corridor for logging and development has changed the characteristics of the floodplain and reduced the erosion resistance of the stream banks. Due to these past land use activities, Prospect Creek has become unstable upstream of the confluence with Clear Creek resulting in accelerated bank erosion, increased sediment loads, lost capacity to move bedload and channel aggradation. Recent flood events have partially re-established the proper pattern and profile of the altered channel. However, this project proposes to further restore the function of the floodplain, increase erosion resistance of the stream banks, rehabilitate vegetation in the riparian corridor and, ultimately, improve fish habitat. The headwaters of Prospect Creek contain bull trout and westslope cutthroat trout. Prospect Creek has been identified as a core area by the Montana Bull Trout Restoration Team. The stream also provides spawning habitat for rainbow trout and brown trout in its lower reaches.

### III. Scope of the Project:

The project proposes to restore 6 distinct sites within a six mile reach of Prospect Creek (Table 1). The proposal calls for using natural material revetment to stabilize the flood-stripped floodplain and eroding cut-banks. Additionally, width to depth ratios will be reduced in portions of the channel that have been over-widened as a result of aggradation. Bank stabilization techniques will vary between sites, ranging from planting live facines to the installation of a combination of rootwads and rock. The flood-stripped floodplain will be stabilized using a combination of rock or log grade controls, brush bars and the planting of riparian vegetation. The establishment of proper channel dimensions to insure efficient movement of bedload will be based on width to depth ratios as measured in a stable reference reach. Finally, the riparian corridor will be revegetated using a combination of seeding and planting techniques incorporating grasses, herbs, shrubs and trees. This project is expected to cost \$41,480.00. Of this total, the Future Fisheries Improvement Program would be contributing up to \$12,150.00. The remainder of the required funding would come from a combination comprised of Avista's Montana Tributary Habitat and Acquisition Initiative, the National Fish and Wildlife Foundation and Montana's Department of Environmental Quality 319 funds. The proposed work is part a larger scale watershed project and is a continuation of work that was conducted during 1999. The project is intended to help meet the long term goals of the Watershed Council. Council goals include improving the stability and condition of Prospect Creek, enhancing native fish populations and removing the stream from the 303(d) list of the Clean Water Act.

### IV. Environmental Impact Checklist:

Please see attached checklist.

### V. Explanation of Impacts to the Physical Environment

#### 1. Terrestrial and aquatic life and habitats.

Stabilizing the existing channel is expected to create a more healthy habitat for aquatic life by reducing sediment input. Installation of rootwad revetments will provide for an increase in overhead cover and will create hydraulic conditions for pool scour. Expected improvements in the aquatic habitat should enhance resident trout populations in the stream. Habitat for riparian dependent wildlife would also be improved by enhancing the riparian vegetative community through seeding and planting a variety of grasses, herbs and woody shrubs along the stream margin.

#### 2. Water quantity, quality and distribution.

Short term increases in turbidity will occur during project construction. To minimize turbidity, construction will occur during a low flow period and operation of equipment in the stream channel will be minimized to the extent practicable. The Department of Environmental Quality will be contacted to determine narrative conditions required to meet short-term water quality standards and protect aquatic biota. A 310 permit will be

obtained from the local Conservation District and the U.S. Army Corp of Engineers will be contacted for requirements needed to meet the federal Clean Water Act (404 permit). In the long term, stabilizing the existing channel and restoring the riparian vegetative community would reduce the sediment contribution to downstream areas, thereby improving the overall quality of downstream waters.

3. Geology and soil quality, stability and moisture.

Soils along the stream margin would be disturbed by the installation of root wads, but would stabilize quickly following proposed re-vegetation efforts and stream bank stabilization efforts. Overall, the project is expected to reduce bank erosion and improve channel stability.

4. Vegetation cover, quantity and quality.

Riparian vegetation and cover would be disturbed during the period of construction. However, re-vegetation efforts, in conjunction with stream bank stabilization efforts would result in an overall improvement to the riparian community.

5. Aesthetics.

Aesthetics would be enhanced by restoring an unstable reach of stream to a more healthy and natural stream environment. Aesthetics would be further enhanced by proposed re-vegetation efforts within the riparian corridor.

7. Unique, endangered, fragile, or limited environmental resources

Prospect Creek contains both westslope cutthroat trout and bull trout. Westslope cutthroat trout have been petitioned for listing under the Endangered Species Act and bull trout is a species listed as threatened under the Act. Because Prospect Creek supports bull trout, the project will be included in Montana Fish, Wildlife and Park's Section 6 conservation plan with the U.S. Fish and Wildlife Service. Stabilization of six miles of stream should improve the habitat for both species by creating stable channel dimensions, pattern and profile; by restoring floodplain function through re-vegetation efforts; and by increasing woody debris in the form of rootwads.

9. Historic and archaeological sites

The proposed project will likely require an individual Army Corp of Engineers 404 permit. Therefore, the State Historic Preservation Office has been contacted to determine the need for compliance with the federal historic preservation regulations. The project will not begin until a cultural clearance is granted.

VI. Explanation of Impacts on the Human Environment.

7. Access to & quality of recreational activities.

It is anticipated that the stabilization of six miles of Prospect Creek would improve overall aquatic habitat and, as a result, would enhance resident trout populations, as well as migrant spawners from the Clark Fork River. Consequently, the recreational fishery in the stream and possibly the Clark Fork River would be expected to be improved. The public is allowed access to several locations on this reach of Prospect Creek.

VII. Discussion and Evaluation of Reasonable Alternatives.

1. No Action Alternative

If no action is taken, this segment of the Prospect Creek will remain unstable, although over time, it will continue to slowly evolve into a stable form. At least for the foreseeable future, the instability associated with this channel evolution will result in continued bank erosion, excessive sediment loading and the loss of fish habitat. In addition, habitat for riparian dependent wildlife will remain in a degraded condition. Recreational opportunities associated with fish and wildlife resources will remain reduced and aesthetics will continue to be impaired.

2. The Proposed Alternative

The proposed alternative is designed to stabilize six miles of stream using root wads, rock, brush bars and re-vegetation. These activities will create a more stable dimension, pattern and profile of the stream channel. A more stable channel form will reduce sediment loading, resulting in a more healthy habitat for aquatic life. The seeding and planting of a variety of grasses, herbs and shrubs along the stream margin would create more diverse habitat for riparian dependent wildlife. This alternative would improve fish and wildlife habitat, aesthetics and water quality within the project area and would be expected to increase trout populations in the stream and possibly the Clark Fork River. As part of a larger watershed project, the project will help meet the long term goals of the Prospect Creek Watershed Council.

VIII. Environmental Assessment Conclusion Section

1. Is an EIS required? No.

We conclude from this review that the proposed activities will have a positive impact on the physical and human environment.

2. Level of public involvement.

The proposed project was reviewed and supported by the public review panel of the Future Fisheries Improvement Program. The proposed project also will be reviewed by the Fish, Wildlife and Parks Commission and will be contingent

upon their approval. The Environmental Assessment (EA) is being distributed to all individuals and groups listed on the cover letter. The EA will be published on the Montana Electronic Bulletin Board.

3. Duration of comment period?

Public comment will be accepted through 5 P.M. on April 4, 2000.

4. Person responsible for preparing the EA.

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ENVIRONMENTAL ASSESSMENT

Project Title Prospect Creek Channel Restoration and Bank Stabilization Project

Division/Bureau Fisheries Division -Future Fisheries Improvement

Description of Project The project is being proposed to restore a six mile reach of Prospect Creek to a proper channel dimension, pattern and profile. The proposal calls for using natural material revetment to stabilize the flood-stripped floodplain and eroding cut-banks. The intent of the project is to provide for the efficient transport of bedload, restore floodplain function and improve fish habitat. The proposed work is part of a larger scale watershed project and is a continuation of work that was conducted during 1999. The project site, involving multiple landowners, is located approximately five miles west of the town of Thompson Falls in Sanders County.

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Terrestrial & aquatic life and habitats		X				X
2. Water quality, quantity & distribution			X			X
3. Geology & soil quality, stability & moisture			X			X
4. Vegetation cover, quantity & quality			X			X
5. Aesthetics			X			X
6. Air quality				X		
7. Unique, endangered, fragile, or limited environmental resources			X			X
8. Demands on environmental resources of land, water, air & energy				X		
9. Historical & archaeological sites				X		X

POTENTIAL IMPACTS ON THE HUMAN ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Social structures & mores				X		
2. Cultural uniqueness & diversity				X		
3. Local & state tax base & tax revenue				X		
4. Agricultural or industrial production				X		
5. Human health				X		
6. Quantity & distribution of community & personal income				X		
7. Access to & quality of recreational and wilderness activities			X			X
8. Quantity & distribution of employment				X		
9. Distribution & density of population & housing				X		
10. Demands for government services				X		
11. Industrial & commercial activity				X		
12. Demands for energy				X		
13. Locally adopted environmental plans & goals				X		
14. Transportation networks & traffic flows				X		

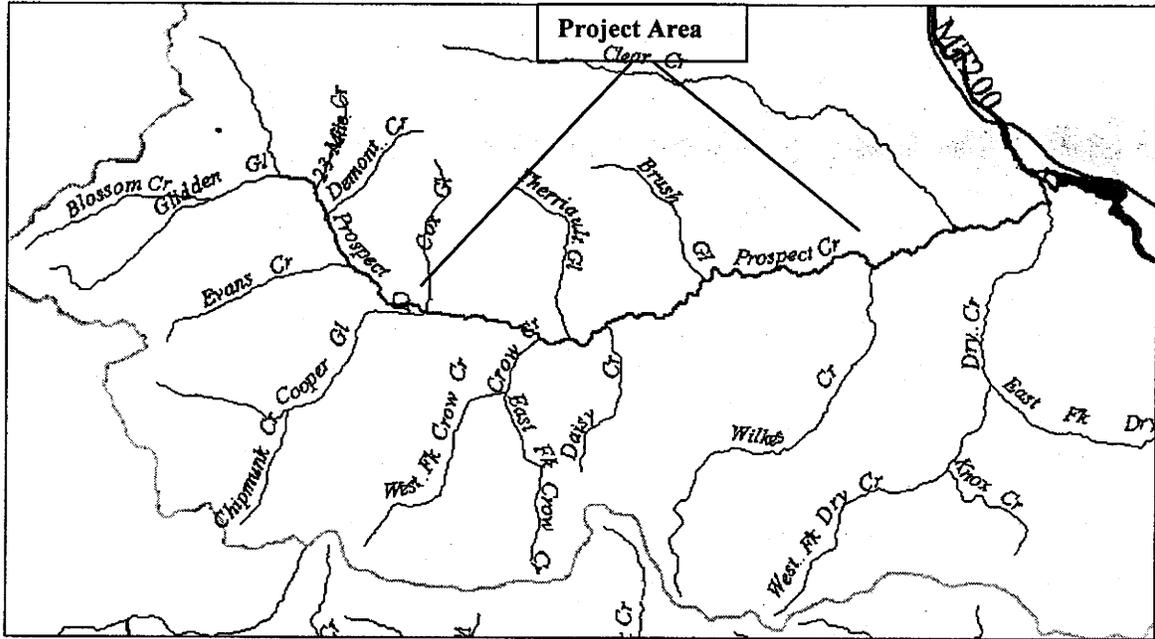
Other groups or agencies contacted or which may have overlapping jurisdiction Green Mountain Conservation District, NRCS, US Fish and Wildlife Service, US Army Corp of Engineers, Montana Department of Environmental Quality, State Historic Preservation Office

Individuals or groups contributing to this EA Mike Miller, Prospect Creek Watershed Council; Watershed Consulting

Recommendation concerning preparation of EIS No EIS required.

EA prepared by : Mark Lere

Date: February 22, 2000



**Figure 1. Map of Project Area on Prospect Creek.**

Table 1. A Summary of Channel Restoration Work Proposed for Prospect Creek.

Site 11 is an area where the pipeline corridor intersects the stream and a T1 surface. Accelerated bank erosion is occurring adjacent to a streamside home. Currently the bank edge is approximately 50' from the home and there is evidence of past stabilization attempts. Knapweed is also prolific. Past vegetation manipulation from the homestead and the pipeline corridor have destabilized the bank. Native material revegetation of the T1 and riparian revegetation are recommended at this site.

Native Material Revetement: Excavator 32 hours @ \$90/hr=\$2,880

Materials: 30 rootwads, 8 loads rock=\$3,000

Revegetation, brush bars, planting seeding=\$2,000

Oversight: 32 hours @\$50/hr=\$1,600

Total: \$9,480

Site 12 is a revegetated, knapweed infested, T2 surface which abuts the stream for 150'. It is a zone of accelerated bank erosion and a gravel sediment source. It is the result of riparian land clearing activities. Native material revegetation of the T2 surface and riparian revegetation should be implemented.

Native Material Revetement: Excavator 10 hours @ \$90/hr=\$900

Materials: 8 rootwads, 1 load rock=\$1,000

Revegetation, brush bars, planting seeding=\$1,000

Oversight: 10 hours @\$50/hr=\$500

Total: \$3,400

Site 13 is a T2 surface which has been overgrazed and is adjacent to the pipeline corridor. Past rip-rapping has failed to control the bank erosion and the area is braiding and overwidening. Bank stabilization of the T2 surface, re-establishment of the proper width/depth and channel dimension, vegetative stabilization of the floodplain are required at this site.

Native Material Revetement: Excavator 50 hours @ \$90/hr=\$4,500

Materials: 32 rootwads, 8 loads rock=\$3,000

Revegetation, brush bars, planting seeding=\$2,500

Oversight: 32 hours @\$50/hr=\$1,600

Total: \$11,600

~~Site 14 is a floodstripped T1 surface with knapweed infestation. The T1 surface has been stripped and is being converted to a floodplain. This conversion is the result of highway construction which cutoff an entire meander and reduced belt width and floodprone area. In addition, the utility corridor runs through the site and vegetation has been cleared in the corridor.~~

~~The result is an area of weak banks and vulnerable floodplain. Revegetation with brush bars and complete riparian restoration is recommended for this site along with monitoring of channel stability and geometry such as bankfull width and width/depth ratio.~~  
~~Revegetation, brush bars, planting seeding=\$2,500~~

Site 15 is a T1 surface, moderately unstable bank sediment source 75' long with cobble and gravel sediment. Riparian revegetation of both banks using brush bars and sills is required at this site.  
Revegetation, brush bars, planting seeding=\$2,500

Site 16 is an unstable T1 bank, 200' long which is a rather fine grained sediment source composed of gravel and sand. The accelerated erosion is evident from the downstream meander migration and is the result of riparian vegetation manipulation of streamside vegetation beneath the powerline corridor. Width/Depth ratios above and below are within acceptable limits. Native material revetement, floodplain stabilization and riparian revegetation are recommended.  
Native Material Revetement: Excavator 30 hours @ \$90/hr=\$2,700  
Materials: 24 rootwads, 6 loads rock=\$3,000  
Revegetation, brush bars, planting seeding=\$2,000  
Oversight: 20 hours @\$50/hr=\$1,000  
Total: \$8,700

~~Site 17 is an old skid road adjacent to the stream. The are is an old ford and is slightly overwidened. The skid road is steep where it decends to the stream. Brush bars are recommeded to increase revegetation success and prevent erosion of the skid road into the stream.~~  
~~Revegetation, brush bars, planting seeding=\$1,000~~

Site 18 is a 200' fine gravel sediment source of accelerated bank erosion. The site has developed in response to riparian clearing and knapweed infestation of the T1 surface. Just upstream from this source is a large bend which is stable due to the large multi-age cottonwood community. This riparian zone provides an important buffer for stream stability and should be maintained and increased. Native material revetement is required at the 200' source, existing width/depth ratio is adequate.  
Native Material Revetement: Excavator 20 hours @ \$90/hr=\$1,800  
Materials: 16 rootwads, 4 loads rock=\$2,000  
Revegetation, brush bars, planting seeding=\$1,000  
Oversight: 20 hours @\$50/hr=\$1,000  
Total: \$5,800

~~Site 19 is a 1500' long reach which is aggraded and overwidened. Frequent channel avulsions~~