

RECORD OF DECISION
FOR
USDA FOREST SERVICE

BITTERROOT NATIONAL FOREST

ENVIRONMENTAL IMPACT STATEMENT
BASS LAKE DAM RECONSTRUCTION

RAVALLI COUNTY
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I. DECISION

I have selected Alternative 2 with modifications to implement reconstruction of the Bass Lake Dam. This alternative involves the following actions:

Completion of the following items identified as needing repair in order to meet Federal Dam Safety standards:

- a) Repair 220' transmission pipe, splash apron, and replace inlet structure.
 - b) Fill and shape three eroded areas on upstream dam face and dam crest
 - c) Strengthen, widen, and extend existing spillway
 - d) Place 1700 cubic feet of two feet or less rip-rap on upstream dam face to prevent erosion from wave action
 - e) Renovate log boom to protect spillway from blockage with floating debris
- 2) Heavy equipment access by way of Bass Creek Trail #4. A tracked excavator, front-end loader, and a farm tractor with trailer will be driven up the trail to the dam site. One round trip is scheduled to occur with each piece of equipment. The farm tractor and trailer will be used to drive in the fusion machine needed to weld together the polyethylene pipe as part of the repair to the outlet pipe. This third vehicle is a modification to the preferred alternative described in the Draft Environmental Impact Statement (DEIS).
- 3) Rehabilitation of Bass Creek Trail following use by heavy equipment. The purpose of this rehabilitation is: 1) to mitigate the effects of heavy equipment access; and, 2) to improve preexisting trail conditions through installation of waterbars, improving drainage, and reducing width of the trail in feasible locations. This rehabilitation represents an expansion of the mitigation described in the preferred alternative described in the DEIS. A complete Trail Rehabilitation Plan is contained in the Final Environmental impact Statement (FEIS).

II. BACKGROUND

The Bass Lake Dam is owned and operated by the Bass Lake Reservoir Company in Stevensville, Montana. The 43 foot high earthen dam impounds the headwaters of Bass Creek, creating Bass Lake. The lake covers approximately 100 acres and holds 3600 acre feet of water when full. The Bass Lake Dam is authorized with an easement established by the Acts of 1866 and 1891. It is located within the Selway-Bitterroot Wilderness, on the Bitterroot National Forest. Between 1897 and 1903, the first dam was constructed at this site using log cribbing. In 1918, the dam was again enlarged. In 1949, the Forest Service condemned the dam as unsafe; and in 1952, a new earthen dam was constructed to it's current standard. With the 1952 construction, a low standard road approximately eight miles long was built to the dam to provide access for heavy construction equipment, including dump trucks, bulldozers, scrapers, and a crane to complete the work.

In 1964, The Selway-Bitterroot Wilderness was established with the signing of the Wilderness Act. Most of the Bass Creek drainage, including its headwaters, the reservoir, and dam were part of this wilderness area designation.

In 1972, the United States Congress passed the Federal Dam Safety Act (PL 92-367). This Act called for inspection of all dams in the United States of America "for the purpose of protecting human life and property." These inspections resulted in identification of hazardous conditions requiring correction. The US Army Corps of Engineers was responsible for carrying out inspections. On the Bitterroot National Forest, the Forest Service shared inspection responsibilities.

This proposal is generated by the need for compliance with the Federal Dam Inspection Act of 1972 (PL 62-367) and the Federal Guidelines for Dam Safety of 1979. These documents are located in the project file.

Inspections of the Bass Lake Dam identified areas needing repair in order to bring the dam into compliance with Federal Dam Safety Standards. These inspections were conducted in 1980 by the Corps of Engineers and in 1989 by a consulting engineer for the Reservoir Company. These inspections and a review of the downstream risks resulted in a high hazard classification for the Bass Lake Dam. This rating was reviewed in 1993 causing a reduction in the extent of repairs needed to meet Dam Safety Standards. Specifically, the reconstruction of the Bass Lake Dam is needed for the following purposes:

- 1) To bring the dam to a safe condition that will protect downstream life and property,
- 2) Comply with federal dam safety standards, and;
- 3) To continue to provide and maintain irrigation water to dependent ranching and agricultural land.

The following needs were identified to bring the dam into compliance:

- 1) Renovate the 220 ft. water transmission pipe that goes through the dam (inlet and outlet pipes).
- 2) Fill and shape three areas on the upstream face and dam crest which have eroded.
- 3) Strengthen, widen, and extend the existing spillway.
- 4) Place 1700 cubic feet of 2 feet minus rip-rap on upstream face to prevent erosion from wave action. A talus slope to the north of the dam has been identified as the borrow area for this rip-rap.
- 5) Renovate log boom to protect spillway from filling with floating debris. This involves installing a new log boom 140 feet long composed of 13 logs connected by 3/4 inch cable. The boom would be secured to shore by bolting it to a 2'x2'x6' boulder buried beneath the surface.

The renovation of the 220 feet of water transmission pipe that goes through the dam includes the replacement of 14 feet of "Y" pipe that has the control gates on the reservoir side of the dam. This pipe is held in place with a concrete inlet structure that also holds the trash rack over these twin inlet pipes. The "Y" pipes are currently corroded in places, along with the remainder of the 206 feet of outlet pipe, and there are small holes in the "Y" pipes. The concrete structure has general surface deterioration due to 43 years of weathering; grouting and patching are needed, especially to maintain the anchor bolts for securing the trash rack and to prevent further cracking.

In order to explore alternative methods for completing the repair work, it has been determined by the Company's engineer (Druyvestein, Johnson, and Anderson) that the inlet pipe could be lined with a smaller 20" steel pipe sleeve, by welding short lengths together inside the current 24" corrugated metal pipe. It would also be possible to continue to grout and patch the concrete inlet structure. The maintenance on the concrete would be needed every 3-5 years, and this would extend the life of the structure for an estimated 20-25 years, when it would need to be replaced.

The sleeve lining of the inlet "Y" structure, and 20 year maintenance program on the concrete, would meet the dam safety requirements, until the time when the structure would need to be replaced. This approach is featured in Alternatives 3 and 4 of the FEIS. Alternative 2 implements full replacement of the inlet pipe and concrete structure at the same time as other required reconstruction work is completed.

The USDA Forest Service, by delegated authority of the Secretary of Agriculture (Federal Guidelines for Dam Safety, June 25, 1979), is responsible for ensuring that dams located on National Forest System Lands comply with Federal Dam Safety Standards. It is the Company's responsibility to ensure that the dam comes into compliance with Federal Dam Safety standards by satisfactorily addressing the specific dam repair needs.

The Bass Lake Dam Environmental Impact Statement documents the effects associated with the dam reconstruction proposal submitted by the Company, along with three other alternatives addressing significant issues associated with this proposal.

III. NATURE OF DECISION TO BE MADE

This Record of Decision (ROD) documents the decision for reconstructing the Bass Lake Dam within the Selway-Bitterroot Wilderness. Reconstruction is necessary to comply with the Federal Dam Safety Standards to guarantee safe and efficient operation of the Bass Lake Dam. This ROD also documents extensive rehabilitation work to occur on the Bass Creek Trail. Rehabilitation work will mitigate effects from heavy equipment access and will address pre-existing drainage, erosion, and other factors affecting the quality of this trail.

The Bitterroot Forest Plan identifies the Bass Lake Dam as requiring major reconstruction to meet Federal Dam Safety Standards, and that mechanized equipment will be required to accomplish this work (Forest Plan Amendment No. 7, Selway-Bitterroot General Management Direction, 1992, page M-1,2). This ROD is tiered to the Bitterroot Forest Plan and incorporates all pertinent laws, policy, and regulations by reference.

The decision documents how reconstruction and rehabilitation work will occur while meeting the requirements of the National Dam Inspection Act, the Wilderness Act, Bitterroot Forest Plan Standards, and Forest Service Policy. It addresses the significant social, economic, and environmental affects associated with implementation of the selected alternative.

Reconstruction of the Bass Lake Dam and rehabilitation of the Bass Lake Trail is scheduled to occur between mid-August and mid-October, 1996. Trail rehabilitation work will begin during this period and will continue during spring and summer of 1997.

This Record of Decision covers only the activities described for reconstruction of the Bass Lake Dam and associated with rehabilitation of the trail.

ANALYSIS BACKGROUND

The Notice of Intent to analyze this proposal through an Environmental Impact Statement appeared in the Federal Register on May 27, 1993. While discussions, field reviews, and preliminary proposals for dam reconstruction have occurred between the Company and the Forest Service over the past 10 years, formal analysis began in 1993. Since analysis began, there have been changes in the Company's proposal. Past correspondence is located in the project file.

This Record of Decision documents the final proposal for reconstruction of the Bass Lake Dam, and the trail rehabilitation work that will occur with it.

IV RATIONALE FOR THE DECISION

A. Issues and Alternatives

Four alternatives were evaluated for this project. My selection of Alternative 2 is based on careful review of the direct, indirect, and cumulative effects of all the alternatives and evaluation of how each alternative addressed the significant issues associated with this project.

Significant issues were surfaced from the permittee, public comments, and Forest Service responsibilities to meet the intent of the Dam Safety Act, Wilderness Act, other pertinent laws, and site specific resource concerns.

Eight issues were identified by the permittee, public, and Forest Service. They are: 1) preserving wilderness values; 2) watershed/aquatic ecosystems; 3) equipment and worker access to the reconstruction site; 4) work area and base camp at the reconstruction site; 5) vegetation; 6) use of motorized and mechanized equipment versus primitive equipment; 7) dam safety; and, 8) economics.

B. Rationale For Not Selecting the No Action Alternative

Under the No Action alternative, no reconstruction would occur, leaving the dam in its current unsafe condition. The needs identified by the Corps of Engineers to safely operate this high hazard dam would not be addressed. This would result in non-compliance with Federal Dam Safety standards by the owner. Under this alternative, the Forest Service would condemn the Bass Lake Dam and breach it in order to remove this public safety hazard. This alternative is not selected, because the Wilderness Act authorizes valid existing rights, which include the continued use of the Bass Lake Dam for impoundment of irrigation water. The Forest Service is responsible for ensuring the Company's compliance with Federal Dam Safety standards. As acknowledgement of their responsibility, the Company has submitted this proposal for bringing the dam into compliance, and this analysis is conducted in response to that proposal and reasonable alternatives to the proposal.

C. Rationale and Overall Comparison of Action Alternatives

My decision to implement Alternative 2 was guided by the need for protecting wilderness resource values, meeting requirements for dam safety, and maintaining the function of the irrigation reservoir. Alternative 2, when compared with other alternatives, is most responsive to these factors.

Alternative 2 uses the minimum equipment to implement reconstruction work needed to bring the Bass Lake Dam into compliance with Federal Dam Safety standards. Alternative 2 completes all major reconstruction needs for the foreseeable future, including replacement of the concrete inlet structure. Following completion of this work, annual maintenance needs would be limited to minor tasks such as disposal of debris accumulations on the dam face. Future impacts to wilderness associated with operation and maintenance of the Bass Lake Reservoir would be minor.

Alternative 3 considers flying in lighter construction equipment and Alternative 4 considers walking in lighter construction equipment. These alternatives would postpone repair to the concrete inlet structure and do maintenance to the structure instead. This maintenance program would involve using motorized pumps to pump the concrete area dry and installing a coffer dam that would remain in place while the concrete patching was completed. This maintenance would require the use of a helicopter to transport the pump, generator, jackhammer, compactor, and coffer dam materials to the dam site. In addition to annual maintenance, this extended maintenance would occur every three to five years. Concrete maintenance is estimated to take three to five days with a cost estimated at \$2000 each time (1995 dollars).

This is a temporary maintenance program that would expand the effectiveness of the current inlet pipe structure for up to 20 years. After this time, the inlet pipe structure would need to be replaced. An excavator of the size proposed in Alternative 2 would be needed to complete this work. As with Alternative 2, this equipment would need to be walked into the dam site along the Bass Creek Trail #4. Impacts to wilderness along the trail and at the dam site would be similar to those occurring under Alternative 2.

Alternatives 3 and 4 were analyzed in terms of the effects of reducing current direct impacts to the wilderness. However, they spread out the effects to wilderness (with some aspects of the recovery period) and to the Company over a substantially longer period of time and cause a cumulatively significant impact to wilderness. The cumulative effects of Alternative 3 and 4 are greater than the direct effects associated with Alternative 2.

Alternative 2 will complete all needed repair work with one entry. A trail rehabilitation plan will be implemented following reconstruction work that would place the area in a recovery and restoration mode and

avoid major intrusions and impacts to wilderness for 50 or more years, the estimated life span of the reconstruction work (FEIS, Chapter 1).

Alternatives 3 and 4 result in impacts to wilderness occurring at 3-5 year intervals, and in 20 years would result in major impacts along the trail corridor with reconstruction of the concrete inlet structure. These alternatives do not allow for adequate wilderness protection and do not minimize effects to wilderness.

I have selected Alternative 2 because it is the most practical approach to addressing the needs identified for continuing safe and efficient operation of the dam. I believe that Alternative 2 offers the most protection to wilderness values. While this alternative will result in impacts to the Bass Creek Trail #4, with heavy equipment access, these impacts are short term and are not permanent in nature. Effects to wilderness are limited to the current trail corridor and dam site, along with the two mile segment of the original road that is separate from the trail. The majority of the trail is still wide enough and passable for heavy equipment. Field reviews identified one section of trail approximately 200 feet long where a surface would need to be reconstructed to allow passage of heavy equipment. These are described in the Trail Rehabilitation Plan (FEIS, Appendix).

The excavator and loader described in Alternative 2 have the power and capability to most effectively meet the technical standards required for accomplishing the reconstruction needs at the dam site. This equipment can most effectively move and place the 1700 cubic yards of rip rap on the dam face and place and secure anchoring for the log boom with greater time savings and efficiency when compared with the smaller excavator and dump truck (or small bobcat loaders) proposed under Alternatives 3 and 4 (FEIS, Chapter 2, Alternative Descriptions).

D Response to Issues

1. Access

Access for heavy equipment to the project site is the most significant issue associated with this project. This is supported by interest expressed by the Company and the public. Two perspectives prevailed. The first perspective promoted heavy equipment access in a way that is economically feasible for the permittee. The second perspective promoted access in a way that minimizes impacts to the wilderness trail and, if possible, avoids wilderness impacts from heavy equipment access.

The Interdisciplinary Team developed and studied in detail two alternatives that address minimizing impacts to the trail. Alternative 3 was designed to avoid impacts caused by walking heavy equipment along the Bass Creek trail. It involved the use of lighter construction equipment that would be dismantled, to facilitate transport by a heavy lift helicopter, and reassembled at the dam site. Alternative 3 would take longer to accomplish with this smaller equipment. The inlet pipe structure would be renovated by lining the existing pipe rather than replacing it. The smaller equipment does not have the power to complete the coffer dam installation and excavation necessary for the replacement of the twin inlet pipes along with the concrete casing. A concrete maintenance program would be required to patch and seal the deteriorating concrete every 3-5 years.

Alternative 4 was developed to examine using lighter, smaller construction equipment and to allow it to be walked up Bass Creek trail. The equipment included a Spyder excavator, eight feet in width, and a 5-yard dump truck or two bobcat loaders. This equipment is narrower in width when compared to the approximate 10.5 foot width of the Caterpillar 225B excavator/backhoe and would result in slightly less impacts to the trail. The dump truck, also 8 feet wide, or the bobcat loaders, 6 feet wide, would also be walked up the trail. As with Alternative 3, the heavy equipment in this alternative does not have the power or capacity to complete the inlet pipe replacement and would require the 3-5 year concrete maintenance as described in Alternative 3.

By flying in smaller heavy equipment, Alternative 3 best responds to the need for avoiding impacts on the trail.

Alternative 4 minimizes impacts to the trail by using the slightly smaller, construction equipment. Impacts are reduced when compared with Alternative 2 but would still result in extensive rehabilitation and involve a recovery period over a few years.

Both Alternatives 3 and 4 involve additional impacts and intrusion into the wilderness every 3-5 years; and after 20 years, the replacement of the inlet pipe structure would be needed. Heavy equipment similar to that required in Alternative 2 would be needed to complete this work.

2. Watershed and Fisheries

The effects of the project to aquatic ecosystems were raised as an issue by the Interdisciplinary Team and the public. Effects were analyzed for impacts to watershed and fisheries resources resulting from the reconstruction proposed under Alternative 2.

Effects to these resources result from equipment access and associated stream crossings and from the dam repair site. The FEIS in Chapter 4, Effects to Fisheries, and the Biological Evaluation for Sensitive Fish Species (project file) describe the two stream crossings for the track mounted excavator, the rubber-tired loader, and the farm tractor with trailer. These fords are composed of a cobble and boulder substrate and are highly stable. Minor sediment input is expected from the machinery used in Alternative 2. The selected alternative includes access by a farm tractor to tow a trailer-mounted pipe fusion machine. The effects remain minor with the additional two crossings. Sediment input from dam repair work is expected to be short-term, minor, and restricted to the stream directly below the dam outlet. Beneficial aquatic effects from lining the outlet pipe are also described in Chapter 4.

Significant beneficial effects to watershed and fisheries resources will result through the implementation of the Trail Rehabilitation Plan. The rehabilitation includes installation of new drain dips, waterbars, and the improvement of existing waterbars for controlling erosion along the entire length of the Bass Creek trail. This work will directly control the amount of sediment running into Bass Creek. Drainage improvements will also occur at small creeks or spring crossings that in many instances are currently flowing along the existing trail. These flows will be directed back into their original channels, thus reducing gullies along the trail.

There are no significant direct, indirect, or cumulative adverse effects associated with implementation of the selected alternative to watershed and fisheries resources.

3. Sensitive Plants

The Bitterroot Bladderpod, Lesquerella humilus, is the only sensitive plant known to occur in or near the project area. This plant is currently growing on the area used as a source of rock and fill material during the 1954 construction. An earlier proposal from the Company called for, again, using this site as the source for rip-rap. With the discovery of the Bitterroot Bladderpod during field inventories, the Company agreed to avoid disturbances to this site; and under all action alternatives, use a site adjacent to the original area where no Bladderpod was found. Avoidance of the sensitive plant site achieves Forest Plan goals and objectives relating to protection of sensitive plants where no information is available on viability requirements for sensitive plants. By avoiding this plant population, there are no direct, indirect, or cumulative impacts to any individual plants (Chapter 4, FEIS, Threatened, Endangered, and Sensitive Plants Species). The Biological Evaluation for sensitive plants is located in the Project File.

Noxious weeds, primarily knapweed and sulphur cinquefoil, are present along the trail. All vehicles and equipment used on the project will be thoroughly steam cleaned and inspected for the removal of potential noxious weed seeds prior to their use on the project. Monitoring for noxious weeds will continue at the dam site and along the trail, following completion of the project.

4. Wildlife

Effects to dam reconstruction work are fully described in Chapter 4 of the FEIS. Effects are described for elk, pine marten, pileated woodpecker, boreal owl, flammulated owl, blacked-backed woodpecker, fisher, lynx, wolverine, Townsend's big-eared bat, Coeur d'Alene salamander, peregrine falcon, gray wolf, grizzly bear, and mountain goat. Minor, short-term disturbance impacts are expected to occur for those species using habitat in the analysis area. There is no risk to species viability associated with the selected alternative.

Mountain goats have been frequently observed in the higher rocky slopes in the Bass Creek corridor. Mountain goats are most susceptible to disturbance primarily by helicopter flights that occur with the selected alternative. Flights required under Alternative 2 are expected to have less impacts to goats when compared to Alternative 3.

Impacts of helicopter flights will be minimized by designating a flight corridor on the south side of the drainage. As mountain goat use is concentrated on the open, south-facing slopes located on the north side of Bass Creek, a flight path over the north aspects will keep helicopters farther from goats in the drainage, thus reducing the amount of disturbance to these animals (FEIS, Chapter 4, Mountain Goats).

5. Cultural and Heritage Resources and Tribal Consultation

Cultural Resource inventories and research reveal that no significant cultural resources are located within the areas of disturbance associated with the project area. The Selected Alternative will not result in direct, indirect, or cumulative effects to cultural resources. Our consultation included a field review of the project site and project plans with three members of the Flathead Culture Committee who represent the Flathead Salish of the Confederated Salish and Kootenai Tribes.

6. Economic and Social Effects

Economics and social effects were raised as an issue by many members of the public. The FEIS captures this issue through the following questions: What will the project and the alternatives cost, and how can expenses for the dam owner and the government be minimized? What will the effects of the alternatives have on the supply of irrigation water for dependent ranchers?

The selected alternative is estimated to cost \$139,500 to complete all work identified, including approximately \$8000 for the rehabilitation of the Bass Creek Trail. This alternative is the least cost alternative. Costs for Alternative 3 were \$205,680. Costs for rehabilitating the trail with Alternative 3 would occur in 20-25 years when heavy equipment is needed for replacing the inlet structure. Alternative 4 costs approximately \$188,130 and includes \$5000 for trail rehabilitation. Costs for Alternatives 3 and 4 include an estimated \$2000 investment by the Company every 3-5 years for 20 years to maintain the inlet pipe structure, and an estimated \$20,000 in 20 years to replace the inlet pipe structure.

The Forest Service has the objective of bringing the trail into compliance with Forest Service standards for system trails in Opportunity Class 4 (FEIS Chapter 4, wilderness values). The costs for the rehabilitation of Bass Creek trail will be shared between the Company and the Forest Service.

The selected alternative maintains current water storage for downstream uses and will not affect current uses of this water. By meeting dam safety standards, the Bass Lake Reservoir Company will continue operating the dam in a safe fashion for their current agricultural and livestock uses that are directly linked to their livelihoods. With reconstruction of the dam, human life and property are protected for the long-term.

7. Wilderness and Recreation Effects

Aircraft activity, ground transport of heavy equipment, reconstruction work, and other associated activities have the greatest effects to the apparent naturalness of the portion of the Selway-Bitterroot Wilderness

along the Bass Creek corridor. Effects to the Selway-Bitterroot wilderness are localized to the dam site and access corridor. Impacts will occur to vegetation from access of heavy equipment. These impacts will occur along the portion of the trail that follow the original roadbed and will be confined to the current tread width.

Two locations on the trail will require more extensive work to re-establish a passable surface for the heavy equipment. The first is located outside of wilderness on the lower end of the trail where a large rock outcrop abuts the trail to the north and Bass Creek cuts into the trail on the south. This makes for a width that is approximately two feet too narrow for heavy equipment passage. The second site is located within wilderness at the upper end of the Bass Creek trail where a rock slide covers the trail. Approximately 200 feet of this slide area will need to be leveled to allow passage of heavy equipment. Both of these "trouble spots" occur in areas of very sparse natural vegetation. These areas will be rehabilitated as equipment leaves to diminish the appearance of a road, and to help these portions of the trail meld into the surrounding features.

There will be social effects to recreationists associated with activities occurring along the trail and at the dam site. These include temporary displacement during the construction period and a less quality wilderness experience for trail users during the timeframe needed for vegetative recovery on the Bass Creek Trail.

V. MITIGATION MEASURES

Bass Lake Reservoir Company will enter into a short-term Special Use Permit to access the dam for reconstruction work. This permit will stipulate on-site mitigations and required rehabilitation along the trail following use by heavy equipment. The Reservoir Company has an easement for the dam site, and the work at the dam site will be governed by a cooperative agreement between the Company and the Forest Service. The conditions, provisions, and plans contained in the Special Use Permit and the Cooperative Agreement are the tools through which the Forest Service will ensure impacts to wilderness are minimized and resources are protected.

A. Campsite Management

An agreement for campsite management has been developed on site between the Forest Service and the Reservoir Company. This agreement identifies campsite location, period of use, numbers of people and stock, stock containment, waste water, garbage, and human waste disposal. It also addresses firewood gathering, campfire protection of ground vegetation, and food storage. A copy of this plan is located in the project file. It will become part of the cooperative agreement.

B. Air Operations, Safety, and Materials Handling Plan

A plan for air operations, safety, and materials handling has also been developed. This plan addresses helicopter operations associated with Alternative 2. It specifically addresses communications, public information safety, medical evacuation, flight paths, helispot management, best management practices for materials transport and storage, and diesel fuel transportation, transfer, and storage. As with the Camp Plan, this Plan will be part of the cooperative agreement and identifies mitigations needed to ensure resource protection.

In addition, the Company has secured the services of an emergency response team from Missoula which will provide consultation and supplies for handling petroleum products and preventing releases. This consultant would be immediately available to clean up hazardous materials spills should an incident occur.

VI. FOREST PLAN CONSISTENCY AND CONSISTENCY WITH OTHER LAWS

Alternative 2 is consistent with the standards, goals, and objectives of the Bitterroot National Forest Land and Resource Management Plan. It responds to the desired condition described in the Selway-Bitterroot

Wilderness General Management Direction, pages M 2-4, by bringing the Bass Lake Dam into compliance with Federal Dam Safety requirements, maintaining irrigation water and minimizing direct, indirect, and cumulative impacts to the Selway-Bitterroot Wilderness.

Based on expected impacts, I have determined that the mitigations and rehabilitation required to address these impacts will be successful in allowing recovery of physical, biological, and social resources over time. With application of trail rehabilitation plans, Bass Creek Trail #4 will be in better physical condition than before reconstruction of the irrigation dam, and current erosion problems will have been corrected. Resulting conditions will move the trail closer to compliance with Bitterroot National Forest Plan standards.

The reconstruction and associated activities are consistent with Forest Plan standards, goals, and objectives for Management Areas 7c (Selway-Bitterroot Wilderness), Management Area 6 (proposed wilderness), and Management Area 10 (facilities). The activities are also consistent with the findings from the Forest Plan 5-Year review published in 1994. All practical means to avoid or minimize impacts from the selected alternatives are being employed through features in the selected alternative, mitigation, protection, and rehabilitation.

Mitigation and monitoring measures are described in the FEIS in the Alternatives Description, Mitigation or Monitoring Section of Chapter 2, the effects analysis in Chapter 4, and in the Rehabilitation Plan in the Appendix.

Alternative 2 employs the minimum tools necessary to accomplish the objectives of the alternative and to meet the purpose and need for action. Alternative 2 adheres to the Prevention of Significant Deterioration Approach (PSD). This is consistent with the minimum tool principal, and the PSD approach described on page A-1 of the General Management Direction.

My selection of Alternative 2 is based on the information provided on the dam reconstruction requirements and engineering strategy to achieve them, current resource conditions, expected effects, and planned mitigations. My selection of Alternative 2 represents a reasoned choice among the four alternatives presented.

Alternative 2 is consistent with all other federal, state, and local laws. A description of the required permits is included in the EIS, Chapter 1, and in this Record of Decision.

Environmentally Preferable Alternative The Council on Environmental Quality regulations require that a Record of Decision specify "the alternative or alternatives which were considered to be environmentally preferable" (40 CFR 1505.2). This is the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources.

Alternative 2 is considered to be the environmentally preferable. Alternative 1, the No Action Alternative, does not have any short term impacts. However, it does not improve the structure of the Dam and ensure the safety of the Dam in the long term. If the Dam failed at some point in the long term, the impacts would be far greater than the effects of improving the Dam structure in Alternative 2. Alternative 4 has fewer short term impacts than Alternative 2, however, because it does not do the complete job, an additional entry would be required and would add to the impacts in the long term. Alternative 2 is also environmentally preferable because it does accomplish an improvement to the trail to bring it more in line with Opportunity Class 4, a higher standard for a wilderness trail than currently exists.

VII. EQUIPMENT ACCESS

Minimization of impacts to the trail and dam site are addressed in the planned approach for getting to the site and for work at the dam site itself. The heavy machinery will be walked slowly up the existing roadbed and trail. The excavator will go in first, removing large rocks and removing only those trees which are too large to attempt passing over them. Smaller vegetation that has grown into the roadbed will be run over

and will experience some damage but much of it is expected to survive. By passing over vegetation on the existing roadbed, excavation of a clean road surface is not necessary, leaving as much existing vegetation in place. A Forest Service wilderness trails expert will lead the equipment operator up the trail and will direct the operator on the least impactful method for moving the heavy equipment to the work site.

A Forest Service wilderness trails expert will also accompany the heavy equipment back down the trail and will direct rehabilitation work as identified in the Rehabilitation Plan. In the year following dam reconstruction and trail rehabilitation, a Forest Service trail crew will complete rehabilitation work best done by hand crews. Following trail rehabilitation, vegetation recovery is expected to continue for the next few years. Evidence of heavy equipment use on the trail will be significantly diminished, and the wilderness and trail conditions will be restored and improved following completion of trail rehabilitation.

REHABILITATION PLAN

Mitigation and rehabilitation of effects resulting from heavy equipment access are addressed in the Bass Creek Trail Rehabilitation Plan which is included as an Appendix to the Final Environmental Impact Statement.

This Rehabilitation Plan was developed cooperatively between the Forest Service, the Bass Creek Reservoir Association, and input from interest groups including Wilderness Watch, Friends of the Bitterroot, and the Ecology Center. The goal of the Trail Rehabilitation Plan is to identify actions that will be taken to insure impacts from heavy equipment are minimized and to identify actions to aid recovery of expected impacts caused by heavy equipment impacts. The Rehabilitation Plan goes beyond addressing impacts caused by heavy equipment access to include correcting other pre-existing problems on the trail. Erosion control, drainage, and trail width are the main areas needing attention that existed prior to the dam reconstruction project. The Rehabilitation Plan establishes objectives by trail sections. Trail sections include the section outside wilderness, the old roadbed that is not part of the system trail, and the remainder of the trail that is within the wilderness, up to the dam site.

Heavy equipment on site facilitates correcting drainage problems, installing and improving waterbars and drainage dips, reducing the width of the old roadbed, and varying the alignment. This will be accomplished by placing large rocks and logs in configurations that add diversity and visual modifications that will improve the sections of the trail where the original road cut is more visible. The work identified is needed to meet Forest Plan wilderness trail standards.

VIII. IMPLEMENTATION AND MONITORING

Monitoring will occur to determine if resource objectives are being achieved and to determine the degree of particular effects. Monitoring of this project will occur to ensure wilderness, watershed, and other resource protection standards are met related to access to the project site, work at the site, camp management, air operations, and materials handling.

A Forest Service Civil Engineer will be assigned responsibility for monitoring and ensuring the required engineering and technical standards for dam reconstruction are met during all construction stages. Follow-up inspections will provide monitoring of the effectiveness of repair work. These inspections will be completed at least annually. These inspections will also monitor revegetation successes on disturbed sites and noxious weed occurrence. In addition, effectiveness of trail rehabilitation as it relates to sedimentation control and visual quality will be completed by the Forest Service after rehabilitation work is completed.

The Special Use Permit and cooperative agreement, with the associated plans, are the instruments through which the Forest Service will conduct its monitoring and ensure that desired outcomes are met.

IX. PUBLIC INVOLVEMENT

A Public Involvement Plan was developed for the analysis process used and is located in the project file.

Individuals interested in this analysis were identified by contacting people who expressed interest in the review of the Northern Region Wilderness Dam Policy Review completed in 1991 and 1992. The scoping notice and an announcement of a public meeting for the Bass Dam Reconstruction proposal were sent to this mailing list. Issues were raised by the public through responses to the Notice of Intent in the Federal Register, local scoping notice, and public meetings. These issues are displayed in Chapter 2 of the FEIS.

Twenty-nine comment letters were received in response to the DEIS. Following release of the DEIS and before completion of the Final EIS, the Interdisciplinary Team, including the Stevensville District Ranger, along with the Reservoir Company, and interest group representatives met to further define issues and concerns related to the preferred alternative. This included a field review and discussion of the dam reconstruction project strategy and development of the extensive Trail Rehabilitation Plan. We also responded to requests for information from the public regarding the DEIS and invited groups to meet with us to review comments submitted by interest groups. Communication and coordination remained strong with the Bass Lake Reservoir Company during the analysis process.

This project is of particular interest for individuals in the Bitterroot Valley who depend on irrigation water for ranching and agricultural livelihoods. Equally strong interest has been demonstrated by interest groups who are strong advocates for wilderness preservation.

Several wilderness advocate groups provided very specific considerations and input as the Trail Rehabilitation Plan was being developed.

There was general agreement among most commentors that the reconstruction project was necessary and that maintaining the reservoir to provide irrigation water for downstream uses was also valid. Some commentors favored the alternative that reduced the amount of stored irrigation water by lowering the emergency spillway rather than reinforcing the dam and widening the spillway. Commentors thought this approach would have eliminated the need for heavy reconstruction and their associated impacts to wilderness. The FEIS considered such an alternative but eliminated it from detailed study because lowering the emergency spillway would result in a reduction of irrigation water by the Federal Government. Such an approach would not meet the Purpose and Need for Action described in Chapter 1 of the FEIS which included "provide and maintain irrigation water to dependent ranches and agricultural lands" (FEIS at Ch-1, page 1).

Another alternative supported by wilderness advocates was to explore completing all reconstruction requirements through use of primitive tools, such as draft horses and fresnos, in keeping with the spirit of the Wilderness Act. This alternative was also examined but eliminated from detailed study (Chapter 2, page 3). This alternative was eliminated from detailed study, because it would not have the ability to meet required technical standards for dam reconstruction and would result in extensive impacts over the three or more years needed to complete the job. As is also noted in the Introduction to this Record of Decision (ROD), the existing dam structure resulted from a construction operation completed in 1954. This was prior to wilderness designation, using technology and engineering standards that included bulldozers, scrapers, dump trucks, and a crane.

Some wilderness advocates supported Alternative 3 which flew in heavy equipment, accomplished highest priority reconstruction needs, and employed the 3-5 year maintenance program. They favor this alternative because they believe when the concrete inlet structure finally requires replacement in 20-25 years, technology advances would allow inlet pipe replacement to occur without heavy machinery impacts to the wilderness.

Other wilderness advocates agree that implementing Alternative 2 afforded the best, long-term protection for wilderness because it accomplished all needed reconstruction work at one time, with one intrusion.

Support for Alternative 2 among the groups is strongly dependent on accomplishing the extensive trail rehabilitation program following the dam work. This rehabilitation would address the sedimentation, drainage, and visibility impacts that are still evident from the original road that is used as the Bass Creek trail. Having equipment on the project affords the opportunity for resolving these problems, resulting in long-term improvements and protection to the wilderness resource.

The Rehabilitation Plan, located in the Appendix of the FEIS, is a comprehensive strategy for mitigating the impacts occurring to the trail as a result of heavy equipment access and from past impacts. This strategy incorporates many of the ideas and input provided from wilderness advocate groups, following review of the DEIS. With implementation of the Rehabilitation Plan, Alternative 2 satisfactorily addresses the concerns of these groups. The permittee will bear a portion of the cost for rehabilitation, and the Forest Service will bear the cost for a portion. These responsibilities will be spelled out in the Special Use Permit, authorizing the ingress and egress.

A major concern expressed by irrigation, ranching, and agricultural interests was that the dam reconstruction work be completed in the quickest, most economical and efficient way possible. Many of these interests were also concerned about the extensive rehabilitation work on the trail, and how this work would affect emergency access to the dam.

Alternative 2 is responsive to these concerns, as it was developed by the Bass Creek Reservoir Company, who is bearing the cost for completing the reconstruction needed to meet Federal Dam Safety requirements. The rehabilitation work will not substantially change emergency access needs from existing access, which is by way of the trail, or with a helicopter.

X. POLICY DIRECTION FOR WILDERNESS DAMS

The selected alternative and other alternatives meet Forest Service policy and direction related to reconstruction of dams in designated wilderness (FSM 2326.1--8). This allows the use of motorized/mechanized equipment when one or more of the following conditions apply: 1) emergencies; 2) when impacts to wilderness and/or resources therein would be greater using non-motorized/ non-mechanized methods (including duration of impacts); 3) when physically infeasible to use non-motorized methods; and, 4) when costs make the use of primitive methods infeasible. Conditions 2 and 3 were found to apply following consideration of the primarily primitive/non-motorized alternative that was eliminated from detailed study. Under the primarily primitive/non-motorized alternative, impacts to wilderness were found to be greater (particularly base camp impacts) and of extended duration when compared with a motorized/mechanized approach. Similarly, the technical standards required to meet dam safety goals could not be physically achieved using non-motorized methods. This became evident while investigating methods for transporting the outlet pipe, compacting the fill material, and for winching the 220 feet of outlet pipe liner into the existing outlet pipe.

XI. FEDERAL AND STATE PERMITS

The Company is responsible for obtaining all permits required for dam reconstruction. The following permits have been received for the work activities:

Bitterroot Conservation District; 310 Permit for the two stream crossings.

The following agencies have been contacted, and consultation is underway to determine if the following permits are needed:

US Army Corps of Engineers; 404 Dredge and Fill Permit for the coffer dam installation.

Montana Department of Natural Resources and Conservation, Water Quality Division; Water Quality Standards Turbidity Exemption (3(a) authorization); and Construction Stormwater Permit.

A Forest Service Special Use Permit will be completed for authorizing the access to the project site.

All required permits will be in place before the implementation of the project.

SAFETY OF FOREST VISITORS

Safety of forest visitors is of greatest importance. The Stevensville Ranger District and the Company will coordinate before and throughout the dam reconstruction period to ensure that the public is aware of the activities associated with this operation. At no time will the public be put at risk. This will require temporary closure of the Bass Creek Trail, the immediate area around the dam site, and use restrictions near the Charles Waters Memorial Campground. Closure periods will be posted in advance and communicated through the local media.

CONCLUSION

Wilderness is a resource shared by all Americans. It is important to emphasize that the Selway-Bitterroot Wilderness continues its historic relationship to the agricultural and ranching community in the Bitterroot Valley by providing water resources critical to these enterprises. The Wilderness Act acknowledges the existing and future value of irrigation dams, a non-conforming use, within wilderness. The Act states that these uses should continue where feasible and necessary. I believe that the Selected Alternative for the Bass Creek Dam Reconstruction Project presents a careful balance that allows the Forest Service to fulfill its responsibility in meeting the requirements of the National Dam Safety Act and Federal Dam Safety Standards in such a way that preserves wilderness resources. This EIS site specifically documents the effects occurring to natural and human resources within the Bass Creek portion of the wilderness. The effects to the vegetation and soil from the movement of the equipment along the trail will be short-term and will diminish with the implementation of the trail rehabilitation plan. The dam will continue to be a non-conforming use within the wilderness with related effects, but these effects will be minimized with rehabilitation and revegetation measures.

Based on my review of the features, mitigation measures and rehabilitation plans associated with Alternative 2, I feel that every reasonable measure is being taken by the Forest Service and the Company to minimize the direct, indirect, and cumulative impacts of this project to the Bass Creek portion of the Selway-Bitterroot Wilderness. This is the environmentally preferable alternative.

XIV. APPEAL RIGHTS, IMPLEMENTATION, AND CONTACTS

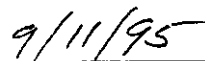
This decision is subject to administrative review, pursuant to the Code of Federal Regulations, 36 CFR 215.7, or 36 CFR 251.82 (for specific parties (251.60)). As stated in 36 CFR 215.11, an appeal may be filed by any person who, or any non-Federal organization or entity that has submitted written comment in response to the Draft EIS. Appeals must be postmarked or received within 45 days of the date of the legal notice of this decision. Appeals should be sent to the Appeals Deciding Officer, Regional Forester, Federal Building, 200 East Broadway, P.O. Box 7669, Missoula, MT, 59807. Appeals must meet content requirements of 36 CFR 215.14 or for other specific parties, 36 CFR 251.90. Detailed records of the environmental analysis are available at the Stevensville Ranger District. For additional information regarding this decision, contact District Ranger Leslie Weldon at the Stevensville Ranger Station, 88 Main Street, Stevensville, MT 59870.

If no appeal is received, implementation of this decision may occur on, but not before, five business days from the close of the appeal filing period. If an appeal is received, implementation may not occur for 15 days following the date of the appeal disposition.

XV. SIGNATURE



Stephen K. Kelly
Forest Supervisor



Date