HALSTEAD FIRE

FS-2500-8
BURNED-AREA REPORT

SALMON-CHALLIS NATIONAL FOREST
SAWTOOTH NATIONAL FOREST
INTERIM REPORT #2
August 9, 2013

Date of Report: Initial: October 2, 2012
Interim #1: February 4, 2013
Interim #2: August 9, 2013

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 Interim #1: Additions and updates since initial request are shown in blue text
Interim #2: Additions and updates since Interim #1 are shown in red text
[**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

A. Fire Name: Halstead *
B. Fire Number: ID-SCF-012151
** This report covers the Halstead Fire (179,310 acres), as well as the Bench Fire (204 acres) to the west and the Merino Fire (7,938 acres) to the north.*

C. State: Idaho
D. County: Custer

E. Region: 04 - Intermountain
F. Forests: Sawtooth (SNF) and Salmon-Challis (SCNF)

G. Districts: Sawtooth NF: Sawtooth National Recreation Area (SNRA)
Salmon-Challis NF: Middle Fork & Challis/Yankee Fork

H. Fire Incident Job Code: P4G34R

I. Date Fire Started: July 27, 2012
J. Date Fire Contained: Fire was declared 65% contained on Oct 1, 2012, with an estimated containment date Oct 16, 2012.

K. Suppression Cost: $26,272,641 as of 10/1/12

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred and seeded (miles): Firelines were repaired according to specifications in the repair plan (water bars on slopes >10%, seeding):
   - 11 miles of handline
   - 23 miles of dozer line
   - 22 miles of other fireline
2. Other (identify): During the summer of 2013, rolling dips will be replaced where removed from a 2.5-mile section of Forest Road #183 (Harden Creek/Coal Creek).

M. Watershed Number(s): The following table summarizes acres and percent of 6th-level watershed within the 9/22/12 fire perimeter (for the Halstead, Bench, and Merino Fires) by watershed and National Forest.

5th-Level HUC	6th-Level HUC Name	6th-Level HUC	Salmon-Challis NF		Sawtooth NF	
			Acres	%	Acres	%
Valley Creek	Upper Valley Creek	170602010102	15,056	87%	1024	6%
	Middle Valley Creek	170602010103	28	0.2%	3796	22%
	Stanley Creek	170602010104	32	0.3%	5283	53%
Yankee Fork	Jordan Creek	170602010503	636	6%	-	-
	West Fork Yankee Fork	170602010504	18,097	49%	-	-
	Lower Yankee Fork	170602010505	1,581	9%	16	0.08%
Basin Creek-Salmon River	Big Casino Creek-Salmon River	170602010601	197	0.9%	-	-
	Basin Creek	170602010602	31,002	92%	49	0.1%
	Rough Creek-Salmon River	170602010603	5,541	24%	61	0.3%
Bear Valley Creek	Fir Creek-Bear Valley Creek	170602050204	11	0.1%	-	-
Marsh Creek	Knapp Creek	170602050301	12,486	97%	-	-
	Cape Horn Creek	170602050302	204	1%	1	0.003%
	Upper Beaver Creek	170602050303	14,555	90%	-	-
	Lower Beaver Creek	170602050304	17,062	89%	-	-
	Swamp Creek-Marsh Creek	170602050305	9,248	31%	-	-
Elkhorn Creek-Middle Fork Salmon River	Fall Creek-Middle Fork Salmon River	170602050401	5,080	29%	-	-
Rapid River	Upper Rapid River	170602050501	9,394	46%	-	-
	Seafoam Creek-Rapid River	170602050502	11,925	58%	-	-
	Middle Rapid River	170602050503	1,135	5%	-	-
Little Loon Creek-Middle Fork Salmon River	Upper Little Loon Creek	170602050904	6,207	39%	-	-
	Lower Little Loon Creek	170602050905	1,412	12%	-	-
	Cougar Creek-Middle Fork Salmon River	170602050906	151	0.6%	-	-
Upper Loon Creek	Headwaters Loon Creek	170602051001	10,629	33%	-	-
	Mayfield Creek	170602051003	575	4%	-	-
	Canyon Creek-Loon Creek	170602051005	2,373	10%	-	-
Lower Loon Creek	Indian Creek-Loon Creek	170602051201	608	2%	-	-
	Cache Creek-Loon Creek	170602051202	1,998	6%	-	-
TOTAL			**177,222**		**10,230**	

N. Total Acres Burned (based on 9/22/2012 fire perimeter):

	Fire	NFS Acres	State	Private	TOTAL
Sawtooth NF	Halstead	10,165	0	65	10,230
Salmon-Challis NF	Halstead	168,953	0	128	169,081
	Bench	217	0	0	217
	Merino	7,938	0	0	7,938
TOTAL		**179,131**	**0**	**193**	**187,466**

O. Vegetation Types: Perennial Grass Montane; Montane Shrub intermingled with Aspen; Riverine Riparian dominated by conifer species (lodgepole pine and Engelmann spruce); Cool, Dry Douglas-fir; Warm, Dry Subalpine Fir; Persistent Lodgepole Pine; and high elevation Subalpine Fir (with whitebark pine).

P. Dominant Soils: The dominant land types include glacial rocky ridgelands, scoured cirque basins, glacial moraines, weakly and moderately dissected granitic mountain lands, and oversteepend canyonlands. Hillslope surface soils are granitic and volcanic Cryorthents, Cryochrepts, and Cryumbrebts with loamy sand to sandy loam textures with 10-70 percent coarse fragments. Valley bottom surface soils are granitic Cryorthents and Cryopsamments, loamy sand to sandy loam textures with 20-70 percent coarse fragments.

Soils in the eastern portion of the burned area are formed in volcanic parent material. Generally soils are shallow to bedrock along steep ridgelines and moderately deep to deep in the valley bottoms. The inherent erosion hazard of the soils is generally moderately high to high throughout the burn. Dominant surface textures are loams and sandy loams.

Q. Geologic Types: Geological rock types within the fire consist of the Idaho Batholith granite on the west portions of the burned area and the Challis Volcanics on the east portions of the burned area. The Idaho Batholith is composed of granitic rocks, primarily granodiorites and quartz monzonite. The Challis Volcanics is composed of latite, andesite and a variety of conglomerates, tuff, and rhyolite. Landform shaping proceeses within the burned area are a mix of glaciation, cryoplanation and fluvial scouring and deposition.

R. Miles of Stream Channels by Order or Class:

	Fire	Perennial	Intermittent
Sawtooth NF	Halstead	19	22
Salmon-Challis NF	Halstead	450	177
	Bench	0.2	0
	Merino	12	19
TOTAL		**481**	**218**

S. Transportation System (miles):

Roads and Trails within the Salmon-Challis National Forest portion of the Fire only

Fire	Trails		Roads
	Motorized	Non-motorized	Open system roads
Halstead	77	51	130
Bench	0	0	0.2
Merino	0	10	1.5
TOTAL	**77**	**61**	**132**

PART III - WATERSHED CONDITION

A. Burn Severity on National Forest Lands (acres):

Acres and percentage of each fire burned at low, moderate, and high severity.

	Fire	Unburned/ Low		Moderate		High		Unmapped		TOTAL
Sawtooth NF	Halstead	9,237	90%	920	9%	73	1%			**10,230**
Salmon-Challis NF	Halstead	127,154	75%	27,875	16%	8,394	5%	5,658	**3%**	**169,081**
	Bench	185	85%	30	14%	3	1%			**217**
	Merino	4,271	54%	1,137	14%	647	8%	1,883	24%	**7,938**
TOTAL		**140,847**	**75%**	**29,962**	**16%**	**9,116**	**5%**	**7,541**	**4%**	**187,466**

Burned Area Reflectance Classification (BARC) imagery was derived on 8/25/12, 9/7/12, and 10/9/12. An error in the satellite sensor created strips of 'no data.' A final product was created by putting together "mosaics" of multiple datasets, providing better coverage because the strips did not occur in the same place on each flight. Small areas of 'no data' still exist, particularly on the northern end of the fire where more recent fire occurred. The BARC data provide an indication of burn intensity, or scorch. Initial BARC imagery underrepresented burn intensity, likely because of the large amount of dead beetle kill present in the burned area in the pre-fire imagery.

Development of a soil burn severity map was based on the BARC burn intensity data, as well as field data and observations of soil impacts and hydrophobicity. The BARC appeared to pick up the general burn severity patterns well, but soil burn severity was adjusted down from the BARC data in areas where litter/duff layers on the ground were relatively thin prior to the fire. Many of these areas indicated lower heat effects on the soil. Values within the strips of 'no data' were interpolated in order to provide fuller coverage. Some areas within the 9/22/12 fire perimeter are shown as 'no data' where the fire expanded after the BARC imagery analysis was conducted.

Burn Severity acres and percent of total watershed acres by 6th-level watershed (Halstead, Bench, and Merino Fires)

6th-level HUC	6th-Level HUC Name	Burn Severity (acres / percent of watershed)								Total Acres Burned
		Unburned/Low		Moderate		High		Unmapped		
170602010102	Upper Valley Creek*	10,940	63%	3,870	22%	1,271	7%			16,081
170602010103	Middle Valley Creek	3,135	18%	628	4%	62	0.4%			3,825
170602010104	Stanley Creek	5,053	51%	250	3%	12	0.1%			5,315
170602010503	Jordan Creek	7	0.1%					629	6%	636
170602010504	West Fork Yankee Fork	10,256	28%	2,782	8%	956	3%	4,103	11%	18,097
170602010505	Lower Yankee Fork	1,433	8%	145	1%	18	0.1%			1,596
170602010601	Big Casino Creek-Salmon River	193	1%	4	0.02%					197
170602010602	Basin Creek*	23,800	71%	6,184	18%	1,067	3%			31,051
170602010603	Rough Creek-Salmon River	4,733	20%	739	3%	130	1%			5,602
170602050204	Fir Creek-Bear Valley Creek	11	0.1%							11
170602050301	Knapp Creek*	9,622	75%	2,324	18%	539	4%			12,486
170602050302	Cape Horn Creek	172	1%	30	0.2%	3	0.02%			204

6th-level HUC	6th-Level HUC Name	Burn Severity (acres / percent of watershed)								Total Acres Burned
		Unburned/Low		Moderate		High		Unmapped		
170602050303	Upper Beaver Creek*	9,875	61%	3,449	21%	1,231	8%			14,555
170602050304	Lower Beaver Creek*	12,652	66%	3,404	18%	1,001	5%	4	0.02%	17,062
170602050305	Swamp Creek-Marsh Creek	8,111	27%	1,018	3%	119	0.4%			9,248
170602050401	Fall Creek-Middle Fork Salmon River	4,752	27%	275	2%	47	0.3%	6	0.04%	5,080
170602050501	Upper Rapid River	8,145	40%	852	4%	395	2%	3	0.01%	9,394
170602050502	Seafoam Creek-Rapid River	10,357	51%	764	4%	804	4%			11,925
170602050503	Middle Rapid River	1,001	4%	132	1%			2	0.01%	1,135
170602050904	Upper Little Loon Creek	5,009	31%	649	4%	424	3%	125	1%	6,207
170602050905	Lower Little Loon Creek	348	3%	7	0.1%	1	0.01%	1,056	9%	1,412
170602050906	Cougar Creek-Middle Fork Salmon River	119	0.5%					32	0.1%	151
170602051001	Headwaters Loon Creek	7,952	25%	1,686	5%	649	2%	342	1%	10,629
170602051003	Mayfield Creek	7	0.04%					568	4%	575
170602051005	Canyon Creek-Loon Creek	1,971	8%	254	1%	148	1%			2,373
170602051201	Indian Creek-Loon Creek	310	1%	58	0.2%	51	0.2%	190	1%	608
170602051202	Cache Creek-Loon Creek	872	3%	457	1%	189	1%	480	2%	1,998
Other	Other	13		0.3						13
Grand Total		**140,847**		**29,961**		**9,116**		**7,541**		**187,464**

** Watersheds of concern based on large percentage of watershed burned.*

B. Water-Repellent Soil (acres): Water repellency testing was conducted within the burned area. Due to to the large size of the fire and time constraints, it is unlikely that the limited amount of data collected could be extrapolated to accurately reflect water repellent acres within the burned area. Soil observations did not find development of hydrophobic soils in areas of low and moderate burn intensity. Soils within high intensity burned areas showed areas of strong hydrophobicity, particularly where dense understory vegetation or woody debris existed prior to the fire. The lack of widespread hydrophobicity is likely due to low amounts of duff and organics on the surface and the low residence time of fire at the soil surface.

C. Soil Erosion Hazard Rating (acres): Based on the Salmon-Challis National Forest Landtype Erosion Hazard attribute in the Landtypes GIS database, the dominant inherent erosion hazard rating for soils within the burned area is moderate and high. In addition to soil properties utilized to calculate soil erosion hazard rating, slope and ground cover are important variables in considering where hill-slope erosion is likely to occur on the landscape. Soil erosion hazard ratings were not evaluated on the Sawtooth National Forest portion of the fire.

Landtype Erosion Hazard Rating	Halstead (acres)	Bench (acres)	Merino (acres)	TOTAL ACRES	% of burned area
Low	8,672	-	-	8,672	5%
Moderate	52,585	209	960	53,754	30%
High	103,594	-	6,498	110,092	62%
Very High	4,216	-	479	4,695	3%
Grand Total	**169,067**	**209**	**7,938**	**177,214**	

D. Erosion Potential: ERMiT modeling indicates that on forested slopes within the burned area, pre-fire rates of hillslope erosion are in the range of 0-1 tons/acre/year. With canopy and forest floor removed by the burn, rates of erosion are likely to increase to 5-10 tons/acre/year in the first year following the fire on moderate and steep slopes in areas of high burn severity. However, these conditions are uncommon, as high burn severity only occurred on 5% of the fire in discontinuous areas. Most of the burned area, having experienced low to moderate burn severity, will likely experience erosion rates of 1-5 tons/acre/year (based on the 20% probability that the sediment yield will be exceeded).

E. Sediment Potential: 500 – 2,400 cubic yards/square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period (years): **2-5 (groundcover) / 10-50 (conifers)**

B. Design Chance of Success (percent): **75**

C. Equivalent Design Recurrence Interval (years): **5 year**

D. Design Storm Duration (hours): **24 hour**

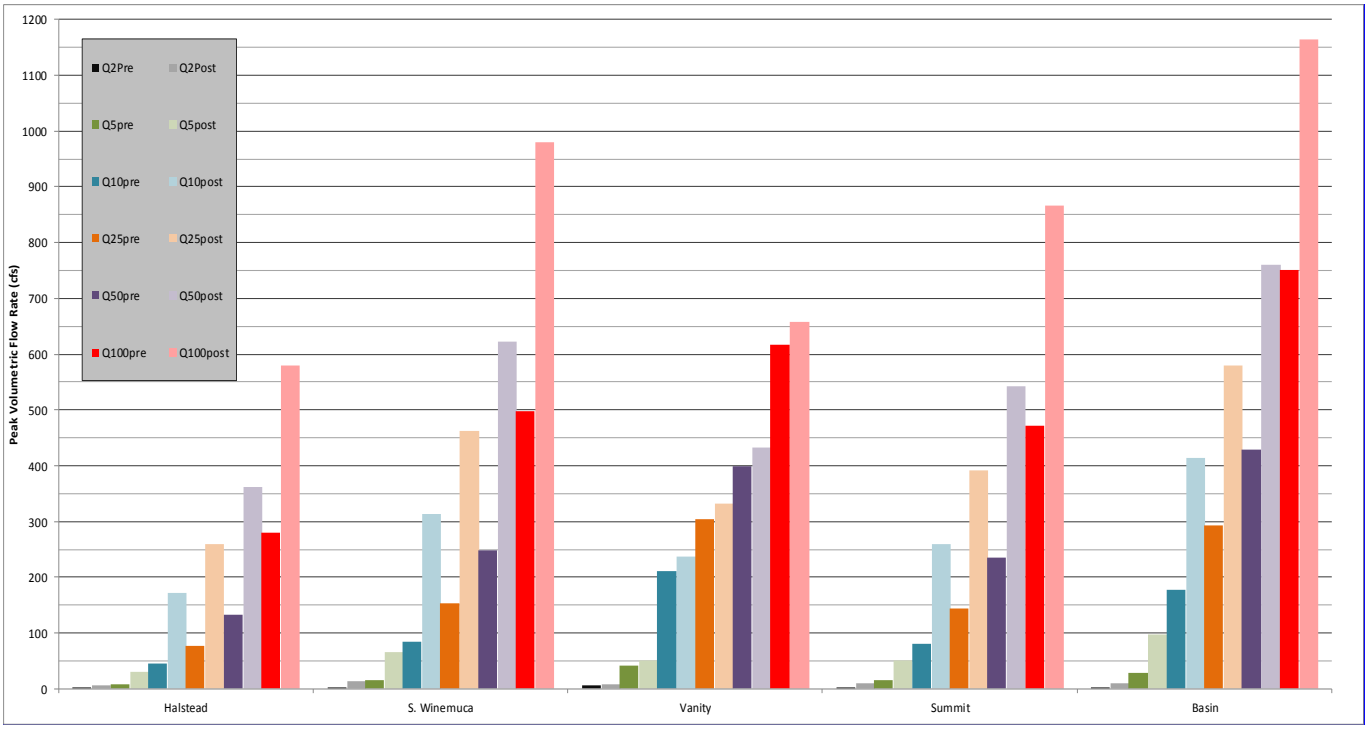
E. Design Storm Magnitude (inches): **2.0**

F. Design Flow (cubic feet/second/square mile): **14 – 23 (based on Q100 from Streamstats)**

G. Estimated Reduction in Infiltration (percent): **0 to 8% (based on watershed burn severity)**

H. Adjusted Design Flow (cfs):

The expected Hydrologic response of 4 watersheds was modeled for 24-hour precipitation events in 6 different return intervals using Fire Hydro, developed by the NRCS (Cirelli, 2005). These watersheds were chosen based on their extensive amount of area burned and the proximity of their pour points to areas of higher population density and infastructure. To model the response of 6th level hydrologic unit code (HUC6) watersheds it was necessary to deliniate smaller catchments within the HUC6 that did not exceed the 2,000 acre maximum area limitation of the model used. These catchments were chosen in headwater portions of the larger HUC6s in areas of more intense soil burn severity in the hopes of modeling the worst case scenario for each watershed. The increases in expected flow as a result of the fire shown below is expected to proportionally represent the response of their respective HUC6. Halstead and South Winemucca creeks are both in the Beaver Creek drainage tributary to Marsh Creek. In the graph below dashed bars show the expected increase in volumetric flow from each catchment correspoding to a solid bar of the prefire expected discharge. In all cases the expected post-fire 25 year storm is less than the pre-fire 100 year event. The post fire 10 year storm is less than the pre-fire 25 year storm in the case of Vanity Creek. The Vanity catchment had less severe burn severity more closely representing the mosaic burn experienced by most catchments across the forest.



PART V - SUMMARY OF ANALYSIS

Background: The 179,311-acre Halstead Fire started as a lightning strike on the Salmon Challis National Forest on July 27, 2012. The fire burned for approximately two and half months through a large area north of the Salmon River corridor and the community of Stanley, Idaho, east of the Cape Horn Area, and west of the Yankee Fork. Fingers of the fire burned north into the Frank Church River of No Return Wilderness and the "Seafoam Bubble." The 204-acre Bench Fire and the 7,938-acre Merino fire, located in close proximity to the Halstead Fire, also started by lightning. The Bench fire was limited in size, but threatened Highway 21 just west of the Halstead Fire. The Merino Fire burned within wilderness just north of the Halstead Fire, near the Indian Gardens Guard Station.

These three fires are considered together in this report. Approximately 95% of the burned area was on the Salmon-Challis National Forest, and the remaining 5% was on the Sawtooth National Forest. Approximately 31% of the burned area was in wilderness on the Salmon-Challis National Forest.

Critical values and resources are present within the fire perimeter, including roads, trails, Forest Service infrastructure, anadromous fish habitat, and native plant species. The fire burned in primarily unpopulated areas, but some private residences are located within and adjacent to the burned area. Human uses within the burned area include recreation, hunting, and fishing, and this area has high economic value. The burned area is also adjacent to the Highway 75 corridor along the Salmon River, which provides multiple economic opportunities in its recreational and ecological value. Large portions of the fire burned through remote wildlands, including areas severely affected by beetle kill.

Post-fire risks are associated with hazardous conditions caused by the burn, potential impacts to natural resources, and potential impacts to property and infrastructure. Many of these impacts can be the result of increased erosion and runoff caused by loss of ground cover, reduced evapotranspiration, and soil hydrophobicity. Damaging runoff can be the result of snowmelt and/or intense summer thunderstorms. The typically high snowpacks in this area create high flows during summer snowmelt (June), but because snowmelt occurs relatively slowly, hillslope erosion is a lesser concern. High intensity, short duration thunderstorms and longer duration heavy rainfall events (1-3 days) also occur in this area during the summer (July through September), creating the high potential for hillslope erosion and floods. Thunderstorms in this area are less severe than in the deeper canyons of the Salmon River downstream, but the storm magnitude will likely be increased by increased convection from the large amount of blackened ground in the burned area.

A. Describe Critical Values/Resources and Threats:

Summary of Issues:

Human Life and Safety

Human Life and Safety on or in close proximity to burned NFS lands

Possible Probability of Damage or Loss / Major Consequences – High Risk

Post-fire watershed conditions threaten the life and safety of visitors using the Forest Service Roads within the fire perimeter. Portions of these roads lie in narrow canyon bottoms that can easily trap storm runoff in portions of the road profile. Some of these roads are downslope of high/moderate severity burned slopes. Normal storm frequencies and magnitudes can now more easily initiate rill and gully erosion on the severely burned, over-steepened slopes. These "minor" events can activate floods in the smaller tributary drainages that intersect these roads, putting the safety of users and workers at risk.

Structurally compromised burned hazardous trees exist throughout the burned area, with higher concentrations in areas that are mapped as high and moderate soil burn severity. While a lot of hazardous tree removal has already been implemented by Halstead Fire suppression crews, the threat to life and safety of forest users and BAER implementation personnel remains high, and this risk will persist for several years following the fire.

On many steep burned slopes though out the burned area, the potential for large rocks to become dislodged and roll down-slope is increased, threatening the life and safety of forest users and workers. In addition to the immediate physical threat of floods, hazardous trees and rolling rocks, increased risk for loss of access and egress is also a threat to the life and safety of forest users and workers.

Property

Forest Service Roads on the Salmon-Challis National Forest (SCNF)

Likely Probability of Damage or Loss / Moderate Consequences – High Risk

On the Salmon-Challis National Forest, post-fire watershed conditions threaten Forest Service Roads within the fire perimeter. Roads routed through steep terrain adjacent to burned hillslopes (moderate and high soil burn severity) are at increased risk for sediment delivery to the road and erosion of the road surface. In these areas, culverts, rolling dips and other existing road drainage features are likely to be impacted from increased runoff and erosion during snowmelt runoff and high intensity summer thunderstorms. In addition to increased potential for impacts to road infrastructure, erosion from roads and trails is a source of sedimentation to streams and rivers, particularly where connectivity of roads and streams is high. Increased erosion from roads within the burned area is likely to adversely impact riparian resources, water quality and fisheries habitat.

Forest Service Trails on the Salmon-Challis National Forest Service

Likely Probability of Damage or Loss / Moderate Consequences – High Risk

A large trail network exists within the Halstead burned area on the Salmon-Challis National Forest, including 61 miles of non-motorized trail and 77 miles of motorized trail. These heavily used trails provide numerous recreational and commercial opportunities in wilderness and non-wilderness. Approximately half of these trails are within or adjacent to areas that were burned at moderate and high severity, and these trails are at risk of severe erosion resulting from increased post-fire runoff and sediment erosion on the hillslopes above them. Functional drainage structures capable of reducing unacceptable risks to trail loss due to increased post fire runoff does not exist on many areas of these trails. As a result of increased post-fire hillslope runoff, these

trails have a high risk of capturing hillslope drainage,and loss of trail tread. These trails provide the bulk of the motorized and non-motorized use in the Stanley area. All of the motorized trails receive heavy use, provide loop opportunities, and serve as connector trails in this general travel area. The wilderness non-motorized trails are of high importance to outfitter/guide operations in the Stanley area. Attached is a map showing burn severity and trail locations.

Drinking Water Supply

Possible Probability of Damage or Loss / Minor Consequences – Low Risk

The BAER Team determined no emergency conditions for drinking water supplies within or downstream from the burned area, based on expected hydrologic response and discussions with Forest personnel.

Natural Resources

Native or Naturalized Plant Communities on NFS lands where invasive species or noxious weeds are absent or present only in minor amounts

Likely Probability of Damage or Loss / Major Consequences – Very High Risk

Field reviews indicate that there is a substantial risk of noxious weed invasion along roads, trails, trailheads, campgrounds, dozer lines, handlines, other areas used during fire suppression activities, and high intensity burn areas. This threat is due to the existence of noxious weeds in and adjacent to the burn area, and a high liklihood that noxious weed seeds were brought into the area by fire equipment that has been used on other wildfires and suppression activity within known noxious weed locations in the burned area.

The following known infestations of noxious/invasive weed populations exist within and immediately adjacent to the burned area:

Species	Idaho Statewide containment list	Idaho Statewide control list
Canada thistle (*Cirsium arvense*)	X	
Spotted knapweed (*Centaurea stoebe*)	X	
Diffuse Knapweed (*Centaurea diffusa*)	X	
White Top (*Cardaria draba*)	X	
Houndstongue (*Cynoglossum officinale*)	X	
Leafy Spurge (*Euphorbia esula*)	X	
Hoary alyssum (*Berteroa incana*)	X	
Hoary Cress (*Leidium draba ssp. draba*)	X	
Rush skeletonweed (*Chondrilla juncea*)	X	
Dalmatian toadflax (*Linaria dalmatica*)	X	
Yellow toadflax (*Linaria vulgaris*)	X	
Field Bindweed (*Convolvulus arvensis*)	X	
Black Henbane (*Hyoscyamus niger*)		X
Oxeye Daisy (*Chrysanthemum leucanthemum*)	X	
Sulphur Cinquefoil (*Potentilla recta*)		
Bull thistle (*Cirsium vulgare*)		
Common tansy (*Tanacetum vulgare*)		
Cheatgrass (*Bromus tectorum*)		
Mullein (*Verbascum thapsus*).		

The burned area, now lacking desired native perennial vegetation that can normally out-compete noxious weeds, supports favorable conditions for initial expansion of nearby populations of noxious weeds and other invasive species. The spread of existing or new invasive species would lead to a reduction of desirable native vegetation. Once invasive plants establish, the long-term impacts would be the loss of soil productivity due to increased solar radiation and runoff, increased fire frequency, loss of suitable wildlife habitat and decreased forage production. Prevention and treatment of invasive species prior to populations becoming established

and expanding is a key point in restoring desired native vegetation within the burned area and reducing long-term cost of containment, control and eradication.

Critical habitat or suitable occupied habitat for federally listed threatened or endangered terrestrial, aquatic animal or plant species on or in close proximity to the burned NFS lands

Possible Probability of Damage or Loss / Moderate Consequences – Intermediate Risk

The BAER Team Fisheries Biologist identified no emergency conditions for fish and fisheries habitat within or downstream from the burned area. Fire and post wildfire erosion and sedimentation are natural processes. Fish and fire have co-existed for thousands of years. Fish are adapted to tolerate fire and, in all likelihood, fish and fish habitat are dependent on fire in order to maintain healthy populations over the long term. Short-term adverse impacts to fish and fish habitat following fire may include changes that limit the ability of the habitat to support fish and may even result in the death of fish eggs and fish. However, as these natural processes continue to play out they will often result in habitat that is better for the fish than before the fire. Improved conditions for fish and habitat and increased fish numbers will eventually result in streams and rivers within and adjacent to the Halstead Fire.

Soil Productivity and hydrologic function on burned NFS lands

Possible Probability of Damage or Loss / Moderate Consequences – Intermediate Risk

Although impacts to soil resources will likely occur as a result of increased erosion during storm events, the BAER team determined that emergency conditions for soil productivity do not exist within the burned area. Likewise, increased runoff during high intensity storm events will cause increased peak flows, but in most cases, stream channels in this area will likely be able to adapt to these dynamic changes in flow and sediment production without causing irreversible changes. Therefore, no emergency conditions exist for hydrologic function as a result of the fire.

Cultural and Heritage Resources

Cultural resources on NFS lands which are listed on or potentially elegible for the National Register of Historic Places

Possible Probability of Damage or Loss / Moderate Magnitude of Consequences – Intermediate Risk
Known historic and prehistoric cultural sites are located within the Halstead Fire perimeter. Following the fire, new artifacts have been discovered, and it is likely that many more unknown sites and artifacts also exist. The fire has increased the potential for cultural resources to be impacted by erosion, flooding, and incidental collecting as a result of increased visibility from burned vegetation. This risk is likely to persist for one to three years until ground vegetation regrowth occurs. A number of known sites are located along the floodplains of Basin Creek and Marsh Creek, and some of these sites are likely to be susceptible to post-fire flooding.

Assessment of risk to known cultural sites and identification of newly exposed sites was not completed in the Fall of 2012 following containment of the fire because of early season snowfall. Additional field work is needed to complete this assessment, identify flood risks to these sites, and identify and record sites that are at risk. This will occur during the summer of 2013 after snowmelt. Efforts will focus on areas with known prehistoric and historic sites such as along Basin Creek and Marsh Creek. Results of this assessment will determine the need for any necessary mitigation, as well as consultation with the State Historic Preservation Office (SHPO).

B. Emergency Treatment Objectives:

Emergency treatment objectives include the following:

- Reduce threats to personal injury and/or human life of visitors and workers using system roads and trails within the burned area.
- Reduce threats of erosion, debris deposition, and flooding on system roads and trails routed through severely burned areas. Reduce impacts on water quality with increased erosion from roads and trails.
- Control expected invasion of noxious weeds within the area, especially along and adjacent to Forest roads and dozer lines used by fire equipment and in existing populations within the fire boundary.

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

Land **75** % Channel **NA** % Roads/Trails **60*** % Protection/Safety **100** %

** Probability reduced for Road treatments from 75% (initial report) to 60% (interim #1 report) - treatments were not implemented in Fall 2012 because of snow conditions.*

D. Probability of Treatment Success

	Years after treatment		
	1	**3**	**5**
Land treatments	90%	75%	25%
Channel treatments	NA	NA	NA
Road and trail treatments	70%	80%	90%
Protection/Safety	90%	90%	90%

E. Expected benefit of treatment: **$426,300 (for SCNF only - refer to VAR Tool spreadsheet)**

F. Total Treatment cost: **$361,030 (for SCNF only - refer to VAR Tool spreadsheet)**

Values at Risk Summary – for SCNF Values at Risk and Treatments Only

	Map Zone A
Market resource value*	$1,421,000
Probability of experiencing loss with no treatment	0.80
Total treatment costs	$361,030
Probability of experiencing loss if treatment occurs	0.50
Expected benefit of treatment	$426,300
Expected benefit/cost ratio	1.2

** Note: increased threats to human life and safety, cultural resources, and native plant communities exist within and adjacent to the Halstead burned area. These important values at risk are not quantified within the VAR Tool Assessment.*

G. Skills Represented on Burned-Area Survey Team:

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

Team Leaders:

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Salmon-Challis National Forest:

Bill MacFarlane, Salmon-Challis National Forest BAER Coordinator
Eric Schroder, Team Leader, Arapaho and Roosevelt National Forests
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Tommy Gionet, Invasive Plants, Salmon-Challis National Forest
Phil McNeal, Trails, Salmon-Challis National Forest
Pete Schuldt, Road Engineer, Salmon-Challis National Forest
Mike Helm, GIS, Salmon-Challis National Forest

H. **Treatment Narrative:**

Protection/Safety Treatments

Hazard Warning Signs for Roads _____

Purpose of Treatment: To inform users of the dangers associated with entering/recreating within a burned area. The probability of motorists hitting objects not marked within the roadway is about 95% or nearly certain will occur. The loss is difficult to estimate since this is a safety issue. One could conclude damages to a vehicle would occur but the risk of someone getting injured if their vehicle strikes something is slim but then on the other hand a tree falling on a vehicle has a real good chance of causing harm if not death to the persons inside. If the signs are installed the probability of someone damaging their vehicle is greatly reduced if they remain aware of the potential hazards ahead. This would give an estimated success rate of around 90% since the treatments are highly understood by all common drivers.

General Description: Furnish and install "BURNED AREA" warning signs at roads and trailheads that enter or are within burned areas or provide access to roads/trails within the burned area. Signs will warn users of the increased hazards associated with entering a burned area. Work includes furnishing and installing new posts, mounting hardware, and all other incidentals necessary to mount signs where designated.

Location (Suitable) Sites: "BURNED AREA" warning signs would be installed for the following roads:

Sawtooth National Forest

- FS Road #70683 (Hanna Creek), intersection with FSR#70082
- FS Road #70653 (Stanley Creek), just prior to intersection with FSR#70432 (Anderson Creek)
- FS Road #40328 (Joes Gulch), somewhere just prior to the fire perimeter
- FS Road #40034 (Basin Creek), just prior to intersection with FSR#40132 (Coal Creek)
- FS Road #40183 (Lower Harden Creek), intersection with Highway 75

Salmon-Challis National Forest

- Intersection of FS Road #008 and FS Road #203 at Cape Horn
- South end of FS Road #203 at Highway 21 intersection
- FS Road #173 near Loon Creek Guard Station

Design/Construction Specifications:

- FHWA Standard Specifications for Roads and Bridges on Federal Highway Projects (FP-03) with Forest Service supplemental specifications.
- Sign and Poster Guidelines for the Forest Service EM7100-15

Road Warning Signs Accomplishment Summary

Fall 2012: In November 2012, hazard warning signs were placed on all road portals into the fire perimeter as listed above (Sawtooth and Salmon-Challis) with the exception of FS Road #173, which was not accessible because of snow conditions. Signs read "Entering Burned Area, Watch For Hazards." Efficiency was gained by coordinating the ordering and placement of signs between the two Forests. $6,715 was available for the Sawtooth National Forest and $1860 was available for the Salmon-Challis National Forest for this treatment. Total expenditures were $2,525 (charged to the Sawtooth job code). Considerable cost savings occurred because the mini-excavator rental was not needed. Remaining work will be completed as soon as conditions allow. This included maintenance of the signs installed in the fall of 2012 and placement of the remaining sign on FS Road #173.

Hazard Warning Signs for Trailheads and Trails on the Salmon-Challis National Forest _____

Purpose of Treatment: To inform users of the dangers associated with entering/recreating within the burned area. Threats include hazardous trees, loose rocks, flash flooding, debris flow and increased risk for loss of access/egress.

General Description: Install warning signs at trailheads and along trails within the burned area. Where necessary, hazardous trees would be removed to protect the life and safety of workers implementing this treatment. Work would include purchase of the signs and any incidental hardware, as well as installation.

Example Warning Signs for Trailheads and Non-Motorized Trails

Locations: Trailheads and trails within the burned area. Priority trailheads and trails are the Beaver Creek Trail and the Winnemucca/Knapp Creek Trail.

Trail Warning Signs Accomplishment Summary
Fall 2012: In October 2012, approximately 60 hazard warning signs as shown above were placed on all trail portals into the fire perimeter and at various locations along the trails. Additonal replacement signs were purchased for installation in this area during the summer of 2013. The total cost was $9,110 out of the $9,300 available for this project.

Notification/Early Warning/Information Sharing _____

General Description: To further reduce risk to life and safety, the BAER Team recommends that representatives from the Sawtooth and Salmon-Challis National Forests share relevant findings of the BAER Report with local communities, vendors and agencies that may be affected by post wildfire flooding, debris or sediment laden flows. Commonly following large wildfires, information is shared with the County Transportation Department, County Office of Emergency Services, State Highways, the local field office of the NRCS and the National Weather Service.

Information Sharing Accomplishment Summary
In January 2013, the initial BAER Report was shared with the National Weather Service Silver Jackets Team, a coalition of federal and state agencies which works together to find solutions to Idaho's flood hazard issues.

Land Treatments

Noxious Weeds Treatment _____

Purpose of Treatment: The capability to reduce the risk of invasive plants from impacting native or naturalized plant communities is highest within the first year/growing season following fire. Past emergency response of fires on the Salmon-Challis NF has shown that a rapid respone to the threat of invasive plants significantly reduces the competition to native plants during the first couple of years

following fire and protect the value at risk. The purpose of the treatment is to perform Early Detection Rapid Response (EDRR) management activities on noxious weeds species within and adjacent to the Halstead fire perimeter. In addition to doing reconnaissance associated with roads, campgrounds, trailheads, trails and other identified potential vectors, the area around known infestations will also be examined and treated for potential expansion into previously uninfested areas. There are approximately 20 known infestations within the fire perimeter constituting about 250 acres. Immediately adjacent to the fire an additional 250 known infestations constituting over 2000 acres also pose a threat. The state of Idaho noxious weed species known to infest the fire area include the following: Canada thistle (*Cirsium arvense*), Spotted knapweed (*Centaurea stoebe*), Diffuse Knapweed (*Centaurea diffusa*), White Top (*Cardaria draba*), Houndstongue (*Cynoglossum officinale*), Leafy Spurge (*Euphorbia esula*), Hoary alyssum (Berteroa incana), Hoary Cress (*Leidium draba ssp. draba*), Rush skeletonweed (Chondrilla juncea), Dalmatian toadflax (*Linaria dalmatica*), Yellow toadflax (*Linaria vulgaris*), Field Bindweed (*Convolvulus arvensis*), Black Henbane (*Hyoscyamus niger*), and Oxeye Daisy (*Chrysanthemum leucanthemum*). In addition, the following other invasive plants are known to occupy lands within and adjacent to the fire area: Sulphur Cinquefoil (*Potentilla recta*), Bull thistle (*Cirsium vulgare*), Common tansy (*Tanacetum vulgare*), Cheatgrass (*Bromus tectorum*), and mullein (*Verbascum thapsus*). Populations are generally along roadways, trails and drainage bottoms within or adjacent to the burned area. The purpose of the treatment is to prevent establishment of new infestations, prevent spread of existing infestations, and prevent increase in weed density in existing infestations.

Location (Suitable) Sites: Existing known weed infestations within and directly adjacent to the Halstead Fire burned areas on Sawtooth National Recreation Area and Salmon-Challis National Forest, and private land.

Design/Construction Specifications: Select herbicide, application rate, and application timing based on specific weed species.

Purpose of Detection Surveys: To prevent known infestations from spreading and/or increasing in density, and to detect and respond rapidly to new infestations associated with fire suppression/fire effects of the Halstead Fire. In the proposed herbicide spraying treatment areas, if treatment was not implemented the probability of irretrievable loss of the native plant community due to the invasion of noxious and non-native invasive species is 1.0, or nearly certain that noxious and non-native species would out-compete native plant species. The spraying treatment's probability of success in minimizing the spread of noxious/invasive plant species is based on preceding Sawtooth NRA's noxious weed treatment program, and EDRR treatments of noxious/ invasive plant species in the Valley Road and Trail Head Fire with a 75% success of native community recovery without noxious/invasive species spread (personal comm. Sawtooth NRA Ranger district personnel).

General Description:

- Survey areas disturbed by suppression actions and the burned area. Detection surveys will be conducted 3 times a year (spring, summer, and fall) to identify the spread or occurrence of weed species following the fire event and recovery. This work will be funded in part by BAER and in part through other authorities where pre-fire management has taken place through the Forest Service, RAC, and CWMA. Detection surveys and eradication will be conducted for the first year after the fire. Monitoring needs following this period will be conducted under normal program authorities. A minimum of five years of monitoring should be implemented by other program authorities.
- Survey areas disturbed by BAER and other recovery actions. All activities in the BAER implementation process, especially ground disturbing activities, will be monitored for weed establishment or seed spread.
- Monitoring of prevention requirements: All weed spread preventative measures will be monitored to ensure no weed seed collected at these preventative sites gets spread onto adjacent lands.

Location (Suitable) Sites: Monitoring within the burned area will focus on areas with existing noxious weed infestations, adjacent areas, and areas disturbed during suppression activities.

Design/Construction Specifications: Thorough reconnaissance will be conducted in and around all sites identified during the BAER Vegetation Assessment. These sites will be monitored by crews on foot or by vehicle as appropriate. If noxious weed infestations are identified, an appropriate treatment will be implemented to eradicate or control the infestation (i.e. hand pulling, herbicide application, biological agent control, seeding of native species).

Fall 2012 Noxious Weed Treatments Accomplishment Summary:

Salmon-Challis National Forest: Salmon-Challis National Forest weed crews initiated BAER weed treatments on the Halstead Fire in the Fall of 2012 (October-November). The Forest spent approximately $10,000 of the $20,530 available for Fall 2012 weed treatments before weather conditions and access issues stopped operations. The Forest was able to survey (EDRR) about 150 miles of roads and trails, a half-dozen trailheads, and a couple of past timber sales. A portion of this funding was used for road and trail clearing to allow safe access for the weed crews. Four previously unknown weed infestations were found and treated. Spotted knapweed and rush skeletonweed were the primary species found and treated in the fall of 2012. Both species have a great potential to colonize the newly burned lands associated with the Halstead Fire. Most of the work in the fall of 2012 was to cover large areas to assist in identifying areas that will need detection and treatment in 2013. Additional funding for spring/summer 2013 treatments is requested in this interim report.

Sawtooth National Forest: No BAER noxious weed treatments were accomplished in the Fall of 2012 ($31,297 available). Treatments will begin in the spring of 2013. No additional funding is requested at this time.

Summer 2013 Treatment Description (Salmon-Challis National Forest):
Weed treatments during the spring and summer of 2013 on the Salmon-Challis National Forest portion of the Halstead Fire will be a continuation of the fall work, utilizing force account and partners to perform EDRR, restoration, monitoring, and reporting activities to control the spread of invasive species into the burned area. Crews will continue to survey for and treat invasive species throughout the burn perimeter. Partners will include County Cooperative Weed Management Areas (CWMAs). In kind contributions by partners will be included as appropriate for treatment implementation. Access and safety for implementation personnel will continue to be an issue as a result of fallen trees and hazard trees. Road and trail hazard tree clearing will be accomplished as part of this treatment to allow safe access for the weed crews. The total cost of the 2013 invasive species management activities is estimated to be $118,140. Funds approved in the Initial Request that were not spent for Fall 2012 treatments (approximately $10,500) will fund a portion of this work. The total amount requested in this Interim #1 report is $107,640.

Channel Treatments

No channel treatments are proposed at this time.

Roads and Trail Treatments

Sawtooth National Forest Road and Trail Treatments _____

No treatments are recommended at this time for roads and trails within the burned area on the Sawtooth National Forest.

Salmon-Challis National Forest Road Treatments _____

Purpose of Treatment: Road treatments are recommended for immediate implementation in the Fall of 2012 and summer 2013 to decrease the risk of erosion and sedimentation as a result of increased post-fire runoff.

General Description: Road treatments include out-sloping, construction of rolling dips, culvert removal, and culvert modification to mitigate hazards associated with increased runoff and erosion during snowmelt runoff and storm events.

Location(s): Treatments are recommended for specific sections of the following roads that are likely to be impacted by post wildfire run-off and erosion. Generally, these sections of road are routed though steep terrain with moderate or high soil burn severity.

Road Drainage

- FS Road #183 in the Harden and Coal Creek drainages: The original rolling dips on this road were removed as part of fire suppression. Installation of rolling dips on 2.5 miles of the road to accommodate increased post wildfire run-off from burned slopes adjacent to the road will be funded and implemented through Fire Suppression Rehab funds (estimated cost is $2,000 for equipment time and personnel). No BAER funds are requested.
- At the bridge crossing on FS Road #40034 (Basin Creek Road) over East Fork Basin Creek, install a dip or overflow culvert to route flow under road in the event the bridge is clogged by debris. Estimated cost is $2,500 (equipment time, personnel and culvert). July 2013 update: further assessment determined that this is no longer a high priority treatment. Revised cost is $0.
- On FS Road #40012 (Fontez Creek Road): Install dips to accommodate increased post wildfire runoff from burned slopes adjacent to the road. Estimated cost is $10,000 (equipment time and personnel). July 2013 update: BAER Team made decision to re-direct these funds to higher priority road segments because the reduction in probability of risk for these treatments would be low. Revised cost is $0.
- Additional road segments that may need treatment include the following (estimated cost is $2,000):
    - FS Road #010 within the Seafoam Creek drainage
    - FS Road #172 within the Feltham and Beaver Creek drainages
    - FS Road #40032 – Basin Butte/Red Mountain Road

  July 2013 update: The BAER Team re-prioritized the BAER road work after snowmelt allowed access to the Seafoam Road in June 2013 and other priorities were identified. The items listed above are not proposed for treatment at this time. See new proposed treatments below in red. Revised total cost of these treatments is $34,000.

    - FS Road #008 over Vanity Summit and along Seafoam Creek: Numerous washouts occurred on FS Road #008 as a result of post-fire flooding in October 2012 and June-July 2013. This road traverses a steep, burned hillslope with numerous small drainages and seeps. Post-fire storm events caused existing culverts to fill with sediment or completely wash out, gullies formed, and new channels were cut. The road is currently passable, but drainage needs to be restored in order to protect the road infrastructure from additional post-fire runoff during future storm events. The proposed treatment would replace 6 damaged/destroyed/washed out culverts with larger culverts to restore drainage and provide adequate flow capacity. Two of these culverts are on the south side of Vanity Summit, 3 culverts are on the north side of Vanity Summit on side drainages of Vanity Creek, and 1 culvert is on the north side of Vanity Summit on a side drainage of Rapid River. The old culverts were 15 to 18-inch diameter. The new culverts will be 18 to 36-inch diameter. The new culverts will also be longer and constructed more along the grade line to allow for better sediment transport. Estimated cost is $32,000.
    - FS Road #183 – Harden Creek Road: An existing 18-inch culvert below a steep, burned drainage is at risk of blockage and overflow, potentially causing road damage or loss. This culvert is located on a steep switchback. Post-fire flood events in the Fall of 2012 caused blockage that was cleared, and additional high flow events are expected. Treatment would include modification of the culvert inlet to minimize the risk of debris accumulation, and hardening of the ditch along the road to prevent cutting in the event of overtopping. Estimated cost is $2,000.

Culvert Removal

- On FS Road #40132 (Coal Creek Road), the lower culvert is at risk of failing due to increased post wildfire flows. Remove culvert and replace with rock armored dip to accommodate increased post wildfire run-off. Estimated cost is $3,500 (equipment time and personnel). July 2013 update: assessment determined that this treatment is no longer needed. Revised cost is $0.

Design/Construction Specifications: Heavy equipment work would be implemented through a contract. Design will follow specifications in the *Burned Area Emergency Response Treatments Catalog* (USDA Forest Service, 2006). July 2013 update: the total estimated cost of proposed road treatments described above is $34,000.

Salmon-Challis Road Treatments Accomplishment Summary
Fall 2012: No road treatments were conducted in the Fall of 2012 because of frozen ground conditions and snow during the months of October and November. However, specific treatments proposed in the initial request were better defined for the interim request. The proposed treatments will be implemented in the summer of 2013 once sites become accessible.

Salmon-Challis National Forest Storm Inspection and Response _____

Purpose of Treatment: Inspect and maintain the functionality of road drainage features during the storm season.

General Description: Storm inspection and response treatments are recommended to inspect and implement sediment and debris removal from inside ditches, roads, culverts and bridges affected by post wildfire increased flows and erosion throughout the burned area. Increased streamflows are expected in moderate and high severity burned areas, and the decomposed granitic hillslopes throughout much of the fire are likely to deliver abundant sediment onto roads.

Location(s): Storm inspection and response will focus on roads on steep slopes within or immediately downslope of moderate and high severity burned areas and roads crossing streams likely to experience increased runoff. Priority will be on those roads that are necessary to remain open to provide access to Forest Service administrative sites, heavily used recreation sites, and other property. Specific sites that will need to be inspected may include but are not limited to the following:

- Beaver Creek Road (FS Road #40008), including the Marsh Creek Bridge and the upper bridge on Bear Creek. This road provides access over Vanity Summit to the Seafoam Bubble.
- FS Road #40032, providing access to Basin Butte Lookout and several well used trails.
- Harden Creek Loop Road (FS Roads #40183, #40598, and #40132).

Design/Construction Specifications: Each storm inspection would require 2 people and 1 vehicle for 1 day. Funding is requested for 4 inspections. Each storm response is estimated to require 2 people, 1 service truck, and 1 backhoe for 3 days. Cost is estimated to be $4,000 per inspection/response. Based on expected storm frequency, funding for at least 4 responses is needed. The total estimated cost is $16,000. During inspections, personnel will monitor and document whether road treatments are functioning as designed, and if they are effective in protecting the road and minimizing erosion. During storm response, personnel will document success and/or failure of road drainage features. This information will be compiled by the BAER Team.

Salmon-Challis National Forest Trail Treatments _____

Purpose of Treatment: Provide drainage features and stabilization measures on trails that have a high risk of loss or damage due to an increase of runoff expected within the first year following fire. Previous fires on the Salmon-Challis NF have shown that moderate and high burn severity areas have a high potential to impact existing trail systems. Treatments are proposed to reduce unacceptable risks within

moderate and high burn severity areas, to reduce damage to trail infrastructure and impacts to downstream values at risk.

General Description: Trail stabilization and storm-proofing is proposed for approximately 64 miles of trail within the fire perimeter, including approximately 46 miles in non-wilderness and 18 miles in wilderness (see attached treatment area map). Most of the motorized trails are class 3 trails. Trail segments identified for treatment are those within or downslope from areas burned at moderate and/or high severity, based on ground reconnaissance by trails/wilderness personnel and burn severity mapping. The trail work will be implemented on trails lacking adequate drainage features for anticipated increased runoff. Storm-proofing treatments will include construction of wood and rock water bars, dip-drains, and rolling dips. In addition, limited clearing will be required for the BAER implementation teams to access the sites, and hazard trees will be removed from these segments of trail in order to protect the life and safety of the implementation crews.

Location(s): Treatments will be implemented on sections of trails routed through steep burned terrain within or immediately downslope of areas of moderate and high burn severity. Specific trail segments to be treated are on the following trails:

Non-Wilderness Trail Stabilization Trail Name	Trail #	Miles in moderate and high severity burn	Motorized Trail	Non-motorized Trail
BASIN BUTTE-PROSPECT CREEK	4038	3.6	X	
BEAVER-TRAIL CREEK	4033	1.1	X	
BEAVER-TRAIL CREEK	4033	0.9		X
DEADWOOD CREEK	4157	1.2	X	
DUFFIELD CREEK	4012	0.2		X
EAST FORK VALLEY	4037.03	5.1	X	
HAY-KNAPP CREEK	4032	13.4	X	
KELLY CREEK TRAIL	4323	0.2	X	
KNAPP CREEK CUTOFF	4034	1.0	X	
KNAPP-LOON CREEK	4036	1.3		X
LIGHTNING CREEK	4156	4.0		X
LOWER BASIN	4349	0.9	X	
LT BASIN CUTOFF	4042	1.3	X	
SUNDAY CREEK	4041	3.7	X	
UPPER HARDEN CREEK	4167	2.0	X	
VALLEY CREEK	4039	1.5	X	
WESTFORK YANKEE FORK	4155	3.3	X	
WINNEMUCCA CREEK	4035.03	1.5	X	
TOTAL Non-Wilderness		**46.2**		

Wilderness Trail Stabilization Trail Name	Trail #	Miles in moderate and high severity burn	Motorized Trail	Non-motorized Trail
BEAVER-TRAIL CREEK	4033	2.3		X
CASTLE FORK	4003	1.6		X
COLD SPRINGS CR	4107	1.6		X
DUFFIELD CREEK	4012	0.7		X
FISH LAKE	4087	0.4		X
KNAPP-LOON CREEK	4036	4.6		X
LOON CREEK POINT	4105	2.2		X
SOUTH FORK FALL CREEK	4021	3.9		X
TOTAL Wilderness		**17.4**		

Design/Construction Specifications: These treatments will be implemented by field crews using appropriate equipment. Treatments will follow design specifications in the *Burned Area Emergency Response Treatments Catalog* (USDA Forest Service, 2006). Structures will include wood and rock water bars, dip-drains, and rolling dips. The number of structures will depend on the severity of the area burned, soil type, and slope of the trail impacted. The total cost of the proposed treatments is $187,700. The cost for stabilization of the 46 miles of non-wilderness trails is $2,750 per mile (total of $126,500). The cost for stabilization of the 18 miles of wilderness trails is $3,400 per mile (total of $61,200). These costs include treatments such as hazard tree mitigation to ensure safety for implementation personnel. Costs estimates were based upon previous post fire emergency treatments of trails, type of trails, severity of burn and risk level.

I. **Monitoring Narrative:**

The following post-treatment monitoring will be conducted on the Halstead Fire:

- Monitoring of weed control is part of the EDRR implementation. These costs are embedded in the project cost.
- Implementation and effectiveness monitoring of road treatments is part of the proposed Storm Inspection and Response on the Salmon-Challis National Forest portion of the fire. Crews will inspect treatment effectiveness following storm events. These monitoring costs are embedded in the cost of Storm Inspection and Response.
- Additional implementation and effectiveness monitoring is recommended for road, trail, weed, and safety treatments during the first year following the fire on the Salmon-Challis National Forest portion of the fire. Members of the BAER Team will visit selected representative treatment sites to review methods and assess functionality and effectiveness of treatments. This monitoring will be documented for the project file. Monitoring will include 3 days of field work for a crew of 3 people, for a total estimated cost of $3,300.
- Monitoring of stream sediment is recommended at established stream sediment core sampling sites. Established sites on Beaver Creek, Marsh Creek, Valley Creek, Basin Creek, West Fork Yankee Fork, and Yankee Fork have many years of baseline data. Two additional sites at North Fork Rankin Creek and Rankin Creek have limited data. Six to eight sites will each be monitored twice during the summer of 2013 to provide an indication of sediment production and movement before and after the summer thunderstorm season. This monitoring will be documented for the project file. Monitoring will include 10 days of field work for a crew of 3 plus oversight, for a total estimated cost of $5,300.

References

Cerrelli, G.A. 2005. FIRE HYDRO, a simplified method for predicting peak discharges to assist in the design of flood protection measures for western wildfires. In: Moglen, Glenn E., eds. Proceedings: 2005 watershed management conference—managing watersheds for human and natural impacts: engineering, ecological, and economic challenges; 2005 July 19-22; Williamsburg, VA. Alexandria, VA: American Society of Civil Engineers: 935-941.

USDA Forest Service, 2006. Burned Area Emergency Response Treatments Catalog. Forest Service National Technology and Development Program.

Part VI – Emergency Stabilization Treatments and Source of Funds Interim # 2

			NFS Lands				Other Lands				All
		Unit	# of		Other		# of	Fed	# of	Non Fed	Total
Line Items	**Units**	**Cost**	**Units**	**BAER $**	**$**		**units**	**$**	**Units**	**$**	**$**
A. Land Treatments											
*Nox. Weed (Sawtooth)	acres	21	1478	$31,297	$0			$0		$0	$31,297
*Nox. Weed. Fall 2012 (SCNF)	each	20,530	1	$20,530	$0			$0		$0	$20,530
*Nox. Weed Summer 2013 (SCNF)	each	107,640	1	$107,640	$0			$0		$0	$107,640
Subtotal Land Treatments				$159,467	$0			$0		$0	$159,467
B. Channel Treatments											
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treat.				$0	$0			$0		$0	$0
C. Road and Trails											
*Outslope and Dips (SCNF)	contract	0	1	$0	$0			$0		$0	$0
*Culvert Removal (SCNF)	contract	0	1	$0				$0		$0	$0
Culvert Modification (SCNF)	contract	34,000	1	$34,000				$0		$0	$34,000
*Road storm inspection/response (SCN	Respon	4,000	4	$16,000				$0		$0	$16,000
*Trail stabilization - non-wilderness (SC	Miles	2,750	46	$126,500				$0		$0	$126,500
*Trail stabilization - wilderness (SCNF)	Miles	3,400	18	$61,200				$0		$0	$61,200
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Road & Trails				$237,700	$0			$0		$0	$237,700
D. Protection/Safety											
*Warning Signs - Roads (Sawtooth)	Each	1,343	5	$6,715	$0			$0		$0	$6,715
*Warning Signs - Roads (SCNF)	Each	620	3	$1,860	$0			$0		$0	$1,860
*Warning Signs - Trails (SCNF)	Each	31	300	$9,300	$0			$0		$0	$9,300
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Structures				$17,875	$0			$0		$0	$17,875
E. BAER Evaluation											
Sawtooth NF Assessment Team	Each	11,648	1	---	$11,648			$0		$0	$11,648
SCNF Assessment Team	Each	15,874	1	---	$15,874			$0		$0	$15,874
External Assessment Team (Schroder	Each	21,344	1	---	$21,344			$0		$0	$21,344
Insert new items above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				---	$48,866			$0		$0	$48,866
F. Monitoring											
Implementation/effectiveness (SCNF)	days	1100	3	$3,300	$0			$0		$0	$3,300
Stream sediment monitoring (SCNF)	days	530	0	$0				$0		$0	$0
Subtotal Monitoring				$3,300	$0			$0		$0	$3,300
G. Totals				$418,342	$48,866			**$0**		**$0**	**$467,208**
Previously approved (items with *)				$402,342							
Total for this request				**$16,000**							

Notes:

- Outslopes and Dips (SCNF) was previously approved at $14,500, and Culvert Removal (SCNF) was previously approved at $3,500. The BAER Team determined that these treatments as described in the Initial and Interim #1 reports are no longer high priority treatments, and these costs were zeroed out in the Interim #2 report. Culvert Modification (SCNF) was added as a new treatment in the Interim #2 report.
- The Interim #2 report requests an additional $16,000 above the current approved total. These requested funds could potentially be covered under existing obligations because of underspending for other treatments.

PART VII - APPROVALS

Initial 2500-8

1. Forest Supervisor Signatures		Date
/s/ *Rebecca S. Nourse*	(Rebecca S. Nourse, Sawtooth National Forest)	10/2/2012
/s/ *Kimberly D. Nelson (for)*	(John F. Peterson, Salmon Challis National Forest)	10/2/2012

2. Regional Forester Signature

/s/ *Harv Forsgren*	10/4/2012

Interim #1 2500-8

1. Forest Supervisor Signatures		Date
/s/ *Rebecca S. Nourse*	(Rebecca S. Nourse, Sawtooth National Forest)	2/4/2013
/s/ *Kimberly D. Nelson (for)*	(John F. Peterson, Salmon Challis National Forest)	2/4/2013

2. Regional Forester Signature

/s/ *Laurie A. Sonju (for) Nora B. Rasure*	3/1/2013

Interim #2 2500-8

1. */s/ Kimberly D. Nelson* (for) Charles A. Mark — 8/9/2013
   Forest Supervisor, Salmon-Challis National Forest (signature) — Date

_*/s/ Chris Iverson (for) Nora Rasure* — 8/16/2013
   Regional Forester (signature) — Date