USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: 9/14/09

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: Water Wheel

B. Fire Number: AZ-TNF-000100

C. State: Az

D. County: Gila

E. Region: 03

F. Forest: Tonto NF

G. District: 04

H. Fire Incident Job Code:P3E55S

I. Date Fire Started: 8-30-2009

J. Date Fire Contained: 9/3/2009

K. Suppression Cost: 1,800,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 1
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Number: 1506020302

N. Total Acres Burned: 773
NFS Acres(773) Other Federal ( ) State ( ) Private ( )

O. Vegetation Types: Pinyon-Juniper, Chaparral, Ponderosa Pine

P. Dominant Soils:Typic Haplustepts, Typic Haplustalfs,
Lithic Haplustepts, Udic Haplustalfs

Q. Geologic Types: PreCambrian granite, PreCambrian Tapeats sandstone and Troy quartzite, and Carboniferous limestone, sandstone, quartzite

R. Miles of Stream Channels by Order or Class:
Perennial: 0.67 miles
Intermittent: 2.15 miles

S. Transportation System

Trails: 0 miles Roads: 1.43 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 67 (low) 261 (moderate) 347 (high)

B. Water-Repellent Soil (acres): 478

C. Soil Erosion Hazard Rating (acres):
242 (low) 41 (moderate) 478 (high)

D. Erosion Potential: 25 tons/acre/2 yrs

E. Sediment Potential: 5120 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-7

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

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 2.17

F. Design Flow, (cubic feet / second/ square mile): 370

G. Estimated Reduction in Infiltration, (percent): 75

H. Adjusted Design Flow, (cfs per square mile): 1185

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Approximately one mile of the Houston Mesa Road (FR 199) lies within the burned area. This road provides the primary and most direct access to subdivisions located along the East Verde River and Control Road. The Houston Mesa Road also provides access to popular recreation sites that are located within and above the burned area. Many of the slopes above this road burned with high severity (see photo)

The risk of flash floods, rocks, and debris is a hazard to users of this road. Risk of damage to the road itself also exists from plugging and overtopping of culverts and from plugging and overtopping of roadside ditches.

Approximately 1200 feet of guardrail that provides protection for a steep embankment that drops down to the East Verde River was burned in the fire. The guard rail is an essential safety feature for users of the road. The county intends to close the road until the guard rail is replaced because of the safety hazard represented by its absence (see photo below).

The Water Wheel Recreation Site is located within the burned area. The steep slopes above the recreation site burned with primarily high intensity. The risk of flash floods, rolling rocks, and possibly debris flows is high at this site. There is a high risk to users of this site during storm events.

Watershed runoff from slopes upgradient of the Water Wheel Recreation site is passed beneath the Houston Mesa Road in a series of Small (18 inch) culverts that are likely to be plugged with debris during storm events. Most of the runoff that does not pass throught the culverts will flow down roadside ditches and cross over the Houston Mesa Road at the Water Wheel Recreation Site which is the lowest point along the road within the burned area. The potential to erode the base of the road fill on the downgradient side of the road exists.

A steep slope and cliff face borders the Houston Mesa Road just before it crosses the Second Water Crossing of the East Verde River. The upper portions of the slope burned with high severity.The potential for rolling rocks and falling trees to affect the road at this site is high which represents a safety hazard to users of the road.

The Water Wheel Recreation site is the site of an historic homestead. The remnants of the homestead include walls, foundations, and the water wheel itself. One of the ditch relief culverts beneath the Houston Mesa Road discharges upslope runoff into a channel that routes water through the middle of the site. This channel has damaged one of the remnant walls of the historic residence. Increased runoff from the burned area is likely to accelerate damage at the site.

The East Verde River is a perennial stream within and below the burned area. It supports a native fish community that includes desert sucker and longfin dace. Runoff from the burned area will dump ash and sediment into the river and adversely affect water quality.

The potential for introduction of invasive species has occurred as a result of suppression activities.

B. Emergency Treatment Objectives:

Provide for the safety of users of the Houston Mesa Road (FR 199) by repairing guard rail, removing hazardous boulders and trees, increasing the capacity of roadside ditches, and providing for the capture of some watershed debris and sediment by constructing catch basins at suitable sites along the road.

Reduce the volume of sediment and debris delivered to the Houston Mesa Road by placing wattles in swales draining from severely burned slopes upgradient of the road.

Provide for the safety of users at the Water Wheel Recreation Site by restricting access until watershed conditions have recovered sufficiently to allow the site to be safely occupied again.

Protect the Houston Mesa Road by armoring sections of the road vulnerable to overtopping and by capturing some sediment and debris above culvert openings.

Detect and remove noxious weeds at locations where suppression equipment caused surface disturbance (approximately one mile of dozer line)

Install hazard warning signs along the Houston Mesa Road

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

Land __ % Channel __ % Roads/Trails **80** % Protection/Safety **80** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads/Trails	75	85	90
Protection/Safety	90	90	90

E. Cost of No-Action (Including Loss): Costs are primarily a safety issue which are difficult to assess on a cost basis

F. Cost of Selected Alternative (Including Loss): Cost of the selected alternative is $57,000. Implementation of this alternative will substantially reduce safety hazards which are difficult to assess on a cost basis.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Grant Loomis

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H. **Treatment Narrative:**

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

Land Treatments:

Detect and remove noxious weeds after the first growing season.

Channel Treatments:

Roads and Trail Treatments:

1. Rip rap the downgradient side of the Houston Mesa Road at the Water Wheel Recreation site to prevent undermining of the road bed when storm runoff overtops the road.
2. Clean roadside ditches and culvert entrances throughout the burned segment of the Houston Mesa Road to increase their capacity. Place wattles in swales upgradient of the road to reduce sediment and debris delivered to ditches and culverts.
3. Construct a debris basin in the shallow depression on the upgradient side of the Houston Mesa Road at the Water Wheel Recreation Site.
4. Install hazard warning signs along the Houston Mesa Road.

Protection/Safety Treatments:

1. Replace approximately 1200 feet of damaged guard rail along the Houston Mesa Road. **Previously Approved**
2. Install boulders along the Houston Mesa Road at the Water Wheel Recreation site to provide a temporary barrier for access to the site until watershed conditions have recovered sufficiently to permit users to safely occupy the site.
3. Reduce the risk of hazardous rocks and boulders from the burned slopes above the Houston Mesa Road just below the second crossing of the East Verde River by mulching with bonded fiber matrix.

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 **Interim # 1**

			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										
weed dtctn & rmvl	mi	1000	1	$1,000	$0		$0		$0	$1,000
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$1,000	$0		$0		$0	$1,000
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 Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
clean ditches & clvrts				$0	$3,000		$0		$0	$3,000
retention basins				$0	$3,000		$0		$0	$3,000
wattles	acre	2000	2	$4,000	$0		$0		$0	$4,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$4,000	$6,000		$0		$0	$10,000
D. Protection/Safety										
guard rail replacement	ft	28	1250	$35,000	$0		$0		$0	$35,000
hydromulch slopes	acre	3500	1	$3,500	$0		$0		$0	$3,500
bldr barriers & riprap	ea	7000	1	$7,000	$0		$0		$0	$7,000
warning signs	ea	250	2	$500	$0		$0		$0	$500
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$46,000	$0		$0		$0	$46,000
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!	ea	6500	1	---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
				$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				$51,000	$6,000		**$0**		**$0**	**$57,000**
Previously approved				$90,000						
Total for this request				**-$39,000**						

PART VII - APPROVALS

1. */s/ Gene Blankenbaker* 09/15/09
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date