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JUL 23 2004

D.N.R.C.

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Hidden Lake Salvage
Proposed Implementation Date:	July 30, 2004
Proponent:	Department of Natural Resources and Conservation / Dillon Unit
Location:	SE1/4 Section 4, Township 5 South, Range 12 West
County:	Beaverhead

I. TYPE AND PURPOSE OF ACTION

Salvage timber permit for fire damaged, diseased and overstocked timber. An estimated 150 MBF of Douglas fir and lodgepole pine timber would be harvested from approximately 23 acres. Purpose of action is to generate revenue for the school trust, utilize resource and recover value from fire damaged timber prior to its deterioration, improve forest health through removal of overstocked and diseased timber, and bring treated portions of stand closer to a semblance of historic conditions. (See Attachment A for vicinity and site specific locations).

II. PROJECT DEVELOPMENT

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1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:
Provide a brief chronology of the scoping and ongoing involvement for this project.

SEP 28 2004

A field review was conducted in August 2003 by DNRC forester Chuck Barone. Letters were sent to the following seeking comments for the proposed timber harvest:

LEGISLATIVE ENVIRONMENTAL POLICY OFFICE

- MT Dept. of Fish, Wildlife and Parks, Regional Supervisor, P. Flowers
- MT Dept. of Fish, Wildlife and Parks, Fisheries Management Biologist, Richard Oswald
- MT Dept. of Fish, Wildlife and Parks, Wildlife Biologist, Craig Fager
- USFS, Dillon Ranger District, District Ranger, Tom Olsen
- Jim Becker (Lessee)

Other contacts:

- DNRC, Archaeologist, P. Rennie
- DNRC, Supervisor Resource Management, G. Frank
- DNRC, Soil Scientist, J. Collins
- DNRC, Fisheries Program Specialist, J. Bower
- Montana Natural Heritage Program
- Montana Fisheries Information System

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

A Road Use Permit would be needed from the Forest Service for hauling of logs on Clark Creek road #7441. The Beaverhead County Weed Control administers the State weed laws in Beaverhead County. The Weed Control is contacted by the DNRC and given a weed plan for each project.

A Beaverhead County burning permit would be required if slash burning is done. The DEQ, in conjunction with the Cooperative Airshed groups, regulate the volume of particulate emissions from open burning of slash. The DNRC is a part of this airshed group.

3. ALTERNATIVES CONSIDERED:

Action Alternative: Harvest approximately 150 MBF of burned, damaged, diseased and overstocked timber from an estimated 23 acres of State land.

Stand treatments would consist of a regeneration harvest for burned and dying timber, and group selection/selection harvest in overstocked areas. Harvest design is directed at recovering value from burned /dying timber and reduce susceptibility to insect attack and fire by reducing overstocking of remaining stand.

Approximately 638 feet of temporary new road would be needed to access harvest unit. Excess slash would be consolidated at landings and burned.

No Action Alternative: Current management actions would be maintained and forest management and harvesting actions would be deferred. No recovery of timber value would be realized. This tract is currently leased for grazing.

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 any cumulative impacts to soils.

The proposed sale area is located on moderate to steep slopes on granitic bedrock. Bedrock geology is stable and no signs of slope instability or unique geologic features were noted in the proposed harvest unit. Soils within the proposed salvage site are shallow to moderately deep cobbly sandy loams from granitics and support Douglas-fir stands. The soils are well to excessively drained and tend to be droughty. Granitic surface cobbles and stones are common with rock outcrops on ridges. Erosion risk is moderate to high for bare soils, but low to moderate for undisturbed soils with intact duff surfaces. The proposed harvest area slopes are 10-40%, and forest sites are suitable for tractor operations.

Burn intensity on the DNRC land is low to moderate with a mosaic of dead standing trees. Ground burn severity is also low to moderate with most surface duff intact and patches where duff was burned off and exposed mineral soil. Soil hydrophobicity (water repellency from burning) was of limited extent on the low to moderate burn sites typical on the State section. Ground vegetation of grouse whortleberry and pinegrass are expected to promptly revegetate the first year after fire. There was a high intensity rain event that occurred in the fall of 2003 that caused sheet and rill erosion on burned sites where the surface soil duff was consumed.

Primary soil concerns associated with timber salvage are maintaining soil depth and avoiding excessive disturbance and erosion of the shallow soils during harvest operations associated with ground based skidding. To minimize soil effects, salvage mitigation measures will include skid trail planning, retaining slash in the units and on trails and installing drainage features on trails where needed. Harvest operations will retain a proportion of coarse woody debris and fine slash to help control erosion, and provide shade and organic matter to enhance survival of seedlings through droughty periods. Implementation of BMP's and recommended mitigation measures should reduce the area and degree of soil impacts of harvest areas to control erosion and maintain soil productivity.

(See Attachment B - Soils Assessment)

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 cumulative effects to water resources.

The Hidden Lake Salvage project area lies entirely within the Grasshopper Creek drainage. Grasshopper Creek is listed on the Montana 303(d) list as an impaired stream, and a Total Maximum Daily Load (TMDL) is scheduled for development in 2011. Probable causes of the Grasshopper Creek listing include bank erosion, dewatering, flow alteration, metals, and other habitat alterations, and the probable sources include agriculture, crop-related sources, grazing-related sources, resource extraction, mine tailings, habitat modification (other than hydromodification), and bank or shoreline modification/destabilization. As described, the Grasshopper Creek 303(d) listing is not associated with forest management activities. The project is not expected to have any direct, indirect, or cumulative downstream impacts to water quality, water yield, watershed conditions, or fisheries in Grasshopper Creek.

The project area includes Clark Creek, a subbasin of Grasshopper Creek. The Clark Creek watershed covers approximately 2,948 acres, of which 2,165 acres (73.4%) are forested (baseline/pre-fire). The perennial portion of Clark Creek is approximately 5.00 miles in length from the confluence with Grasshopper Creek to the headwaters in Beaverhead-Deerlodge National Forest. The Clark Creek watershed is dominated by geologic processes associated with granitic landforms. Clark Creek is not listed as impaired on the Montana 303(d) list. The Missouri River drainage, including Clark Creek, is classified as B-1 in the Montana Surface Water Quality Standards. The B-1 classification is for multiple use waters suitable for domestic use after conventional treatment, growth and propagation of cold-water fisheries, associated aquatic life and wildlife, and agricultural and industrial uses. The State has adopted Forestry Best Management Practices through its Nonpoint Source Management Plan as the principle means of controlling nonpoint source pollution from silvicultural activities.

Several cold-water fisheries exist within the project area, and the primary species of interest in this assessment is westslope cutthroat trout (*Oncorhynchus clarki lewisi*) (WCT). WCT are listed as a Class-A Montana Animal Species of Concern. The proposed harvest unit is located more than 100 feet from Clark Creek.

The Hidden Lake Fire occurred within but primarily east of the project area during July and August of 2003, affecting approximately 16.1% of the Clark Creek watershed. There are likely no detectable existing impacts to the flow regime of the watershed as a result of this fire. Consequently, stream stability and water quality are unlikely to be affected by the fire.

Implementation of appropriate Best Management Practices and recommended mitigation measures would (1) provide adequate large woody debris rates of recruitment, (2) provide adequate levels of stream shading, (3) provide a filtration zone of adequate size for any downhill overland flow events, and (4) the highest level of tree density possible within the SMZ.

Given the low relative harvest area (0.7% of watershed), an estimated 30-37% tree retention prescription, minimal road construction away from watershed and fisheries resources, and a no harvest stream buffer at least 100' wide, no foreseeable direct, indirect or cumulative impacts are anticipated to WCT or any other beneficial uses associated with the Clark Creek watershed.

(See Attachment C – Watershed and Fisheries Assessment)

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

The project includes piling and burning of logging slash. Localized short duration particulate emissions occur during slash burning. Slash burning is normally conducted in late October through November. Particulate emissions during this period are regulated by the DEQ and the Cooperative Airshed groups. The DNRC, as a member of the airshed group, coordinate burning times to 1) limit burning periods of acceptable smoke dispersion and 2) to limit the cumulative generation of particulates between all members of the airshed group.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

The State parcel is located in the Grasshopper Valley on the south side of the Pioneer Mountains. Lands within the proposed project area occur in the foothills with generally broad and gentle ridge tops. Slopes range from 10-60% with an elevation range of 7,000-7,300 feet. Forested acres within the State parcel are dominated by Douglas-fir with a mix of lodgepole pine in the higher elevation areas. Riparian areas tend to be mixed conifer dominated by spruce. The parcel was harvested under the Grasshopper Timber Sale in 1995, totaling ~95.5 acres.

The proposed harvest unit consists of 23 acres of Douglas-fir and Douglas-fir/lodgepole pine mix. Lodgepole pine represents ~60% and Douglas-fir ~40% of the merchantable sawlog volume within the harvest unit. Approximately 6 acres, located on the east side of the unit, was burned severely during the Hidden Lake Fire in 2003. Predominately pure Douglas-fir stands tend to be overstocked and suppressed, leaving them more susceptible to fire and attack from insects and disease. Parent stands were likely more open and park like, periodically burned every 35-45 years by mixed severity ground fires. Overstocking has resulted where there has been an absence of fire. Encroachment occurs readily along the forest edge. Regeneration is sparse with little understory vegetation or coarse woody debris. Areas of mixed species have moderate regeneration and understory with moderate to heavy coarse woody debris. Lodgepole pine exhibits poor and dead tops, poor form and stem defect due to a moderate to heavy infestation of mistletoe.

Stand treatments would consist of a regeneration harvest in the burned area and for live lodgepole pine to recover resource value before it is lost. Group selection and selection harvests would be utilized for Douglas-fir, removing ~50% of the merchantable sawlog volume.

Surviving old trees (greater than 150 years old) are found scattered in the harvest unit as individual trees or clumps. Portions of the harvest unit would meet the minimum requirements for old growth as currently defined under the State Forest Land Management Rules (SFLMR). Large live trees, snags and coarse woody debris, which are important attributes associated with old growth and future development of old growth, would be retained within the harvest unit. The main block of old trees, located in the northwest corner of the stand, would not be harvested. To the best of our knowledge, using the present available information, the current forest inventory data indicates the percentage of Douglas-fir and lodgepole pine old growth cover types on state land is nearly twice the estimated percentage that is likely to have historically occurred on State lands in Beaverhead and Madison Counties. The small amount of old growth acreage to be harvested under this proposal would have a negligible effect on the percentage of Douglas-fir and lodgepole pine old growth remaining on state lands in Beaverhead and Madison Counties.

There are approximately 2,165 forested acres (73.4%) within the Clark Creek watershed. Only a small amount of the watershed (0.2%) has been harvested. Of the 480 acres of State ownership, ~308 acres are forested. Forested acres on the State tract represent 14.2%, and the proposed harvest represents 1.0%, of the total forested acres within the watershed. There is presently more total forest cover than in prior historical conditions due to range encroachment and fire suppression.

Harvesting an estimated 150 MBF of timber would alter the forest cover on approximately 23 acres. The proposed harvest would involve 7.5% of the total forested acres on the State tract and 4.8% of the entire tract. Harvest design is intended to maintain a semblance of historic conditions through emulating mixed severity and stand replacing fires while addressing forest health issues and recovering value from damaged timber. Natural regeneration would be expected.

No rare plants or cover types have been noted or observed within the project area or the State tract.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

A variety of big game, small mammals, raptors, songbirds and grouse potentially use this area. Rainbow and cutthroat trout are present in the Clark Creek drainage.

Harvest activities in the next few years would have little effect on **wildlife** and fisheries resources until substantial vegetation and stream recovery from the fire event occurs. Due to the **size, nature, duration and location** of the proposed project, no impacts are expected to wildlife and fisheries habitats.

(See Attachments C & D– Watershed and Fisheries Assessment; Checklist for Endangered, Threatened and Sensitive Species)

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 cumulative effects to these species and their habitat.

No threatened or endangered species have been documented within the project area. Occasional use of the area from grizzly bear and gray wolf could potentially occur but is generally considered outside of their normal occupied habitat. Preferred habitat for lynx is not present within the project area and marginal outside of the project area due to the recent fire event.

Several cold-water fisheries exist within the project area, and the primary species of interest is westslope cutthroat trout (WCT). WCT are listed as a Class-A Montana Animal Species of Concern. The Department of Natural Resources and Conservation (DNRC) has also identified westslope cutthroat trout as a sensitive species. Fisheries information on USFS land upstream of the project area indicates a small population of WCT individuals observed visually. An adult WCT was visually observed within the project area.

Blackbacked woodpeckers have not been documented within the project area but are anticipated as foraging and nesting opportunities increase in the area due to the recent fire event. Significant amounts of similar burned habitat will remain available on the adjacent lands.

Lemhi Beardtongue (*Penstemon Lemhiensis*), a sensitive plant species, has been documented ~2.0 miles southwest of the project area.

Due to the size, nature, duration and location of the proposed project, no impacts are expected to occur to any endangered, threatened or sensitive species.

(See Attachments C, D & E – Watershed and Fisheries Assessment; Checklist for Endangered, Threatened and Sensitive Species; Montana Natural Heritage Program/Montana Fisheries Information System)

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine effects to historical, archaeological or paleontological resources.

There is no indication that cultural resources exist within the proposed project area. No additional archaeological investigative work is recommended.

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 cumulative effects to aesthetics.

The proposed harvest unit would not be visible to any populated areas due to the topography. The harvest unit is adjacent to portions of Clark Creek road and the Sawtooth trail. An unharvested buffer area of ~75 will be maintained between these areas and the harvest unit.

Due to the topographic location of the proposed harvest unit and mitigation measures, it is unlikely that aesthetics would be impacted adversely.

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 cumulative effects to environmental resources.

The proposed project would harvest an estimated 23 acres or approximately 1.0% of the total forested acres within the Clark Creek watershed. No cumulative impacts are expected.

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.

A range evaluation was conducted in August 1995.

A Burned Area Emergency Response (BAER) report for the Hidden Lake Fire was completed in August 2003.

The proposed White Creek Timber Harvest Environmental Assessment is currently being prepared. The project involves school trust land parcels, Sections 4, 9 & 16-T5S-R12W, which surround the proposed Hidden Lake Salvage project area.

DNRC adopted the Administrative Rules for Forest Management on March 13, 2003, applicable to management activities on forested State lands.

No cumulative impacts are expected.

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.

NONE

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

NONE

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

People are currently employed in the wood products industry. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on employment.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

People are currently paying taxes from the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on tax revenues.

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 cumulative effects of this and other projects on government services.

There will be no measurable cumulative impacts related to demand for government services due to the small size of the timber sale program, the short-term impacts to traffic, the small possibility of a few people temporarily relocating to the area, or the presence of other timber sales in the adjacent area.

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.

In March 2003, DNRC adopted the Administrative Rules for Forest Management ARM 36.11.401 through 36.11.450 (the "Rules"). This project is planned under the requirements of the Rules.

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 cumulative effects to recreational and wilderness activities.

Persons possessing a valid state lands recreational use license may conduct recreational activities on the tract. The proposed project would not affect the existing access for the general public.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

There will be no measurable cumulative impacts related to population and housing due to the relatively small size of the timber sale program, and the fact that people are already employed in this occupation in the region.

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

NONE

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 cumulative economic and social effects likely to occur as a result of the proposed action.

The estimated return to the trust would be \$24,643.50 (150 MBF of tractor sawtimber @ \$164.29/MBF) Income from grazing license of \$419.68/year for 86 AUM of use would continue with or without the harvest proposal.

EA Checklist Prepared By:	Name: Chuck Barone	Date: July 10, 2004
	Title: Dillon Unit Forester	

V. FINDING

25. ALTERNATIVE SELECTED:

After review, I have selected the proposed Action Alternative, to harvest approximately 150 MBF of burned, damaged, diseased, and overstocked timber from an estimated 23 acres of School Trust land and construct approximately 638' of temporary new road. I believe this alternative can be implemented in a manner that is consistent with the long-term sustainable natural resource management of the area while promoting forest diversity, maintaining a semblance of historic conditions, and generating revenue for the school trust from timber harvest.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

I conclude all identified potential impacts will be avoided or mitigated by project design, contract provisions, project administration, and BMP compliance, and no significant impacts will occur as a result of implementing the selected alternative.

MEASURES RECOMMENDED TO MITIGATE POTENTIAL IMPACTS:

- 1) Compliance with Forestry Best Management Practices (BMP's) and Streamside Management Zone (SMZ) laws.
- 2) Limit equipment operations to periods when soils are dry, frozen or snow covered to minimize soil compaction and rutting.
- 3) Install and maintain adequate drainage on roads, landings and skid trails.
- 4) **Retain slash in harvest units:** On slopes over 30% all slash should remain on site to reduce skidding effects and help control erosion. On slopes less than 30% the majority of slash will be return skidded or left within the harvest unit. Slash should be returned from the landing and distributed evenly throughout the unit. Large amounts of slash shall not be allowed to accumulate at the landings before it is returned in the unit. Slash shall be scattered on skid trails as skidding progresses on each trail.
- 5) Construct road in accordance with DNRC road specifications.
- 6) All road construction and logging equipment will be power washed and inspected prior to being brought on site. Sale area will be monitored for weeds following harvest and a treatment plan will be developed should noxious weeds occur.
- 7) Promptly seed newly disturbed soils on temporary roads, main skid trails (where needed) and landings with an appropriate seed mixture.
- 8) **Skidding Limitations:** Ground-based skidding equipment (tractors and skidders) would be limited to slopes less than 40% if not causing excessive disturbance. Steep slopes above incised draws may require a combination of mitigation measures based on site review, such as adverse skidding to ridge or winch line skidding from equipment positioned on more moderate slopes. Skidding equipment will be available with 75 feet of winchline for skidding of selected sites.
- 9) **Skid Trail planning:** Skid trails will be located at least 75 feet apart unless on snow. Skid trails will have erosion control installed and/or adequate slash where needed.
- 10) One snag and one snag recruit per acre, >21" dbh, will be retained where applicable. Cull live trees and cull snags and large woody debris will be retained where applicable.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

EIS

More Detailed EA

No Further Analysis

EA Checklist Approved By:	Name: Richard Moore Title: Dillon Unit Manager
Signature: <i>Richard A. Moore</i>	Date: 7/22/04

ATTACHMENTS

- A - Vicinity Map/Site Specific Map
- B - Soils, Geology and Noxious Weed Assessment
- C - Watershed and Fisheries Assessment
- D - Checklist for Endangered, Threatened and Sensitive Species
- E - Montana Natural Heritage Program/ Montana Fisheries Information System

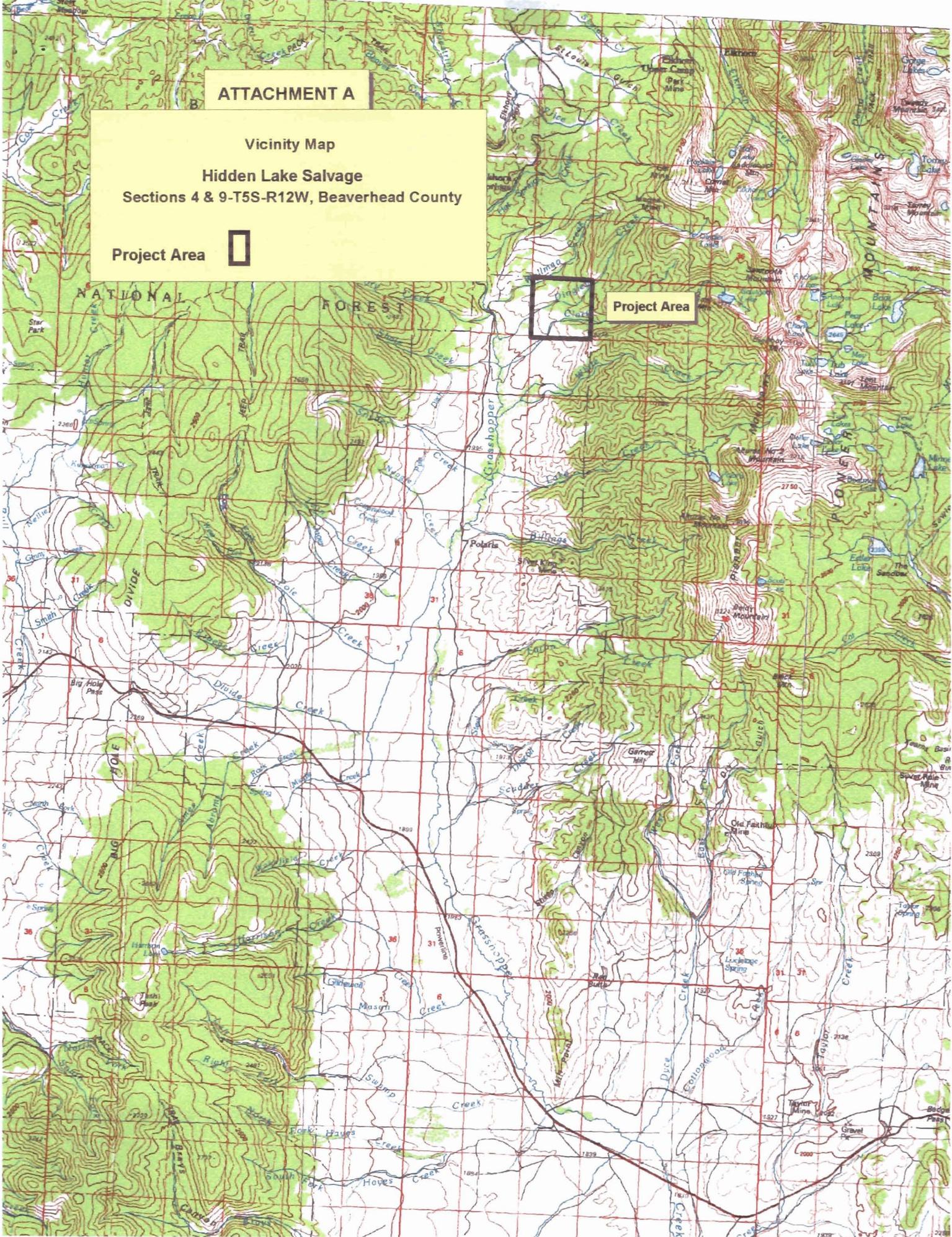
ATTACHMENT A

Vicinity Map
Hidden Lake Salvage
Sections 4 & 9-T5S-R12W, Beaverhead County

Project Area



Project Area



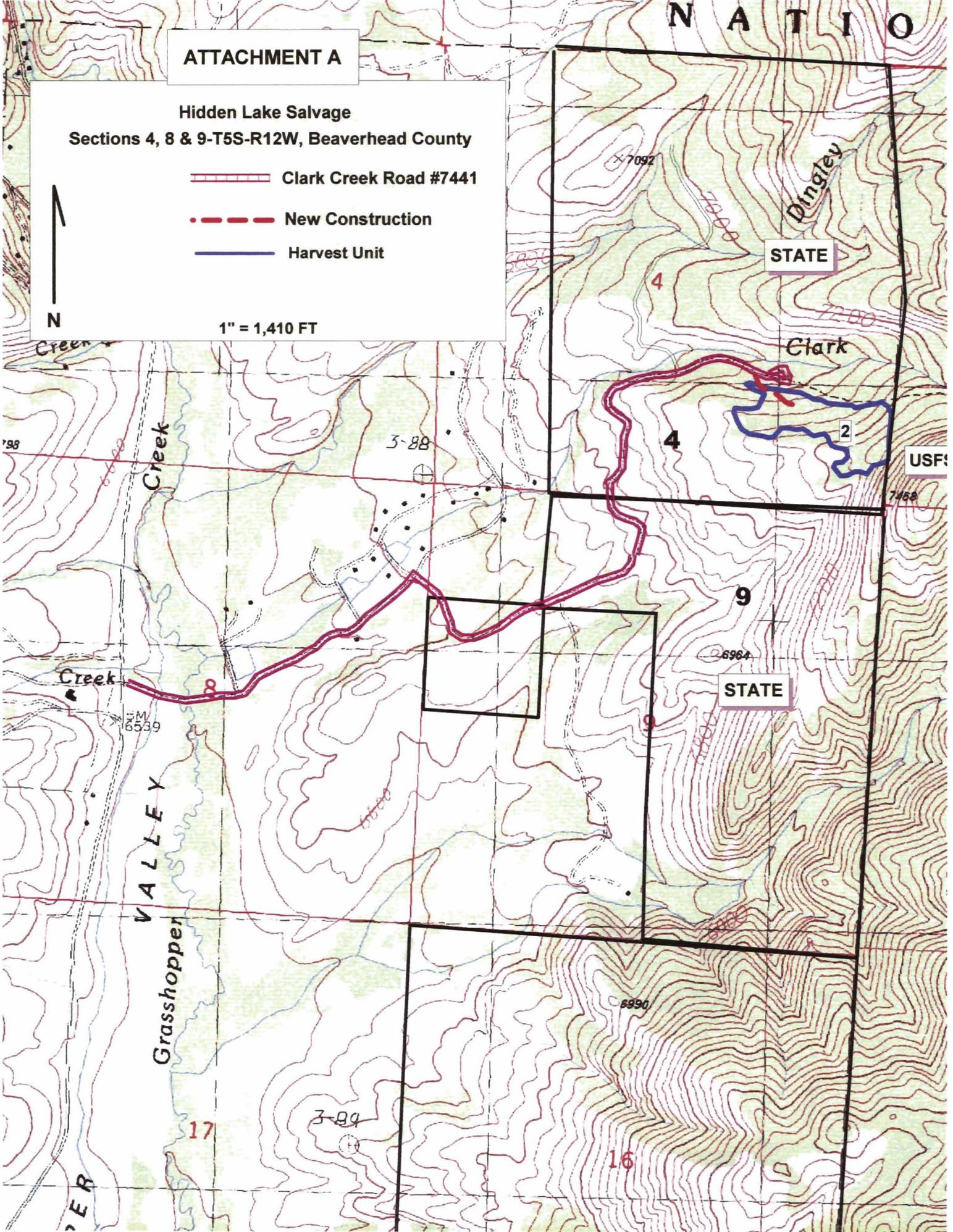
ATTACHMENT A

Hidden Lake Salvage
Sections 4, 8 & 9-T5S-R12W, Beaverhead County

-  Clark Creek Road #7441
-  New Construction
-  Harvest Unit



1" = 1,410 FT



ATTACHMENT B

SOILS, GEOLOGY AND NOXIOUS WEED ASSESSMENT HIDDEN LAKE SALVAGE, Sections 4 & 9, T5S, R12W

JEFF COLLINS, Soil Scientist

January 27, 2004

Potential Issues and Concerns

* Potential impacts are soil erosion, increased sediment delivery to draws, displacement and decreased soil productivity, depending on the area and degree of effects.

* Introduction and spread of noxious weeds associated with harvest operations.

Existing conditions, Geology & Soils

The proposed sale area is located on moderate to steep slopes on granitic bedrock. Bedrock geology is stable and no signs of slope instability or unique geologic features were noted in the proposed harvest units. Soils within the proposed salvage sites are shallow to moderately deep cobbly sandy loams from granitics and support mixed Douglas-fir and Lodgepole stands. The soils are well to excessively drained and tend to be droughty. Granitic surface cobbles and stones are common with rock outcrops on ridges. Erosion risk is moderate to high for bare soils, but low to moderate for undisturbed soils with intact duff surfaces. The proposed harvest area slopes are 10-40%, and forest sites are suitable for tractor operations. Open grassland/sagebrush sites in E ½ of section 9 are similar cobbly sandy loams with some sandy clay loam deposits on footslopes.

Burn intensity on the DNRC land is low to moderate with a mosaic of dead standing trees. Ground burn severity is also low to moderate with most surface duff intact and patches where duff was burned off and exposed mineral soil. Ground vegetation of grouse whortleberry and pinegrass are expected to promptly revegetate the first year after fire. There was a high intensity rain event that occurred in the fall of 2003 that caused sheet and rill erosion on burned sites where the surface soil duff was consumed.

Soil hydrophobicity (water repellency from burning) was of limited extent on the low to moderate burn sites typical on the State sections during field review. A fire-line trail to the west side of proposed salvage unit 1 in NE1/2 Section 9 was deeply rilled and eroded by the high intensity rainfall in 2003. This trail will continue to erode and be slow to stabilize unless reshaped and reseeded.

Effects of proposed salvage

Primary soil concerns associated with timber salvage are maintaining soil depth and avoiding excessive disturbance and erosion of the shallow soils during harvest operations associated with ground based skidding. To minimize soil effects, salvage mitigation measures will include skid trail planning, retaining slash in the units and on trails and installing drainage on trails where needed. Harvest operations will retain a proportion of coarse woody debris and fine slash to help control erosion, and provide shade and organic matter to enhance survival of seedlings through droughty periods. Locate RMZ's based on high erosion risk for burned areas.

The proposed harvest of unit 1 in section 9 would construct an access skid trail from an existing road to the harvest unit, which would cross a sagebrush/grass slope that is not within the burned area or in a draw. BMP requires avoiding skidding on steep slopes unless not causing erosion. Effectively we would meet the intent by keeping the constructed trail to less than 40% grade, minimizing excavation, requiring short term use and stabilizing the skid trail after use. As part of the salvage project, the eroded fire-line in NE section 9 would be stabilized to improve drainage and reduce an existing erosion problem. Stabilizing the main fire-line trail or new skid trails would require, installing drainage features, and slashing as needed and grass seeding.

The proposed salvage of unit 2 in section 4 would construct a temporary road above the trailhead on moderate grade, with minimal excavation. Following harvest the temporary road will be stabilized with effective drainage features as needed and slashed and grass seeded. The harvest area is located on moderate slopes and convex terrain that is well drained. Erosion can be controlled on disturbed areas with standard drainage features, waterbars and grass seeding.

In unit 2 the proposed harvest should reduce overstocking and improve growth of remaining trees by reducing competition for limited soil moisture and nutrients. The high density of small trees makes it difficult to economically remove all small trees to restore historic conditions.

Recommended Mitigation Measures

Implementation of BMP's and the following recommended mitigation measures should reduce the area and degree of soil impacts of harvest areas to control erosion and maintain soil productivity.

Install and maintain adequate drainage on roads, landings and skid trails to control erosion and comply with BMP's, and maintain concurrent with hauling operations. Maintain drainage features and avoid rutting by limiting the season of road use to dry, frozen or adequately snow covered conditions. Slash trails and grass seed as needed and directed by Forest Officer.

Harvest design Mitigation Measures:

Skidding Limitations: Ground-based skidding equipment (tractors and skidders) would be limited to slopes less than 40% if not causing excessive disturbance. Steep slopes above incised draws may require a combination of mitigation measures based on site review, such as adverse skidding to ridge or winch line skidding from equipment positioned on more moderate slopes.

Skid Trail planning The logger and sale administrator would agree to a skidding plan prior to equipment operations with the following design requirements:

- a. Skid trails should be located at least 75 feet apart unless on snow.
- b. A skidder should be available with 75 feet of winchline for skidding of selected sites.
- c. Skid trails would have erosion control installed and/or adequate slash where needed as directed by the forest officer.

Retain slash in harvest units On slopes over 30% all slash should remain on site to reduce skidding effects and help control erosion. On slopes less than 30% whole tree harvest would be allowed when the majority of slash is return skidded or left within the harvest unit. Slash should be returned at the landing to the unit and distribute it evenly throughout the unit. Slash would be returned to the unit as it is created and worked onto the skid trails. Large amounts of slash shall not be allowed to accumulate at the landings before it is returned in the unit. Slash shall be scattered on skid trails as skidding progresses on each trail.

Integrated Weed Management Mitigations to be Implemented

To reduce current noxious weed infestations and limit the spread of weeds the following integrated weed management mitigation measures of prevention and control will be implemented in:

* All harvest equipment will be cleaned of plant parts, mud and weed seed to prevent the introduction of noxious weeds. Equipment will be subject to inspection by forest officer prior to moving on site.

* Promptly seed soils newly disturbed soils on temporary roads, main skid trails (where needed) and landings with site adapted grasses (including native species, slender wheat grass and western wheatgrass) to reduce weed encroachment and help stabilize roads from erosion.

DNRC will monitor the project area disturbed sites for new noxious weeds and develop plans as needed to address weed problems.

Recommended Checklist format for Soils and Noxious Weeds

II. IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES = Not present or No Impact will occur. Y = Impacts may occur (explain below)
<p>4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactable or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] Geology is granitics, which is exposed on ridges. No unstable slopes or unique geology features are present in the harvest units. Forest soils are shallow to mod. deep, stony sandy loams with shallow topsoils on moderate slopes. Erosion risk is moderate to high for burned and disturbed bare soils. Intense rain after fire caused sheet erosion on burned areas and steep dozer firelines. Soils on steep slopes are easily displaced by equipment operation that may impact soil productivity depending on area and degree of effects. Planned ground skidding operations should have moderate to low direct, in-direct and cumulative impacts based on trail spacing, a limited number of trips to harvest overstory trees and implementing mitigation measures. Mitigations include; implementing BMP's, construction and restoration of temporary road, planning and stabilization of skid trails, slope restrictions, retaining woody debris and prompt revegetation of disturbed sites on roads as directed by Forest Officer for erosion control and to protect soil resources. Existing eroded fireline would be stabilized.</p>
<p>7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] Vegetation Analysis, Stand conditions, Old growth analysis etc????? Chuck to fill in as needed</p> <p>RARE PLANTS AND WEEDS PORTION No rare plants or noxious weeds have been identified in the project area (reference, Montana Natural Heritage Program and field review). To prevent introduction of new weeds, off-road equipment will be cleaned and inspected prior to entry into harvest areas and new disturbed areas along temporary roads, landings and main skid trail will be grass seeded as needed. There is low risk of indirect or cumulative impacts to vegetation</p>

ATTACHMENT C

WATERSHED AND FISHERIES ASSESSMENT FOR HIDDEN LAKE SALVAGE

Jim Bower – Fisheries Program Specialist, DNRC
Gary Frank – Resource Program Manager, DNRC
13 February 2004

INTRODUCTION (*Chapter 1*)

The Hidden Lake Salvage project area includes State Trust Lands within T5S R12W Sections 4 and 9 and lies entirely within the Grasshopper Creek drainage (5th code HUC 10020002010). The Grasshopper Creek drainage encompasses a southwestern portion of the Pioneer Mountains.

The project area covers two subbasins of Grasshopper Creek, which will comprise the extent of this watershed/fisheries assessment. From north to south, these two subbasins include Clark Creek and White Creek. Grasshopper Creek will not be included in this assessment since none of the project alternatives (see below) are expected to have any direct, indirect, or cumulative downstream impacts to water quality, water yield, watershed conditions, or fisheries in Grasshopper Creek.

Grasshopper Creek is listed on the Montana 303(d) list as an impaired stream, and a Total Maximum Daily Load (TMDL) is scheduled for development in 2011. Probable causes of the Grasshopper Creek listing include bank erosion, dewatering, flow alteration, metals, and other habitat alterations, and the probable sources include agriculture, crop-related sources, grazing-related sources, resource extraction, mine tailings, habitat modification (other than hydromodification), and bank or shoreline modification/destabilization. As described, the Grasshopper Creek 303(d) listing is not associated with forest management activities. Clark and White Creeks are not listed as impaired on the Montana 303(d) list.

The Missouri River drainage including Clark and White Creeks is classified as B-1 in the Montana Surface Water Quality Standards. The B-1 classification is for multiple use waters suitable for domestic use after conventional treatment, growth and propagation of cold-water fisheries, associated aquatic life and wildlife, and agricultural and industrial uses. Known beneficial uses for water within the project area include use for drinking and culinary purposes after conventional treatment, recreation, growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers, and agricultural use. Among other criteria for B-1 waters, no increases are allowed above naturally occurring concentrations of sediment, which will harm or prove detrimental to fish or wildlife. Naturally occurring includes conditions or materials present from runoff on developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable practices include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The State has adopted Forestry Best Management Practices through its Nonpoint Source Management Plan as the principle means of controlling nonpoint source pollution from silvicultural activities (Thomas et al 1990).

Several cold-water fisheries exist within the project area, and the primary species of interest in this assessment is westslope cutthroat trout (*Oncorhynchus clarki lewisi*) (WCT). WCT are listed as a Class-A Montana Animal Species of Concern. A Class-A designation is defined as a species or subspecies that has limited numbers and/or habitats both in Montana and elsewhere in the North America and elimination from Montana would be a significant loss to the gene pool of the species or subspecies. (Montana Fish, Wildlife and Parks, Montana Natural Heritage Program, and Montana Chapter American Fisheries Society Rankings). The Department of Natural Resources and Conservation (DNRC) has also identified westslope cutthroat trout as a sensitive species (ARM 36.11.436).

ALTERNATIVES (Chapter 2)

- No Action Alternative
- Action Alternative (Includes: tractor harvest, 2 units, 57.0 total acres, 0.27 miles of road reconstruction, 0.42 miles of new road construction, and 0.20 miles of skid trail construction)

EXISTING CONDITIONS (Chapter 3)

• CLARK CREEK

Project Area. T5S R12W Section 4 and a small NW portion of Section 9 are the only sections within the project area that intersects the Clark Creek watershed (see MAP 1).

Watershed. The Clark Creek watershed covers approximately 2,948 acres, of which 2,165 acres (73.4%) (baseline/pre-fire, see Fire on page 5) are forested ('forested' defined as having 50% or greater canopy cover.) The weighted mean annual precipitation in the Clark Creek watershed is approximately 31.6", and the annual runoff for the watershed is approximately 11.2".

The perennial portion of Clark Creek is approximately 5.00 miles in length from the confluence with Grasshopper Creek (river mile (RM) 0.00) to the headwaters (RM 5.00) in Beaverhead-Deerlodge National Forest. Clark Creek flows through private land from RM 0.00 to 0.89, State Trust Land from RM 0.89 to 1.87, and Beaverhead-Deerlodge National Forest from RM 1.87 to 5.00.

The Clark Creek watershed is dominated by geologic processes associated with granitic landforms.

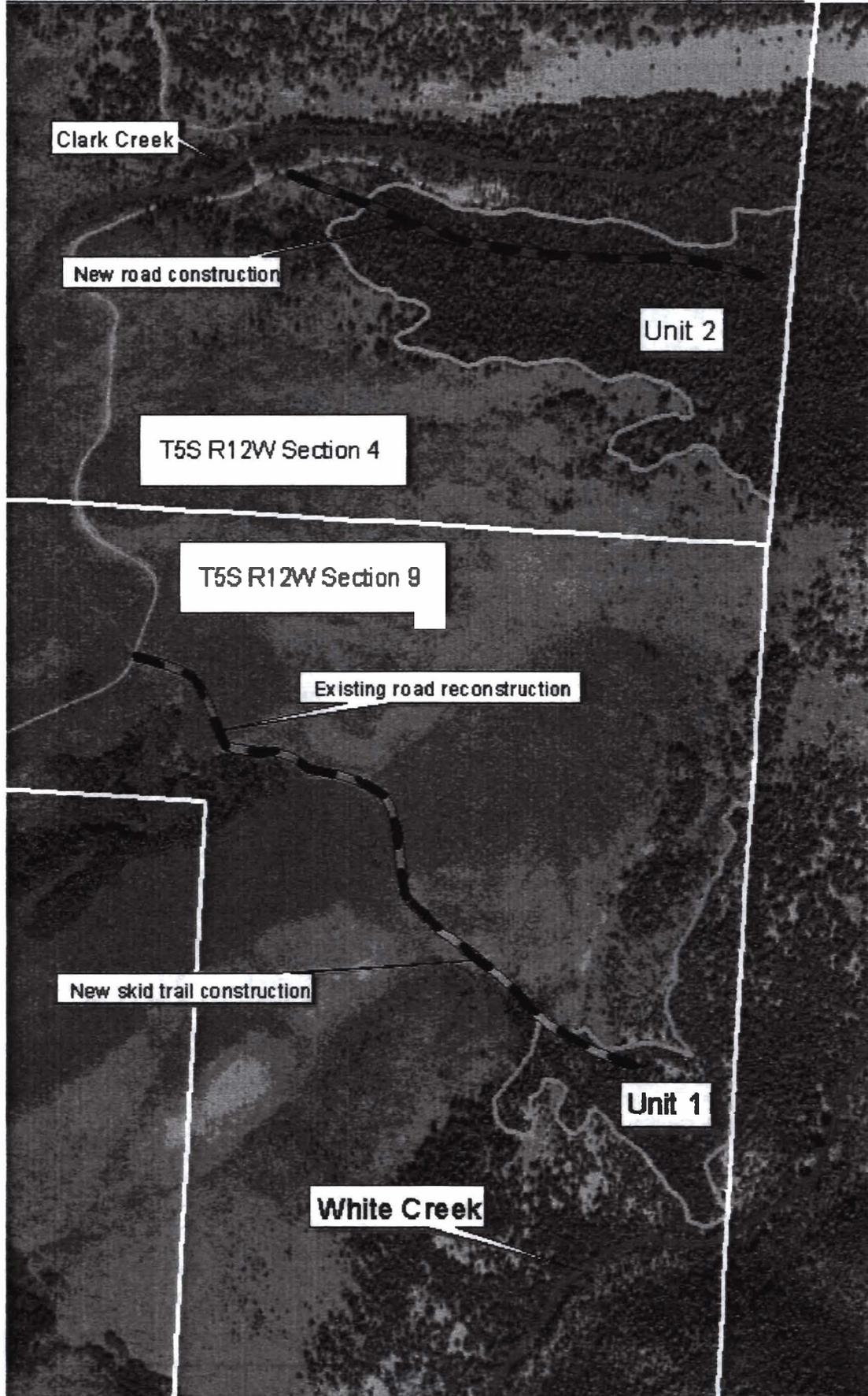
Roads and Road/Stream Crossings. FS Rd #7441 and #7442 comprises the only roads within both the project area and Clark Creek watershed, and the length of the specified road segment is 4,917'. The road is open, high-standard, and unpaved. The road prism within the project area appears to be stable and meet BMPs. There are no existing watershed or fisheries impacts due to sedimentation from FS Rd #7441 and #7442 in Clark Creek.

At RM 1.35 Clark Creek intersects FS Rd #7442. The road/stream crossing structure is a small bridge which provides passage to all life stages of fisheries in Clark Creek. The bridge footings appear stable and the crossing site does not appear to be a point source of sediment.

Fisheries. MFISH data for Clark Creek has not been input into the database or is otherwise unavailable. The following account describes fisheries information on FS land immediately upstream of the project area: "Electrofishing results in Clark Creek, sampled in 1989 300 feet upstream of the second trail crossing (just upstream of Hidden Lake) indicate a very small population of WCT, rainbow trout (RBT), and WCTxRBT hybrids – all based on visual interpretation on site – along with a small number of non-native golden trout (also likely hybridized with RBT). Golden trout evidently were planted in both Hidden and Sawtooth Lakes in the past. No information describing molecular genetic analyses is available" (Riley 2003). R. Oswald notes that MT Fish, Wildlife and Parks have past documentation of the presence of WCT of unknown genetic purity (Oswald 2003). An adult WCT was visually observed (J. Bower) on 9/16/03 in Clark Creek within the project area at approximately RM 1.82.

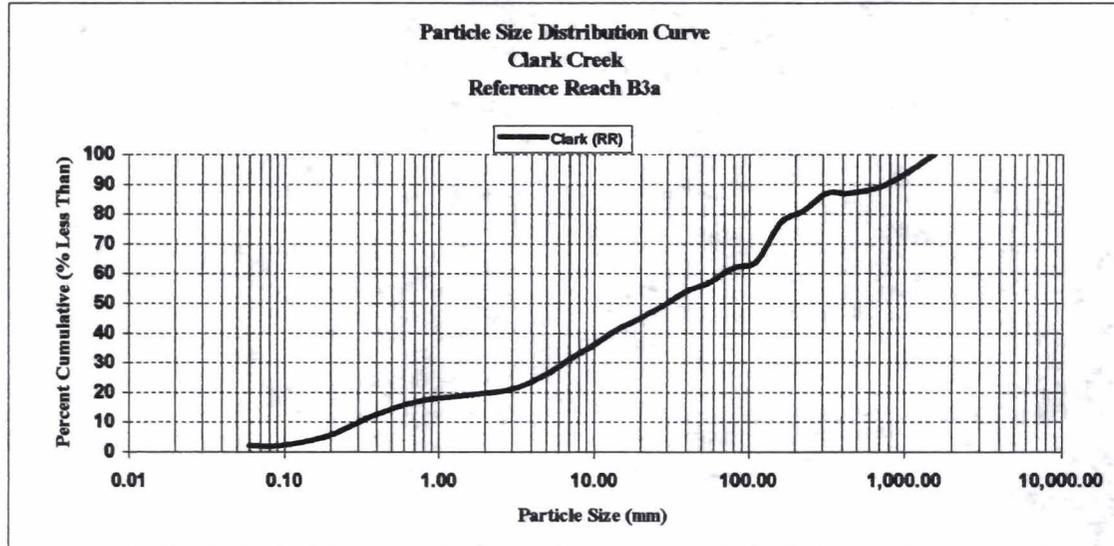
Stream Morphology. From RM 1.35 to 1.87, Clark Creek is characterized as a relatively stable B3 channel type using Rosgen (1996). There are moderate levels of coarse sands (1-2mm) and fine gravels (2-4mm, 4-8mm) in this reach, which is broadly characteristic of watersheds dominated by granitic landforms.

MAP 1 – Clark Creek, White Creek and proposed harvest units within the project area.



A reference reach hydraulic survey site was established on Clark Creek by Pete Benjeyfield (Hydrologist, Beaverhead-Deerlodge National Forest) in 1994 at approximate RM 2.46. Data from that survey can be used to describe the stream characteristics within the project area from RM 1.35 to 1.87. Substrate size distribution is described in Table 1, and additional technical data can be found in Watershed and Fisheries Assessment for Hidden Lake Salvage - Appendix A.

TABLE 1 – Clark Creek Reference Reach Substrate Distribution Curve (Benjeyfield 1994)



Stream Habitat. Above FS Rd #7442 (RM 1.35 to 1.87) Clark Creek exhibits step-pool channel formation. Throughout this reach there are moderate levels of cover from LWD and occasional boulders. Although there are high levels of coarse sands and fine gravels (1-4mm) of granitic origin in this reach, most of the substrates are very clean and likely have sufficient porosity/permeability to provide moderately good spawning habitats. Moderate stream energies and stable banks provide good rearing habitats. Within the project area occasional deep, clean pools with predominantly fine gravel (2-8mm) and large cobble (128-256mm) substrates provide moderate amounts of wintering habitat.

No fisheries habitat observations were made for Clark Creek from RM 0.89 to 1.35. Detailed, R1/R4 fisheries habitat inventory data (Overton et al 1997) is also not available for Clark Creek.

Riparian Management Zone. Determining the characteristics of a riparian management zone (i.e. site potential tree height, quadratic mean diameter (QMD) and trees per acre (TPA)) between proposed Unit 2 and Clark Creek is not within the scope of this assessment since the estimated site potential tree height (69', see below) is superceded by a no harvest stream buffer at least 100' in width, which is delineated by the proposed Unit 2 harvest boundary (see Map 1).

[Upstream of RM 1.58 (adjacent to the end of FS Rd #7441 and N boundary of proposed Unit 2) the Clark Creek riparian management zone is primarily a reference quality, Douglas fir dominated and Lodgepole Pine co-dominated cover type. Trees were not sampled within the riparian management zone adjacent to proposed Unit 2 to determine site potential tree height. Proposed Unit 1 has a riparian management zone on White Creek with a Douglas fir dominated stand type. The proposed Unit 1 and 2 riparian zones have sufficiently similar characteristics that site potential tree data from the proposed Unit 1 riparian management zone will be used for analysis of the proposed Unit 2 riparian management zone. Samples data taken 9/16/03 from proposed Unit 1 are in Table 3. Based on site index curves for Douglas fir from USFS Research Paper INT-47, the mean site index is determined to be 50. The site potential tree height at 100 years is then estimated to be 69'.]

Harvest and Grazing History. The Grasshopper Timber Sale, harvested in 1995 in T5S R12W Section 4, totaled 95.5 acres (Williams 1986). 73.5 acres were harvested in the Dingley Creek

watershed, 18.5 in the Wellman Creek watershed, and 3.5 in the Clark Creek watershed. Within the Clark Creek watershed, 3.5 acres of harvest utilized approximately 100% overstory removal and approximately 0% removal of understory. The 3.5 acre harvest unit is not located within the Clark Creek riparian zone. The Grasshopper Timber Sale harvest occurred on 0.2% of the forested acreage in the Clark Creek watershed, and there are likely no existing impacts to the flow regime in the watershed. There do not appear to be any point sources of sedimentation related to any of the past harvest.

T5S R12W Section 4 is leased for grazing purposes. Watershed or fisheries impacts from grazing are very limited in the reach of Clark Creek from RM 1.35 to 1.87 and primarily include small areas of bank hoof shear. Impacts from grazing were not assessed on Clark Creek from RM 0.89 to 1.35. Grazing has probably occurred throughout the Clark Creek watershed since the area was homesteaded at the end of the 19th century resulting in widely varying levels of impacts to water quality and native fisheries.

Fire. The Hidden Lake Fire occurred within but primarily east of the project area during July and August of 2003. The fire perimeter included the Clark, White and Lake Creek watersheds and totaled 3,289.7 acres. 475.8 acres within the Clark Creek watershed, which is approximately equal to 16.1% of the watershed, were affected by the fire. Soil burn severity levels within the Clark Creek watershed include low (260.5 acres), low to moderate (164.8 acres), and moderate (50.5 acres). Vegetation burn severity levels within the Clark Creek watershed include low (260.5 acres), moderate (197 acres), and high (18.3 acres).

In the Hidden Lake Burned Area Emergency Response Report (2003) impacts to fisheries were only analyzed for Grasshopper Creek, and the report states, "Stormflow analysis and sediment analysis indicate only marginal increases and these do not significantly affect values at risk. Soil erosion is likely to be marginal." Fire suppression activities including fire retardant drops and dozer lines construction may have an impact to WCT within fire perimeter (Riley 2003).

There are likely no detectable existing impacts to the flow regime of the watershed as result of this fire. Consequently, stream stability and water quality are unlikely to be affected by the fire.

Approximately 35% of the area defined by the proposed Unit 2 boundary exhibits a patched distribution of low severity soil and vegetation burn as a result of the Hidden Lake Fire.

Summary of Existing Impacts. Genetic introgression through hybridization with non-native rainbow trout and golden may be impacting WCT in Clark Creek. The degree of introgression that may be occurring is unknown at this time, and therefore the impact to WCT cannot be quantified or qualified.

Very limited grazing along Clark Creek between RM 1.35 and 1.87 is an existing very low direct and indirect impact to WCT (or other cold water fisheries). The specific impact from grazing that affects WCT (or other cold water fisheries) in this reach of Clark Creek is the loss of habitat quality primarily as a result of small areas of bank hoof shear. Grazing along Clark Creek between RM 0.89 and 1.35 has not been assessed, but this reach is lower in elevation with a more open riparian zone than the reach upstream of RM 1.35. At a minimum, a similar very low direct and indirect impact to WCT (or other cold water fisheries) in this reach can also be presumed to occur.

The Hidden Lake Fire burned 475.8 acres in the Clark Creek watershed, which is approximately equal to 16.1% of the watershed. There may be low existing direct or indirect impacts to WCT (or other cold water fisheries) in Clark Creek as a result of fire suppression activities (fire retardant drops and dozer lines construction), however these impacts cannot be specifically quantified or qualified since the locations and frequency of those activities are unknown.

There are likely no existing direct or indirect impacts to other beneficial uses of Clark Creek between RM 0.89 and 1.87.

There may be a low existing cumulative impact to WCT in Clark Creek within the project area as a result of genetic introgression, very low levels of grazing impacts, and potential impacts from fire suppression activities. There may also be a low existing cumulative impact to other cold water fisheries in Clark Creek within the project area as a result of very low levels of grazing impacts and potential impacts from fire suppression activities. The potential low existing cumulative impacts can neither be quantified nor reliably qualified, as the levels of genetic introgression and fire suppression are unknown. There are likely no existing cumulative impacts to other beneficial uses of Clark Creek within the project area.

- WHITE CREEK

Project Area. T5S R12W Section 9 is the only section within the project area that intersects the White Creek watershed (see Map 1).

Watershed. The White Creek watershed covers approximately 3,736 acres, of which 2,815 acres (75.4%) (baseline/pre-fire, see Fire on page 8) are forested ('forested' defined as having 50% or greater canopy cover.) The weighted mean annual precipitation in the White Creek watershed is approximately 26.3", and the annual runoff for the watershed is approximately 7.9".

The perennial portion of White Creek is approximately 5.26 miles in length from the confluence with Grasshopper Creek (RM 0.00) to the headwaters (RM 5.26) in Beaverhead-Deerlodge National Forest. White Creek flows through private land from RM 0.00 to 0.64, State Trust Land from RM 0.64 to 0.92, private land from RM 0.92 to 1.26, State Trust Land from RM 1.26 to 1.88, and Beaverhead-Deerlodge National Forest from RM 1.88 to 5.26.

The White Creek watershed is dominated by geologic processes associated with granitic landforms.

Roads and Road/Stream Crossings. One closed, unimproved spur road from FS Rd #7441 in T5S R12W Section 9 is the only road within both the project area and White Creek watershed. The lengths of this specified road segments is ~1,110'. On the most part, the road prism within the project area appears to be stable and meet BMPs.

Fisheries. MFISH data for White Creek has not been input into the database or is otherwise unavailable. The following account describes fisheries information on FS land immediately upstream of the project area: "Electrofishing results in White Creek, sampled in 1989 in [T5S R12W] Section 10 indicate a small brook trout population in the NW quarter. WCT individuals were observed visually upstream of the electrofishing reach. Subsequent surveys by the [Beaverhead-Deerlodge NF] fisheries crew detected only brook trout downstream." (Riley 2003) One-pass electrofishing surveys conducted in Section 9 by a DNRC and Beaverhead-Deerlodge National Forest field crew 8/5/02 and 8/6/02 revealed 12.2 EBT [eastern brook trout] /1000'. No visual observations were made in White Creek within the project area on 9/16/03 (J. Bower), but that is not unanticipated since a major debris torrent (7/25/03) associated with the Hidden Lake Fire completely eliminated all fisheries and essentially all fisheries habitat in White Creek from approximately RM 0.92 to 2.01. It is unlikely that fisheries will be occupying White Creek to any appreciable degree from approximately RM 0.92 to 2.01 for at least several years, until LWD and hydrologic processes have the opportunity to reestablish step-pool formation.

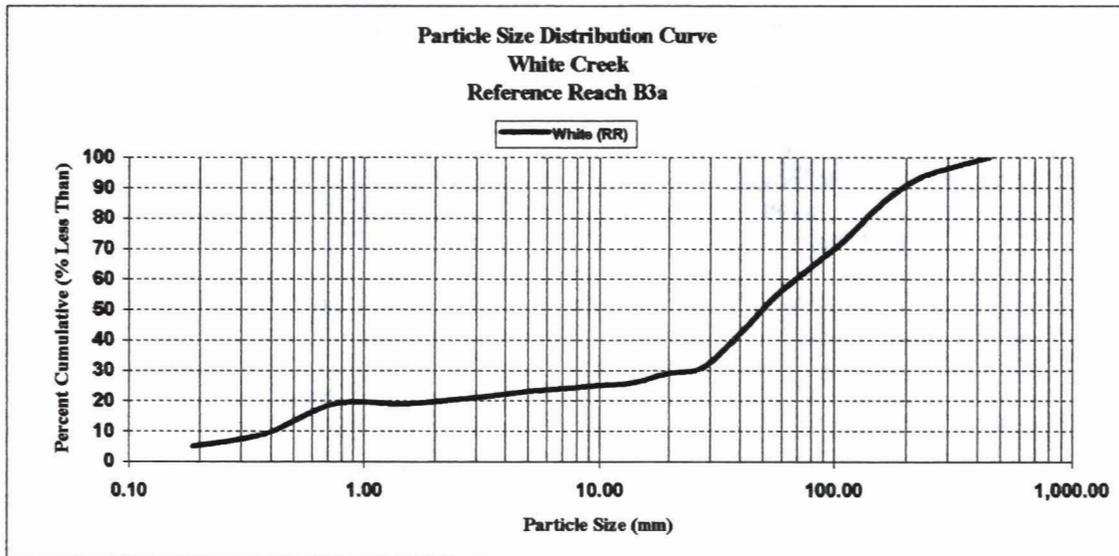
Stream Morphology. From RM 0.64 to 1.26 White Creek is characterized as a moderately unstable D5 channel type using Rosgen (1996). There are high levels of coarse sands (1-2mm) and fine gravels (2-4mm, 4-8mm) in this reach, which is broadly characteristic of watersheds dominated by granitic landforms. This reach is currently flowing through the southern edge of historic, large alluvial fan.

From RM 1.26 to 1.88 White Creek is characterized as a moderately unstable B4 channel type using Rosgen (1996). Substrate composition is approximately 50% fine gravels (2-4mm, 4-8mm), 40% medium to coarse gravels (8-12mm, 16-32mm) and 10% very coarse gravel (32-64mm).

The portion of this reach from RM 1.26 to 1.56 is currently flowing through a recent large debris torrent deposit with relatively frequent channel migration.

A reference reach hydraulic survey site was established on Clark Creek by Pete Benjeyfield (Hydrologist, Beaverhead-Deerlodge National Forest) in 1994 at approximate RM 1.92. Data from that survey can be used to describe a baseline for stream characteristics within the project area from RM 1.56 to 1.88. Substrate size distribution is described in Table 2, and additional technical data can be found in Watershed and Fisheries Assessment for Hidden Lake Salvage - Appendix B.

TABLE 2 – White Creek Reference Reach Substrate Distribution Curve (Benjeyfield 1994)



Stream Habitat. R1/R4 fisheries habitat inventory data (Overton et al 1997) for White Creek in T5S R12W Section 9 was collected by a DNRC and Beaverhead-Deerlodge National Forest field crew 8/5/02 and 8/6/02, but this data set is no longer representative of existing conditions. Since then stream habitats have been completely altered by a major debris torrent (7/25/03) associated with the Hidden Lake Fire.

Currently the portion of White Creek from RM 0.64 to 1.26 is generally characterized as high gradient pool-riffle (Montgomery and Buffington 1997). The stream gradient ranges from 3-5%. There is no cover or wintering habitat. There are very limited sections with low quality rearing and spawning habitat. Substrate composition is approximately 100% coarse sands (1-2mm) and fine gravels (2-4mm, 4-8mm).

From RM 1.26 to 1.88 the White Creek channel is now generally characterized as plane bed (Montgomery and Buffington 1997). The stream gradient ranges from 5-7%. There is no cover, wintering, rearing or spawning habitat. Substrate composition is approximately 50% fine gravels (2-4mm, 4-8mm) and 50% medium to coarse gravels (8-12mm, 16-32mm). This reach is most likely acting as a temporary barrier to upstream migration of EBT, and may ultimately serve to benefit WCT upstream of the project area in the short term.

Riparian Management Zone. The White Creek riparian management zone adjacent to proposed Unit 1 is primarily a reference quality, Douglas fir dominated cover type. Samples data taken 9/16/03 from the proposed Unit 1 riparian management zone are in Table 3. Based on site index curves for Douglas fir from USFS Research Paper INT-47, the mean site index is determined to be 50. The site potential tree height at 100 years is then estimated to be 69'.

Soil stability and disturbances are a concern in proposed Unit 1 and this riparian management zone has been identified as a high erosion risk area with a recommended 100' SMZ (see Geology and Soils Assessment for Hidden Lake Salvage, J. Collins).

TABLE 3 – White Creek RMZ samples for site potential tree height (proposed Unit 1 from Hidden Lake Salvage).

	Spp.	Height (ft)	Age(yrs)
Sample 1	Douglas Fir	88	102
Sample 2	Douglas Fir	76	120
Sample 3	Douglas Fir	40	77

Trees were not sampled within the proposed Unit 1 riparian management zone to determine QMD and TPA. Proposed Unit 4H of the White Creek Timber Sale has a riparian management zone on White Creek with a Douglas Fir dominated stand type. The proposed Unit 1 and 4H riparian zones have sufficiently similar characteristics that QMD and TPA data from the proposed Unit 4H riparian management zone will be used for analysis of the proposed Unit 1 riparian management zone. Riparian stand plot data indicates the stand structure of the White Creek riparian management zone within proposed Unit 1 has a QMD of 11.1" and 321 TPA (see Watershed and Fisheries Assessment for Hidden Lake Salvage – Appendix C).

Harvest and Grazing History. There is no indication that there has been past commercial timber harvest in the White Creek watershed. There is evidence of past low-level selective harvest south of White Creek and near proposed Unit 1 (see Watershed and Fisheries Assessment for White Creek Timber Sale), which can most likely be traced back to homesteading activities in the area many years ago. This historic low-level selective harvest south of White Creek and near proposed Unit 1 most likely is not having direct or indirect impacts to water quality or native fisheries.

T5S R12W Section 9 is leased for grazing purposes. Evidence of grazing impacts are evident in the reach of White Creek from RM 0.64 to 1.26, but there likely are no existing impacts to potential WCT or other salmonids since these fisheries have not been able to utilize this environment since the major debris torrent following the recent fire. Impacts in this reach primarily included bank hoof shear and channel trampling. No impacts from grazing were identified from RM 1.26 to 1.88. Grazing has probably occurred throughout the lower White Creek watershed since the area was homesteaded at the end of the 19th century resulting in widely varying levels of impact to water quality and native fisheries.

Fire. The Hidden Lake Fire occurred within but primarily east of the project area during July and August of 2003. The fire perimeter included the Clark, White and Lake Creek watersheds and totaled 3,289.7 acres. 2,244.9 acres within the White Creek watershed, which is approximately equal to 60.0% of the watershed, were affected by the fire. Soil burn severity levels within the White Creek watershed include low (1,658.9 acres), low to moderate (23.5 acres), and moderate (562.5 acres). Vegetation burn severity levels within the White Creek watershed include low (1,636.1 acres), moderate (46.3 acres), and high (562.5 acres).

In the Hidden Lake Burned Area Emergency Response Report (2003) impacts to fisheries were only analyzed for Grasshopper Creek, and the report states, "Stormflow analysis and sediment analysis indicate only marginal increases and these do not significantly affect values at risk. Soil erosion is likely to be marginal." Fire suppression activities including fire retardant drops and dozer lines construction may have an impact to WCT within fire perimeter (Riley 2003).

A moderate to high existing impact to the flow regime of the watershed is expected as a result of this fire. Stream stability and, consequently, water quality are also likely to be moderately impacted from higher water yields resulting from the fire.

The entire area defined by the proposed Unit 1 boundary exhibits low severity soil and vegetation burn as a result of the Hidden Lake Fire.

Summary of Existing Impacts. The Hidden Lake Fire burned 2,244.9 acres in the White Creek watershed, which is approximately equal to 60.0% of the watershed. There may be low existing direct or indirect impacts to isolated WCT (or other cold water fisheries) in White Creek as a result of fire suppression activities (fire retardant drops and dozer lines construction), however these impacts cannot be specifically quantified or qualified since the locations and frequency of those activities are unknown.

Also related to the fire, there are likely moderate direct and indirect impacts to water quality in White Creek, primarily as a result of channel instability from increased water yield. Soil disturbance and a subsequent major debris torrent has had a short-term high direct and indirect impact to cold water fisheries, primarily through the elimination of spawning, rearing, and wintering habitats within the project area.

There are likely no existing direct or indirect impacts to other beneficial uses of White Creek between RM 0.64 and 1.88.

There is a high existing cumulative impact to potential WCT (and other cold water fisheries) in White Creek between RM 0.64 and 1.26 as a result of low levels of grazing impacts, potential impacts from fire suppression activities, a high short-term impact due to a major debris torrent, and channel instability resulting from increased water yields. There is a high existing cumulative impact to potential WCT (and other cold water fisheries) in White Creek between RM 1.26 and 1.88 as a result of potential impacts from fire suppression activities, a high short-term impact due to a major debris torrent, and channel instability resulting from increased water yields. There are likely no existing cumulative impacts to other beneficial uses of Clark Creek within the project area.

SPECIALIST RECOMMENDATIONS

The following recommendations are in addition to SMZ rules for any Class 1, 2 or 3 streams identified during project layout or harvest.

Unit 2. No recommendations, since a no harvest stream buffer at least 100' wide is delineated by proposed unit boundary map.

Unit 1. Establish a fisheries RMZ boundary on north sides of White Creek immediate adjacent to proposed unit boundary at a minimum of 69' from the bankfull slope break. [Existing RMZ condition: QMD = 11.1", 321 TPA.] Existing fisheries RMZ stand conditions are not expected to provide regional target levels of LWD, and recommendation based on field observations and existing fisheries data is no harvest in fisheries RMZ. Other specialist recommendations include 100' high risk soils RMZ (see Geology and Soils Assessment for Hidden Lake Salvage, J. Collins) in same location. Ensure maximum slash and tree top retention in north-south gully immediate north of RMZs in order to maintain adequate energy dissipation for overland water flow events.

ENVIRONMENTAL IMPACTS (Chapter 4)

The following statements of environmental impacts in Alternatives 1 and 2 are based on the understanding that the 'Specialist Recommendations' described above will be implemented as maximum SMZ and RMZ treatments.

- NO ACTION ALTERNATIVE

Clark Creek and White Creek. No foreseeable **direct, indirect, or cumulative impacts** are anticipated to WCT or any other beneficial uses associated with the Clark Creek and White Creek watersheds beyond those described in Existing Conditions.

- ACTION ALTERNATIVE

Clark Creek. Proposed Unit 2 of the Hidden Lake Salvage is planned for harvest during summer 2004. This unit comprises a total of ~39.0 acres, which is roughly equivalent to 1.3% of the Clark Creek watershed. The proposed unit is categorized as DF and Lodgepole Pine (LP) stand types, which have been selected for removal of all merchantable fire damaged (dead/dying) sawlog volume and 50-60% harvest of remaining merchantable green sawlog volume. (It is estimated that 30-37% of living trees would be retained in the unit.) Based on the proposed boundary drawings for the Hidden Lake Salvage, proposed Unit 2 does not come within 100' of Clark Creek, and this substantial buffer will provide adequate filtration against any downhill sedimentation related to harvest activities. Tractor yarding would be used exclusively in the proposed unit. 2,200' of road construction is planned in and adjacent to the proposed unit, and all construction will be required to meet BMPs. New construction would be closed with slash/debris at the end of the sale.

Given the low relative harvest area (1.3% of watershed), an estimated 30-37% tree retention prescription, minimal road construction away from watershed and fisheries resources, and a no harvest stream buffer at least 100' wide, no foreseeable **direct or indirect impacts** are anticipated to WCT or any other beneficial uses associated with the Clark Creek watershed beyond those described in Existing Conditions.

Proposed Unit 15H of the White Creek Timber Sale comprises a total of ~8.0 acres, which is roughly equivalent to 0.3% of the Clark Creek watershed. The proposed unit is categorized as DF stand type, which has been selected for 50-55% harvest of merchantable sawlog volume using group selection, selection, and modified seed tree groupings. Helicopter yarding would be used exclusively in the proposed unit. There is no road construction or reconstruction associated with the White Creek Timber Sale proposed in the watershed, and existing roads will be required to meet BMPs.

The implementation of specialist recommendations for the White Creek Timber Sale is expected to (1) provide adequate rates of LWD recruitment that are within background ranges for the physiographic region, (2) provide adequate levels of stream shading, and (3) the highest level of tree density possible within the SMZ to help prevent future stream access to cattle.

Considering the proposed actions of both proposed Unit 2 and proposed Unit 15H of the White Creek Timber Sale, there are not expected to be any **cumulative impacts** to WCT or any other beneficial uses associated with the Clark Creek watershed beyond those described in Existing Conditions.

White Creek. Proposed Unit 1 of the Hidden Lake Salvage is planned for harvest during summer 2004. This unit comprises a total of ~18.0 acres, which is roughly equivalent to 0.5% of the White Creek watershed. The proposed unit is categorized as Douglas Fir (DF) stand type, which has been selected for removal of all merchantable fire damaged (dead/dying) sawlog volume and 40-50% harvest of remaining merchantable green sawlog volume. Based on the proposed boundary drawings for the Hidden Lake Salvage, approximately 250' of proposed Unit 1 borders the

riparian management zone north of White Creek. The soils on the north side of the stream are high risk for erosion, and therefore a minimum RMZ should be 100' from White Creek, as recommended in the Soils and Geology Assessment for the Hidden Lake Salvage (J. Collins). The high erosion risk RMZ should provide adequate filtration against any downhill sedimentation related to harvest activities. Tractor yarding would be used exclusively in the proposed unit. 1,410' of road reconstruction and 1,050' of skid trail construction is planned in and adjacent to the proposed unit, and all construction/reconstruction will be required to meet BMPs. The total skidding distance to the landing area will be ~2,900', and the constructed skid trail would be rehabilitated at the end of the sale.

The implementation of specialist recommendations is expected to (1) provide adequate rates of LWD recruitment that are within background ranges for the physiographic region, (2) provide adequate levels of stream shading, (3) provide a filtration zone of adequate size for any downhill overland flow events, and (4) provide a sufficient, uphill medium for energy dissipation of overland flow events.

Given the low relative harvest area (0.5% of watershed), post-harvest mitigations for disturbed soils, minimal ground disturbance from helicopter yarding, distant road construction or reconstruction, and specialist recommendations, no foreseeable **direct or indirect impacts** are anticipated to WCT or any other beneficial uses associated with the White Creek watershed beyond those described in Existing Conditions.

Proposed Units 3H, 4H, 5H, 8H, 10H, 11H, 6H, 14H and 16H of the White Creek Timber Sale comprise a combined total of ~174.0 acres, which is roughly equivalent to 4.7% of the White Creek watershed. All of the proposed units are categorized as having a DF stand type, which has been selected for 50-55% harvest of merchantable sawlog volume using group selection, selection, and modified seed tree groupings. A portion of proposed Units 10H and 11H are also categorized as having a LP stand type, which has been selected for clearcut harvest of merchantable sawlog volume with individual or small group retention of Douglas Fir seed trees. Helicopter yarding would be used exclusively in the proposed units. Alternative 1 of the White Creek Timber Sale includes ~880' of new road construction and ~3,200' of existing road reconstruction proposed in the watershed. Alternative 2 of the White Creek Timber Sale includes ~5,210' of new road construction and ~1,305' of existing road reconstruction proposed in the watershed. All roads will be required to meet BMPs. The proposed road construction and reconstruction does not cross any perennial streams, and the proposed routes are sufficiently buffered from any perennial streams that they are not expected to have any impacts to WCT or any other beneficial uses related to the White Creek watershed.

The implementation of specialist recommendations for the White Creek Timber Sale is expected to (1) provide adequate rates of LWD recruitment that are within background ranges for the physiographic region, (2) provide adequate levels of stream shading, and (3) up to ~25% canopy opening in the RMZ to facilitate a faster regrowth of understory shrubs and other sources of cover, detritus and small organic debris to the channel. Since White Creek has been completely scoured of organic debris and fisheries habitat by the recent debris torrent, the (up to) ~25% canopy openings are expected to provide a medium for faster riparian rehabilitation and a net positive impact to cold water fisheries and associated aquatic life in the stream.

Considering the proposed actions of Unit 1 and Units 3H, 4H, 5H, 8H, 10H, 11H, 6H, 14H and 16H of the White Creek Timber Sale, there are not expected to be any **cumulative impacts** to WCT or any other beneficial uses associated with the White Creek watershed beyond those described in Existing Conditions.

REFERENCES

- Benjeyfield, P. (6/20) 1994. *file Merged Dataset/Non-GYA Hydraulics/hydraulic summaries/clark.xls*. Beaverhead-Deerlodge National Forest.
- Hidden Lake Fire Burned Area Emergency Response Report. (8/3) 2003. Dillon District, Beaverhead-Deerlodge National Forest.
- Oswald, R. (8/25) 2003. Review and comment memo regarding scooping materials for proposed Miner Ditch and White Creek timber sales, to Chuck Barone. MT Dept of Fish, Wildlife and Parks.
- MFISH. Montana Fisheries Information System. 2004. Montana Fish, Wildlife and Parks, Montana Natural Resource Information System, StreamNet.
- Montgomery, D.R. and J.M. Buffington. 1997. Channel-reach morphology in mountain drainage basins. *GSA Bulletin*. 109(5):596-611.
- Overton, C.K., S.P. Wollrab, B.C. Roberts, M.A. Radko. R1/R4 (Northern/Intermountain Regions) Fish and Fish Habitat Standard Inventory Procedures Handbook. General Technical Report INT-346. Ogden, UT: USDA, Forest Service, Intermountain Research Station.
- Riley, C. (7/19) 2003. Aquatics Recommendations – Hidden Lake Fire. Dillon District, Beaverhead-Deerlodge National Forest.
- Rosgen, D. 1996. *Applied River Morphology*. Printed Media Companies. Minneapolis, MN.
- Thomas, J., K. Sutherland, B. Kuntz, S. Potts. 1990. Montana Nonpoint Source Management Plan. Montana Department of Health and Environmental Sciences, Water Quality Bureau, Helena, MT.
- Williams, G. 1986. Special Input Grasshopper Timber Sale Sec. 4, T5S, R12W. Missoula, MT: Department of State Lands, Forestry Division. 4 p. (unpublished report)

WATERSHED AND FISHERIES ASSESSMENT FOR HIDDEN LAKE SALVAGE - APPENDIX A
 Clark Creek Reference Reach Hydraulic Data (Benjeyfield 1994)

Dimension		typical	min	max
Size	r-area bankfull	11.9	—	—
	width bankfull	6.9	—	—
	mean depth	1.7	—	—
Ratios	Width/Depth Ratio	4.0	—	—
	Entrenchment Ratio	3.0	—	—
	Riffle Max Depth Ratio	1.3	—	—
	Pool Area Ratio	—	—	—
	Pool Width Ratio	—	—	—
	Pool Max Depth Ratio	—	—	—
	Bank Height Ratio	1.1	—	—
	Run Area Ratio	—	—	—
	Run Width Ratio	—	—	—
	Run Max Depth Ratio	—	—	—
Hydraulics	discharge rate, Q (cfs)	91.8	91.8	91.8
	velocity (ft/sec)	7.7	—	—
	shear stress @ max depth (lbs/ft sq)	12.83	—	—
	shear stress (lbs/ft sq)	6.69	—	—
	shear velocity (ft/sec)	1.86	—	—
	unit stream power (ft ³ /ft ² sec)	74.219	74.219	74.22
	relative roughness	1.7	—	—
inclin factor (ft ³ /ft ² sec)	4.2	—	—	
threshold grain size @ max depth (mm)	10505.7	—	—	
threshold grain size (mm)	2954	—	—	

Channel Materials						
	total	riffle	pool	run	glide	bar sample
D16	0.871	0.871	0.000	0.0	0.0	—
D35	10.83	10.83	0.00	0	0	—
D50	36.9	36.9	0.0	0	0	—
D84	308.0	308	0	0	0	—
D95	1471.1	1471	0	0	0	—
Largest Bar						0
% Silt/Clay	2%	2%	—	—	—	—
% Sand	17%	17%	—	—	—	—
% Gravel	37%	37%	—	—	—	—
% Cobble	25%	25%	—	—	—	—
% Boulder	19%	19%	—	—	—	—
% Bedrock	0%	0%	—	—	—	—

WATERSHED AND FISHERIES ASSESSMENT FOR HIDDEN LAKE SALVAGE - APPENDIX B
 White Creek Reference Reach Hydraulic Data (Benjeyfield 1994)

Dimension		typical	min	max
Size:	x-area bankfull	4.1	—	—
	width bankfull	6.8	—	—
	mean depth	0.6	—	—
Ratios:	Width:Depth Ratio	11.3	—	—
	Entrenchment Ratio	1.8	—	—
	Riffle Max Depth Ratio	1.3	—	—
	Pool Area Ratio	—	—	—
	Pool Width Ratio	—	—	—
	Pool Max Depth Ratio	—	—	—
	Bank Height Ratio	1.6	—	—
	Run Area Ratio	—	—	—
	Run Width Ratio	—	—	—
	Run Max Depth Ratio	—	—	—
	Glide Area Ratio	—	—	—
	Glide Width Ratio	—	—	—
	Glide Max Depth Ratio	—	—	—
Hydraulics:		rifle	pool	run
	discharge rate (cfs)	12.5	12.5	12.5
	velocity (ft/sec)	3.0	—	—
	shear stress @ max depth (lbs/ft ²)	2.80	—	—
	shear stress (lbs/ft ²)	2.10	—	—
	shear velocity (ft/sec)	1.04	—	—
	unit stream power (ft ³ /ft ² sec)	6.424	6.424	6.42
	relative roughness	1.1	—	—
	"f" factor (ft)	2.9	—	—
	threshold grain size @ max depth (mm)	538.2	—	—
	threshold grain size (mm)	307	—	—

Channel Materials						
	total	rifle	pool	run	glide	bar sample
D16	0.758	0.758	0.000	0.0	0.0	—
D35	36.36	36.36	0.00	0	0	—
D50	56.4	56.4	0.0	0	0	—
D84	172.6	173	0	0	0	—
D95	291.5	292	0	0	0	—
Largest Bar						0
% Silt/Clay	0%	0%	—	—	—	—
% Sand	20%	20%	—	—	—	—
% Gravel	35%	35%	—	—	—	—
% Cobble	39%	39%	—	—	—	—
% Boulder	6%	6%	—	—	—	—
% Bedrock	0%	0%	—	—	—	—

WATERSHED AND FISHERIES ASSESSMENT FOR HIDDEN LAKE SALVAGE - APPENDIX C

Riparian Management Zone Cruise Data (9/16/03) - UNIT 4H, WHITE CREEK TIMBER SALE
 1/20 acre fixed plots, evenly spaced

PLOT 1			PLOT 2			PLOT 3		
SPP	Live/Dead	DBH	SPP	Live/Dead	DBH	SPP	Live/Dead	DBH
Douglas Fir	L	6	Douglas Fir	L	5	Douglas Fir	L	9
Douglas Fir	L	15	Douglas Fir	L	6	Douglas Fir	L	10
Douglas Fir	L	7	Douglas Fir	L	7	Douglas Fir	L	5
Douglas Fir	L	20	Douglas Fir	L	16	Douglas Fir	L	6
Douglas Fir	L	13	Douglas Fir	L	16	Douglas Fir	L	15
Douglas Fir	L	8	Douglas Fir	L	15	Douglas Fir	L	7
Douglas Fir	L	11	Douglas Fir	L	15	Douglas Fir	L	16
Douglas Fir	L	8	Douglas Fir	L	12	Douglas Fir	L	6
Douglas Fir	L	8	Douglas Fir	L	5	Douglas Fir	L	9
Douglas Fir	L	7	Douglas Fir	L	11	Douglas Fir	L	13
Douglas Fir	L	18	Douglas Fir	L	16	Douglas Fir	L	10
Douglas Fir	L	8	Douglas Fir	L	5	Douglas Fir	L	11
						Douglas Fir	L	6
						Douglas Fir	L	16
						Douglas Fir	L	14
						Douglas Fir	L	10
						Douglas Fir	D	10
						Douglas Fir	L	5
						Douglas Fir	L	5
						Douglas Fir	L	5
						Douglas Fir	L	10
						Douglas Fir	L	9
						Douglas Fir	L	13
						Douglas Fir	L	15

Stand Table		
SPP	DBH	TPA
All spp.	5	47
All spp.	6	33
All spp.	7	27
All spp.	8	27
All spp.	9	20
All spp.	10	33
All spp.	11	20
All spp.	12	7
All spp.	13	20
All spp.	14	7
All spp.	15	33
All spp.	16	33
All spp.	18	7
All spp.	20	7
QMD =	11.1	321

ATTACHMENT D

CHECKLIST FOR ENDANGERED, THREATENED AND SENSITIVE SPEICES
CENTRAL LAND OFFICE

Threatened and Endangered Species	[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)
<p>Bald Eagle (<i>Haliaeetus leucocephalus</i>) Habitat: late-successional forest <1 mile from open water</p>	<p>[N] Indirect evidence of overwintering Bald Eagles have been documented within the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). Forested habitat within the project area occurs too far away from bodies of water of suitable size for use by nesting or perching eagles. Thus, habitat found within the project area is too distant to provide ample foraging opportunities and it is not suitable. No nesting habitat occurs on, or within one mile of the proposed project area, and the project area likely occurs outside of any bald eagle nesting home range. Thus, no direct, indirect or cumulative effects to bald eagles associated with this project are anticipated.</p>
<p>Gray Wolf (<i>Canis lupus</i>) Habitat: ample big game pops., security from human activity</p>	<p>[N] The proposed project area falls within the Central Idaho Nonessential Experimental Area for gray wolves. The Battlefield Pack resides in the vicinity of the project area. Individuals from this pack or transients from other packs could occasionally use portions of the project area, however, due to the size, nature, duration and location of the proposed project, activities associated with this project are not expected to effect wolves or recovery efforts. Should a new den be located within one mile of the project area, activities would cease and a DNRC Biologist would be contacted immediately. Mitigations would then be developed and implemented to minimize adverse impacts to wolves prior to initiating any activity.</p>
<p>Grizzly Bear (<i>Ursus arctos</i>) Habitat: recovery areas, security from human activity</p>	<p>[N] The proposed project area lies outside of any grizzly bear recovery area. The nearest recovery area is the Yellowstone Grizzly Bear Recovery Zone (USFWS 1993) situated 57 miles southeast of the project area. The project area is comprised of dry forest types not typically preferred by bears. Grizzly bear use of the Pioneer Mountains may occur, however, the project area is currently considered outside of occupied habitat (Interagency Occupied Habitat Map, September 2002). Riparian habitats preferred</p>

	<p>by bears occur in the project area along Clark Creek. This creek supports relatively low levels of hiding cover, and human access levels are presently moderate. Approximately 638' of temporary new road would be constructed and effectively closed following project completion to minimize the potential for newly created access that could further reduce existing levels of security. Potential for any measurable increases in bear-human conflicts following project activities are not expected. Due to the size, nature, duration and location of the proposed project, activities associated with this proposal are not expected to effect grizzly bears. Adverse direct, indirect and cumulative impacts to grizzly bears as a result of this project are not expected.</p>
<p>Lynx (<i>Felis lynx</i>) Habitat: mosaics--dense sapling and old forest >5,000 ft. elev.</p>	<p>[N] Habitats high in coarse woody debris that are preferred for denning and large acreages (>50 acres) of dense conifer regeneration at high elevations that are preferred for foraging are not present in the project area, or the adjacent lands that recently burned (~3,290 acres). Lynx habitat is marginal due to the lack of highly desirable habitat conditions for lynx and their primary prey, snowshoe hares. Due to the generally low suitability of habitat in the project area and adjacent lands and the size, nature, duration and location of the proposed project, direct, indirect or cumulative impacts to lynx would not be expected to occur as a result of this project.</p>

<p>DNRC Sensitive Species</p>	<p>[Y/N] Potential Impacts and Mitigation Measures N = Not Present or No Impact is Likely to Occur Y = Impacts May Occur (Explain Below)</p>
<p>Flammulated Owl (<i>Otus flammeolus</i>) Habitat: late-successional ponderosa pine and Douglas-fir forest</p>	<p>[N] Flammulated owls have not been documented within the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). The elevations that range from about 6,900-7,400 feet and Douglas-fir cover types characteristic of this area are not preferred habitat for flammulated owls. Direct, indirect and cumulative effects to flammulated owls would not be expected to occur as a result of this project.</p>

<p>Black-Backed Woodpecker (<i>Picoides arcticus</i>) Habitat: mature to old burned or beetle-infested forest</p>	<p>[N] Black-backed woodpeckers have not been documented within the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). However, recent burns (<1 year old) have occurred within the project area and adjoining sections. Stands found within the project area are not presently experiencing substantial insect activity but are expected to. Foraging and nesting opportunities are likely to increase in the area due to present burn conditions and expected increase in insect activity. Thus, foraging and nesting opportunities are presently limited. Due to the size, duration and location of the proposed project and the size of the adjacent burn area (~3,200 acres which will remain unharvested), no direct, indirect or cumulative effects to black-backed woodpeckers would be expected to occur as a result of this project.</p>
<p>Pileated Woodpecker (<i>Dryocopus pileatus</i>) Habitat: late-successional ponderosa pine and larch-fir forest</p>	<p>[N] Indirect evidence of breeding pileated woodpeckers have been documented within the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). The project area is suited for use by pileated woodpeckers but habitat availability is limited. Due to the size, nature, duration and location of the proposed project, no impacts to pileated woodpeckers would be expected to occur as a result of this project.</p>
<p>Northern Bog Lemming (<i>Synaptomys borealis</i>) Habitat: sphagnum meadows, bogs, fens with thick moss mats</p>	<p>[N] No sphagnum meadows or bogs occur in the proposed project area. Thus, no impacts to bog lemmings would be expected to occur as a result of this project.</p>
<p>Harlequin Duck (<i>Histrionicus histrionicus</i>) Habitat: white-water streams, boulder and cobble substrates</p>	<p>[N] Harlequin ducks have not been documented in the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). No high gradient streams suitable for use by harlequins occur within the project area or along proposed haul routes. No impacts to harlequin ducks would be expected to occur as a result of this project.</p>

<p>Peregrine Falcon (<i>Falco peregrinus</i>) Habitat: cliff features near open foraging areas and/or wetlands</p>	<p>[N] Transient/migrant Peregrine Falcons have been documented within the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). However, no cliff features suitable for use by nesting peregrine falcons occur within 1 mile of the project area. No direct, indirect or cumulative effects associated with this project are anticipated.</p>
<p>Mountain Plover (<i>Charadrius montanus</i>) Habitat: short-grass prairie, alkaline flats, prairie dog towns</p>	<p>[N] Mountain Plovers have not been documented in the quarter latilong (L36D) that the proposed project is located in (Skaar 1996, MNHP 2003). No short-grass prairie or prairie dog towns occur on, or within one mile of the proposed project area. No impacts to mountain plovers are expected as a result of this project.</p>
<p>Townsend's Big-Eared Bat (<i>Plecotus townsendii</i>) Habitat: caves, caverns, old mines</p>	<p>[N] The DNRC is unaware of any mines or caves within the proposed project area or close vicinity that would be suitable for use by Townsend's big-eared bats. Impacts to Townsend's big-eared bats are not anticipated as a result of this project.</p>
<p>Black-tailed Prairie Dog (<i>Cynomys ludovicianus</i>) Habitat: grasslands, short-grass prairie, sagebrush semi-desert</p>	<p>[N] The project area is situated outside of the distribution of black-tailed prairie dogs. Impacts to black-tailed prairie dogs are not anticipated.</p>
<p>Sage Grouse (<i>Centrocercus urophasianus</i>) Habitat: sagebrush semi-desert</p>	<p>[N] Direct evidence of breeding Sage Grouse have been documented in the quarter latilong (L36D) that the proposed project is located in (MNHP 2003). Sagebrush semi-desert habitats suitable for use by sage grouse do occur within the project area. However, no sage grouse breeding leks are known to occur within the project area. Should sage grouse be present in the vicinity of the project area, any effects to habitat or disturbance-related effects would be expected to be minimal, due to the late start-up date of activities (i.e., June 1), and preferred sagebrush habitat would not be appreciably altered. Impacts to sage grouse would not be anticipated.</p>

15-Jan-02

Montana Natural Heritage Program

Species of Special Concern: Sections 4, 9 and 16, T05S, R12W
Beaverhead County

Scientific Name: ONCORHYNCHUS CLARKI LEWISI

Common Name: WESTSLOPE CUTTHROAT TROUT

Global Rank: G4T3

Forest Service status: SENSITIVE

State Rank: S3

USFWS Endangered Species Act Status:

BLM Status: SPECIAL STATUS

Occurrence Type: AGGREGATED OCCURRENCE - OCCUPIED HABITAT

Species occurrence data:

APPROXIMATE NUMBERS OF STREAMS: - WITH PURE POPULATIONS = 12; - WITH POTENTIALLY PURE POPULATIONS = 1; - WITH 90-99% PURE POPULATIONS = 4. IDENTIFIED POPULATION AGGREGATES: NONE.

Last observation:

Size (acres):

General site description:

POPULATIONS TESTED PURE IN: BRAYS CANYON, BUFFALO, CAT, DINGLEY, DYCE, FARLIN, JAKE CANYON, POLE, RESERVOIR, ROCK, SPRING, & M FK STONE CREEKS.

Land owner/manager:

Comments:

FOR INFORMATION ON SPECIFIC POPULATIONS, CONTACT MONTANA FISH, WILDLIFE & PARKS OR QUERY THE MONTANA RIVERS INFORMATION SYSTEM @ <http://nris.state.mt.us/wis/mris1.html>.

Information source:

MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS. 1999. MEMORANDUM OF UNDERSTANDING AND CONSERVATION AGREEMENT FOR WESTSLOPE CUTTHROAT TROUT (ONCORHYNCHUS CLARKI LEWISI) IN MONTANA. 28PP.

Survey site name: BEAVERHEAD RIVER BASIN

County: BEAVERHEAD; MADISON

USGS quadrangle: (EXTENDS OVER MULTIPLE QUADS)

Precision: G

Elevation (ft):

Location:

THIS OCCURRENCE INCLUDES ALL STREAM SEGMENTS WITHIN THE MID-BEAVERHEAD RIVER WATERSHED THAT SUPPORT POPULATIONS THAT ARE 90% OR MORE PURE.

Township\Range: **Section:** **TRS comments:**

15-Jan-02

Montana Natural Heritage Program

Species of Special Concern: Sections 4, 9 and 16, T05S, R12W
Beaverhead County

Scientific Name: PENSTEMON LEMHIENSIS

Common Name: LEMHI BEARDTONGUE

Global Rank: G3

Forest Service status: SENSITIVE

State Rank: S2

USFWS Endangered Species Act Status:

BLM Status: SENSITIVE

Occurrence Type:

Species occurrence data:

APPARENTLY RARE, 1 SMALL COLONY, BLUE FLOWERS.

Last observation: 1995-07-17

Size (acres):

General site description:

CUT AND FILL SLOPES ON UNPAVED JEEP ROAD IN PSEUDOTSUGA MENZIESII/PINUS PONDEROSA FOREST. GRAVELLY SANDY LOAM SOIL WEATHERED FROM GRANITIC PARENT MATERIAL.

Land owner/manager:

BEAVERHEAD-DEERLODGE NATIONAL FORESTS, DILLON RANGER DISTRICT

Comments:

Information source:

SENSITIVE PLANT COORDINATOR, BEAVERHEAD-DEERLODGE NATIONAL FOREST, 420 BARRETT STREET, DILLON, MT 59725-3572.

Survey site name: ELKHORN HOT SPRINGS

County: BEAVERHEAD

USGS quadrangle: ELKHORN HOT SPRINGS

Precision: M

Elevation (ft): 7160

Location:

PIONEER MOUNTAINS, GRASSHOPPER CREEK DRAINAGE, CA. 0.3 MILE NORTHEAST OF ELKHORN HOT SPRINGS RESORT.

Township\Range: Section: TRS comments:

004S012W

29

NE4

ATTACHMENT E

Montana Species of Concern
Sections 4, 9 & 16
T05S, R12W
Beaverhead County

Biological Data

- ▲ Animal
- Plant
- ⊕ Other
- Westslope Cutthroat
- Animal
 - ▨ Bird
 - ▨ Mammal
 - Search Area

Land Status

- BLM
- BOR (BuRec)
- CoE & other DoD
- NPS
- USFS
- Other USDA
- USFWS
- BIA Trust
- Tribal
- State Trust
- DFWP
- University & Institutions
- County & City
- Plum Creek
- Private Conservation
- Other private
- Water



Species locations depicted outside the search area have imprecisely known locations and may actually occur within the search area.

Not all legend items may occur on map.

Features shown on this map do not imply public access to any lands.

This map displays management status, which may differ from ownership.

Refer to accompanying documentation for full explanation of map features.



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 (406) 444-3009 nhrp@state.mt.us

January 15 2002
 nhp0897

0.9 0 0.9 1.8 2.7 3.6 4.5 Miles

ATTACHMENT E



Report 1 of 1
Select Form

Map Waterbody

Grasshopper Creek Tributary Of: Beaverhead River Total Length (Mi): 51.7

Report is based on River Miles(rm): (0.0 to 51.7)

View list of tributaries to the Grasshopper Creek and their river miles

Hydrologic Units:

10020002 Beaverhead,

Counties:

Beaverhead,

FWP Management

Waterbody Location	Region/Fish District	Management
From (rm 0.0) to (rm 51.7)	3 / Central	Trout Water

Fish Species Present

Species	Abundance	Water Use	Data Quality
Brook Trout			
From (rm 0.0) to (rm 18.5)	Unknown	Year-round resident	Extrapolated based on surveys
From (rm 18.5) to (rm 47.5)	Unknown	Year-round resident	No Survey, Professional judgment
Brown Trout			
From (rm 0.0) to (rm 18.5)	Rare	Both resident and Fluvial/Adfluvial populations	Extrapolated based on surveys
From (rm 18.5) to (rm 47.5)	Unknown	Both resident and Fluvial/Adfluvial populations	No Survey, Professional judgment
Longnose Dace			
From (rm 0.0) to (rm 18.5)	Abundant	Year-round resident	Extrapolated based on surveys
From (rm 18.5) to (rm 47.5)	Unknown	Year-round resident	Extrapolated based on surveys
Longnose Sucker			
From (rm 0.0) to (rm 18.5)	Common	Year-round resident	Extrapolated based on surveys
From (rm 18.5) to (rm 47.5)	Unknown	Year-round resident	Extrapolated based on surveys
Mottled Sculpin			

From (rm 0.0) to (rm 18.5)	Common	Year-round resident	Extrapolated based on surveys
From (rm 18.5) to (rm 47.5)	Unknown	Year-round resident	Extrapolated based on surveys
Mountain Whitefish			
From (rm 0.0) to (rm 18.5)	Rare	Year-round resident	Extrapolated based on surveys
From (rm 18.5) to (rm 47.5)	Unknown	Year-round resident	Extrapolated based on surveys
No Survey			
From (rm 47.5) to (rm 51.7)	Not Applicable	Not Applicable	No Survey, Professional judgment
Rainbow Trout			
From (rm 0.0) to (rm 18.5)	Rare	Both resident and Fluvial/Adfluvial populations	Extrapolated based on surveys
White Sucker			
From (rm 0.0) to (rm 18.5)	Common	Year-round resident	Extrapolated based on surveys

Population Trend Data

From (rm 0.0) to (rm 1.5)

Date: 7/29/1980

Collector: UNKNOWN,

Species	Method	Length-(Min-Max(In))	DQR	Total	Units
Brook Trout	Peterson mark-recapture	6.5-17.4	Medium quality	11	per 1000 ft.

From (rm 18.5) to (rm 18.6)

Date: 1/1/1964

Collector: UNKNOWN,

Species	Method	Length-(Min-Max(In))	DQR	Total	Units
Brook Trout	Peterson mark-recapture	N/A-N/A	Medium quality	220	per 1000 ft.

From (rm 31.8) to (rm 47.5)

Date: 1/1/1964

Collector: UNKNOWN,

Species	Method	Length-(Min-Max(In))	DQR	Total	Units
Brook Trout	Peterson mark-recapture	N/A-N/A	Medium quality	220	per 1000 ft.

Genetics

Genetic sampling not collected on this stream.

Angling Use - Days Per Year

From (rm 0.0) to (rm 47.5)

ATTACHMENT E

Year	Total			Resident			Non Resident			Ranking	
	Press.	s.d.	Trips	Press.	s.d.	Trips	Press.	s.d.	Trips	State	Region
2001	448	197	10	354	173	8	94	94	2	398	76
1999	1153	368	25	859	322	21	294	178	4	281	54
1997	798	374	18	596	353	12	202	126	6	323	63
1995	474	219	12	474	219	12	0	0	0	408	91
1993	277	115	8	202	107	5	75	43	3	577	118
1991	409	162	12	245	130	7	164	97	5	447	93
1989	531	192	10	423	181	7	108	63	3	357	73
1985	1006	472	8	664	414	3	342	227	5	303	67
1984	738	521	2	738	521	2	0	0	0	344	70
1983	5940	2651	48	2994	2187	14	2946	1498	34	88	21
1982	2077	903	15	1508	838	11	569	337	4	214	48

Angling Use Data Source:

Data provided by a biannual Statewide Angling Use Survey conducted via mail by Montana Fish, Wildlife and Parks Information Services Unit in Bozeman.

Fish Stocking Since 1990

No Stocking Data Available

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