CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Smith Lake Dam Reconstruction
Proposed Implementation Date:	July 2012
Proponent:	Montana Department of Natural Resources and Conservation (DNRC)
Location:	Section 32, T32N, R22W
County:	Flathead

I. TYPE AND PURPOSE OF ACTION

The proposed project would repair and maintain Smith Lake Dam. The dam is located approximately 6 miles north of Whitefish on Smith Creek, a tributary to Whitefish Lake. The DNRC Dam Safety Program has classified Smith Lake Dam as high hazard. The proposed project would remove the existing spillway and embankment, reconstruct the embankment with adequate top width and side slopes, and construct a new principal rock-lined spillway on the left-hand-side abutment. The inlet diversion structure would also be removed and reclaimed. The *Montana Dam Safety Standards* would all be met and a long-term, low-maintenance solution to the existing problem would be provided.

II. PROJECT DEVELOPMENT

1. **PUBLIC INVOLVEMENT, AGENCIES, GROUPS, OR INDIVIDUALS CONTACTED:** *Provide a brief chronology of the scoping and ongoing involvement for this project. List the number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.*

The first public scoping notice that was sent to interested parties and adjacent property owners in April 25, 2005, included the Smith Lake Dam proposal letter, fact sheet, and map. Comments on the proposal were requested; the comment period was open through May 26, 2005. A total of 14 responses were received from individuals, agencies, and groups. The responses included comments about the project and requests to remain on the mailing list throughout the project period. Most comments favored replacing, rather than removing, Smith Lake Dam.

Sent out on September 14, 2005 was a project-update letter, an informational mailing that highlighted the specific actions that were taken to temporarily reduce the risk to the public from the deteriorating dam since the last public-involvement period. No funds were then available to go forward with developing the project and the project was placed on hold.

DNRC is now in the process of applying for a grant to repair Smith Lake Dam that, if selected, could receive up to $100,000 in funds. A second public-scoping notice was sent to interested parties and adjacent property owners on February 4, 2010; the *Whitefish Pilot*, a weekly newspaper, also ran an article of interest. Comments on the proposal were requested; the comment period was open through March 1, 2010. A total of 3 responses were received from individuals, agencies, and groups; all were supportive of rehabilitating the dam and reestablishing a fishery pond.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED: *Examples: Cost-Share Agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.*

Montana Department of Fish, Wildlife and Parks (FWP) has jurisdiction over the management of wildlife in the project area. FWP also administers the *Montana Stream Protection Act (SPA 124).*

The *DNRC Dam Safety Program* regulates the construction, operation, and maintenance of Montana's dams to protect life and property from damages due to failure. A *Construction Permit* and *Operation Permit* would need to be obtained prior to the repair and storage of water.

A *318 Authorization* would need to be obtained for *Short-Term Water Quality Standards for Turbidity* administered by the Department of Environmental Quality (DEQ).

Depending on final engineering and design, other permits may be required.

3. ALTERNATIVE DEVELOPMENT: *Describe alternatives considered and, if applicable, provide a brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why.*

Originally, 3 alternatives were developed and considered for this project. The pros and cons of each alternative were considered in detail in preparation for the grant application. The narrative can be found in the project file.

Action Alternative A, developed by HKM Engineering in the 2004 Rehabilitation Feasibility Report, involves the complete removal of the existing outlet works and embankment, reconstruction of a new low-level outlet works in the embankment, and construction of a new auxiliary spillway on the left abutment. This was the most costly alternative considered.

Action Alternative B consists of removing the dam and existing spillway and restoring the dam footprint and reservoir rim. This alternative was the least favored alternative to the public, interested parties, and other agencies and did not completely meet community or Department objectives.

Action Alternative C removes the existing spillway and embankment, reconstructs the embankment with side slopes and an adequate top width, and constructs a new principal rock-lined spillway on the left-hand-side abutment. The inlet diversion structure would also be removed and reclaimed. This alternative was developed to meet all long-term objectives for the project, became the action alternative that was carried through the analysis, and is the most economical rebuild of the 3 action alternatives considered. The other 2 were dropped from further analysis.

A No-Action Alternative was considered and used as a baseline for comparing the effects that Action Alternative C would have on the environment; however, due to the *High Hazard* rating of the dam, some action would need to take place.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" if no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: *Consider the presence of fragile, compactable, or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify direct, indirect, and cumulative effects to soils.*

The No-Action Alternative would have no direct impacts on soils in the project area. The existing dam structure would remain in place as constructed. No additional ground disturbance would occur in the borrow area, and vegetation would continue to grow and provide cover based on natural and preexisting conditions. Annual maintenance on the face and crest of the dam, including the mowing of brush and grasses and cutting back of willows and other tree growth, would continue.

Action Alternative C would have direct impacts on approximately 1 acre of ground, which includes the dam and the surrounding area. Direct impacts would include soil compaction and displacement resulting from the use of ground-based equipment to remove and stockpile the existing fill material. In addition, bare soil would be exposed due to the reconstruction of the dam and the expansion of the existing borrow source. Sloughing cutslopes are not expected in the borrow area since soil types are not prone to mass movement. Keeping cutslopes to no steeper than a 1:1 slope ratio will also help ensure stable cutslopes.

Revegetation could be slow on the dam surface and in the borrow area since vegetation on this soil type is sensitive to drought and frost. Also, loss of the volcanic-ash surface soil can decrease the ability to grow vegetation. Where possible, volcanic-ash surface soil would be stockpiled prior to excavation and spread over exposed slopes once excavation has been completed to improve revegetation efforts. Approximately 3 to 5 years would be expected for disturbed soils to revegetate, though the proposed grass seeding would expedite revegetation.

5. WATER QUALITY, QUANTITY, AND DISTRIBUTION: *Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify direct, indirect, and cumulative effects to water resources.*

The No-Action Alternative would have no direct effects to sediment delivery beyond those currently occurring. Existing sources of sediment, both in-channel and out of channel, would continue to recover or degrade based on natural or preexisting conditions.

Channel stability would not be affected by this alternative. Channel-stability ratings would not be changed from present levels, except by natural events.

Action Alternative C would increase short-term sediment delivery to Smith Creek from several different sources. These increases would be directly related to construction activities, and would not be present once activity was completed. First, sediment delivery would occur through the removal and reconstruction of the dam, and by the removal of the existing bifurcation structure.

These activities would create bare soil within and adjacent to the stream channel. This sediment would be minimized through dewatering of the stream during activity, installation of sediment filter fences, and through prompt revegetation of the sites upon completion.

Second, risk of sediment delivery would increase during the draining of Smith Lake. Prolonged increases in streamflow are expected as the lake is emptied, and these prolonged flows could lead to in-channel erosion and sediment delivery downstream. The risk is moderate of this happening, but the risk is mitigated, in part, by the fact that over the history of Smith Lake, the lake was drained approximately every 2 years in order to flush nursery fish to Whitefish Lake. As a result, the channel below the dam is relatively well adjusted to these prolonged increases in flow.

Third, the risk of sediment delivery would be increased due to the exposure of bare soil on the face and crest of the newly constructed dam, the reopened and expanded borrow area, and the area used to stockpile existing dam materials as they are removed. Due to the proximity to Smith Creek, these are moderate risks. These risks would be reduced by the installation of sediment-filter fences and slash-filter windrows and grass seeding and revegetation concurrent with activity. Bare soil would remain a moderate risk for 3 to 5 years until the bare soil is revegetated. Once vegetation is reestablished, risk of sediment delivery would be similar to the existing conditions.

Over the long term, risk of sediment delivery would be reduced because the newly constructed dam would be a much lower risk of failure. The new dam would eliminate the old concrete spillway and reconstruct the earthern structure with better armor. These activities would sharply decrease the risk of the dam breaching, and, thus, would lower the risk of sediment delivery over the long term.

Decreased channel stability is a moderate risk in two places on Smith Creek as a result of this alternative. At the site of the bifurcation removal, streambanks and channel bed elevation would need to adjust to the removal of the existing concrete structure. Any channel adjustments are expected to be minor and isolated to an area within 20 to 30 feet of the bifurcation site. Reaches downstream from the dam could also see decreased channel stability due to the draining of Smith Lake. Prolonged increases in flow would result from the lowering of the lake; these increases could lead to in-channel erosion of the channel bed and banks. The risk of this happening is moderate, but the risk is mitigated, in part, by the fact that over the history of Smith Lake, the lake was drained approximately every 2 years in order to flush nursery fish to Whitefish Lake. As a result, the channel below the dam is relatively well adjusted to these prolonged increases in flow.

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6. AIR QUALITY: *What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash-pile burning, prescribed burning, etc.)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.*

None.

7. VEGETATION COVER, QUANTITY AND QUALITY: *What changes would the action cause to vegetative communities? Consider rare plants or covertypes that would be affected. Identify direct, indirect, and cumulative effects to vegetation.*

The project area is occupied with a mature timber stand where the overstory dominants are predominantly Douglas-fir and western larch. The stand is well stocked and the structure somewhat multistoried. Low shrubs dominate the understory.

The No-Action Alternative would not affect vegetation in the project area. Annual maintenance on the face and crest of the dam would continue, including the mowing of brush and grasses and the cutting back of willows and other tree growth.

Action Alternative C would clear approximately 0.5 acre of this covertype and associated forest vegetation for a burrow source to the dam reconstruction. Overburden material would be removed and stockpiled to be later redistributed over the site. Once the project has been completed, the burrow site would be reclaimed and grass seeded with a native grass seed mix.

8. TERRESTRIAL, AVIAN, AND AQUATIC LIFE AND HABITATS: *Consider substantial habitat values and use of the area by wildlife, birds, or fish. Identify direct, indirect, and cumulative effects to fish and wildlife.*

If the No-Action Alternative were chosen, no appreciable changes in existing habitats would occur in the project area.

Action Alternative C would reduce vegetation that may be used by a variety of wildlife on less than 1 acre in the vicinity of the dam. Additionally, disturbance associated with the removal of the old structure and the construction of a new structure could disturb a similar group of wildlife in the vicinity. Any disturbance, displacement, or habitat modification would be additive to those resulting from ongoing timber management on DNRC-managed lands in the vicinity. Proposed enlargement of Smith Lake as a result of the dam rehabilitation could increase habitats for waterfowl, wading birds, small and medium-sized mammals, and amphibians in the area. Several bird species associated with riparian habitats could also see an increase in available habitats with the proposed dam rehabilitation. Overall, minor changes in wildlife use would be anticipated with the proposed activities.

White-tailed deer, mule deer, and elk winter ranges occur around Smith Lake; however, no appreciable changes to winter-range attributes would be anticipated.

9. UNIQUE, ENDANGERED, FRAGILE, OR LIMITED ENVIRONMENTAL RESOURCES: *Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of Special Concern. Identify direct, indirect, and cumulative effects to these species and their habitat.*

The project area is in the 'occupied habitat' as defined by grizzly bear researchers and managers as areas that are having increased grizzly bear sightings and encounters. The project area is also in the Swift Creek Bald Eagle territory. An historic nest (last used in 2001) is within 0.25 miles of the proposed activities. More recently, the pair in this territory has been nesting along Swift

Creek. As such, the proposed activities are within 1 mile of the current nest. The proposed project area is in the Lazy Creek Wolf Pack's annual home range.

If the No-Action Alternative were chosen, no appreciable changes in existing habitats would occur in the project area.

Action Alternative C could disturb grizzly bears should they be in the area; habitats in the area are generally spring habitats and activities would likely avoid the spring period when the habitats in the vicinity of the project area could be in use. Overall relatively low-levels of use by grizzly bears would be expected in the area and negligible changes to that use would be anticipated from the rehabilitation and reconstruction. Overall, negligible direct, indirect, or cumulative effects would be anticipated to grizzly bears.

Efforts to avoid construction during the nesting season would reduce potential for disturbing nesting bald eagles in this territory. Should the pair relocate their nest to the previous location much closer to the project area, project activities would be limited to the non-nesting period (August 16 through January 31). Some large trees and/or snags may be removed with the proposed construction, which could slightly reduce available habitats for perching or nesting in the vicinity of the dam. The improved fishery in Smith Lake would add foraging opportunities within the bald eagle territory. Overall minor effects to bald eagles would be anticipated with the proposed mitigations.

Negligible disturbance to gray wolves could occur should wolves be in the area during the proposed dam rehabilitation. Some slight shifts in wolf prey use may be possible; however, no appreciable changes to wolves or their prey would be anticipated. Negligible reductions in habitats for pileated woodpeckers would be anticipated with the proposed activities and some disturbance could occur to pileated woodpeckers in the area, but activities would largely avoid the early nesting period. Common loons have been in the vicinity in the past; proposed dam rehabilitation and associated fishery improvement could develop additional foraging habitats for common loons. Slight increases in riparian forested habitats could benefit fisher in the vicinity. Any disturbance, displacement, or habitat modification would be additive to those resulting from ongoing timber management on DNRC-managed lands in the vicinity. Overall negligible direct, indirect, or cumulative effects would be anticipated to pileated woodpeckers, common loons, fishers, and gray wolves. Habitats for other sensitive species are either not present and/or would not be affected with the proposed activities.

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10. HISTORICAL AND ARCHAEOLOGICAL SITES: *Identify and determine direct, indirect, and cumulative effects to historical, archaeological, or paleontological resources.*

None. Should any historical, archeological, or cultural features be discovered during construction, work in that area will be suspended until the site can be properly evaluated.

11. AESTHETICS: *Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light, or visual change would be produced? Identify direct, indirect, and cumulative effects to aesthetics.*

The adjacent access road for this project is East Lakeshore Drive. This is a paved county road that lies adjacent to the east shore of Whitefish Lake. This road is used to access a number of single-family residences; recreationalists also use this road to access the south end of Stillwater State Forest. The project area would be visible from West Smith Lake Road, which lies directly west of Smith Lake on a bluff overlooking the lake. The whole of Smith Lake is visible from this viewpoint.

Aesthetics would not be affected if the No-Action Alternative were selected.

The aesthetic view of Smith Lake would increase under Action Alternative C, which would increase the lake from a 5-acre low-water pond to an 18-acre pond at full pool.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR, OR ENERGY: *Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify direct, indirect, and cumulative effects to environmental resources.*

If the No-Action Alternative were selected, no effects would occur to the limited resources.

Action Alternative C would utilize approximately 660cubic yards of fill material from the expansion of the existing borrow site to rebuild the dam. See 4. *GEOLOGY AND SOIL QUALITY, STABILITY, AND MOISTURE* for more information of the affected environment.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: *List other studies, plans, or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state, or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.*

Whitefish Neighborhood Plan - 2004

Beaver/Swift/Skyles Timber Sale Project EA, April 2009

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY: *Identify any health and safety risks posed by the project.*

The existing dam does not meet state-required safety factors for static stability at full pool. The paved county road, downstream, and residence are in the inundation path. The culvert underneath the road cannot handle the breach flood wave.

If the No-Action Alternative were selected, Smith Lake Dam would retain its rating as a 'high hazard' dam. An *Operation Permit* would not be granted. The 5-year safety inspection and, as feasible, the recommended immediate actions to reduce the risk of dam failure, would continue.

Under Action Alternative C, reconstruction of the dam more than exceeds minimum safety factors, would require minimum maintenance, and would meet all *Montana Dam Safety Standards*. The benefit to public safety would be that:

- state trust land and private property would be preserved;
- the risk to loss of life would be minimized; and
- the only road maintained for the public that accesses private property, as well as a considerable amount of state trust land that is heavily used by the public and contractors working on behalf of the State, would be managed and protected.

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15. INDUSTRIAL, COMMERCIAL, AND AGRICULTURAL ACTIVITIES AND PRODUCTION: *Identify how the project would add to or alter these activities.*

None

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16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: *Estimate the number of jobs the project would create, move, or eliminate. Identify direct, indirect, and cumulative effects to the employment market.*

No effects to employment would occur if the No-Action Alternative were selected.

Under Action Alternative C, DNRC would be required to contract with an engineer for the final design of the reconstruction and would hire contractors to rebuild the dam.

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17. LOCAL AND STATE TAX BASE AND TAX REVENUES: *Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.*

Tax revenue would not be affected if the No-Action Alternative were selected.

Due to the relatively small size of the proposal, no measurable cumulative impacts on tax revenues would be expected from Action Alternative C.

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18. DEMAND FOR GOVERNMENT SERVICES: *Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify direct, indirect, and cumulative effects of this and other projects on government services.*

None

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19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: *List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.*

The dam is located within the *Whitefish Neighborhood Plan Area on Montana Trust Lands*. The goal of the *Whitefish Neighborhood Plan* is to provide increased revenue for the beneficiaries of the

school trusts while maintaining the economic, environmental, recreational, and cultural vitality of Whitefish and the surrounding area.

The *Whitefish Neighborhood Plan* would not be affected if the No-Action Alternative were selected.

Action Alternative C fits within the goals outlined in the *Plan*.

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20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: *Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify direct, indirect, and cumulative effects to recreational and wilderness activities.*

East Lakeshore Road is the main access route to Lower Whitefish Road on the south end of Stillwater State Forest. The nearby dispersed recreational uses include hunting, fishing, berry picking, horseback riding, bicycling, camping, snowmobiling, and disk golf.

The No-Action Alternative would not result in any direct effects. Any increase in recreational activities would be the result of ongoing timber management and/or licenses on DNRC-managed lands in the vicinity.

Under Action Alternative C, a moderate increase in recreational use would likely occur in the project area once the reconstruction is complete and the fishery restored. The project would result in a pond of approximately 18.5 acres that FWP would manage as a future fishery by stocking and restoring westslope cutthroat trout with high numbers of larger trout. The project would also rough in a walking trail from the loop on West Smith Lake Road to the dam structure.

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21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: *Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.*

None

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22. SOCIAL STRUCTURES AND MORES: *Identify potential disruption of native or traditional lifestyles or communities.*

None

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23. CULTURAL UNIQUENESS AND DIVERSITY: *How would the action affect any unique quality of the area?*

None

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES: *Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.*

No estimated return to the trust would be expected if the No-Action Alternative were selected.

Action Alternative C would reestablish a recreational asset for both community members and visitors to the area. With a viable fishery, local merchants could draw economic benefit through the sale of fishing equipment and supporting merchandise and the State would benefit through license sales.

The project would increase the value of the area for recreational use, which could provide additional opportunities to generate revenue in a way that is consistent with local planning. In addition, the water amenity would increase the value of the property. In 2004, a State of Montana appraiser compared the property value with a drastically reduced pool, as it was then, to a functioning dam with a full-pool pond. In his opinion the property was worth approximately 18 percent more with the additional water frontage of the full-pool pond.

EA Checklist Prepared By:	**Name:**	Nicole Stickney	**Date:**	04/26/2010
	Title:	Special Uses Forester		

V. FINDING

25. ALTERNATIVE SELECTED: Action Alternative C

Upon review of the Checklist EA and attachments, I find Action Alternative C, as proposed, meets the intent of the project objectives as stated in *Section I – Type and Purpose of Action*. Action is required to address a high hazard dam that is deteriorating. Action Alternative C addresses the need in a way that:

- exceeds minimum safety factors, would require minimum maintenance, and would meet all Montana Dam Safety Standards;
- preserves state trust land and private property;
- minimizes the risk to loss of life, protecting a road maintained for the public that accesses private property as well as a considerable amount of state trust land;
- reestablishes a local fishery for the community to enjoy; and
- increases the value of the area for recreational use, which could provide additional opportunities to generate revenue in a way that is consistent with local planning.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

After a review of the scoping documents, this Checklist Environmental Assessment, Department policies, standards, and guidelines, I find that all of the identified resource management concerns have been fully addressed. Specific project design features and various recommendations of the resource management and dam safety specialists have been implemented to ensure that this project will fall within the limits of acceptable environmental change. No project activities are being conducted on important fragile or unique sites. In summary, I find that the identified adverse impacts will be controlled, mitigated, or avoided by the design of the project to the extent that the impacts are not significant.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

EA Checklist Approved By:	**Name:** Brian Manning	
	Title: Unit Manager	
Signature: Brian Manning		**Date:** 04/27/2010