Date of Report: June 20, 2012

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

[X] 2. Interim Report # 2 .
[X] Updating the initial funding request based on more accurate site data or design analysis
[X] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION[1]

A. Fire Name: Saddle Complex Fire

B. Fire Number: MT-BRF-00207

C. State: MT - ID

D. County: Ravalli

E. Region: R1

F. Forest: Bitterroot

G. Districts: West Fork

H. Fire Incident Job Code: P4GA5T 0413

I. Date Fire Started: August 10, 2011

J. Date Fire Contained: end of season

K. Suppression Cost: $4.95 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: 5 miles hand line repaired.
2. **Fireline seeded (miles):** 5 miles of handline seeded.
3. **Other (identify):**

M. Watershed Number: Fire burned parts of 6th-level watersheds 170102050101, 170102050102 and 170102050108

N. Total Acres Burned:

[1] Fire and severity acres calculated from 9/11 satellite image and perimeter. Saddle Mt. fire expanded its area by up to 2,000 acres in backcountry areas after that date.

[32,365 total, 15,693 in MT] NFS Acres [ ] Other Federal [ ] State [] Private

O. Vegetation Types: Ponderosa Pine/Doug Fir/Beargrass, Mixed Conifer (Doug Fir/Lodgepole Pine/huckleberry), Lodgepole/Beargrass/Huckleberry, Subalpine Fir/Beargrass, Whitebark Pine/Subalpine Fir/Beargrass, Subalpine bunchgrass communities.

P. Dominant Soils: coarse to fine textured sandy loams

Q. Geologic Types: Bitterroot Mountain Range, Glaciated landscape, Decomposed Granite and volcanic parent types, Idaho Batholith

R. Miles of Stream Channels: All watersheds are within 4th-level watershed 17010205. Miles shown are within fire perimeter, NHD streams layer used.

6th-level Watershed	Stream Miles
0101	0.0
0102	62.0
0108	0.0

S. Transportation System

Trails: 2.2 **miles** **Roads:** 44.3 **miles** within fire perimeter

PART III - WATERSHED CONDITION

A. Burn Severity (acres):
Unburned: 2,626 acres (17%) **Low:** 2,807 acres (18%) **Moderate:** 4,770 acres (30%) **High:** 5,477 acres 35%).

B. Water-Repellent Soil (acres): approx. 7,862 acres (all of high severity, 50% of moderate severity acres = 39% of area within fire perimeter).

C. Soil Erosion Hazard Rating (acres): 6,671 **(low)** 9,788 **(moderate)** 6,561 **(high**)

D. Erosion Potential: 2.2 **tons/acre**[2] (Normal precip, 14.25 t/ac for 10yr RI precip year)

E. Sediment Potential: 7 **tons/acre**[3] **(**4,480 **cubic yards / square mile,** assumes 1T/cu yd**)**

[2] Results derived from Disturbed WEPP. Modeled high intensity fire in the uplands and riparian, sandy loam soil, 30-50% slope, 10% ground cover , 15% rock, and Stevensville modified climate (MAP=35"). This is a worse case analysis.

[3] Results derived from ERMiT. Modeled high intensity fire, sandy loam soil, 15% rock, 50% slope, and Stevensville modified climate. This is a worse case analysis.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5-7 years

B. Design Chance of Success, (percent): 75%

C. Equivalent Design Recurrence Interval, (years): 5 and10 years

D. Design Storm Duration, (hours): 6 and 24 hours

E. Design Storm Magnitude, (inches): 1.2, 1.4 inches

F. Design Flow, (cubic feet / second/ square mile): Varies with watershed

G. Estimated Reduction in Infiltration, (percent): 25 - 70%, Varies with watershed

H. Adjusted Design Flow, (cfs per square mile): Varies with watershed size, topography and amount burned (see below).

Post-fire flows were modeled using the NRCS-based Fire Hydrology V1.3 (Cenderelli) analysis tool for pre and post-fire conditions. Output is in peak flow rates (cfs), which includes baseflow plus the flow component that is attributable to the storm itself. For 5 and 10 year precipitation events in burned watersheds, stormflow varies with the percentage and severity of burned area. “Adjusted” (post fire) flows in Saddle Complex Fire watersheds increased from near 0 to 221 cfs over pre-fire flow estimates, depending on storm return interval and watershed. Peak flows in Saddle Complex Fire watersheds surpass existing channel culvert capacity in 8 locations in modeling exercises. Models such as this cannot address debris flows and floatable wood, which can cause culvert plugging and overtopping. Several treatment recommendations are based on the probabilty of this kind of event, rather than the potential for “typical” flood events.

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative):

Critical Values/Resources and threats: **No downstream threats to life from storm events were found in the Saddle Complex Fire Area, however, the following threats were deemed significant:**

1. Road Crossings/infrastructure – post-fire hydrology driven by a high percentage of high burn severity within the fire will increase risk of damage at 43 different stream crossings on open system roads, with loss of road system and subsequent sediment delivery to bull trout habitat not recently affected by fires. The Ranger District and Forest wish to maintain road access on major roads (FR91, FR5669) in the burned area for administrative and recreational purposes. FR5669 is also access to Gattin Ranch, an inholding in Idaho with year-round residents. The stream crossings with substantial high and moderate burn severity above them are not adequately sized for expected water, sediment, and organic debris loading. If a crossing does not have adequate capacity it may fail by:
    a. Saturating the road fill, pipe bedding, and roadbed, causing catastrophic failure;
    b. Overtopping, leading to gullying and failure or partial collapse; or
    c. Capturing the downslope ditch, causing catastrophic fill failure where ditch capacity is lost by volume or deposition,
    d. Plugging and causing the stream to run either across or down the road prism, leading to gullying, stream capture.

   Post-fire hydrology will increase the occurance of surface runoff from burned slopes onto the road prism. Many burned swales above the road have undersized or no culverts for the flows to pass through. There is a risk of intensive road gullying and rutting, which may cut off access, cause extensive damage to the road prism, and increase fine sediment to local streams. There is a risk of surface flows eroding both cut and fill slopes, which are more sensitive than natural slopes, which can lead to further road prism instability and loss of running surface.
2. Road Prisms not needed in the near future – post-fire hydrology will increase risk of loss of fill and damage at 8 large crossings on currently unused or closed road prisms, with sediment delivery to bull trout habitat. Due to surrounding high severity burn, extensive erosion of cut and fill slopes over the next 3-5 years is likely. Any lost fill material would also have to be hauled in to repair these sites, creating relatively expensive crossing repairs.
3. Previously weed-free areas within High/moderate burn severity – loss of competing vegetation due to the fire will enable progressive migration of road & trail side weeds into new areas. New Invader to Montana present upwind in Idaho (Rush Skeletonweed). The large amount of bare ground caused by the severe burn creates an opportunity for new invasion by weed species not previously found in the Upper West Fork. The FR44 road to Shoup, ID, comes up immediately out of an river valley with a wide variety of weed species (several of which have not been established on the MT portion of the fire area), and freshly burned roadsides create an ideal highway for weed expansion.

   If untreated, the high severity of large parts of the burn, and the large percentage of dry habitat types in the burn area result in a high probability that existing noxious weed populations will expand dramatically, and displace native plant communities. This risk is primarily on the south and west aspects of the fire (where the dry habitat types are concentrated), along with areas subjected to high-intensity fire that consumed the duff layer and increased the native vegetation recovery period.

4. Ephemeral channel downcutting within high severity burn – the greatest erosion threat within high severity burn has typically been downcutting in ephemeral channels. Eroded soil poses risks to road infrastructure, fisheries and water quality. Few treatments have been scientifically studied for controlling downcutting in these situations. If untreated, we lose an opportunity to study effectiveness within the Saddle Complex Fire.

B. Emergency Treatment Objectives (narrative):

a. **Reduce effects to bull trout habitat in Beaver Cr, Woods Cr and the West Fork Bitterroot River, and other downstream water bodies;**
b. **Protect road infrastructure and crossings from flood flows, debris torrents, and other potential events and maintain access;**
c. **Reduce the threat of significant expansion of existing noxious weeds or invasion of new noxious weeds;**
d. **Study effectiveness of mesh fence check dams in controlling ephemeral channel erosion.**

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land NA **Channel** NA **Roads/Trails** 95% **Protection/Safety** 95%

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Native Plant Seeding	80	85	85
Noxious weed treatment	80	85	85
Noxious weed monitoring	85	NA	NA
Channel			
Directional Tree Felling	90	85	80
Roads/Trails			
Road Patrol	65	80	95
Clean Culverts	80	90	95
Remove Culverts	95	95	95
Stabilize Slope and Road Storage	85	95	95
Stabilize Road Cut & Fill Slopes	80	85	85
Install Diversion Dips	85	90	95

Install Culverts	85	90	95
Stabilize Culvert Inlets/Outlets	85	90	95
Protection/Safety			
Worksite Haz Tree Felling	95	85	80

E. Cost of No-Action (Including Loss): See attached Cost-Risk Analysis Document

F. Cost of Selected Alternative (Including Loss): See attached Cost-Risk Analysis Document

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	**[X] Soils**	**[ ] Geology**	**[X] Range**
[X] Forestry	**[ ] Wildlife**	**[ ] Fire Mgmt.**	**[X] Engineering**
[ ] Contracting	**[ ] Ecology**	**[X] Botany**	**[X] Archaeology**
[X] Fisheries	**[ ] Research**	**[ ] Landscape Arch**	**[X] GIS**

Team Leader: Ed Snook

Email: esnook@fs.fed.us **Phone**: 406.363.7103 **FAX**: XXX

Specialty	Team Members
Hydrologist	Dave Callery (SO, HNF)
Soil Scientist	Cole Mayn (SO, BNF)
Soil Scientist	Dave Marr (SO, HNF)
Fisheries	Mike Jakober (D-4, BNF)
Botany	Robin Taylor-Davenport (SO, BNF)
GIS	Erin Nock SO, BNF
Engineering/Roads	Jim Stuart (SO, BNF), Rich Raines (SO, BNF)
Heritage	Mary Williams (SO, BNF)
Fiscal Mgmt/Purchasing	Cheryl Andersen (SO, BNF), Tina Mainey(SO, BNF)
Recreation/Trails	Marty Almquist, Deb Gale (D4 BNF)
Invasive species, Range	Gil Gale (D3, BNF)

H. Treatment Narrative:
(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

Noxious Weeds Control/Treatment

Objective:
The purpose of the treatment is to maintain ecosystem integrity within the Saddle Complex Fire Area (Upper West Fork Bitterroot River), where few noxious weed populations exist. Without

treatment knapweed and other new invaders may spread into the severely burned areas. By reducing the amount of weed seed along roads, dozer lines & trails in the area, native species will have an opportunity to take advantage of the post-fire nutrient flush without competition from noxious weeds.

Methods:
As monitoring indicates, treat fire access road corridors that provide routes invasive weed species could use to expand into the severely burned areas with aminopyralid or Escort. Selected sites include spraying along roads including, but not limited to, FR91 and FR5669 where heavy canopy loss has increased the risk of rush skeletonweed, knapweed and other species spreading into the burned area. Effects of herbicide treatments at the proposed rates using aminopyralid, clopyralid or picloram are addressed in the Bitterroot National Forest Noxious Weed Environmental Assessment, and all implemented treatments would be consistent with this document. New invaders and previously weed-free areas would be targeted.

Threatened and Rare Plant Site Protection Hand Seeding

Objective:
The purpose of the treatment is to protect existing threatened and rare plant sites within the high and moderate burn severity areas of the Saddle Complex Fire. By using native grasses and forbs to help occupy the sites and reduce the likelihood of invasive species establishment, the target sites have a greater chance of maintaining their current rare plant species.

Methods:
Hand-seed certified-weed-free native grass and forb seed in and around the rare plant sites as soon as possible, preferably before snow cover is established.

Channel Treatments:

In-Channel Tree Felling

Objective:
Trap floatable debris and suspended sediment, reduce potential in-channel debris flow bulking above culverts determined to have marginal capacity to pass model flood flows. Provide cover for fish and improve channel stability in the road crossing vicinity.

Methods:
Treat Beaver Creek upstream of road crossing at milepost 3.4 (from end of pavement) (60" diameter culvert). Starting approximately 100 yards upstream, directionally fell trees upstream into channel in an overlapping herringbone pattern. Utilize trees large enough to resist downstream transport, and green trees where possible. This treatment was accomplished 11/4/11.

Trail Treatments: None

Road Treatments:

Clean Culverts

Objective:
Removing debris from the inlets and outlets would let culverts function as designed and restore flow capacity. The purpose of this work is to decrease the risk that ditch relief and road stream

crossings fail resulting in culvert washouts as well as ditch and road surface water flows being diverted down roadways causing washouts and adding sediment to Bull Trout habitat and downstream water bodies. Treatment aims to improve maintain access, road drainage and reduce potential for road prism erosion and high cost repairs.

Methods:
Culverts that are currently plugged or have catchments that are full or brushed in should be cleaned out to insure unobstructed flows. As soon as possible, culvert inlets and outlets would be brushed and cleaned by hand crew using chain saws, hand tools, and in some more difficult situations, with a rubber-tired backhoe. This treatment has been accomplished as of 06/11/2012.

Slope Stabilization and Road Storage

Objective:
This treatment would stabilize isolated road prisms and slopes also treated by the Remove Culverts treatment (below) and reduce sediment to Beaver Creek and downstream water bodies, which are Bull Trout habitat. Treatment **d**. (Remove Culverts) would make these road segments inaccessible for maintenance. These are closed or grown-in roads not currently being used and not needed in the near future for access.

Methods:
5 sites (FR5672, 74283, 13417, 74282 and 74280), with a total of approximately 7 miles of Forest Road would be treated by decompaction and partial recontouring of the prism to better match the hillslope contours. Disturbed surfaces would be seeded, fertilized and mulched. An excavator and hand crews would be used to complete the treatments.

Road Cut and Fill Stabilization (Straw Mulch)

Objective:
This treatment would stabilize cut slopes, fill slopes, and some immediately adjacent natural slopes by providing a straw mulch layer to slow erosion, along with native grass seed and fertilizer to improve vegetation recovery rates.

Methods:
4.5 miles of Beaver Creek Road FR91 would receive approximately 1 ton/ac of certified weed-free straw mulch applied 50’ on each side (approx 55 acres) with a straw blower, along with 6 lb/acre of native grass/forb seed and 250 lb/acre of organic fertilizer (Hendrikus, application rate may vary with other brands), followed with a tackifier to reduce straw movement. A forest-owned straw blower and Forest crew would be used to apply straw, seed, and fertilizer, while a contractor would be used to apply a guar-gum based tackifier. Native plant species will be prescribed by the Forest Botanist and will consider site characteristics. This treatment has been accomplished as of 06/08/2012.

Install Culverts

Objective:
The purpose of the treatment is to reduce the risk that stream flows will overtop the road , cut off access and add sediment to Bull Trout habitat and downstream water bodies. Treatments, when combined with armored dips, also reduce potential for debris flow occurence. Sites were chosen based on the amount of high and moderate burn intensity in drainages above the roadways.

Methods:

Excavate existing pipes and install larger culverts at (8) indicated sites. Riprap will be placed at inlets or outlets to reduce risk of scour. Newly disturbed road surface at the crossing sites will receive 4" thickness 1" minus compacted aggregate. Newly disturbed areas that do not receive aggregate or riprap will be seeded. Protect roads and crossings from flood flows, debris torrents, and other potential events**.** The upgraded crossings will also get diversion dips to improve probability of passing a debris flow. Hazard trees threatening workers and fallen trees blocking access would also be cut. This treatment is 50% accomplished as of 06/08/2012.

Remove Culverts

Objective

Eight perennial and ephemeral stream/road crossings on unused and closed roads are at risk of failure due to post-fire hydrology and presence of floatable woody debris. Removing culverts and the associated road fills will prevent uncontrolled washouts at these sites and prevent up to 5 cubic yards of sediment per crossing from entering local Bull Trout streams.

Methods

Sites were chosen based on high burn intensity of drainages above the roadways involved. Because of the probability of increased stream flows, culverts in these locations are at greater risk of being inadequate in size, or becoming plugged. Methods for eliminating this risk include removing the road fill and culvert, and sloping back the road slopes to reduce sloughing during post-fire flood flows. Disturbed areas created by culvert removal would be seeded, fertilized and mulched. Hazard trees threatening workers and fallen trees blocking access would also be cut. This treatment is 60% accomplished as of 06/11/2012.

Install Diversion Dips on Roads

Objective

FR91, 5665 and 5669 have approximately 26 stream and gully crossings not identified for culvert replacement that have a reasonably high probability of being negatively affected by post-fire hydrology. The objective of diversion dips adjacent to these crossings is to prevent flood flows from running down the road if the culvert is plugged or overtopped. This is possible even with culvert upsizing, due to jamming of the culvert with woody debris or rock. Treatments would reduce the risk of large road-origin sediment contributions during post-fire thunderstorms. Treatment aims to maintain access and reduce potential for road prism erosion and sediment to Bull Trout habitat.

Methods

At candidate sites, an armored drive-through dip and berm would be built immediately downgrade of the crossing to divert overtopping flows back into the channel. The upper and lower fills would be rip-rapped at the dip location to prevent downcutting and loss of the structure or road prism. The dips will need crushed aggregate on the newly reshaped roadway, and seeding of any newly disturbed ground not receiving aggregate or riprap.

Protection/Safety Treatments:

Fell Hazard Trees around Work Sites

Objective

Protect BAER implementation workers at sites with hazard trees.

Methods
Use certified sawyers in crews to fell hazard trees threatening workers at identified sites. Use Agency snag assessment and falling methods. If tree is unsafe to fall, re-assess treatment need, methods or utilize excavator to fall tree. This treatment is accomplished as of 11/7/11

I. Monitoring Narrative:
(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Storm Patrol

Objective:
Road systems within the Saddle Complex Fire burned area on National Forest are currently in very good condition. Additional assessments to determine road and crossing maintenance after storms are needed in high burn severity areas. Treatment is founded on detecting problems early and initiating appropriate response to maintain access, reduce sediment to local stream systems and reduce overall repair costs.

Methods:
The existing road systems that lie within the Saddle Complex Fire burned area have numerous stream crossings that have been affected by the fire. Storm patrols will be mobilized immediately upon receiving heavy rain or rain-on-snow events. This funding would be used only if the burned area receives heavy rain or rain on snow events. Roads traversing the burned area would be patrolled to insure all stream crossings, ditches and drainage features are clear of debris to maintain proper road drainage

Noxious Weed Monitoring

Objective:
Monitor known and high potential infestation sites for noxious weed species in the burned area and determine need and extent of control treatment to be implemented. Monitor weed treatments results to ensure native plant community protection objectives are being met.

Methods :
During 2012, monitor effectiveness of the spraying and establishment of new weed populations. Accurately map new populations using GPS and GIS. Establish photo plots for potential treatment. Monitor weed treatments results to ensure objectives are being met Accurately map any new populations using GPS. Establish photo plots for documentation as needed.

Threatened Plant Protection Monitoring

Objective:
Monitor previously mapped and treated (hand seeding, see above) threatened and rare plant species sites for treatment effectiveness.

Methods:
Conduct species presence surveys. Establish photo plots for documentation as needed.

Ephemeral Channel Erosion Control Level 2 Monitoring

Objective:

Within high severity burn area, implement (6) wire-mesh fence grade control structures on one drainage and establish a comparable control drainage to determine effectiveness of treatment.

Methods:

Implement a paired BAER level II watershed study with no treatments in one watershed and 6 wire mesh grade control structures in the other to test the effects on channel down-cutting. Cross section and channel profile surveys will be taken before and after the summer rainfall events. Drainages will be monitored with channel surveys and tipping-bucket rain gages.

Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #**

A. Land Treatments										
Weed Spray	acres	32.64	153	$4,994	$0		$0		$0	$4,994
Threatened Plant Prot	sites	260.34	16	$4,165	$0		$0		$0	$4,165
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$9,159	$0		$0		$0	$9,159
B. Channel Treatments										
Directional Felling	lump	333.4	1	$333	$0		$0		$0	$333
Grade Controls (Resea	lump	6400	1	$6,400	$0		$0		$0	$6,400
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$6,733	$0		$0		$0	$6,733
C. Road and Trails										
Install Culverts	culverts	4552.3	36	$163,882	$0		$0		$0	$163,882
Remove Culverts	culverts	1208.6	8	$9,669	$0		$0		$0	$9,669
Slope Stab Road Store	miles	10413	8	$83,304	$0		$0		$0	$83,304
Install Diversion Dips	dips	2,754	26	$71,604	$0		$0		$0	$71,604
Stabilize Culvert Inlet/C	culverts	989.46	35	$34,631	$0		$0		$0	$34,631
Clean Culverts	culverts	389.81	36	$14,033	$0		$0		$0	$14,033
Stabilize Road Cut & F	acres	1,166	55	$64,130			$0		$0	$64,130
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$441,253	$0		$0		$0	$441,253
D. Protection/Safety										
Hazard Tree Treatmen	sites	40.88	40	$1,635	$0		$0		$0	$1,635
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$1,635	$0		$0		$0	$1,635
E. BAER Evaluation										
Saddle Complex	lump	24887	1	$24,887			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$24,887	$0		$0		$0	$0
F. Monitoring										
Storm Patrol	miles	31.93	30	$958	$0		$0		$0	$958
Threatened Plant Prot	sites	108.38	16	$1,734	$0		$0		$0	$1,734
Weed Monitor	acres	7.26	2316	$16,814	$0		$0		$0	$16,814
Grade Controls (Resea	lump		1	$3,300			$0		$0	$3,300
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$22,806	$0		$0		$0	$22,806
G. Totals				$506,474	$0		**$0**		**$0**	**$481,587**
Previously approved				$496,774						
Total for this request				**$9,700**						

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date

Saddle Complex MT 2011
Cost/Risk Assessment

Part 1. Treatment Cost

Treatment		cost
1.	Weed Treatments	$4,994
2.	Threatened Plant Protection Seeding	$4,165
3.	Channel – Directional Felling	$333
4.	Install culverts	$163,882
5.	Remove culverts	$9,669
6.	Stabilize Slope and Road Storage	$83,304
7.	Install Diversion Dips	$71,604
8.	Stabilize Culvert Inlet/Outlets	$34,631
9.	Clean Culvert Inlets/Outlets	$14,033
10.	Stabilize Road Cut & Fill Slopes (Straw Mulch)	$64,198
11.	Hazard Tree Assessment & Treatment	$1,734
12.	Road Storm Patrol	$958
13.	Threatened Plant Protection Seeding Effectiveness Monitoring	$1,572
14.	New Invasive Weed Monitoring	$16,814
TOTAL COST		$471,954

Part 2. Probability of Rehabilitation Treatments Successfully Meeting EFR Objectives

Treatment		%
15.	Weed Treatments	80
16.	Threatened Plant Protection Seeding	80
17.	Channel – Directional Felling	85
18.	Install culverts	85
19.	Remove culverts	95
20.	Stabilize Slope and Road Storage	90
21.	Install Diversion Dips	85
22.	Stabilize Culvert Inlet/Outlets	85
23.	Clean Culvert Inlets/Outlets	80
24.	Stabilize Road Cut & Fill Slopes (Straw Mulch)	80
25.	Hazard Tree Assessment & Treatment	95
26.	Road Storm Patrol	80
27.	Threatened Plant Protection Seeding Effectiveness Monitoring	95
28.	New Invasive Weed Monitoring	85

Risk of Resource Value Loss or Damage

Identify the risk (high, medium, low, none or not applicable (NA)) of unacceptable impacts or loss of resources.

No Action- Treatments Not Implemented (check one)

Resource Value	None	Low	Mid	High
Human health and safety		X		
Plant communities at-risk from weed infestation				X
Native Plant community structure, function and composition				X
Aquatic community structure, function and composition			X	
Watershed integrity			X	
Heritage resources		X		
Threatened and Endangered Species (terrestrial)			X	
Threatened and Endangered Species (fish)				X

Proposed Action - Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Human health and safety		X		
Plant communities at-risk from weed infestation			X	
Plant community (PIPO; PIMO) structure, function and composition			X	
Aquatic community structure, function and composition		X		
Watershed integrity		X		
Heritage resources		X		
Threatened and Endangered Species (terrestrial)		X		
Threatened and Endangered Species (fish)			X	

Part 3. SUMMARY

1. **Are the risks to natural resources and private property <u>acceptable</u> as a result of the fire if the following actions are taken?**

Proposed Action Yes |_X_| No |__| Rationale for answer:

Beaver and Woods Creeks contain reproducing populations of Bull Trout, a threatened species. Bull Trout and other native fish species have shown the potential to survive and repopulate burned areas after initial landscape adjustments occur; proposed treatments reduce potential for chronic sediment from road systems.

The engineering/road drainage treatments (culvert replacement/repair, armored dips, culvert cleaning, crossing stabilization, storm patrol, etc.) proposed are effective in stabilizing roads to pass flood events while reducing risks to water quality and important fisheries/aquatic habitat. The engineering treatments will be effective for stabilizing crossings in order to pass increased water and debris flows. Directional tree felling has been effective in reducing floating woody debris that may plug or bulk up flows at marginally undersized road crossing pipes.

Major weed invasions can be avoided through early detection, treatment, and monitoring. Several species that exist in the Salmon River Valley (Rush Skeletonweed, Dalmation Toadflax) are not present within the Saddle Complex burned area and have the potential to disrupt and replace currently intact native plant communities. Road systems within the burn area are potential corridors of invasion, and can be effectively monitored and treated. Several identified sites of threatened plant species were burned over by the fire and are at risk of noxious weed invasion and soil erosion. Native species seeding will reduce the risk of non-native invasive species affecting the plant communities on these sites.

Tree hazard identification, mitigation, and monitoring will reduce the threat to BAER implementation worker safety.

No Action Yes |__| No |_X_| Rationale for answer:

Beaver and Woods Creeks have reproducing populations of threatened (Bull Trout) and R1 Sensitive species (West Slope Cutthroat Trout) that would be affected by sediment from road systems during the post-fire period. There is also a higher probability of culvert and road prism failure in these areas if no action is taken, creating a need for expensive repairs including hauling of fill from off-site to replace that lost at larger creek crossings.

Native plant communities, including rare and threatened plant species, would be subject to non-native invasive plant expansion into the burned area while native plants are recovering from the fire.

The areas selected for treatment have a high risk of negative impacts to soil, water, fisheries/aquatic, and vegetation resources.

Alternative(s) Yes |__| No |__| Rationale for answer:

N/A

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes |_X_| No |__| Rationale for answer:

The treatments will be effective at reducing sediment delivery thus protecting stream channels, springs, and important fisheries/aquatic habitat. The engineering treatments will be effective for stabilizing crossings in order to pass increased water and debris flows.

Tree hazard removal will decrease the probability of accidental failure at a minimal cost.

Data obtained in the monitoring programs proposed will detect site degradation, impacts to important fisheries/aquatic habitat, weed invasion, and road crossing problems. Monitoring will identify where additional watershed rehabilitation work is required.

The beneficial results of treatment implementation are worth the monetary costs of installation.

No Action Yes |__| No |_X_| Rationale for answer:

Although the monetary cost of no action is low, channel sediment and weed invasion will produce ecological costs. Risk of several new noxious/invasive weed species establishing themselves in the burned area is high. Critical areas and infrastructure were identified for treatment through the assessment of burn severity, location in relation to important

fisheries/aquatic habitat, soil resources, and protection of native plant communities.
Alternative(s) Yes |__| No |__| Rationale for answer:
N/A
3**. Which approach will most cost-effectively and successfully attain the EFR objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?**
Proposed Action |_X_|, Alternative(s) |__|, or No Action |__|

Comments: