DRAFT ENVIRONMENTAL ASSESSMENT

Part I. Proposed Action Description

1. **Type of Proposed State Action** Concrete Repair of the Outlet at Painted Rocks Dam.

2. **Agency Authority for the Proposed Action**

Owner: MT Dept. of Natural Resources and Conservation; Sec. 85 -15, MCA.

3. **Name of Project** Painted Rocks Dam Outlet Concrete Repair Project

4. **Name, Address and Phone Number of Project Sponsor (if other than the agency)**

MT. Dept. of Natural Resources & Conservation, 1424 9th Ave., P.O. Box 201601,
Helena, MT 59620 – 1601 (406) 444-6646

5. **If Applicable:** Estimated Construction/Commencement Date 10/8/2013
Estimated Completion Date 10/10/2013
Current Status of Project Design (% complete) 90%

6. **Location Affected by Proposed Action (county, range and township)**

Ravalli County - T1S, R22W, South 1/2 section 26

7. **Project Size: Estimate the number of acres that would be directly affected that are currently:**

(a) Developed:
Residential..... acres
Industrial..... acres
Open Space/
Woodlands /
Recreation..... acres

(b) Wetlands/Riparian
Areas..... acres

(c) Floodplain..... acres

(d) Productive:
Irrigated cropland ..... acres
Dry cropland ..... acres
Forestry..... acres
Rangeland ..... acres
Other..... acres

(e) **X** Other:..Outlet Conduit at dam

8. Map/site plan: attach an original 8 1/2" x 11" or larger section of the most recent USGS 7.5' series topographic map showing the location and boundaries of the area that would be affected by the proposed action. A different map scale may be substituted if more appropriate or if required by agency rule. If available, a site plan should also be attached.

Vicinity map and repair details (Appendix A) are attached.

9. Narrative Summary of the Proposed Action or Project including the Benefits and Purpose of the Proposed Action.

See Appendix A

10. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction.

(a) Permits:

Agency Name	Permit	Date Filed/#

N/A

10. (Continued)

(b) Funding:

Agency Name	Funding Amount

The Painted Rocks Water Users Association, Montana Fish, Wildlife and Parks and the DNRC State-Water Projects Bureau are responsible for project costs, which are estimated at $1,200.00.

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name	Type of Responsibility

N/A

11. List of Agencies Contacted:

MT State Historic Preservation Office

MT Natural Heritage Program

Part II. Environmental Checklist Review

1. PHYSICAL ENVIRONMENT

	IMPACTS					
	Unknown *	No significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
1. LAND RESOURCES						
Will the proposed action result in:						
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other: _____						

PHYSICAL ENVIRONMENT (Continued)

IMPACTS

	Unknown*	No significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
2. AIR						
Will the proposed action result in:						
a. Emission of air pollutants or deterioration of ambient air quality?		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Other: _____						

PHYSICAL ENVIRONMENT

IMPACTS

	Unknown*	No Significant Impact	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
3. WATER						
Will the proposed action result in:						
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of flood water or other flows?			X			
d. Changes in the amount of surface water in any water body or creation of a new water body?			X			
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in the risk of contamination of surface or groundwater?		X				
i. Violation of the Montana Non-Degradation Statute?		X				
j. Effects on any existing water right or reservation?		X				
k. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
l. Effects on other users as a result of any alteration in surface or groundwater quantity?			X			
m. Other: _____						

3 c, d & i.) Flows from the dam will be temporarily curtailed to allow for the repair of the outlet tunnel concrete. Recreation users, primarily anglers, will be temporarily affected. The impact will be non-significant, temporary, short-term, and end with completion of the repairs.

IMPACTS

PHYSICAL ENVIRONMENT (Continued)

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be mitigated*	Comment Index
4. VEGETATION						
Will the proposed action result in:						
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered plant species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Other: _____						

PHYSICAL ENVIRONMENT (Continued)

	IMPACTS					
	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
5. FISH/WILDLIFE						
Will the proposed action result in:						
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?		X				
c. Changes in the diversity or abundance of nongame species?		X				
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?			X			5f
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?			X			5g
h. Other: _____						

5f.) A file search conducted by the Montana Natural Heritage Program indicated that bull and westslope cutthroat trout are widely distributed throughout the region and could be found in streams around Painted Rocks Reservoir. The proposed gate closure, which is necessary to complete the repairs, will be staged to minimize adverse effects to fish, allowing them to migrate to deeper pools prior to the gate being completely shut. Releases will be reduced below normal operational levels one day prior to the repair to approximately 30 cfs. One or two four-hour closures will take place on each of the repair days. It is anticipated that the repair will take 2-3 days. Flows will be returned to 30cfs at the end of each 4-hour closure, and then to the normal outflows upon completion of the project. Adverse effects will be mitigated by monitoring downstream conditions and moving trapped fish to deeper pools. Adverse effects to downstream fisheries will be short-term, temporary and end with completion of the project.

Note: Specific details of the repairs are provided in Appendix A.

The area is also identified as Lynx habitat under a statewide listing for this species. It is not anticipated that the proposed action will have any significant impacts to these species. No significant impacts are anticipated to any other threatened, endangered or species of special concern.

5g.) No significant, long-term impacts are anticipated to wildlife populations in the area due to the short-term and temporary nature of the project. Any adverse impacts will be short-term, temporary and end with completion of the project.

2. HUMAN ENVIRONMENT

	IMPACTS					
	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
6. NOISE/ELECTRICAL EFFECTS						
Will the proposed action result in:						
a. Increases in existing noise levels?			X			6a
b. Exposure of people to severe or nuisance noise levels?			X			6b
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other: _____						

6 a & b.) Noise levels will increase temporarily during the project. The increased noise will be temporary and end upon project completion. It is not anticipated that any recreational visitors to the area will be impacted.

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
7. LAND USE						
Will the proposed action result in:						
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
e. Increased regulatory restrictions on private property rights?		X				
f. Other: _____						

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
8. RISK/HEALTH HAZARDS						
Will the proposed action result in:						
a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. Other: _____						

HUMAN ENVIRONMENT
(Continued)

	IMPACTS					
	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
9. COMMUNITY IMPACTS						
Will the proposed action result in:						
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other: _____						

HUMAN ENVIRONMENT
(Continued)

IMPACTS

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
10. PUBLIC SERVICES/ TAXES/UTILITIES						
Will the proposed action:						
a. Have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify: parks/recreational facilities		X				
b. Have an effect upon the local or state tax base and revenues?		X				
c. Result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Result in increased use of any energy source?		X				
e. Other: _____						

HUMAN ENVIRONMENT (Continued)

	IMPACTS					
	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
11. AESTHETICS/ RECREATION						
Will the proposed action result in:						
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?			X			11a.
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational opportunities and settings?			X			11c.
d. Other: _____						

11 a & c) Recreational use of the area is not expected to be significantly impacted by the project. Visitors will experience lower than normal river flows for approximately 3 to 4 days, and extremely low flows immediately downstream from the dam during the 4-hour construction windows. Ample public notification concerning the likelihood of temporary short-term adverse effects will be provided. These effects would be minor, short-term, temporary and end with the completion of the project.

IMPACTS

HUMAN ENVIRONMENT
(Continued)

	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
12. CULTURAL/ HISTORICAL RESOURCES						
Will the proposed action result in:						
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?		X				12a
b. Physical change that would affect unique cultural values?		X				12b
c. Effects on existing religious or sacred uses of a site or area?		X				12c
d. Other: _____						

12 a,b &c) It is not anticipated that any cultural or historic resources will be impacted by this project.

3. SIGNIFICANCE CRITERIA	IMPACTS					
	Unknown*	No Significant Impacts	Minor Impacts*	Potentially Significant Impacts*	Can Impacts be Mitigated*	Comment Index
13. SUMMARY EVALUATION OF SIGNIFICANCE						
Will the proposed action, considered as a whole:						
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources which create a significant effect when considered together or in total.)		X				13a.
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Other: _____						

13 a.) Short-term, temporary minor impacts may occur to river flows, fisheries, and the quality of the recreational opportunities and setting. All impacts will be negligible, minor, temporary and end with the completion of the project. All impacts cited are non-significant.

Part III. Alternatives and Evaluation

1. Description and analysis of reasonable alternatives (including the no action alternative) to the proposed action whenever alternatives are reasonably available and prudent to consider and a discussion of how the alternatives would be implemented:

A. No action - This would allow a potentially hazardous situation to continue, possibly resulting in further deterioration of the outlet tunnel, which could negatively impact the continued operation of the dam.

B. Proceed with the repairs, but utilize pumps to maintain river flows throughout the project. - This alternative would utilize a series of high capacity pumps to maintain limited flows in the river. Based on an estimate provided by a local pump contractor for pumping 30cfs over two days, the cost estimate is as follows:

30-cfs

Mob/Demob:	$10,000	
Install:	$36,000	(5-days, 3-men, equipment, added 10% for difficult access)
Remove:	$19,000	(added 10% for difficult access)
Rental/fuel:	$5,800	($2,900/day equip, 15 gal/hr)
24-hr monitor:	$4,800	($2,400/day)
Subtotal:	$75,600	
10% Contingency:	$7,600	
Total:	**$83,200**	

Summary

The cost for pumping bypass flows over Painted Rocks Dam for the 2-day duration of the project will be very dependent upon the required flow rate. It will cost approximately $85,000 to pump 30-cfs over the dam for 2-days. The majority of this cost ($65,000) is associated with the installation and removal of the required pumping equipment. Although this flow rate is ½ to 1/3 of the typical minimum flow rate of 60-90 cfs, it is a significant base flow and would do much to mitigate fishery impacts.

C. Proceed as planned with the project with timed/limited gate closures. This alternative will have the beneficial effects of preventing further deterioration of the outlet conduit concrete, allow for the continued safe operation of the dam and associated water deliveries, while keeping costs to a minimum.. Given the low cost of the actual repair ($1,200) and the temporary, non-significant short-term nature of the potential adverse fisheries impacts, alternative C is the preferred course of action, primarily from an economic stand point. It should be noted that the Painted Rock Water Users Association and Montana Fish, Wildlife and Parks, as the major share-holders for the contracted water from the dam, will be required to pay for the cost of these repairs.

D. Preferred Option:

The preferred option is C; proceed with the project as planned with timed/limited gate closures.

E. Public Benefits of Preferred Option:

The major benefit of this project is the repair of the deteriorating concrete in the outlet conduit, allowing for the continued safe operation of the dam and water deliveries.

2. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency:

All impacts cited are non-significant, short-term, temporary and minor.

3. Based on the significance criteria evaluated in this EA, is an EIS required? YES / NO If an EIS is not required, explain why.

The EA is the appropriate level of analysis for this proposed action.

Because of the short-term, minor, non-significant and temporary nature of the actual impacts associated with this project and the beneficial effects to public safety, an EA is the appropriate level of analysis for this proposed action.

4. Describe the level of public involvement for this project if any and, given the complexity and the seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?

The appropriate level of public involvement for this proposal is the publication of the proposed action through the distribution of this draft Environmental Assessment to those entities listed on the cover page, and the publication of the draft EA on the DNRC website. A public information open house meeting will also be scheduled in Hamilton Montana prior to the repair. This is an appropriate level of public involvement considering the minor, non-significant impacts of the environmental issues associated with the proposed action.

5. Duration of comment period if any: Copies of the EA can be obtained from the address listed below. The EA can also be viewed on the DNRC website at www.dnrc.state.mt.us in the environmental documents section. Comments will be accepted and should be mailed or e-mailed to DNRC at the address listed below.

6. Name, title, addresses and telephone number of the Person(s) Responsible for Preparing the EA:

James P. Domino, Environmental Specialist, Department of Natural Resources and Conservation, Water Resources Division, State Water Projects Bureau, 1424 9th Ave., P.O. Box 201601, Helena, MT 59620-1601, (406) 444-6622. E-mail - jdomino@.mt.gov.

Part IV. Narrative Evaluation and Comment

The project as proposed would not have any significant impacts. Potential impacts related to the temporary cessation of flows, fisheries and the quality of the recreational experience will be minor, temporary and end upon completion of the project. No impacts to wildlife, plant or animal species of special of special concern or cultural resources are anticipated. The greatly enhanced public safety resulting from this project outweighs any minor short-term, non-significant and temporary impacts.

Appendix A – Project Information Report

August, 2013

Painted Rocks Dam
(West Fork of the Bitterroot)
Outlet Tunnel Concrete Repair Project
Information Report

Painted Rocks Dam

Montana Department of Natural Resources and Conservation,
Water Resources Division,
State Water Projects Bureau

Location: Ravalli County, approximately 20 miles south of Connor, Montana.
Township 1 South; Range 22 West; Section 26
USGS 7.5' **quad:** Painted Rocks Lake, 1991
Elevation: 4726 ft.
Dam Type: Rolled earth fill with impervious core center dam
Dimensions: Structural Height – 143 ft.
Hydraulic Height – 143 ft.
Crest Length – 800 ft.
Crest Width – 20.5 to 35.5 ft

Description:

Painted Rocks Dam and Reservoir, owned by the State of Montana Department of Natural Resources and Conservation (DNRC), is used for irrigation, recreation and flood control. The site consists of a rolled earthfill dam, a concrete chute spillway, a small gatehouse with two self-sealing rectangular slide gates located on the east side of the dam crest, and a circular 10-foot diameter concrete lined rock outlet tunnel. The reservoir storage capacity at maximum capacity is 32,362-acre feet. The reservoir has a natural drainage area of 317 square miles and a surface area of about 655 acres at normal pool. The reservoir and dam are easily seen from the main access roads that run along the north, east and west sides of the reservoir. The dam has been classified as high hazard. A high hazard dam indicates a high potential for loss of life and/or serious property damage downstream should the dam fail.

History:

The dam was constructed in 1939 by the State Water Conservation Board with funds from the Public Works Administration. The dam was constructed to provide additional storage for agricultural irrigation water for use in the Bitterroot Valley. The dam is operated and maintained by the DNRC Missoula Regional Office. Water from the reservoir is sold to the Painted Rocks Water Users Association and the Montana Department of Fish, Wildlife and Parks.

Outlet Tunnel Concrete Repairs:

There are several regions within the outlet conduit that are in need of repair. The damaged areas are on the conduit walls immediately downstream from the gate chamber. While the damage is not presently a threat to the safety of the dam, it has the potential to become so if allowed to progress. Repair of the damaged area is logistically challenging due to the configuration of the outlet/spillway (the conduit is not readily accessible when the dam is spilling), the difficult access to the toe of the dam, and a slow and unreliable gate operating mechanism. As such, it is only possible to conduct the repairs in the spring prior to spilling, or in October after the cessation of water deliveries.

In April 2013, repairs were made to the right bottom corner with hydraulic cement. The repair area on the left bottom corner was prepared and the repair area on the left wall was also prepared, but neither repair is complete. The loose surrounding concrete was chipped out and a sawcut made around the perimiter. However, due to cold temperatures, the concrete repair material would not set up. Both gates have bottom sill plates that can be adjusted (Photo 1). The position of the sill plate determines how the gate will seat and seal in the gate chamber. Usually the gates do not seal completely and there is a high volume of water spraying from the gate seals at high velocity.

Photo 1

The amount of spray in the conduit makes it unfeasible to repair the concrete conduit, since the damage is located very close to the gates. It also makes the required annual inspection difficult. After raising the emergency gate in April after the last repair attempt, it appears that the sill is adjusted to its correct position to achieve the best possible seal. The top of the sill is engaged with the bottom of the screw jacks. The screw jacks appear to be in the same elevation since the gates original installation. There is a possibility that the gates may still not reliably seal. The week prior to the repairs will be used to test the gate seals.

Photo 2

The completion of the concrete repairs will consist of installing reinforcing steel wire and placing concrete in the damaged areas. The wire will need to be cut to fit the shape, bent and fixed in place. It will be fixed by drilling holes 1 inch to 2 inches deep, slightly oversized and set with epoxy. Concrete will then be mixed and placed. The concrete will be placed to the full depth of

the repair. To mitigate the low temperatures, the mixing water will be heated and an accelerator may be added.

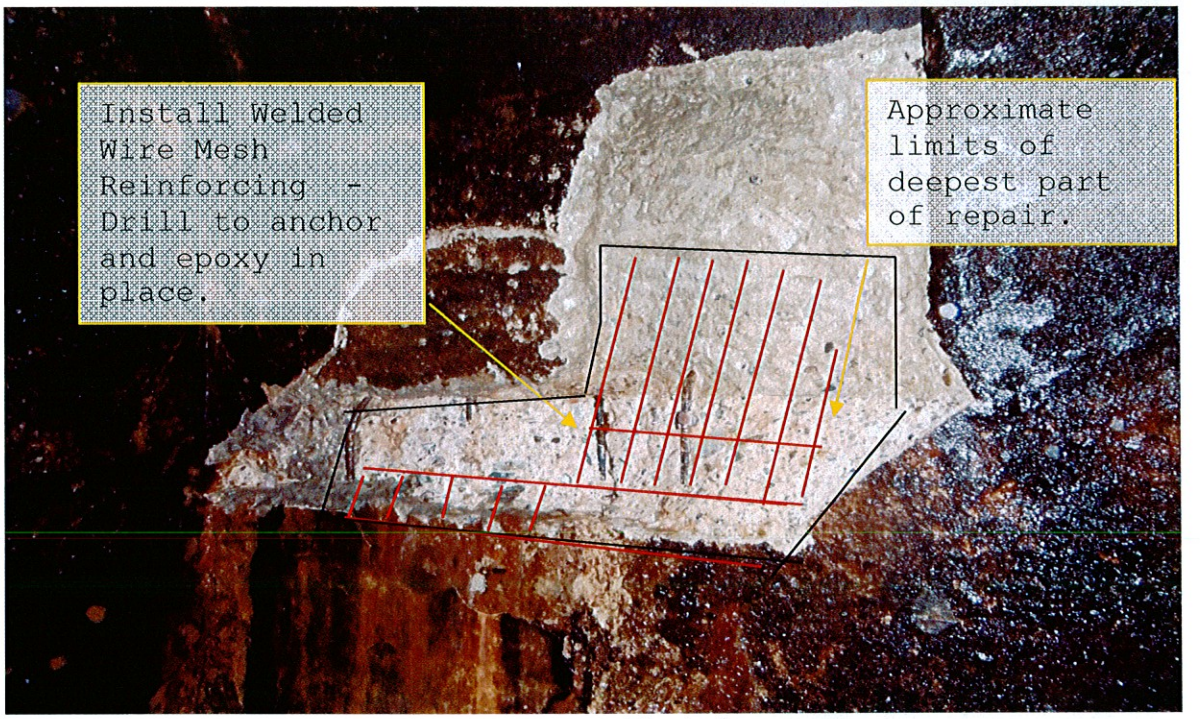


Photo 3

Work Schedule
The week of September 30th will be set aside to work on the gate seals (if needed).
The work is currently scheduled for October 7th through the 10th. Flows will be reduced to 60 cfs on September 30th and 30cfs on October 7th to allow fish to move to deeper pools, thereby reducing entrapment and possible mortality.

Preparation Day
Move materials and equipment to landing above outlet.

Day 1
Close gates for conduit work – 9:00 AM to 10:00 AM.
Check primary repair area on left wall, make additional preparations and place reinforcing wire.
Repairs - 10:00 AM to 2:00 PM
Restore flows (30cfs) – 2:00 PM
Set up tenting/heater to keep repair materials warm overnight 2:00 PM to 4:00 PM

Day 2
Close gates for conduit work – 9:00 AM to 10:00; The gates will be fully closed at 10:00 AM..
Heat Mixing water with propane tank and blaster 9:30 AM to 10:00 AM
Repair primary repair area 10:00 AM to 2:00 PM
Restore Flows (normal outflows) 2:00 PM
Clean up 2:00 PM – 4:00 PM

Note: The gates will be closed for a total of 4 hours each repair day (1 and 2).

Day 3 Contingency day

Practices to Reduce Adverse Effects to Downstream Fisheries:

1. The gates will be slowly staged down over the course of one week to allow fish to move into deeper pools.
2. Volunteers will be on-site downstream from the dam to move any distressed fish to deeper pools.
3. Flows will be restored after four hours (maximum closure time, 30 cfs after day one, and normal flows after day 2).

Public Notification:

DNRC has routinely interrupted flows for 1-2 hours each year to allow inspection of the outlet works. The closures are planned and coordinated with FWP, and the public is generally notified of these routine flow interruptions via e-mail. DNRC provided additional public notification for the April prepares via newspaper ads due to the longer duration of the planned flow interruptions. Larry Schock (DNRC regional engineer) was also interviewed by the Ravalli Republic prior to the repair work. The newspaper ads were published in local newspapers from 4/21 – 4/29, and the interview was published on April 25.

Public notifications for the October work will be published in local newspapers (Ravalli Republic and Missoulian) the last week in September. Notifications will be sent via the standard e-mail list, and EA distribution list / cover page attached to this report. A public open house meeting will also be held in Hamilton on Thursday, September 19th from 6:00 to 8:00 p.m. at the Bitterroot River Inn and Conference Center. The closures will be planned and coordinated with FWP.

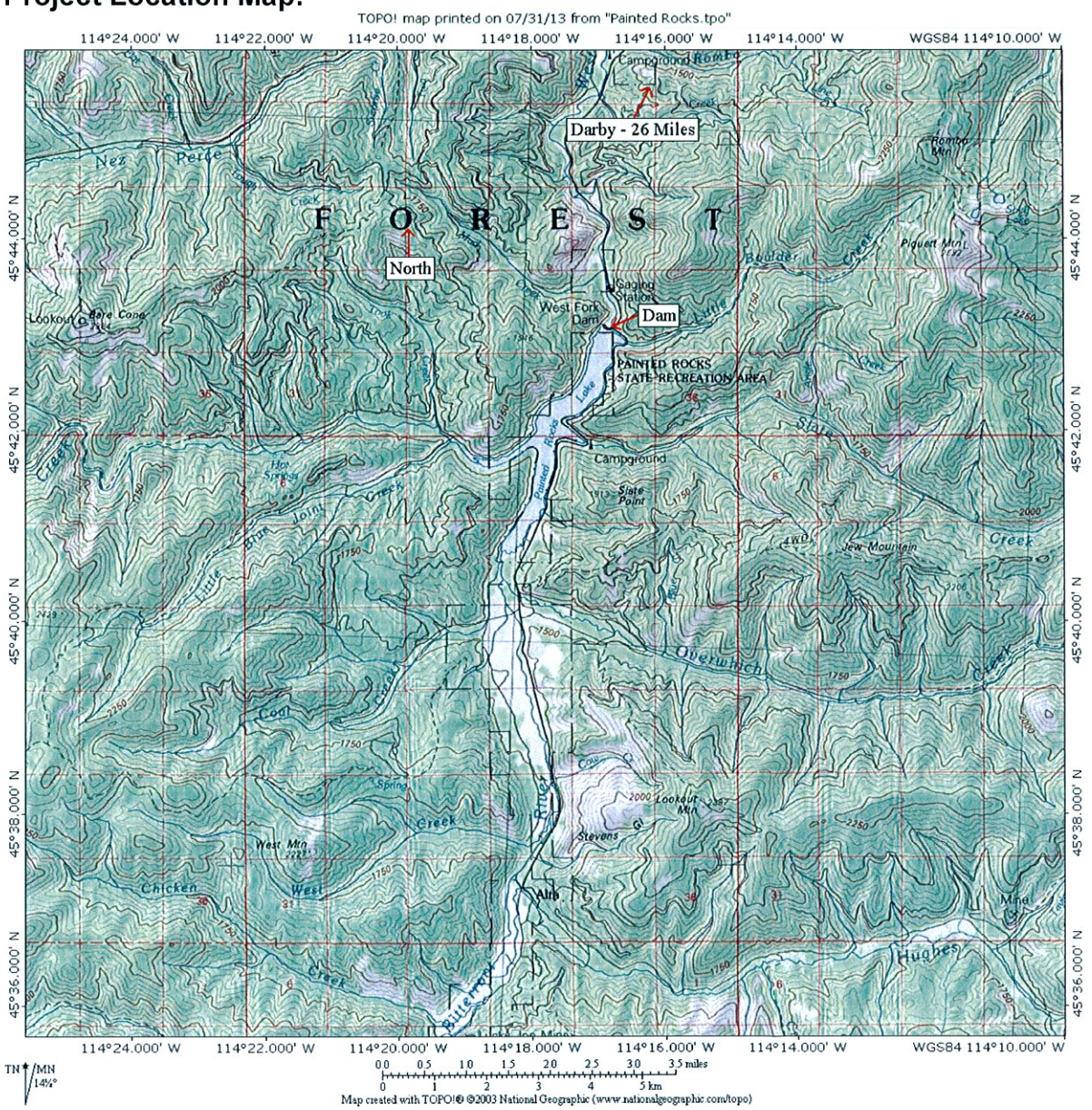
Project Cost:

The project is funded entirely by the DNRC with an estimated cost of $1,200

Contact Information:

Please contact Brian Holling at 406) 444-6692 if you have any questions or would like additional information. Project Manager Contact Information:

Brian Holling
State Water Projects Bureau
Montana Department of Natural Resources and Conservation
1424 9th Avenue
P.O. Box 201601
Helena, MT 59620-1601
(406) 444- 6692
rkingery.mt.gov

Thank you for your interest.

Project Location Map: