

Bass Lake Dam Reconstruction FEIS

APPENDIX A

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APPENDIX B

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# APPENDIX C

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Trail Rehabilitation Plan-Bass Creek Trail #4.

TRAIL REHABILITATION - BASS CREEK TRAIL #4

PREPARED FOR
BASS LAKE DAM RECONSTRUCTION ENVIRONMENTAL IMPACT STATEMENT
AUGUST, 1995

PREPARED BY:
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I. BACKGROUND

Bass Creek Trail #4 provides access to Bass Dam and Reservoir and to the Bass Creek drainage, in the Selway-Bitterroot Wilderness. The trail utilizes an old roadbed that was built to access Bass Dam when it was constructed to its present size in 1952. The trail has been managed as a non-motorized hiking and horseback trail, since the implementation of the Wilderness Act in 1964. The trail is 7.5 miles long, 6 miles of which coincide with the old road. During 1988-90, 1.5 miles were reconstructed. The first three miles of the trail is outside the wilderness. The trailhead is adjacent to the Charles Waters Campground. Existing trail tread width on the old road for the first three miles outside of wilderness is about 48 inches. This part of the trail experiences heavy day use from hikers. Existing tread width on the remainder of the trail is 18-24 inches. The width of the old road is approximately 12 feet.

A map, color photos, aerial photos, and a video tape display existing conditions, and typical sections along the trail. These are located in the Project File at the Stevensville Ranger Station.

II. FOREST PLAN GOALS AND OBJECTIVES

Trail maintenance and construction guidelines are contained in the Forest Plan, Amendment 7, Selway-Bitterroot Wilderness General Management Direction, February 1992. The Bass Creek trail corridor is in Opportunity Class (OC) 4. Goals for trails within this Opportunity Class are:

System trails will offer a low level of challenge and will accommodate heavier hiker and stock use. Trails will be well defined, yet will be as natural as possible and blend well with the surrounding topography.

Tables N-1 and N-2 in Amendment 7 display trail maintenance and construction guidelines and system trail maintenance priority and frequency for trails by Opportunity Class:

OC 4- Trail Maintenance and Construction Guidelines:

| | |
|----------------------------|--|
| Sustained Maximum Grade-To | be determined based on soil type |
| Maximum Pitch/length | -15% / 200 feet |
| Clearing Width | -8 feet, 6 feet between large trees |
| Clearing Height | -10 feet |
| Tread Width | -24", up to 36" for switchbacks |
| Tread Surface | -As needed for stability |
| Appropriate Structures | -All are acceptable, except for metal, plastic culverts. |

OC 4- System Trail Maintenance Priority and Frequency

All items will be completed annually or more frequently as necessary:

- Complete log clearing Priority 2
- Partial log clearing Priority 1
- Drainage Priority 1
- Woody vegetation Priority 3
- Treadwork Priority 2

Objectives of the Rehabilitation Plan

1. Predict the effects and expected impacts on Bass Creek Trail #4 from Alternative 2 of the EIS: walking a tracked excavator (Caterpillar 225 B or equivalent), 10.5 feet wide, 60,000 pounds, and track loader (Caterpillar 966 or equivalent), 9.6 feet wide, 38,000 pounds, and a farm tractor (JD 2555), 6.6 feet wide, 5800 pounds, pulling a trailer, 6.0 feet wide, 4600 pounds, traveling the trail from the trailhead located in T 10 N, R 20 W, Section 32, PM; to Bass Lake in Section 30, T 10 N, R 21 W, PM; and returning to the trailhead.

2. Describe the mitigation measures and rehabilitation proposed to reduce and to aid recovery of expected impacts from machine travel on the trail, to meet Forest Plan goals for user experiences on a OC 4 trail, and to meet General Management Direction for Wilderness, recreation, and trails.

III PREDICTED IMPACTS

Much of the old roadbed has grown in with brush such as alder and willow and several species of coniferous trees, primarily lodgepole pine and Douglas-fir. These trees vary in size from 1 inch in diameter, 1 foot high, to 8 inch diameter, 20 feet high. The old road now has more of an appearance of a trail than a roadbed. Along with time and natural processes, Forest Service trail crews have helped enhance the trail appearance by preventing erosion and narrowing the trail width.

The main impact from the equipment's passage will be the short term effect from the loss of the vegetation growing on the roadbed. The vegetation growth within the roadbed has helped to visually reduce the road width, screened the road cut slope, and has made the road, in most places, appear as a trail corridor. A roadbed is like a terrace. A terrace helps hold moisture, stimulating the start and growth of plant life. This has enhanced the vegetative recovery on the old road.

The temporary vegetation disturbance from the equipment passage will alter the trail corridor appearance. The machines will be impacting a path where the wheels and tracks pass with the excavator tracks being 10.5 feet wide, and the farm tractor 6.6 feet wide. The loader tracks are 9.6 feet wide, and will occur in the same location as the excavator tracks. To access the dam site, the machines will remove some trees, trample some of the brush, and generally make the existing trail corridor more open with less vegetation. Not everything in their path will be killed. The majority of the brush will recover quickly. Many of the smaller trees, along with the brush species, will be laid over to eventually spring back. Alder and willow will respond to

damage and cutting. This helps stimulate new growth since more nutrients are available to the plant. Trees broken off will not recover. Dead vegetation will dry and brown.

There will also be machine track marks, exposed soil, dead logs broken and crushed, and rocks disturbed. These will all be visual effects that will heal with time. Two hundred feet of rock slide in the upper section of road has covered the old roadbed. This will require scraping and moving the rocks off the road with the excavator bucket, sidecasting the smaller material, and placing the larger rocks to the side or above the road for later placement to narrow the tread.

Compaction of the road bed should be minimized. The excavator is the heaviest piece of equipment, but it also will have the lowest ground pressure, because of the wide tracks. The old road bed has been compacted in the past by previous use as an access route. The composition of the surface is primarily rock. Shrub and tree growth will reduce compaction of the surface layers over time. Efforts to protect this vegetation will aid in the slow process of soil recovery, along the sides of the trail.

IV. REHABILITATION OBJECTIVES

Rehabilitation objectives are defined for 3 sections of the trail. These are further delineated on the map in the project file.

A. Specific objectives for the section of trail outside of wilderness, first 2.0 miles to the old crib dam pond:

1. Leave trail in a condition that discourages motorized use.
2. Rehab to mitigate visual effects of damaged vegetation
3. Following equipment passage, narrow down tread after use to current tread and clearing widths. Use boulders and down, dead logs.
4. Install rolling dips, clean and deepen existing drainage structures, improve side drainage crossings. Locations flagged.
5. Restore and naturalize cliff bypass route to current conditions.
6. Walk over all vegetation, remove badly damaged trees or brush, (those that are not expected to survive) by cutting flush with tread, or by removing stumps, and scattering above and below trail. Those pieces scattered above trail can be later placed along the road edges to serve as tread narrowing.
7. Monitor for revegetation and visual improvement needs, immediately following the trip out with the equipment.
8. Other site specific needs listed by station numbers

B Specific objectives for the remainder of the trail within the Wilderness:

The overall objectives for the 5-6 miles of trail within the wilderness are the same as first 2 miles, except narrow down to 18"- 24" tread width, 8' clearing width. This will be accomplished with the use of large rocks and dead logs. Meander the trail alignment to make the old road less obvious and straight.

1. Flush cut larger trees for later placement along trail side for providing narrower tread. Use excavator to pull smaller broken trees out of roadbed, shake root wads in root holes, place trees below trail, out of site. Fill in root hole with slight scraping action of bucket.
2. On the way out, excavator will follow behind and be used to selectively place logs and rocks for tread narrowing and for the drainage improvement work. Damaged trees and brush will be placed below trail, out of sight, or along edge of trail to delineate a narrower tread.
3. Trail crew to complete hand work needs the following summer to naturalize and restore tread and vegetation effects. Rake out tread marks in soil, turn rocks back over, shape up tread, remove damaged vegetation, and generally improve visual effects.
4. Along the 200 foot section where reconstruction is needed with the excavator, place rocks back, pull in berm, 1/2 to 1 back slope with rock, naturalize by turning rocks back to lichen side up.
5. Monitor for revegetation needs and to evaluate the functioning of the drainage structures.

C. Specific Objectives for the 1.5 miles of old road that will be used for equipment access but is not part of the Bass Creek Trail.

The overall objective for this section is to ensure continued recovery of vegetation, improve drainage conditions, and stabilize the soil.

1. Hide take off points, by having the excavator transplant 3-5 conifer saplings at the junctions and place dead logs, rocks there also.
2. Install deep drainage dips where flagged.
3. Monitor the drainage structures, and for revegetation needs

V. IMPLEMENTATION

Critical components of the rehabilitation implementation strategy:

1. The on-the-ground coordination for both the trip in and out of Bass Creek with the equipment operators and a FS wilderness and trails

representative. Measures for minimizing impacts will be identified on the trip in to the reservoir. Coordination on the trip out will ensure our objectives for rehabilitation, naturalizing, and drainage control are met.

2. The follow up cleaning, brushing, and hand work by a Forest Service trail crew during the summer following the project to remove all the vegetation that did not recover, mitigate visual effects, and to ensure that drainage structures are functioning properly.

No areas along the old road were identified as needing earthwork or bank pull downs to rehabilitate the old road. Every effort will be made to prevent disturbance to the upper cut slope of the roadbed. Track effects will be directed to the lower side of the bed. All the rehabilitation and naturalizing can be accomplished by the selective placement of boulders and logs, the treatment and placement of slash and damaged vegetation, and the drainage improvements. No explosives are needed.

The excavator can likely rehabilitate 2 miles per day, operating 10 to 12 hours per day. This will depend on the time required for completing drainage structures. The excavator and operator cost an estimated \$100/hour (1995 local rates).

The trail will be closed to public use during construction at the dam, from about one mile below the dam, at the horse camp in the adjacent meadow. The trail will be closed completely during the movement of equipment along the trail.

A Wilderness Ranger will coordinate trail info/closure needs and media releases. A volunteer will be recruited to post at the Bass Creek trailhead to provide public information.

The Bass Lake Reservoir Company is responsible for trail rehabilitation costs. The Forest Service is responsible for the costs of the drainage improvements. These responsibilities will be defined in the special use permit for the access to the dam site.

All equipment must be steam cleaned of all weed seed before heading up the trail.

VI. SPECIFIC TRAIL REHABILITATION NEEDS

Sixteen stations were flagged and numbered along the trail to help identify trail resource problems and solutions along the trail and to serve as typical sections for rehabilitation needs. These are also identified on the map and aerial photos in the project file. Color photos were also taken to accompany each of these stations. The stations are identified on the ground with a single, numbered, blue/white striped ribbon. Two blue/white ribbons identify 112 locations for construction of drainage dips. Notes from the 16 stations are:

Station Work to be done

Encroaching rock bluff on the trail, rough, rocky area near creek, along the private land that lies approximately 1/4 mile up the trail from the trailhead. Modifications and the selective placement of rocks is needed here, to keep equipment out of the stream. This area as well as the first three miles of the trail receives heavy day use from the campground. Move boulders and logs to naturalize the appearance of the road and to narrow the tread clearing to the previous existing widths. Maintain existing stream channel function and condition.

- 2 Place rip-rap to keep the creek from overflowing onto the trail which is creating erosion.
3. Steep section between station 2 and 3. Also, typical of other steep section above this station. Heavy erosion has reduced fines and exposed large embedded rocks. Deep, rolling constructed dips are needed to control erosion. These are flagged along the entire equipment route. Also, between stations 3 and 4 are two places where small side drainages are hitting the trail and running down the trail. Construct channel diversion to route the stream back to it's original channel.

Between stations 3 and 4 are two locations where anglers are walking down steep banks to access the creek. One of these locations also coincides with a waterbar drainage run. This is causing sediment to reach the creek. Place boulders to disperse access and to intercept sediment channel.

Also along this stretch, heavy regeneration is present on the road shoulders. This is common along other sections of trail further up. Seedlings and saplings up to 3" in diameter will be walked over with the equipment on the way up. Severely damaged trees will be removed and scattered on the way out. Two-three inch saplings will be pulled from the ground, root wads shaken, and scattered below the road or above the road, for later use as defining narrower tread width. Root holes will be filled. Larger trees will be sawn off flush with the ground. The trail crew will provide followup treatment to ensure damaged trees are removed and scattered. Alder, willow, and ceonothus brush is also present, and it is expected to re-sprout vigorously.

4. At the small reservoir approximately two miles from the trailhead, the character of the trail changes to a narrower tread. There is not as much day use above this reservoir. Increased trail narrowing techniques will be employed from this point to the large dam.
- 5 Wilderness boundary: Remove and bury the two concrete barricades here. Replace existing wilderness boundary sign with new sign.

6. Typical closed canopy, dense regeneration section. Some sections of dense slash may need piling if dispersal techniques are not successful in eliminating concentrations of slash. These could be piled and burned below the road.
7. At this point the new trail leaves the old road. Make the junction less visible so trail users don't mistakenly follow the old road. Excavator can plant a few saplings in the roadbed and use old logs and boulders to accomplish this.
- 8 & 9. These are the 2 ford locations on the old road, and these stations are recorded on the video and with photographs to document the existing condition of the fords. Within 100 yards of station 9, the old road rejoins the trail. Again, hide the junction so trail users coming down the trail do not follow the old road, using the same methods described at station 7.
10. Typical section where the objective is to place large, dead logs back onto the road to narrow the trail and make it meander to look more like a wilderness trail.
11. Side drainage is flowing down trail. Use excavator to deepen channel across road and armor with rocks, to divert drainage from trail.
12. This is the largest side drainage tributary to Bass Creek along the trail, and water is carrying down the trail 150-200 feet. Deepen the drainage channel so it concentrates the braids into one channel that flows across the old road, reinforced with rocks.
13. Concentration of larger Lodgepole Pine 3-5" in diameter. Flush cut and scatter below trail, out of sight.

Between 13 and 14, additional side drainages coming in and being intercepted by the old road, and running down the road. Same treatment as 11 and 12.
14. Begin open talus slopes. Lots of large rock to place back on road to narrow tread and create meanders. Place large rocks at least every 50 feet for naturalizing/narrowing.
15. Rock slide has obliterated old road, necessitating need for new construction for 200 feet, to allow for safe equipment passage. This is steep here also, and drainage improvements are needed.
16. Side drainage intercepted by old road. Channel deepening and straightening and rock placement needed, as described at station 11 and 12.

17. Dam site: (Not identified on ground with flag, but this is the section of trail that leads up to and around the north side of the dam, about 350') Have loader dump 13 yards of fines to provide tread and cushion through talus slope, at the point where the trail crosses near the dam. Distribute with wheelbarrow and shovels. This will improve the trail which is currently hazardous for livestock. Trail improvement for this section will prevent horse users from crossing the creek and dam which has created resource problems in both locations.

The excavator will perform the naturalizing and narrowing work as it exits the project area. Waterbar and drainage work will also be completed. Identified on the ground with two blue/white striped flags, are 112 locations for water bar and drainage control work. The drainage structures will help preserve trail tread and erosion by slowing and removing water from the trail. The general locations and numbers of drainage structures, beginning at the dam are:

- 1 From the dam to the first avalanche chute meadow - 18.
2. To the second avalanche chute meadow - 7
3. To the creek and avalanche chute with a bad wash out - 29
- 4 To the new trail junction start with the old road bed - 8
5. From the lower junction with the roadbed and new trail to the Wilderness Boundary sign - 5.
6. To the wooden dam - 8.
- 7 From the dam to the trail head - 37.

VII MONITORING:

Wilderness or trails specialist will accompany excavator operator as the equipment is walked up and down the trail to guide the operator in the implementation of this plan.

Botanist or Silviculturist will review trail after implementation to make revegetation recommendations.

Trail crew will complete follow up brushing, cleaning, drainage inspections, and visual mitigation measures during the early summer following implementation.

Wilderness Ranger and FS Engineer to monitor implementation of access and reconstruction work, to ensure compliance with EIS, mitigation measures, permits, and other plans.

Recovery rate of vegetation and visual quality will be monitored annually. Additional rehabilitation will be completed if annual monitoring identifies a need.