

- * South Fork Salmon River Restoration Strategy (1989): Road Improvements, pg 13,#27;
- * Boise NF, Land and Resource Management Plan (1990): Activity Schedule page A-51;
- * SFSR Total Maximum Daily Load (1992): Problem Assessment, TMDL Provisions, #6;
- * Upper SFSR and Johnson Creek Watershed Anaysis (1995):Recommendations,p.VII-46
- * Kline Mountian Road Stabilization Project, Environmental Assessment (1996)

An Ad-Hoc Committee was formed during the NEPA process for the Environmental Assessment that included: US Fish and Wildlife Service, Idaho Department of Fish & Game, IDHW-Division of Enviromental Quality, Nez Perce Tribes, Shoshone-Bannock Tribes, Local summer home owners, Warm Lake Water Users Association, Treasure Valley Trail Machine Association and a general public representative.

Subbasin.

South Fork of the Salmon River (SFSR) 17060208

Short description.

Reduce sediment along, #474 Road, by utilizing the most cost effecive methods, while keeping the road open to the public. Obilterate the bypass road and restore the wetland. Stabilize and perform minor reconstruction improvements along the #427 Road. .

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
*	Anadromous fish	*	Construction	X	Watershed
	Resident fish		O & M		Biodiversity/genetics
	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research		Ecosystems
	Climate		Monitoring/eval.		Flow/survival
	Other	*	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement		Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.

Sediment reduction, SFSR TMDL, 303(d)

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
	n/a	

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Reduce sediment delivery from #474 road	a	Stabilize surface, cut, fill slopes of road. Two major reconstruction locations.
2	Limit access to old bypass	a	Sign road closure and block
2	Finalize obliteration of bypass road #490 and restore wetland vegetation	b	Revegetate road surface, shape cuts. Establish native vegetation in wetland.
3	Stabilize #427 road	a	Minor reconstruction improvements along road.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	5/1999	10/1999	80.00%
2	6/1999	8/1999	0.50%
3	5/1999	10/1999	19.50%
			0.00%
			TOTAL 100.00%

Schedule constraints.

Contract preparation and awarding process by the USFS is the largest constraint.

Completion date.

1999

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel	Contract prep & administration, planting	\$33,545
Fringe benefits		\$ 0
Supplies, materials, non-expendable property	Native vegetation, road closure signs	\$ 955
Operations & maintenance		\$ 0
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		\$ 0
PIT tags	# of tags:	\$ 0
Travel		\$ 0
Indirect costs		\$ 0
Subcontracts	Road reconstruction & stabilization contracts	\$272,542
Other	IDF&G volunteers for wetland transplanting	\$ 0
TOTAL		\$307,042

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget				
O&M as % of total				

Section 6. Abstract

a. Funding needed to complete project is \$307,042 dollars. The ability of the USFS to implement this project has been limited by available funding. USFS has funded, completed portions of the project with watershed improvement dollars. The remaining work cannot be funded with watershed dollars.

b. The Kline Mountain road is identified in numerous environmental documents as a sediment source into the South Fork Salmon River (SFSR). The purpose of this project is to reduce current surface erosion from roads and prevent sediment delivery to the SFSR. Currently, 426 tons/year of sediment is eroding and being stored within the project area. Approximately, 0.6 ton/year is actually being delivered to the SFSR.

- c. The benefit of this project is improvement of critical spawning habitat for federally listed species, Chinook salmon. Though stabilization of these roads and restoration of wetlands, water quality will be improved.
- d. Road stabilization work would be accomplished using road treatment methods to reduce erosion and stabilize the road systems. Accepted and effective practices to stabilize cut/fill slopes and road surfaces include: Hillfaker structures and bioengineering techniques. Application of gravel on road surfaces is documented as 92% effective in reducing erosion. Complete obliteration of the #490 road would restore a natural wetland, reduce erosion and runoff. Reconstruction of the #427 road would improve road stability and safety.
- e. & f. The project would be implemented the summer/fall 1998. Stabilizing Kline Mountain (#474), Stolle Meadows (#427), and obliteration of the (#490) roads, including wetland restoration would reduce stored and total sediment by 16 and 24 percent respectively. A monitoring plan is developed to evaluate: project implementation, sediment reduction treatments, and vegetation success.

Section 7. Project description

a. Technical and/or scientific background.

The Kline Mountain project is located within the South Fork of the Salmon River (SFSR) drainage on the Boise National Forest, 30 miles east of Cascade, Idaho. The Kline Mountain (#474), Stolle Meadows (#427) and the bypass (#490) roads, are all part of the Warm Lake area road system. The project is located north of Stolle Meadows and south of the Warm Lake Highway.

This area of the SFSR has inherent conditions produce approximately 65,000 tons of natural sediment each year (Seyedbagheri et al 1987). Studies have shown that forest road have contributed up to 85% of the management induced sediment entering the SFSR (Gonsior and Garner 1971; King 1979; Megahan et al 1992). Sediment is mostly transported during high intensity rainstorms as water flows over the unstable cut and fill slopes, drainage ditches, and road surface. In addition, disturbed soil along the road accelerate natural erosion and sediment delivery rates.

Intense storm events have triggered surface and mass erosion along the #474 Road. Debris flows have deposited large amounts of sediment into the SFSR. Management induced disturbances along the Kline Mountain Road have acted as a catalyst in increasing the amount and size of debris flows. Currently there are three know point sources of sediment along the fill slope where sediment is transported directly to the SFSR.

Chinook spawning occurs in the SFSR from Stolle Meadows to the confluence with the East Fork of the South Fork Salmon River. The Kline Mountain project is located within this reach of river. Chinook spawning occurs in the project area in two locations: 1) Above and below the SFSR Campground, with some in Curtis Creek at the mouth; 2) At the 'Plunge' (near the bypass road #490) and extending upstream beyond the Bear Creek confluence in sporadic riffles. Spawning is not common in the remaining project area, because of slightly steeper stream gradients, higher streamflow velocities, and inadequate spawning substrates. In 1993, over 30 redds were observed within the project area (Sankovich 1993).

The 3.1 mile reach, which includes the project area, is predominately riffles with only 5% pools. The riffle/pool ratio for this reach is about 19:1, with a desired ratio generally at 1:1. Average riffle depth was 1 foot, while pools averaged 2 feet. Pools with depths greater than 3 feet are highly suitable for fish resting and cover, as with pools with large woody debris (log or debris jams). The majority of pools are found in river bends with associated woody debris.

A visual estimate of surface fines in the stream channel was made at 33%. The lower percent of fines, the more space available for fish and aquatic insects to use. This also allows for greater spawning survival and rearing cover for juveniles.

This project was identified as location to reduce the management induced sediment yield to the SFSR. Treatment of the road while maintaining access to Stolle meadows was a requirement of the USFS decision (USDA-FS 1996). A detailed site investigation quantified the amount of sediment being delivered to the SFSR and helped to develop the project design to reduce sediment delivery from those sites. The use of native vegetation and structures will help to insure the success of the stabilization effort along roads and through the wetland.

Through the informal consultation process, NMFS determined that the action (project) would have no more than negligible potential to adversely affect listed Snake River salmon. NMFS concurred with the BNF determination that the action is not likely to adversely affect listed Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, or their critical habitat (NMFS 1995).

b. Proposal objectives.

The following section describes the Kline Mountain project by objective with a list of details. The application of best management practices will be used to control erosion at the construction sites (pre, during and post) during project implementation.

Objective 1.0 - Kline Mountain Road Stabilization (#474).

Treatment of this road segment will reduce sediment along the Kline Mountain road, by utilizing the most cost effective methods, while keeping the road open to the public. The fill slopes along the #474 road would be stabilized with a combination of planted vegetation and applying Hillfaker material. Retaining walls, crib walls, or rock gabions would be installed to stabilize the toe of the reshaped slopes. All exposed 'cut and fill' slopes would be heavily planted with shrub and tree saplings then hydromulched with a native seed mixture. Existing overhangs "eyebrows" at the head of severe cutslopes would be sloped backed with the extra material scattered below on the cutslopes.

Item	Quantity/Unit
Miles of road	2.0 miles
Reconditioning	2.0 miles
Culverts removed	1
Culverts installed 18" CMP	306 LF
Ditchline excavation	75 LF
Removal of berms	5800 LF
Aggregate surfacing	2900 CY
Aggregate base	500 CY
Hand placed riprap	80 LF
Lag walls 3' high	1000 LF
Hillfaker Walls	500 sq ft
Grid structures	2
Eyebrow removal	2000 LF
Seeding & Mulching	5.0 acres
Planting	3500 plants

The surface of the #474 road would be graveled for approximately two miles, starting at the Warm Lake highway then south to its junction with the #490 road. The road would be insloped with ditches and culverts providing road surface drainage. All worn out culverts would be replaced, plugged, or lined, and additional culverts would be installed.

Objective 2.0 - Obliteration of bypass road (#490).

This segment of road was obliterated in the fall of 1996. The site was seeded with native grasses and the wetland was vegetated with transplanted wetland species. The remaining work includes the establishment of native vegetation (trees/shrubs) on the old road surface, cutslope 'eyebrow' removal, and signing to prevent access into wetland. Additional wetland transplanting will be accomplished with volunteers from the Idaho Department of Fish and Game in the spring of 1998.

Item	Quantity/Unit
Miles of road	0.67 mile
Eyebrow removal	400 LF
Planting	200 plants
Signing	2 signs

Objective 3.0: Stolle Meadows Road (#427).

Stabilization and road safety improvements would be completed along the #427 road. Road stabilization includes graveling the first ¼ mile of road starting at the Warm Lake highway and installation of additional culverts. Road safety would be improved by installing four additional pullouts, plus widening two narrow road corners above the junction with Bear Creek Road #470.

Item	Quantity/Unit
Miles of road	3.26 mile
Reconditioning	1.0 miles
Roadway ripping	0.25 miles
Culverts installed 18” CMP	320 LF
Culverts installed 24” CMP	80 LF
Ditchline excavation	100 LF
Removal of berms	400 LF
Aggregate surfacing	1000 CY
Aggregate for ditches	100 CY
Hand placed riprap	40 CY
Eyebrow removal	50 LF
Seeding & Mulching	2.0 acres
Planting	500 plants
Signing	6 signs

c. Rationale and significance to Regional Programs.

The Kline Mountain Project is located within the South Fork of the Salmon River which is managed by the Boise National Forest to specifically to maintain or improve anadromous fish habitat, and improve the SFSR to meet State water quality standards (USDA-FS 1990). This area is critical spawning habitat for Chinook salmon. This project is consistent with the Fish and Wildlife Program (FWP 1994) habitat objectives (Section 7, 7.6D) to improve water quality to fully comply with the existing federal and state standards, and meet biological requirements of the Chinook salmon, a federally listed species.

The SFSR is currently listed as Water Quality Limited Waterbody (303d) by the State of Idaho and has an approved Total Maximum Daily Load (TMDL), for the parameter of sediment (USDI-EPA 1992). The Kline Mountain Stabilization Project was identified in the approved TMDL, and will help move toward the reduction of sediment delivered to the SFSR from roads. This projects initiates actions to improve water quality as directed in the FWP (1994) to implement federal habitat improvements (Section 7.8A.2).

The use of best management practices to control erosion at the project location and during project implementation is a requirement of the Environmental Assessment (USDA-FS

1996) and the FWP (1994) Section 7.8B. The use of these practices will also be monitored.

d. Project history

This project is a new project that is submitted as a “watershed” project.

e. Methods.

A full description of this project proposal can be found in the Kline Mountain Road Stabilization Environmental Assessment, at the Cascade Ranger District (USDA-FS 1996).

The methods of the project follow standard road reconstruction, vegetation establishment, wetland restoration techniques. Each of the objectives was summarized above, **Section b. Proposal objectives**, with a list of project details that would be accomplished.

f. Facilities and equipment.

No facilities or equipment are requested for this project proposal.

g. References.

References

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Megahan, W.H., and S.B. Monsen, M.D. Wilson. 1992. Probability of sediment yields from surface erosion of granitic roadfills in Idaho. J. Environmental Quality. 20:53-60.

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Seyedbagheri, K.A. and M.L. McHenry, W.S. Platts. 1987. An annotated bibliography of the hydrology and fishery studies of the South Fork Salmon River. Gen. Tech. Report INT-235. Ogden, UT: USDA-Forest Service, Intermountain Research Station. 27p.

US Department of Agriculture-Forest Service (USDA-FS). 1996. Kline Mountain Road Stabilization Project, Environmental Assessment and Decision Notice. Boise National Forest, Cascade Ranger District, Cascade, Idaho.

USDA-FS. 1995. Upper SFSR and Johnson Creek Watershed Analysis. Boise National Forest, Cascade Ranger District, Cascade, Idaho. Recommendations, pg. VII-46.

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USDA-FS. 1989. South Fork Salmon River Restoration Strategy. Boise and Payette National Forest. Road Improvements, pg. 13,#27.

USDI-EPA. 1992. South Fork Salmon River Total Maximum Daily Load. USDI-EPA, Region 10, Seattle, WA. Problem Assessment & TMDL Provisions: #6.

Section 8. Relationships to other projects

The Kline Mountain Project is related to other efforts within the South Fork Salmon River that reduce sediment delivery to the river and maintain and improve critical spawning habitat of the Chinook salmon. The entire upper SFSR is managed by the Boise National Forest.

In 1989, the SFSR Restoration Strategy identified sediment sources within the watershed (USDA-FS 1989). Fomal TMDL identified similar sites to be treated to restore fish habitat and improve water quality (USDI-EPA 1992). Many of the projects on these lists have been accomplished by the Forest Service (Boise & Payette NF) over the past years. The Upper SFSR and Johnson Creek Watershed Analysis reviewed the completion of projects identified in the Restoration Strategy and the TMDL (USDA-FS 1995). Thirty-two projects have been completed or are ongoing since 1990, in the SFSR.

Additional non-interdependent relationships include: the 1993 effort by the USFS to reduce sediment delivery from sites identified in the On-Going Assessment of Forest Service activities (USDA-FS 1995). The effort treated dispersed recreation sites and forest roads that damaged stream banks and degraded habitat. Treatments included: harden trail crossing and camp sites, close campsites, install bridges and culverts, regrade roads surfaces and apply gravel.

Section 9. Key personnel

A summary of key personnel required for this project is provided with the information requested. Two on-page resumes are included below the following table for key personnel additional one-page resumes can be made available upon request.

Personnel involved with project implementation

USFS Personnel	Title	Professional Education Years of Experience	Project Duties
Jennie Fischer	District Hydrologist	BS Watershed Sciences Colorado State University 1988 10 years	Cut/Fill slope vegetation & stabilization Wetlands restoration Erosion Control Inspector Monitoring
Suzanne Gebhards	Hydrologist Trainee	MS Watershed Science (in-progress) Utah State University 2 years	Erosion Control Inspector Vegetation Planting Monitoring
Don Newberry	District Fisheries Biologist	BS Zoology - 1971 Southern Illinois University MS Biology - 1984 Murray State University 16 years	Erosion Control Inspector Monitoring
Dale Olson	Fisheries	BA Biology - 1984 Northwest Nazarene College	Erosion Control Inspector

	Biologist	BS Fisheries - 1992 University of Idaho 5 years	Monitoring
Tom Hass	Civil Engineering Technician & District Engineer	Transportation Planning & Construction 30 years	Contracting Officer Representative (COR) Project Planning, Design & Implementation
Terry Ford	Civil Engineering Technician	Transportation Planning & Construction 22 year	Project Planning, Design & Implementation Contract Inspector
Robert Smith	Civil Engineering Technician	Transportation Planning & Construction 16 years	Project Survey & Contract Inspector

Resume for: **Jennie G. Fischer**
Cascade Ranger District
P.O.Box 696
Cascade, Idaho 83611
(208) 382-7452

District Hydrologist
Permanent Full Time

Duties on the Proposed Project

- Design, implement and monitor cut and fill slope stabilization treatments for the Kline Mountain Project.
- Implement the wetlands restoration and re-vegetation along the #490 Road.
- Design and monitor road stabilization and erosion control treatments, during construction and implementation.
- Inspect road construction activities on both segments of road during project life for treatment and effectiveness

Major Accomplishments

Responsible for watershed improvement project identification, planning, implementation and monitoring on the Cascade District for the past 5 years. Projects include: road obliteration, streambank stabilization, wetlands restoration. Annual budget: \$ 10,000-50,000 dollars.

Planned and implemented slope stabilization treatments and sediment reduction on the Thunderbolt Wildfire Recovery Project (1994-1997). This project was in response to the 1994 Thunderbolt Wildfire and treated 19 miles of road and 14 acres of cut and fill slopes in critical Chinook salmon habitat. Monitoring the treatment effectiveness was also a responsibility. Projects included: cut and fill slope stabilization, road obliteration, road to trail conversion, road sediment reduction projects. Responsible for management of Knutsen-Vandenburg funds \$ 195,400 dollars for the project.

Job History

- 1991 to Present District Hydrologist, Cascade Ranger District, Boise National Forest, Cascade, Idaho
- 1988 to 1991 Assistant District Hydrologist, Hood River and Barlow RD, Mt. Hood National Forest, Mt. Hood, Oregon
- 1987 to 1988 Soil Science Trainee, Payette National Forest, McCall, Idaho

Education and Professional Membership

- B.S. Watershed Sciences, Colorado State University, 1988
 Minor in Scientific Computing and Concentration in Soil Science
- Member of American Water Resource Association
- Member of Society of American Foresters

Resume for: **Tom Hass** Civil Engineering Technician &
 Cascade Ranger District District Engineer
 P.O.Box 696 Permanent Full Time
 Cascade, Idaho 83611
 (208) 382-7400

Duties on the Proposed Project

- Plan, design and implement road construction and road stabilization treatments for the Kline Mountain Project.
- Perform work as the Contracting Officer Representative for the construction contract for all road work. Oversee and supervise inspection of road construction activities on both segments of road during project life.
- Design and implement road stabilization and erosion control treatments, during construction.

Major Accomplishments

Responsible for the Cascade Ranger District road, trail and facilities management for the past 9 years. Projects include: road construction and maintenance, administration of cooperative agreements, design and planning of roads and facilities for new projects. Annual budget: \$ 100,000-1,000,000 dollars depending upon size of projects.

Planned and implemented sediment reduction on the Thunderbolt Wildfire Recovery Project (1994-1997). This project was in response to the 1994 Thunderbolt Wildfire and treated 19 miles of road in critical Chinook salmon habitat.

Planned, designed and implemented bridge installation and replacement, new and upgrade recreation facilities, and roads ranging from native surface to paved structure. Examples include: Twin Bridges replacement (1993), Campbell Creek Boat Launch (1994).

Job History

- 1989 to Present District Engineer, Cascade Ranger District, Boise National Forest, Cascade, Idaho
- 1980 to 1989 Assistant Zone Engineer, Bridger-Teton National Forest Afton, Wyoming
- 1978 to 1980 District Engineer, Bearlodge Ranger District, Black Hills National, Forest, Sundance, Wyoming
- 1973 to 1978 Civil Engineering Technician, Cascade RD, Boise NF
- 1969 to 1973 U.S. Navy
- 1968 to 1969 Civil Engineering Technician, Cascade RD, Boise NF

Education and Professional Membership

30 years of work experience

Section 10. Information/technology transfer

A monitoring plan has been developed to evaluate: project implementation, sediment reduction treatments, and vegetation success. A summary will be published in the Boise National Forest Annual Monitoring Report. A full report will be placed in the project file at the Cascade Ranger District office in Cascade, Idaho.

There is potential to develop educational signs at the wetland explain the importance of wetlands and the need to reduce erosion from roads.