Date of Report: 10/17/2012

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

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

B. Type of Action

[X] 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: East Fork

B. Fire Number: MT-HNF-069

C. State: MT

D. County: Powell/Lewis & Clark

E. Region: 01

F. Forest: Helena NF–Scapegoat Wilderness

G. District: Lincoln

H. Fire Incident Job Code: P1G6UM

I. Date Fire Started: 08/22/2012

J. Date Fire Contained: uncontained

K. Suppression Cost: $ 450,000 (as of 10/02)

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: none
2. **Fireline seeded (miles):** none
3. **Other (identify):** none

M. Watershed Number: 170102030603 (Meadow Creek), 1701002030310 (Arrastra Creek), 170102030104 (Copper Creek)

N. Total Acres Burned:
[4600] NFS Acres [ ] Other Federal [ ] State [ ] Private

O. Vegetation Types: Lodgepole, Douglas fir - Sub-alpine fir, Idaho fescue (unburned stands have a high amount of standing dead as a result of insect infestations)

P. Dominant Soils: Weakly developed, shallow to moderately deep with cobbly to extremely cobbly loam to sandy loam textures. Primary taxonomic classifications include: Lithic and Typic Cryochrepts, Cryandepts and Entic Cryandepts and Andic Cryochrepts, Eustochrepts, Typic Eutroboralfs. All LTAs have components describing wetlands, bogs, seeps, springs and rock outcrops.

Q. Geologic Types: Residuum underlain by limestone or belt rock, metasediments composed of argillites, siltites and quartzites with alpine glacial drift & till scattered throughout

R. Miles of Stream Channels by Order or Class: Fish bearing ~1.25 miles est.

S. Transportation System

Trails: 2.0 **miles** **Roads:** N/A **miles**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 520 **(low)** 931 **(moderate)** 508 **(high)**
Assumed to be directly correlated to burn intensity – no ground thruthing occurred.
An additional 500 acres burned that is not captured on the BARC imagery. These additional acres were observed during the flight and are assumed to be moderate to high intensity (moderate to high severity).

B. Water-Repellent Soil (acres): 975
(assumed to be the high severity acres + ½ of the moderate severity acres)

C. Soil Erosion Hazard Rating (acres): 520 **(low)** 465 **(moderate)** 975 **(high)**
(assumed to be the high severity acres + ½ of the moderate severity acres)

D. Erosion Potential: 2.3 tons/acre (year 1 – low/moderate)
11.6 tons/acre (year 1 – moderate/high)

E. Sediment Potential: 116 cubic yards / square mile (low/moderate)
597 cubic yards / square mile (moderate/high)

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5 (ground cover), 20-30 (trees)

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 1.4

F. Design Flow, (cubic feet / second/ square mile): 26.5

G. Estimated Reduction in Infiltration, (percent): 56

H. Adjusted Design Flow, (cfs per square mile): 165

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative):
Trail 482 serves as a primary portal to the Scapegoat Wilderness on the west side of the Lincoln District of the Helena NF. This trail is very heavily used by wilderness hunters, outfitters, guides and general recreationists throughout the open season. Additionally, the waters in the impact drainages serve as high quality recreational fisheries with species like Brook Trout and West Slope Cutthroat Trout.

B. Emergency Treatment Objectives (narrative):
Trail treatments to reduce erosion, runoff and sediment delivery, are planned at varying levels for Arrastra Creek Trail #482, with a number of factors taken into consideration. These factors are burn intensity, burn severity, soil type and structure, trail grade, side slope, alluviums, topography, vegetative cover, watersheds, proximity to critical fish habitat, current trail use, expected use, and future travel planning being consideration in the near future.

Hazard trees will be removed where needed on the 2 miles of trails within the East Fork fire burn perimeter in accordance with EM-7720-102 standard specification for construction of trails. This will allow reasonably safe access for the public and BAER trail drainage improvement crews. As a result of insect infestations, the area has a very high concentration of bug killed standing dead stands. These stands are particularly dangerous in post fire scenarios as a result of a weakened root system and generally shallow soils.

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

Land 75**%** **Channel** N/A**%** ~~**Roads**~~**/Trails** 75**%** **Protection/Safety** 90**%**

D. Probability of Treatment Success

	Years after Treatment		
	1	**3**	**5**
Land (water quality/fisheries/ soil productivity)	85	80	75
Channel	N/A	N/A	N/A
Roads/Trails	85	85	75
Protection/Safety	85	80	80

E. Cost of No-Action (Including Loss): greater than $75,000 (est)
This estimate is primarily assumption based on the following:

- Roughly $8,200 to reconstruct a 25% loss of the trail if no action is taken
- Trail 482 serves as one of the primary arterial routes into the Scapegoat Wilderness and is utilized by numerous outfitters, guides, wilderness hunters and general recreationists (value would be $100/day/person for general recreation + # of O&G days lost)
- No action would very likely result in a degredation of water quality and a loss of soil productivity imacting site productivity and the important brook trout/WCT fisheries present.

F. Cost of Selected Alternative (Including Loss): **$22,450**
Assuming the following:

A = probability of success of primary treatment; **.85**
B = probability of failure of primary treatment; **.15**
C = primary treatment cost; $**9,500**
D = potential resource value loss if primary treatment succeeds; $**5,000**
E = potential resource value loss if primary treatment fails; $**75,000**

The total alternative cost is calculated as:

TOTAL = [(C + D) * A] + [(C + E) * B]

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High **trails, water quality & weeds**	Low
Possible	High **fisheries**	Intermediate **soil productivity**	Low
Unlikely	Intermediate	Low	Very Low

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: David Marr, Helena NF Forest Soil Scientist

Email: davidmarr@fs.fed.us **Phone**: 406-495-3740 **FAX**: 406-449-5436

H. Treatment Narrative:

Land Treatments:

Channel Treatments: none

Roads and Trail Treatments:
Treatments to improve trail drainage and spot stabolization will beneficially reduce the likelihood of concentrated flow that would thereby protecting the trail and reducing the risk of gully cutting and sediment discharge into the stream.

Approximately 50 trail drainage structures will be installed over the 2 miles of trail. Trail work will consist of:
1. Install adequate drainage structures and subsequent cleaning out of these structures to prevent erosion of trail prism from upslope runoff likely to occur over the coming months of rain and snowfall.
2. Stabilize trail prism by treating unstable sections and eliminating obstructions to water runoff at areas of most concern and highest potential.
3. Removal of selected hazard trees and clearing of down trees where necessary to conduct stabilization and drainage work.
4. Stabilize stream crossings so the trail constructed features can pass expected increased flows.

Protection/Safety Treatments:
Install warning signs at all trail portals to inform the public associated hazards within a burned landscape.

I. Monitoring Narrative:
Monitoring of trail treatments will occur during and after implementation in 2012 to ensure treatment objectives are met. Trail treatments will be monitored again after snowmelt and during the summer to evaluate effectiveness.

In 2013, additional funding may needed to treat expanded noxious weed populations as a result of the fire. Weed treatment would not occur in 2012 and treatment specifications are unknown at this time.

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

			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										
				$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
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
				$0	$0		$0		$0	$0
Spot stabilization	L.F.	1	1600	$1,600	$0		$0		$0	$1,600
Native Log Water Bars	EA	100	50	$5,000	$0					
Haz. Tree Mitigation	mile	2	1000	$2,000	$0					
				$0	$0					
				$0	$0					
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$8,600	$0		$0		$0	$1,600
D. Protection/Safety										
portal warning signs	EA	2	450	$900	$0		$0		$0	$900
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$900	$0		$0		$0	$900
E. BAER Evaluation										
GS-12 Hydrologist	hour(OT	49.5	8	$0	$396		$0		$0	$396
GS-9 Hydro Tech	hour(OT	36.38	8	$0	$291					
GS-9 Soil Sci (GIS)	hour	23.5	8	$0	$188					
GS-11 Soil Sci	hour	31.17	12	$0	$374					
GS-11 Soil Sci	hour(OT	46.76	10	$0	$468					
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$1,717		$0		$0	$396
F. Monitoring										
5 Days GS-9	day	285	5	$1,425	$0		$0		$0	$1,425
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$1,425	$0		$0		$0	$1,425
G. Totals				$10,925	$1,717		**$0**		**$0**	**$4,321**
Previously approved										
Total for this request				**$10,925**						

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date