Date of Report and Type: 11/07/2017; Initial

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 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)
- ☐ 2. Interim Report #___
  - ☐ 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: Scalp

B. Fire Number:

C. State: Montana

D. County: Flathead

E. Region: Northern

F. Forest: Flathead, Helena-Lewis and Clark

G. District: Spotted Bear

H. Fire Incident Job Code: P1LBC6 (0110)

I. Date Fire Started: August 15, 2017

J. Date Fire Contained: October 5, 2017

K. Suppression Cost: 85,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates):

1. **Dozer Fireline repaired** (miles): 0
2. **Excavator Fireline repaired** (miles): 0
3. **Other** (identify): 0

M. Watershed Numbers:

N. Total Acres Burned:

Table 1: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	22,142
TOTAL	22,142

O. Vegetation Types: Douglas fir, ponderosa pine, larch, sub-alpine fir, riparian

P. Dominant Soils:

WILDERNESS MAP SYMBOL	LANDFORM	PARENT MATERIAL	ERODIBILITY
VI	Cirque Headwalls and Alpine Ridges	Metasedimentary Rocks	L
VII	Glacial Trough Walls and Structural Breaklands	Glacial Till and Metasedimentary Rocks	M
VA	Glaciated Mountain Ridges and Cirque Headwalls	Glacial Till and Metasedimentary Rocks	L
II	Cirque Basins	Glacial Till and Metasedimentary Rocks	M
III	Glaciated Mountain Slopes and Ridges	Glacial Till and Metasedimentary Rocks	L
IIIA	Forested Steep Lateral Moraine	Glacial Till and Metasedimentary Rocks	L
VC	Glaciated Mountain Ridges	Metasedimentary Rocks	L
IV	Landslide Deposits	Landslide Deposits and Metasedimentary Rocks	L
VB	Glaciated Mountain Ridges	Metasedimentary Rocks	L

Q. Geologic Types: The burned area lies on the following geologic formations from the South Fork Flathead River to the ridge tops: Quaternary Alluvium, Sheppard, Snowslip, Mount Shields, Bonner, McNamara, and Garnet. These formations include a variety of lithologies including quartzite, limestone, siltite, and argillite.

R. Miles of Stream Channels by Order or Class:

Table 1: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	26
INTERMITTENT	9
EPHEMERAL	4
OTHER (DEFINE)	0

S. Transportation System:

Trails: *National Forest (miles):* 28 *Other (miles):* 0

Roads: *National Forest (miles):* 0 *Other (miles):* 0

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 2: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Total
Low	13,285	13,285
Moderate	6,642	6,642
High	0	0
Unburned	2,214	2,214
Total	22,141	22,141

B. Water-Repellent Soil (acres)**:** High severity and moderate portions have varying degrees of water repellency.

C. Soil Erosion Hazard Rating:11,514 (low) 1,771 (moderate)

D. Erosion Potential (tons/acre): 0.8

E. Sediment Potential(cubic yards/square mile): 0.5

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period (years): 3

B. Design Chance of Success (percent): 80

C. Equivalent Design Recurrence Interval (years): 5

D. Design Storm Duration (hours): 6

E. Design Storm Magnitude (inches): 1.5

F. Design Flow (cubic feet / second/ square mile): 5

G. Estimated Reduction in Infiltration (percent): 30

H. Adjusted Design Flow (cfs per square mile): 70

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Scalp Fire burned over roughly 22,000 acres in the headwaters of the Middle Fork Flathead. The fire burned in several small catchments with first and second order streams. These include Scalp Creek, Bash Creek, Clack Creek, Park Creek, Bowl Creek, Basin Creek, and Trail Creek. Most of the high severity burns occurred in Basin Creek, Scalp Creek, Clack Creek and Park Creek (Figure 1). Severity is mixed, but relatively large concentrations of high severity are present. Overall, the pattern of burn severity is typical of most fires in the Bob Marshall Wilderness.

Landforms in the burned area consist of cirque basins, alpine ridges, glacial trough walls, breaklands, alluvial fans, and floodplains. Channel morphology ranges between very steep headwater channels to lower gradient alluvial channels.

The BARC imagery has not been field verified, but past experience has shown that initial imagery slightly over-estimates severity on the Flathead National Forest. Several fires have burned on the Flathead National Forest and Bob Marshall Wilderness during the past couple of decades. Watershed response tends to be relatively mild because fall rains tend to be of long duration and short intensity. In low and moderate severity burns, needle cast is common, which aids in infiltration. Erosion is likely to occur during spring snowmelt and rain. Recovery of burned areas is typically quite rapid during the first five years.

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

Table 3: Critical Value Matrix

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	**Very High - Native Veg/Weeds**	**Very High**	**Low**
Likely	**Very High –**	**High -**	**Low**
Possible	**High**	**Intermediate**	**Low**
Unlikely	**Intermediate Health and Safety**	**Low-Trails,**	**Very Low**

1. **Human Life and Safety (HLS):**
2. **Property (P):**
   Risk Assessment: Trail Infrastructure

Probablity of Damage or Loss: Likely (50-89% chance)

Magnitude of Consequence: Moderate

Risk Level: High

Several trails in the burned area are at risk of further damage that is likely to occur in the next 12 months. This future damage is likely to occur through the following mechanisms.

- Direct erosion of trail prisms due to loss of drainage features such as water bars and dips
- Direct erosion of tread due to loss of adjacent and upslope vegetation
- Fillslope failure due to direct loss of forested vegetation and root systems. This potential failure mechanism is likely to occur on steep hillslopes with moderate and high burn severity.
- Fillslope failure due to direct loss of crib logs and/or retaining wall structures.

Trail segments that would be eligible for emergency treatments were identified using the following landscape and trail filters to separate short term (<12 months) risks from long term risks.

- Burn severity levels adjacent to and upslope of trail segments
- Hillslope position (ridgetop, midslope, or valley bottom) of trail segments
- Hillslope gradient
- Aspect
- Iminent risk of furhther loss of trail prisms in the next 12 months

The Scalp Fire affected 6 system trails totaling 17.2 miles. All 17.2 miles receive use and are regularly maintained. The Bowl Creek Trail is the most used trail in the Upper Middle Fork country. It serves as a very important route for both private and guided hunts in the fall but along with Strawberry Creek which has been affected by the Strawberry Fire as well as the Scalp fire accounts for 16.2 miles of the nationally recognized Continental Divide Trail. The other trails listed are all important trails for hunting access. Bowl Creek and its tributaries are a crucial drainage for Westslope Cutthroat (Sensitive) and Bull Trout (Threatened).

Trail grades within the area vary from 5% to 20% with hillslope gradients up to 60%. Pre-fire trail conditions within the fire perimeter ranged from excellent to good with annual maintenance occurring on all of the trails, and recent improvements to address deferred maintenance on some. Approximately 80% of the Scalp fire perimeter fell within the fire scars of the 2007 fool Creek Fire which has left much of the trail devoid of any vegetation. The potential for surface runoff on hillslopes and on trail surfaces is expected to be high in areas with high burn severity. The table includes total miles within the burned areas, and miles at high risk of damage. High risk trail segments were identified using the landscape and trail filters described above.

TRAIL NAME	TRAIL #	FOREST	TRAIL MILES IN BURNED AREA	TRAIL MILES AT HIGH RISK OF POST-FIRE IMPACTS
STRAWBERRY CREEK	161	Helena-Lewis and Clark	1.7	1.5
TRAIL CREEK	216	Flathead	5.1	1.7
BOWL CREEK	324	Flathead	3.9	2.1
BASIN CREEK	378	Flathead	1.8	1.8
MT. MAY	256	Flathead	3.3	1.8
MT. MAY CONNECTOR	479	Flathead	1.4	1.4
TOTAL MILES:		Flathead	17.2	10.3

3. Natural Resources (NR):

a. Noxious weeds are present in the burned area. These populations while currently small in size have the potential with the available seed bed created by the fire to spread into burned areas.

Risk Assessment – Threats to native plant communities

Probablity of Damage or Loss: Likely - Based on burn severity and proximity to potential weed populations.

Magnitude of Consequence: Moderate – Loss of native plant communities and spread of noxious weeds.

Risk Level: Intermediate – Invasive species treatment is needed on known poputlation locations and additional Invasive species monitoring next year will determine if weeds spread of weeds is occuring.

4. **Cultural and Heritage Resources: N/A**
5. **Other non-BAER Values:** N/A

B. Emergency Treatment Objectives:

As noted above, threats to life, property, and natural resources could potentially result from post-fire conditions in the burned area. For these reasons the primary treatment objectives are:

- Prevent additional loss of trail infrastructure that is likely to occur in the next 12 months
- Minimize potential effects of post-fire conditions on infrastructure and natural resources, primarily soil productivity, water quality, and native plant communities. Primary hazards includes erosion, sediment delivery, and spread of noxious weeds.

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

Land N/A
Roads/Trails 10%
Channel N/A
Protection/Safety N/A

Work on trails can start immediately following approval of BAER request. This work would continue until snowfall, then resume in the spring. Further damage to trails is expected to occur in the spring before BAER work is initiated.

D. Probability of Treatment Success

Table 4: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	N/A	N/A	N/A
Channel	N/A	N/A	N/A
Roads/Trails	10	50	100
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): 42,906

F. Cost of Selected Alternative (Including Loss): There remains a 20% chance that the proposed treatments for this initial work may not succeed. Total cost of the action alternative plus this 20% chance of failure is $33,604

F. Skills Represented on Burned-Area Survey Team:

☐ Archaeology	☒ Botany	☐ Ecology	☐ Economist	☐ Engineering
☒ Fisheries	☐ Forestry	☐ GIS	☒ Hydrology	☐ Range

☐ Archaeology	☒ Botany	☐ Ecology	☐ Economist	☐ Engineering
☒ Recreation	☒ Soils	☐ Team Lead	☐ Wildlife	☐

Team Leader: Craig Kendall
Email:craigkendall@fs.fed.us **Phone:**406-758-6485 **FAX:**

Forest BAER Coordinator: Craig Kendall
Email:craigkendall@fs.fed.us **Phone:**406-758-6485

H. Treatment Narrative:

The proposed trail treatments are designed to prevent further loss of prisms. This loss is likely to occur in the next 12 months without treatment. In addition, the cost of these treatments is expected to be less than complete reconstruction of prisms in the event of complete loss. To provide for trail worker safety, hazard trees would be removed along all sections of trail approved for treatment. Proposed treatments are summarized below.

- Replace damaged trail structures that were destroyed in the fire along sections of trail that are likely to experience further loss in the next 12 months.
- Construct new trail structures along sections of trail that are likely to experience further loss in the next 12 months.
- Remove hazard trees as necessary to provide safe environment for FS employees and trail users.
- Early detection monitoring of weeds and treatments of weeds that expand into burned areas from existing populations.
- Install signs to warn trail users of post-fire hazards.

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.)

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

Helena-Lewis and Clark National Forest

Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$0	$0		$0		$0	$0
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
Trails Stabilization	miles	1,385	4	$5,402	$0		$0		$0	$5,402
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$5,402	$0		$0		$0	$5,402
D. Protection/Safety										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$0	$0		$0		$0	$0
E. BAER Evaluation										
				---	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$5,402	$0		**$0**		**$0**	**$5,402**
Previously approved										
Total for this request				**$5,402**						

PART VII - APPROVALS

1._____ /2017
Helena-Lewis and Clark Forest Supervisor Date

2._____ /2017
Leanne Marten, Region 1 Regional Forester Date

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

Flathead National Forest

Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
EDRR	acres	200	55	$11,000	$0		$0		$0	$11,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$11,000	$0		$0		$0	$11,000
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
Trails Stabilization	miles	1,385	14	$19,806	$0		$0		$0	$19,806
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$19,806	$0		$0		$0	$19,806
D. Protection/Safety										
Post-fire Hazard Signs	each	300	10	$3,000	$0		$0		$0	$3,000
Hazard Tree Removal	miles	800	3.1	$2,480	$0		$0		$0	$2,480
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$5,480	$0		$0		$0	$5,480
E. BAER Evaluation										
Initial Assessment	Report			---	$2,500		$0		$0	$2,500
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$2,500		$0		$0	$2,500
F. Monitoring										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$36,286	$2,500		$0		$0	$38,786
Previously approved										
Total for this request				$36,286						

PART VII - APPROVALS

1. Chris Worth 11/8 /2017
Flathead Forest Supervisor Date

2. for Jane D Darnell 11-9 /2017
Leanne Marten, Region 1 Regional Forester Date

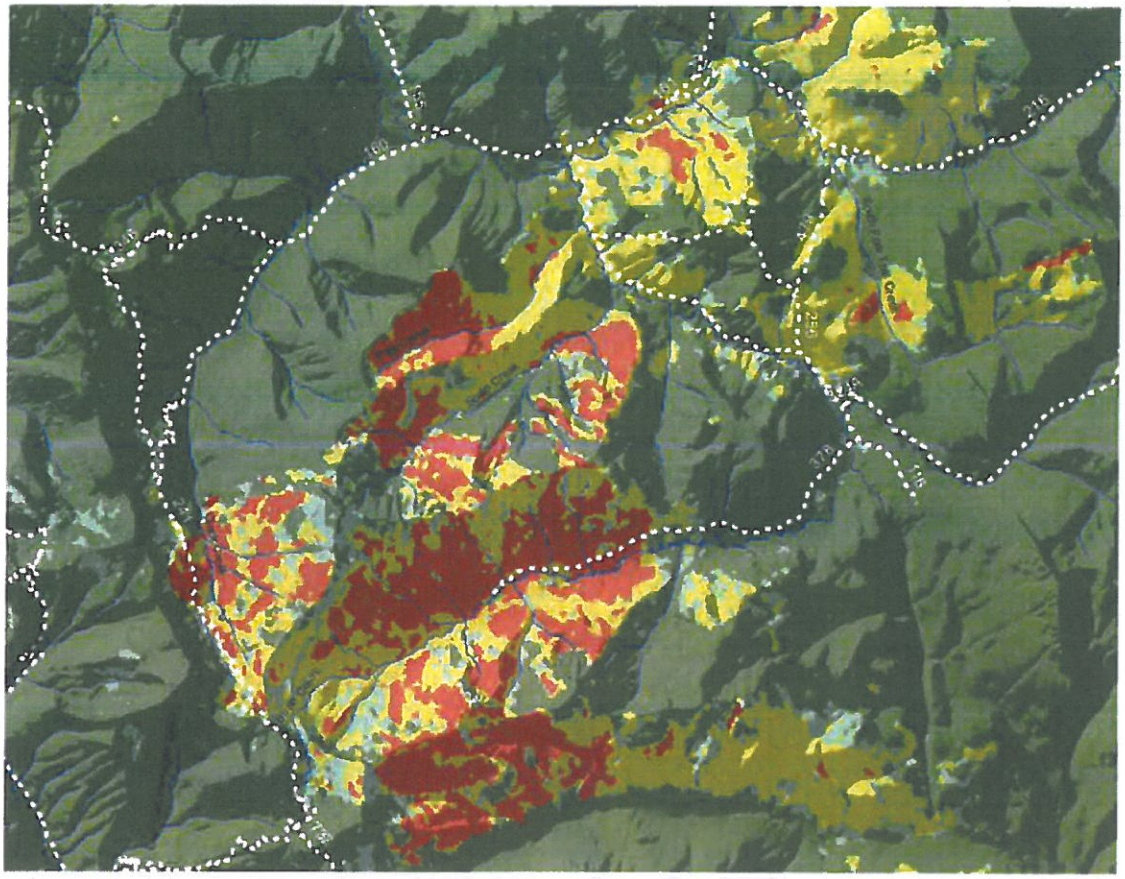

Figure 1: Scalp BARC Map