Date of Report: 07/11/2017

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: Brooklynn, Bull, and Cedar Fires **B. Fire Number:** AZ-TNF-001051

C. State: AZ **D. County:** Yavapai

E. Region: 03 **F. Forests:** Tonto NF and Aqua Fria NM

G. District: Cave Creek **H. Fire Incident Job Code:** P3K4TA17

I. Date Fire Started: 07/07/17 **J. Date Fire Contained:** 7/17/17

K. Suppression Cost: $ 1,225,775

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Dozerline rehabbed (miles):** 0
   Handline rehabbed (miles): 0
2. **Fireline seeded (miles):** 0
3. **Other (identify):**

M. Watershed Number:
Brooklyn Fire: Lousy Canyon-Aqua Fria River (150701020410) 12,301 ac Tank Creek (150701020408) 8061 ac, Bishop Creek (150701020406) 6450 ac, Squaw Creek (150701020409) 5259 ac, and Silver Creek (150701020405) 215 ac

Bull Fire: Grapevine Canyon – Newriver (150701020801) 4620 ac, Little Squaw Creek (150701020501) 428 ac, and Moore Gulch (150701020502) 233 ac.

Cedar Fire: Lime Creek (150701030502) 700 ac and Tangle Creek (150701030406) 419 ac.

N. **Total Acres Burned:**
[X] NFS Acres 16,667 [x] Other Federal BLM 16,743 [ ] State [x] Private 140

O. **Vegetation Types**: Sonoran Desert, Semi-Desert Grasslands, Juniper Grasslands, Chaparral

P. **Dominant Soils**: Lithic Ustic Haplargids Loamy Skeletal Mixed, Typic Haplustalfs Clayey-Skeletal, Calcic Haplusterts, Fine, Typic Haplustalfs Clayey Skeletal, Typic Haplustolls Clayey Skeletal.

Q. **Geologic Types**: Basalt, Granite, and Alluvium

R. **Miles of Stream Channels by Order or Class**:

S. **Transportation System**

Trails: 0 **miles** **Roads:** 34.2 **miles**

PART III - WATERSHED CONDITION

A. **Burn Severity (acres)**: 39,951 **(low)** 1586 **(moderate)** 0 **(high)**

B. **Water-Repellent Soil (acres)**: 1500

C. **Soil Erosion Hazard Rating (acres)**: 22,201 **(low)** 7827 **(moderate)** 9923 **(high)**

D. **Erosion Potential**: 24 **tons/acre**

E. **Sediment Potential**: 16,400 **cubic yards / square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

A. **Estimated Vegetative Recovery Period, 2-3 years(years):**

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

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

D. **Design Storm Duration, 1 (hours):**

E. **Design Storm Magnitude, 1.4 (inches):**

F. **Design Flow, 140 (cubic feet / second/ square mile):**

G. **Estimated Reduction in Infiltration, 46 (percent):**

H. Adjusted Design Flow, 189 (cfs per square mile):

PART V - SUMMARY OF ANALYSIS

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

The Brooklyn Complex includes 3 fires that were started on 7/12/2017 during a lighting storm. The Brooklyn Fire burned 33,550 acres of US forest service land on the Cave Creek District (Tonto NF) and BLM including part of the Aqua FRIA National Monument. Bull fire was located 10 miles south of the Brooklyn Fire and burn 5,282 acres. The Cedar Fire was located 15 mile south east of the Brooklyn fire and burned 1,120 acres. These lightning-caused wildfire burned in areas dominated by semi-desert grasslands and Juniper woodlands. Smaller areas of Sonoran desert and Chaparral we also burnt. All burn areas were dominated by low burn severity with smaller areas of moderate burn severity. High burn severity areas were rare, only occurring in isolated pockets less than one acre in size.

Critical Values Identified
Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assessment are: Human life and safety. The BAER team evaluated the risk to those critical values using the BAER Risk Assessment (FSM 23235.1 Exhibit 02).

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Risk Matrix Table for Values at Risk with High or Very High ratings and where treatments are recommended

Risk Type	Value at Risk	Potential Threats	Owner ship	Probability of Damage	Magnitude of Consequence	Risk	Forest Service Treatment Method
Life/Safety	Human life and safety	Debris flows/loose rock	USFS	Possible	Major	High	Sign key access points to roads and hiking trails. Recommend closure of FS road 37 and 41 through 2 monsoon seasons.
Forest infrastructure	Roads	Loss of part or all of road dues to increased runoff and erosion	USFS	Very Likely	Moderate	Very High	Implement Road treatment and Storm inspection

B. Emergency Treatment Objectives (narrative):

1. Administratively close using gates and signs Forest Roads 41 and 37 road within and below Bull fire burn area to protect the public from entering the burn area for the first two monsoon seasons.

2. Install hazard warning signs at key access points (trailheads and along roads) of the burn area to inform the public and prevent exposure to the hazards that exist including potential hazard trees, flooding, debris flows, and entrapment within and below the burn area.

3. Implement treatment that will prevent lose the loss of roads due increase runoff, and increased erosion. Road that will be treated are below and with the burn areas and are already showing the potential for complete loss.

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

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

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	NA	NA	NA
Channel	NA	NA	NA
Roads/Trails	80	80	80
Protection/Safety	85	80	80

E. Cost of No-Action (Including Loss): $ 55,000

F. Cost of Selected Alternative (Including Loss): $ 55,000

G. Skills Represented on Burned-Area Survey Team:

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

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H. Treatment Narrative:

Land Treatments: NA

Channel Treatments: NA

Roads and Trail Treatments:

Road Treatments

Elevated post-fire runoff is expected and already occurring on roads within the Brooklyn, Cedar, and Bull fires. Treatment would be to clean sediment and debris from existing road armoring treatments that were implemented after the Cave Creek fire (2005), to armor additional locations, and improve overall road drainage (ditches, culverts, sloping of the road surface) in order to reduce potential damage to road infrastructure. FR 269 provides important recreational access to the Verde River.

The purpose of the treatment is retain access and reduce the risk of culvert blockage and road washout, protecting human safety and the Tonto NF road infrastructure. Sites were chosen based on the moderate burn intensity of the larger drainages above the 269 road. Armoring of the road surface and fill could resist further scour and erosion of the road prism, which is already occurring at several locations

Storm Inspections

During the first year after the fire utilize a "patrol" to drive roads during or immediately after significant storm events to check for culvert plugging or other road drainage problems. Perform hand maintenance if possible. Request backhoe or similar equipment if needed. Also note road safety concerns and recommend emergency road closures if necessary. Storm patrol could also occur outside of these areas, where post-fire flood damage has been reported.

Purpose of Treatment Specification: To remove debris that may wash into and plug drainage structures and to identify road safety issues and concerns.

Unit	Unit Cost	# of Units	Cost
Road Treatments	5182	5.7	$29,537
Storm Inspections	2,524	5.7	$14,384
Total			**$43,921**

Protection/Safety Treatments:

Recommend administratively closing the 41 and 37 road within and below the Bull fire burn area to protect the public from entering the burn area through the first two monsoon seasons. Forest Service road 41 already has one gate on the east end that can be used for the closure. Installing one gate where Forest Service road 41 meet the western Forest Service boundary would prevent access to Forest Service Roads 41 and 37.

Recommend installing 7 hazard warning signs and 5 closure signs at key access points (trailheads and roads), due to safety concerns within the burn area and in downstream channels especially during the monsoon season. These signs would inform forest users of the potential risks including loss of life and injury by entering the burn areas and to notify the public of road closures. See attached treatment maps for locations of all treatments.

Unit	Unit Cost	# of Units	Cost
Sign	600	12	$7,200.00
Closure Gate	5000	1	$5,000.00
Total			**$9,800.00**

I. Monitoring Narrative:

Part 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										
					$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 Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Road Treatments.	miles	5,182	5.7	$29,537	$0		$0		$0	$29,537
Storm Inspection	miles	2,524	5.7	$14,384						$14,384
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$43,921	$0		$0		$0	$43,921
D. Protection/Safety										
Hazard Signs	each	600	12	$7,200	$0		$0		$0	$7,200
Closure gate FS rd 41	each	5,000	1	$5,000	$0		$0		$0	$5,000
				$0	$0		$0		$0	$0
				$0						$0
				$0						$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$12,200	$0		$0		$0	$12,200
E. BAER Evaluation										
assessment	per		1	$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0			$0		$0	$0
F. Monitoring										
				$0						$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$56,121			$0		$0	$56,121
Previously approved										
Total for this request				$56,121						

PART VII - APPROVALS

1.  8/2/17
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date