Date of Report: 7/26/2013

UPDATED 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 #___1_.
[X] Updating the initial funding request based on more accurate site data or design analysis
[ ] Status of accomplishments to date

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

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Elizabeth

B. Fire Number: ID-CWF-000632

C. State: Idaho

D. County: Clearwater

E. Region: R1

F. Forest: Clearwater

G. District: North Fork

H. Fire Incident Job Code: P1G8HD

I. Date Fire Started: 09/09/2012

J. Date Fire Contained: 10/25/2012

K. Suppression Cost: $36,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Machine Fireline rehabilitated (miles)**: 0
2. **Machine Fireline waterbarred (miles)**: 0
3. **Other (identify):** No rehab. No machines used. No seeding, native veg used for rehab

M. Watershed Number:

Watershed #	Watershed Acres	Acres of high severity	Acres of mod severity	Acres of low severity	Total Acres burned	% burned	% mod to high burn
170603070104[1] (Elizabeth HUC6)	36556	83	1071	894	2048	6	3
17060307010408 (Elizabeth HUC7)	6031	26	594	677	1297	22	10
17060307010407 (Fix HUC7)	1570	66	298	355	718	46	23
Totals		175 (4.3%)	1,963 (48.3%)	1,926	4,063		52.6%

N. Total Acres Burned:
[2048] NFS Acres [ ] Other Federal [ ] State [ ] Private

O. Vegetation Types: Grand Fir, Mountain Hemlock and Subalpine Fir (+50%); Douglas-Fir (20%); Western Redcedar (10%); Lodgepole Pine (5%); Engelmann Spruce (5%); Western White Pine, Ponderosa Pine, and Western Larch (<5%), Non-Forest (<5%).

P. Dominant Soils: Soils in the fire area are shallow to moderately deep. Surface soil textures are generally loams, sandy loams, and silt loams in the with many soils being skeletal (loamy-skeletal, sandy-skeletal) due to frost-churning weathering processes, colluvial mixing, and shallow depths. Dominant parent materials are Belt Series quartzite and Border Zone micaceous schists. The Mazama volcanic ash layer ranges from absent to depths up to 16". Temperature regimes are frigid in the lower elevations, stream bottoms, and warm aspects (south and west) and cryic at higher elevations and cool aspects (north and east). Moisture regimes range from xeric on dry, breakland landforms to udic on gentler landforms with deeper soils. Mineralogy is mixed. Dominant subgroups are Typic Cryochrepts and Typic Dystrochrepts. Soil erosional hazards range from low to high, dependent primarily on geology and landform. Steep landforms result in high to very high sediment delivery efficiencies across much of the area.

Q. Geologic Types: Primarily Belt Series quartzite with small inclusions of Border Zone micaceous schists. The ash layer varies in thickness from 16" to absent or mixed over the remainder of the area with rocky soils to the surface.

R. Miles of Stream Channels by Order or Class: **Order 1:** 4.4 mi, **Order 2:** 2.2 mi, **Order 3:** 1.5 mi, **Order 4:** 0 mi, **Order 5:** 0 mi , **Order 6:** 0 mi
Class: Non-fish-bearing: 12 mi, **Fish-bearing:** 1 mi

S. Transportation System

Trails: 0.5 **miles** **Roads:** 2.9 **miles**

[1]Elizabeth HUC6 includes several other smaller subwatersheds unburned or with <1% low severity burn (Upper Quartz and Hidden) from Elizabeth Fire

PART III - WATERSHED CONDITION

A. Burn Severity (acres (% of burn perimeter)): **unburned to low severity:** 894 (44%), **moderate:** 1071(52%) **high:** 83 (4%)

B. Water-Repellent Soil (acres (% of burn perimeter)): 618 (30%)

C. Soil Erosion Hazard Rating[2]:

Mass Wasting Potential (rating: % of burn area): low: 36% moderate: 32% high: 28% very high: 4%

Burn Severity (%) by Mass Wasting Potential Class

Mass Wasting Class		Low Burn Severity %	Mod. Burn Severity %	High Burn Severity %
Low	(36% of area)	58	42	1
Moderate	(32% of area)	55	39	6
High	(28% of area)	38	53	9
Very High	(4% of area)	68	24	0

Surface Erosion Potential (rating: % of burn area): low: 63% moderate: 6% high: 31%

Burn Severity (%) by Surface Erosion Potential Class

Surface Erosion Potential Class		Low Burn Severity %	Mod. Burn Severity %	High Burn Severity %
Low	(63% of area)	48	47	5
Moderate	(6% of area)	26	53	20
High	(31% of area)	66	34	0

Sediment Delivery Efficiency (rating: % of burn area): low: 5% moderate: 35% high: 14% very high: 50%

Burn Severity (%) by Sediment Delivery Efficiency Class

Sediment Delivery Efficiency Class		Low Burn Severity %	Mod. Burn Severity %	High Burn Severity %
Low	(5% of area)	69	31	0
Moderate	(35% of area)	50	47	3
High	(14% of area)	61	36	3
Very High	(50% of area)	49	45	6

D. Erosion Potential[3]: **low severity burn areas:** 5 tons/acre average, **moderate severity:** 10 tons/acre average, **high severity:** 16 tons/acre average

[2] Erosion hazard ratings from landtypes in Clearwater NF Land System Inventory, 1983.

[3] ERMiT Erosion Model Outputs for the First Year Following the Fire (probability of sediment delivery rates exceeded = 10%);

E. Sediment Potential[4]:

Watershed	Watershed Acres	Pre-fire sediment delivery rate (tons/acre)[4]	Post-fire sediment delivery rate (tons/acre)[5]
170603070104 (Elizabeth HUC6)	36556	**0.3**	**0.8**
17060307010408 (Elizabeth HUC7)	6031	**0.3**	**1.9**
17060307010407 (Fix HUC7)	1570	**0.3**	**3.9**

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (yrs):

The effects of the 2012 Elizabeth Fire on recovery of vegetation within its boundaries will vary primarily by the severity of the burning that took place and the available seed sources. In undisturbed soil areas, the native seedbank for shrubs, forbs, and grasses will likely respond favorably to the burn since they have evolved with such natural disturbances. Where the soil has been altered, primarily by road construction, spread of noxious weeds is a concern that should be monitored over time. Where disturbed soils (displaced topsoil, exposed subsoils, oversteepened) on road cutslopes and fillslopes burned, recovery of stabilizing vegetation will be impaired, thus the risk of cutslope and fillslope failure and slumping is increased. Slope, aspect, fuel loadings, and the type of vegetative cover present when the fire burned influenced the severity of the burn. Much of the 2012 Elizabeth fire burned in areas previously burned in the 2000 Elizabeth Fire. Moderate and high soil burn severity in 2012 was often associated with accumulations of downed wood from tree mortality following the 2000 Elizabeth Fires. Longer burning residence times occurred in these areas of accumulated ground fuel compared to adjacent areas that did not appear have substantial coarse wood/ground fuel accumulation. The 2000 Elizabeth Fire was predominately a low severity burn (89% low) and appeared to have overall good vegetative recovery, but much of the regeneration was burned again in 2012. Other areas that burned at moderate (9.4%) or high (1.7%) severity in 2000 recovered more slowly and are expected to continue to display impaired recovery where they reburned in 2012.

Vegetative Recovery Period on NFS Lands - Years

Burn Severity	Total Acres	Reforestation Period	Vegetative Recovery Period [6]
None to Low	894	0-5 years	**0-5 years**
Moderate	1071	1-5 years	**1-15 years**
High	83	3-5 years	**3-20 years**
Total	2048		

[4] unburned background sediment delivery rate is 0.33 t/ac as modeled by DisturbedWEPP, mature forest cover, 10-yr return interval storm; volume estimate = 1.19 yd^3/t

[5] ERMiT Erosion Model Outputs for the First Year Following the Fire (probability of sediment delivery rates exceeded = 10%); unburned background erosion rate is 0.33 t/ac as modeled by DisturbedWEPP, mature forest cover, 10-yr return interval storm

[6] Vegetative Recovery is considered be any vegetation which provide >80% cover which effectively intercept rainfall and provides an extensive root mass.

Unburned to Low Severity Burn Areas: In areas where the burn severity was unburned to low, recovery would generally be expected to occur within one growing season. Vegetative recovery is considered to be any vegetation which providing more than 80% cover which effectively intercepts rainfall and provides an extensive root mass as defined on page II-26 of the Clearwater National Forest Plan. These unburned to low severity burn areas are expected to maintain adequate live tree stocking levels and associated understory vegetation in most cases. Tree mortality is expected to average less than 30% in these areas, ranging from 0% to 50%. Perennial grasses, forbs, and shrubs generally will resprout after low severity burns and a duff/litter layer will reform within several years. Vegetative recovery will vary from 0 to 5 years.

Moderate Severity Burn Areas: In areas where the burn severity was moderate, the majority of the trees are expected to die as a direct result of the fire, with mortality ranging from 50% to 100%. Most of the needles remain on the trees, but have turned red as a result of the burn effects. Vegetative recovery will vary from 1-15 years. Some of the larger areas that burned at moderate severity are a greater distance from surviving seed sources. This will slow the recovery time. Pockets of high severity burn within moderate severity areas, associated with fuel accumulations from 2000 Elizabeth Fire tree mortality, will also likely display impaired vegetative and soil recovery. Existing seed from shrubs, forbs, and grasses stored deeper in the soil, will provide some vegetative recovery in these areas

High Severity Burn Areas: In areas where the burn severity was high, nearly all of the trees were killed or are expected to die as a direct result of the fire, with mortality ranging from 80% to 100%. Vegetative recovery will vary from 3-20 years. The largest areas that burned at high severity are surrounded by moderate severity burn areas and thus are at a greater distance from seed sources. This will slow the vegetative recovery time. The heat produced in the high severity burning in these areas has destroyed much of the existing seed stored in the soil, so shrub, forb, and grass recovery will occur at a slower pace. Many of the high severity burn areas burned previously in 2000 and are on sites with thin soils and dry, hot aspects, thus will likely have vegetative recovery periods that exceed 20 years. Encroachment by noxious weeds may be a concern on high burn severity areas adjacent to road corridors where weeds already exist.

B. Design Chance of Success, (percent):	75%
C. Equivalent Design Recurrence Interval, (years):	10 years
D. Design Storm Duration, (hours):	0.25 hours
E. Design Storm Magnitude, (inches):	0.53 inches
F. Design Flow, (cfs per square mile):	35-45 cfs/mi^2
G. Estimated Reduction in Infiltration, (percent):	30 %
H. Adjusted Design Flow, (cfs per square mile)[7]:	110 cfsm

PART V - SUMMARY OF ANALYSIS

[7] Use 110 cfsm for watershed less than 2 mi^2; Parret et al. 2003. Fire Hydrology. July 2003.
For watersheds 5-20 mi^2, the design storm should be approximately 23 cfsm; Arkell Richard E, and Frank Richards, 1986. Short Duration Rainfall Relations for the Western United States. August 1986. Gerhardt, N, 2003. Precipitation – Frequency Values for Lolo Pass, Idaho/Montana. Unpublished Paper. September 2003

A. Describe Critical Values/Resources and Threats: The primary values at risk resulting from the Elizabeth Fire are transportation infrastructure (Road 720), water quality, native fisheries for ESA-listed bull trout and sensitive westslope cuthroat, and native vegetation and soil.

Infrastructure: Due to fire effects, modest rain events are likely to cause extensive erosion and some mass movement on steep hillslopes throughout the burned area. Additionally, reduced canopy interception, combined with lack of groundcover and hydrophobicity will cause increased runoff response compared to pre-fire conditions. Thus, streams in and downstream of the burned area are likely to generate higher stormflows in the first few years following the fire. Larger flow events in part are a function of increased surface runoff from bare hillslopes. Furthermore, burned and exposed soils are more susceptible to entrainment and transport to stream channels. This combination of increased runoff and greater susceptibility to erosion threatens transportation infrastructure. Poorly drained roads and undersized culverts are more likely to fail in the post-fire hydrologic setting.

Forest Road 720 is located within the burn area in both Elizabeth and Fix Creek watersheds. Upslope of and immediately downslope the road, the 2012 Elizabeth fire was approximately 50% moderate severity and 50% low severity, with small inclusions of high severity burn, particularly where accumulated downed large wood burned with long residence times and resulted in high soil burn severity. Approximately 43 culverts exist on this 3.5 miles of road affected by the fire. The road is mostly insloped to ditches that require maintenance. Recent (Sept-Oct 2012) deposits of rock and burned wood in ditches and culvert inlets were observed, indicating instability in the burned area upslope of the road. It is highly probable that increased runoff, erosion, weakening of snags, and tree mortality due to fire impacts will add more sediment, rock and woody debris to ditches and culverts on Rd 720 resulting in road failures. Segments of road cutslope and fillslope burned at moderate to high intensity resulting in areas of unstable road due to the loss of physical soil support through the consumption of large and small roots and vegetative mortality. Four landslides originated from Road 720 due to fill failures in the 1995-1996 rain-on-snow events. About 95% of the length of the road in the burned area (0.2 mi. of 3.5 mi. total) is on landtypes with a roading suitability class of 1 defined as "extremely high risk of landslides and/or erosion and high probablility of sediment and debris reaching streams due to a high sediment delivery efficiency. Mistakes have severe consequences and are often impossible to correct". As a result of the fire, we recommend stabilizing this road before additional failures occur to remove the risk of culvert and fill failure and potential deposition of large amounts of sediment into Elizabeth and Fix Cr. Stabilization of this road will protect water quality, native fisheries for ESA-listed and sensitive species, and native vegetation communities.

Water Quality: Pre-fire, the streams in the burned area maintain good water qualitiy. The risk of erosion has increased as a result of the fire. The steep burned hillslopes may now compromise water quality through transport and depostition of fine sediment in important fishery streams. The elevated erosion and potential failures from roads also compromise water quality. Treatments to restore hillslope drainage along road 720 to withstand post-fire events will provide protection for water quality as well.

Fisheries: The streams within the Elizabeth Fire perimeter that are fish-bearing include Elizabeth Creek and Fix Creek. Stream surveys were conducted by Forest contractors in the subject subwatershed in 1996 and fish were present (CBS 1997). Based on these surveys, westslope cutthroat are ubiquitous in the fish-bearing reaches of Elizabeth and Fix creeks, but only about a two mile reach of Elizabeth Creek is within or adjacent to the fire perimeter. Redband and bull trout were not detected in Elizabeth or Fix creeks in the 1996, but were present in the mainstem North Fork during a 1998 survey (CBS 1999). Bull trout are known rear in and migrate through the upper North Fork and spawn in upper tributaries of the North Fork mainstem (IDFG 2006); the upper North Fork downslope of the Elizabeth Fire perimeter has been designated as bull trout Critical Habitat, but none of the streams within the fire perimeter has this designation.

Because of their relatively small size, few, if any, kokanee salmon spawn in Elizabeth or Fix creeks, but they are likely usually present in the North Fork most years (Kenney, personal observation). Coeur d'Alene salamanders are known to occur along the North Fork downslope of the Elizabeth fire area (IDFG ACD 2012), and perhaps also occur in seeps and small streams within the fire perimeter. Western pearlshell mussel are not known to occur in Elizabeth or Fix creeks, but are likely present in the mainstem of the North Fork Clearwater River (Kenney, personal observation). Western toad presence on the Forest is not well documented, but the species is relatively common in low to mid-elevation forest in North Central Idaho (Kenney, personal observation). The Elizabeth fire perimeter is at a relatively high altitude, and predominantly with a fairly dry southern aspect, so few, if any individuals are likely to be present.

Native Vegetation/Soil Productivity:

Following moderate and high severity burns, the frequency and magnitude of surface erosion (e.g. sheet, rill, gully erosion) and the risk of mass wasting erosion events (e.g. landslides) are expected to increase. Soil erosion through sheet, rill, gully and mass wasting processes can result in decreased soil productivity at a site due to the loss of surface soils. Surface soils in the burn area contain higher organic matter and volcanic ash-derived mineral content compared to the subsurface soils. Ash-derived surface soil is fundamental in supporting site productivity due to much greater water infiltration rates and moisture- and nutrient-holding capacities than underlying soil horizons.

The consumption of vegetation, ground cover and soil organic matter and increased soil water-repellency contribute to increased surface erosion following fire. Tree and large shrub mortality following fire can substantially increase the risk of mass wasting events and landslides, particularly on areas wit hhigh to very high landslide/mass wasting risk such as those in the Elizabeth Fire area. Tree roots (and those of shrubs, forbs, and grasses to a lesser extent) help stabilize soil on steep slopes by forming a fibrous structure throughout the soil horizon. Trees also act as pumps, removing excess water from the soil profile through evapotranspiration. This decreases the extent of saturated conditions during periods of high precipitation or snowmelt. After a tree dies, roots decay and landslide hazard increases. The greatest landslide hazard associated with lost root strength occurs 5 to 20 years after tree death. The hazard remains elevated until a new stand becomes established on the site.

The most notable losses of soil productivity occur during mass wasting/landslide events where several hundred to thousands of tons of surface soil can be displaced and often leaving the land scoured to bedrock and unproductive subsoils. Burned unstable road fills and inadequate or poorly maintained road drainage systems in areas with high landslide hazards increase the risk of substantial and impaired productivity due to landslide/mass wasting erosional events. Several landslides associated with roads (including road 720) and natural causes have occurred in and adjacent to the burned area.

In addition, native vegetation communities and soil productivity are at risk from rapid expansion of noxious weeds from existing populations to adjacent areas within the burned area. Disturbance may increase the susceptibility of an otherwise intact plant community to weed invasion by increasing the availability of a limited resource (Hobbs 1989). Natural or human caused fires are board scale disturbances that influence the amount of available habitat for weed establishment and may promote invasive weeds (D'Antonio, 2000; Belsky and Gelbard 2000; Pauchard et al. 2003.

Heritage: Research has shown wildfires have the potential to damage or destroy cultural resources through: (1) direct effects of the fire; (2) fire suppression or rehabilitation activities; and/or (3) erosive

soil movement caused by subsequent weather events. These impacts have the potential to adversely affect both built-environmental and archaeological resources. Additionally, wildfires may have an indirect effect to historic properties by increasing the accessibility and visibility of archaeological site locations, making them more susceptible to vandalism/artifact looting, and facilitating unauthorized recreational activity.

The area of potential effects (APE) associated with the North Fork District Fires included fire perimeter areas, locations of treatment actions, and areas potentially impacted by indirect fire effects (i.e., flooding, debris flows, etc.). Because of the accessible locations of the Fires and early rain and snow fall which preceded the fires being classified as contained – no BAER related field assessment was performed for the fires in the fall of 2012. Rather, a Geographic Information Systems analysis was performed by intersecting known historic property locations with fire effects areas to ascertain potential impacts to critical values.

Two previously recorded sites eligible for, or potentially eligible for, the National Register of Historic Places are located within the APE of the Elizabeth Fire and are classified as moderate cultural resource values.

10CW486	Inscribed tree	NA	NA
Pot Mountain Trail	Chalfont 1974 Nez Perce Trail or Tin Can Trail	NA	NA

B. Emergency Treatment Objectives: Roughly 56% of the burned area was rated moderate to high severity. A total of 83 acres (4%) burned at high intensity. These areas generally had high to extreme hydrophobic conditions. Moderate intensity burn covered 1071 acres (52%). These burned areas generally developed minor hydrophobic conditions on approximately 50% of the moderate severity burn area though soil pore clogging due to surface erosion during initial post fire precipitation events may occur and will also reduce soil water infiltration. Low intensity burn areas covered 894 acres (44%) of the fire area.

Most (63%) of the burned area is on hillslopes rated low for soil erovity; however 31% of the area has highly erosive soils and another 6% are rated moderately erosive. Even low severity slopes on steeper hillslopes devoid of canopy or ground cover are at risk of increased erosion and runoff. The average slope of the burned area exceeds 50%, and many areas have slopes in excess of 60%. Increased post-fire surface erosion, runoff, or mass wasting events (landslides) have a high probability to impact streams since 50% of the burned area is on landtypes with very high sediment delivery efficiency, and an additional 14% of the area with high sediment delivery efficiency. Within the areas of very high sediment delivery efficiency, 51% burned at moderate to high intensity Landslide prone (mass wasting) areas within the fire with high and moderate burn severity are at risk for post-fire erosion and runoff risk. High to very high mass wasting potential exists on 32% of the burned area, with another 32% rated as moderate. Moderate to high severity fire burned on 62% of the area having high mass wasting potential.

The primary emergency treatment objective is protect resources by stabilizing the end of Road 720 and to prevent the expansion of noxious weeds. Water quality, native fisheries, soil productivity and native vegetation communities are all resources that are susceptible to damage from expected erosion and potential mass wasting associated with road 720 within the burned area.

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

Land 70% **Channel** N/A **Roads/Trails** 70% **Protection/Safety** 90%

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Heritage	na	na	na
Weed treatment	50	50	50
Channel	na	na	na
Roads/Trails	70	80	90
Protection/Safety*	90	90	80

E. Cost of No-Action (Including Loss): >$300,000

The potential cost of no action includes the failure of culverts/stream crossings, severe erosion damage, and mass wasting on road 720 within the burned area, the cost of entrainment and deposition of road/trail sediment in important fishery streams, and erosion damage and mass failure damage to native vegetation and soils. The value of habitat for bull trout and westslope cutthroat, as well as other aquatic species of concern, cannot easily be quantified, but would likely far exceed the cost of sediment-mitigation measures proposed here. Water quality in the area would also be affected by infrastructure failure. The value of protecting the ecological integrity and soil productivity of the burned area from noxious weed infestation likely far exceeds the cost of weed treatment and monitoring. Non-market resource values also include loss of hunting/fuelwood gathering/recreating income to area (see VAR table).

F. Cost of Selected Alternative (Including Loss): $38,996

In accordance with the revised Forest Service manual, the risk matrix below, Exhibit 2 of Interim Directive No. 2520-2010-, was used to evaluate the Risk Level for each value identified during the Powell SBW fire BAER assessment. Only treatments that had a risk of Intermediate or above are recommended for BAER authorized treatments.

BAER Risk Assessment

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	**Very High**	**Very High**	**Low**
Likely	**Very High**	**High weeds**	**Low**
Possible (10 year storm event)	**High** Road 720	**Intermediate**	**Low**
Unlikely	**Intermediate**	**Low**	**Very Low**

Probability of Damage or Loss: The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within one to three years (depending on the resource):

Very likely- nearly certain occurrence (>90%)
Likely- likely occurrence (>50% to < 90%)
Possible- possible occurrence (>10% to <50%)
Unlikely- unlikely occurrence (<10%)

Magnitude of Consequences:

Major- Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.

Moderate- Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.

Minor- Property damage is limited in economic value and/or to few investments; damage to natural or cultural resources resulting in minimal, recoverable or localized effects.

Loss of Water Control

The Elizabeth Fire occurred primarily within two unofficial 7th field HUCs. The Elizabeth and Fix Cr HUC 7 watersheds were analyzed to assess fire effects in these amaller basins. The use of these smaller local subwatersheds provides a more pronounced and indicative increase in erosion and sediment delivery by watershed because there is less averaging across unburned areas.

The 10-year return interval design storm has a 19% chance to occur at least once in the first two years following the fire. This constitutes a "possible" probability of occurrence. Without treatment, this level of storm could cause major property damage, in particular due to mass wasting associated with Road 720.

This increase in peak flows constitutes a "High" risk emergency.

Increase in sediment potential

Increases in sediment yield ranged from 260 percent for the Elizabeth HUC 6 watershed to 1300 percent for the Fix Cr HUC 7 subwatershed (see PART III, Watershed Condition; Section E, Sediment Potential).

The 10-year return interval design storm has a 19% chance to occur at least once in the first two years following the fire. This constitutes a "possible" probability of occurrence. Without treatment, this level of storm could cause major property damage.

These increases constitute a "High" risk emergency for values at risk within and immediately downstream of the fire area where increased sediment loading with increased peak flows could cause damage.

Weed spread
Spread of unwanted weed species is a possibility and followup assessment will be conductd.

Water Quality of TES carrying streams

The streams with moderate to high burn severities above them include Elizabeth Creek and Fix Creek. Increased flow and decreased water quality from the entrainment of additional sediment comes with increased woody debris and tend to pulse through the system (Forest fisheries specialist), resulting in minor consequences.

Water quality changes to TES carrying streams constitutes a "Low" risk situation as long as there is no major failures of infrastructure.

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[x] Soils	[ ] Range	[x]Weeds
[ ] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[x] Engineering
[ ] Contracting	[ ] Ecology	[ ] Botany	[x] Archaeology
[x] Fisheries	[ ] Research	[X] Recreation	[x] GIS

Team Leader: Anne Connor
Email: aconnor@fs.fed.us Phone: 208-476-8235 FAX: 208-476-8329

H. Treatment Narrative:
Land Treatments: The area within the burn perimeter, especially along road 720, will be assessed early in the spring of 2013 (due to early snow and late season fires) and treated in June as needed. This harsh site may be susceptible (high risk) to weed infestation.

For the cultural resource sites, no risk indicator scored higher than "Intermediate" in the risk assessment matrix (Table 3), therefore no treatments or associated funding needs are being requested .

Channel Treatments: No channel treatment prescribed at this time.

Road Treatments: Road 720 will be stabilized to prevent future mass wasting and landslides due to increased runoff in the first years following the fire. The primary identified work will include:

- Removing culverts that are downstream of burned areas to ensure proper conveyance for post-fire design flows (10-year return internal precipitation event) .
- Outsloping and/or constructing waterbars along Road 720 within and near the burn perimeter in order to prevent major erosion and mass wasting.
- Storm monitoring along the road to inspect and ensure drainage is functioning properly

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.)

Monitoring of road and trail treatments will occur during and after implementation in early 2013 to ensure that treatment objectives are met. Road and trail treatments will be monitored again during the summer, especially after thunderstorms, to evaluate effectiveness.

In 2013 all of the known areas of infestation will be re-surveyed. Any noxious weed populations not effectively treated during initial treatment efforts will be targeted for additional herbicide application.

VI – Emergency Stabilization Treatments and Source of Funds

			NFS Lands			Other Lands				All
Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
Heritage Treatments				$0	$0		$0		$0	$0
Weed Treatments	acres	$483	12	$5,796	$0		$0		$0	$5,796
Subtotal Land Treatments				$5,796	$0		$0		$0	$5,796
B. Channel Treatments										
				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Drainage Improvement and Stabilization of Road 720	mile	$10,900	3	~~$32,700~~ $54,700	$0		$0		$0	$54,700 ~~$32,700~~
Subtotal Road & Trails				$~~32,700~~ 54,700	$0		$0		$0	54,700 ~~$32,700~~
D. Protection/Safety										
Hazard Tree treatment for worker protection	mile	500	1	$500	$0		$0		$0	$500
				$0	$0		$0		$0	$0
Subtotal Structures				$500	$0		$0		$0	$500
E. BAER Evaluation										
Team Costs					$10,200		$0		$0	$0
				---	$0		$0		$0	$0
Subtotal Evaluation					$10,200$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				~~$38,996~~ 60996			**$0**		**$0**	~~**$38,996**~~ **60,996**
Previously approved										
Total for this request				~~**$$38,996**~~ **60996**	$10,200					

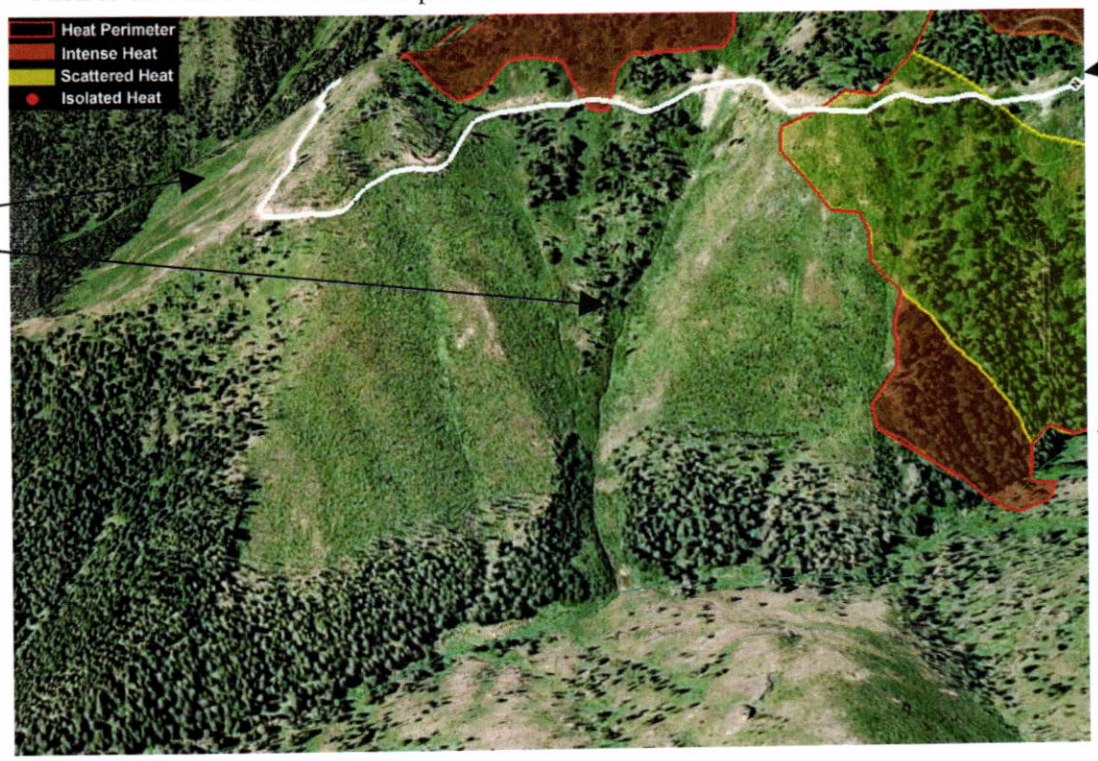
PART VII - APPROVALS

1. Rick Brazell 7-26-13
Nez Perce-Clearwater NF Forest Supervisor Date

2. _____
Region 1 Regional Forester Date

Appendix A. Cost Details and Photos

Road 720 Stabilization

- 2.9 miles of road within fire area with a mix of burn severity from low to high (use 3 mi)
- History of mass wasting; high risk
- Risk is elevated due to fire response
- 

- Low need for road; closed to motorized use; little to no timber value
- Recommend stabilization by pulling culverts and outsloping or waterbarring template.
- Costs: 3 miles @$9,000 per mile for stabilization; 5days @500/day for engineering (contract prep and admin); 16 hours @ $200/hour for mobilization.
- **Total = $32,700**

Updated cost: Due to remoteness of site (6 hour drive from Orofino plus a 20 mile excavator walk up a very narrow windy road) and the need for traffic control on the Pierce-Superior road 250 below, the government estimate and all bid proposals came in higher than the original BAER estimate. Revised Cost = $54,700 or $22,000 above original estimate

Road 720

Weed Treatment Costs

DIRECT COSTS

- Treat weeds along 3 miles of road 720
- Use 4 acres of treatment per mile = 12 acres
- Assessment Cost = 2 days @ $400/day = $800
- Average Treatment Cost (includes prep and pre-treatment flagging of sites): Labor $300.00 per acre
- Average Chemical/Personal Protection Equipment Cost: $50.00 per acre
- Implementation Monitoring of Treatment: at $400 per day for 2 days

TOTAL Estimated Costs

- Estimated Treatment cost: $350.00/acre X 12 acres = $4,200.00
- Assessment and Monitoring 4 days X $400/day = $1,600.00

Total **$5,800**