MODIFIED ON 5/12/93

USDA-FOREST SERVICE Date of Report: **9/14/92**

BURNED-AREA REPORT
(Reference FSH 2509.13, Report FS-2500-8)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated FFFS-FW22 funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[ ] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)

[X] 2. Interim Report
[X] Updating the initial funding request based on more accurate site data and design analysis
[ ] Status of accomplishments to-date

[ ] 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: **Foothills Fire** B. Fire Number: **P41752**

C. State: **Idaho** D. County: **Elmore, Ada**
E. Region: **4 - Intermountain** F. Forest: **2 - Boise**
G. District: **Boise and Mountain Home**
H. Date Fire Started: **8/19/92** I. Date Fire Controlled: **9/10/92**
J. Suppression Cost: **$16,000,000 (estimated cost as of control date.)**

K. Fire Suppression Damages Repaired with FFFS-PF12 Funds:
1. Fireline waterbarred (miles) **140**
2. Fireline seeded (miles) **135**
3. Other (identify) **NA**

L. Watershed Number: **17050112-33,37 and 1705113-9,10,11,12**

M. NFS Acres Burned: **139,955** Total Acres Burned: **257,600**
Ownership type: *within Forest Service Boundary
(16,343) State **(334)**BLM **(18,168)**PVT **(2,744)**BOR

N. Vegetation Types: **Xeric Shrub and Graminoid, Ponderosa pine, Douglas-fir and Subalpine habitat types.**
O. Dominant Soils: **Sandy and Loamy Xeric soils,Moderately deep and deep Skeletal sandy and loamy soils.**
P. Geologic Types: **Idaho Batholith granitics and volcanic basalt flows**
Q. Miles of Stream Channels by Order or Class: Total 746.1 miles
1st-486 miles 2nd-157.5miles 3rd-54.5miles 4th-45.5miles 5th-2.6miles
R. Transportation System:
Trails: **61** (miles) Roads: **248.5** (miles)

PART III - WATERSHED CONDITION

A. Fire Intensity (Acres): **121,172** (low) **31,636** (moderate) **26,919** (high)
These acres are within Forest Service Boundary

B. Water Repellant Soil (Acres): **66,097 or 33% of the area**

C. Soil Erosion Hazard Rating (Acres):
26,594 (low) **29,390** (moderate) **131,735** (high)

D. Erosion Potential: **6.4** tons/acre

E. Sediment Potential: **412.0** cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: **2** years.

B. Design Chance of Success: **60** percent. (within the granitic fire area)

C. Equivalent Design Recurrence Interval: **10** years.

D. Design Storm Duration: **24** hours.

E. Design Storm Magnitude: **2.4** inches.

F. Design Flow: **50** cfsm.

G. Estimated Reduction in Infiltration: **37** percent.

H. Adjusted Design Flow: **500** cfsm.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency: Immediate need to stabilize four watersheds with private property located at mouths of these watersheds and two watersheds with roads under county jurisdiction by using log stabilization structures, strawbale check dams in upper parts of watersheds, contour silt fences/strawbale structures on upland slopes, and log base level control structures. Flood routing-structures measures are recommended (on private land funded by other government agencies) to route potential flood and debris flows away from private structures.

Stabilization of other high priority watersheds is essential because they flow directly into the South Fork Boise River (blue ribbon wild trout stream ranked 2nd in the state) and the Middle Fork Boise River which is a state stream segment of concern and an important fishery. Both rivers flow into Arrowrock Reservoir and in turn into Lucky Peak Reservoir and ultimately into the Snake River. These reservoirs provide irrigation storage for most lands in southwestern Idaho as well as recreational opportunities for the population in the same area.

B. Emergency Treatment Objectives: To reduce soil erosion from overland flow on burned over slopes and reduce the risk of flooding and mud/debris flows that threaten downstream property and human life. To protect the fishery and recreational values of the South and Middle Forks of the Boise River and Arrowrock reservoir.

C. Probability of Completing Treatment Prior to First Major Damage Producing Storm:
Land **60** % Channel **60** % Roads **75** % Other **60** %

D. Probability of Treatment Success

	<----Years after treatment----->		
	1	3	5
Land	60	70	80
Channel	60	70	80
Roads	75	85	95
Other	60	70	80

E. Cost of No-Action (Including Loss): **$41,185,863.00**

F. Cost of Selected Alternative (Including Loss): **$33,063,583.00**
(Present Value, Benefits = $15,521,531
Present Value, COSTS $7,952,851
NET PRESENT VALUE = $7,568,680
BENEFIT COST RATIO = 1.95)

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range
[X] Timber	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering
[X] Contracting	[X] Ecology	[X] Research	[X] Archaeology
[X] BAER Specialist		[X] IDF&G	[X] BOR & ACOE

Team Leader: **Chuck Prentiss (Team Leaders: John Thornton/Steve McWilliams)**
Phone: **208-364-4241** DG Address: **C.Prentiss:R04F02A**

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.

*** See attached narrative sheets.**

PART VI - EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS BY LAND OWNERSHIP

NOTE: Emergency rehabilitation is work done promptly following a wildfire and is not to solve watershed problems that existed prior to the wildfire.

Line Items	Units	Unit Cost $	NFS Lands Number of Units	NFS Lands FFFS-FW22 $	NFS Lands Other $ ident.	Other Lands Number of Units	Other Lands Fed $ ident.	Other Lands Non-Fed $ ident.	All Total $
A. LAND TREATMENTS				23 3		*			1,123,12
a. Seeding -aerial	acres	12.06	92,000	1,117,959		20,000	65,466*		1,183,425
b. Seeding-tractor	acres	24.00	1,000	23,905		* 790	23,905*		47,810
c. Slope stabilization	acres	232.5	24,700	5,744,817					5,744,817
d. Slope stabilization	acres	166.4	1,250	207,989					207,989
e. Firelines	miles	39	140		5500				5,500
				7,094,670					7,189,541
B. CHANNEL TREATMENTS									64
a. Straw Check Dams	units	144	3112	484,442	***				448,442
b. Instream Felling	miles	400	46	18,400					18,400
c. Log removal	miles	500	8.5	4,250					4,250
d. Rock base level	unit			(None Done - Log structures instead)					0
				507,092					507092
C. ROADS AND TRAILS									
a. Inslope Prescription	miles	6537	40.4	264,078					264,078
b. Outslope Prescrip.	miles	1500	29.6	44,400					44,400
c. Maintenance Prscrip.	miles				(Were not approved in				
d. Obliterations	miles				initial submittal)				
e. Rd. Activity Mgmt	program			96,267					96,267
f. Closure signing	program			6,500					6,500
g. Gates					5,000				5,000
				411,235					416235
D. STRUCTURES									
a. Protection fencing	miles	213	40	8,529					8,529
				8529					8529
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
ID team, admin. and contracting			**	230,000				**	230,000
									230.000
F. TOTALS				$8,026,536	10,500		89,371		$8,126,407

* State and Private lands within the Forest boundary done under contract with SCS. Spending authority through the 403 program.

** The $230,000 amount is already mixed in the A through D columns.

*** The increase of $36,000 is for the maintenance of the channel treatment structures. See attached narative for maintenance of channel tereatment structures.

PART VII - APPROVALS

1. /s/ JACK GOLLAHER — 5/12/93
   Forest Supervisor (Signature) — Date
   (modified 9/18/92 per BNF-RO agreement)

2. /s/ _____
   Regional Forester (Signature) — Date

NARRATIVE FOR FOOTHILLS FIRE BAER

The Foothills fire perimeter encompasses approximately 257,600 acres with 117,645 acres of BLM, BOR, State and private lands and 139,955 acres of Forest Service administered lands. The fire started on BLM rangeland 8/19/92 near the community of Mayfield and burned northwest and northeast until it reached the South Fork Boise River on 8/21. The afternoon of 8/21 the fire jumped the River and with a low pressure storm system arriving with steady 50-60 mph winds the resulting fire storm burned approximately 130,000 acres (60,000 ac. timber baseland) in 4-5 hours. The fire burned through range and timberland, steep (40-80% gradient) strongly dissected mountain slope land and higher elevation cryic lands. The soils are dominately moderately deep and shallow, skeletal and course textured. Most soils have moderately high and high natural erosion rates. Major streams directly affected by the fire are South and Middle Fork of the Boise River, Rattlesnake Cr, Sheep Cr, Willow Cr, Wood Cr and Long Gulch. There are 4 drainages that have private structures at their mouths that could be destroyed by flooding or mud/debris flows. The fire affected and ranged from desert shrubs, mountain brush, Ponderosa Pine, Douglas Fir and Subalpine Fir Ecosystems.

FIRE EFFECTS

Burn Intensity: The fire did not burn in a typical mosaic pattern. A large portion of the burned area burned almost all vegetation and organic debris (large and small woody material and organic matter). About 15% of the fire burned at a high intensity, 18% moderate, and 67% low. Most of the root crowns and surface roots of the grasses and shrubs were damaged in the high and part of the moderate burn areas and will not resprout. Many of the watersheds will not have adequate ground cover (30% or more) in two years.

Geologic Hazards: Most of the landtypes in the fire have naturally high mass movement, debris slides, surface creep and flashy runoff potential. Fire has increased these hazards considerably by reducing the protective vegetative cover and root strength.

Soil Hazards: The landforms that occur within the fire have naturally high erosion hazards. Sediment detachment, and transport was naturally controlled by vegetation, down woody material and natural barriers associated with terrain features and surface rock fragments. Rangeland ecosystem has less natural vegetative cover and with added livestock grazing impacts soil erosion tends to be higher than timber ecosystems. Fire consummed a significant portion of the vegetative cover on a large number of the watersheds making many of the slopes extremely unstable. A significant portion of the burn area has water repellant soils which occur mostly in the high and moderate burn areas. On high erosion hazard soils (131,000 ac) that have burned hot enough to have water repellant characteristics the potential of accelerated soil erosion will

increase by 3-5 times with average climatic conditions. Above average climatic storm events will significantly increase soil erosion and sedimentation. This will result in degradation of water quality, stream hydrologic function and long-term soil productivity if proposed treatments are not implemented.

Runoff Hazards:

Property, Development and Values at Risk - There are 4 watersheds with private structures located at their mouths. These structures are at risk of destruction from flooding and mud/debris flows that would originate on Forest Service lands. There are 2 county roads that may be damaged from flooding.

TREATMENTS

Emergency treatments proposed to reduce the potential damage to private property, human life, site productivity and water quality.

Structural Treatments

Emergency condition: Potential loss of private property and human life from flooding and mud/debris flow from Forest Service land in Mennecke Creek, Trail Creek, Bock Creek and Crank Creek.

Mitigation Objective: Reducing the hazard by preventing and/or controlling the runoff and sediment from burned over watersheds.

Treatment: Strawbale check dams on suitable sites in first and zero order drainages in the watersheds. Contour silt fences/strawbale structures for suitable sites on upland slopes. Contour felling on slopes that have sufficient trees. Riparian area planting. Rock base level control structures. It is also recommended that flood routing/bypass structural measures be installed on private ground near the mouths of the drainages to divert flood waters from structures (funded by other government agencies or private funds).

Emergency condition: Potential loss of site productivity on large blocks of timber and and degradation of water quality in 2 major river systems and a reservoir. The South Fork Boise River is a blue ribbon fisheries. The Middle Fork and South Fork Boise River are eligible for Wild and Scenic River classification.

Mitigation Objectives: Reducing soil surface erosion, overland flow and sediment potential to a minimum on high and moderate intensity burned and high erosion slopes that have had vegetative cover removed and have hydrophobic soils.

Treatment: Install contour logs on high and some moderate burned intensity slopes and on slopes that have high erosion potential. These areas are primarily in the timbered watersheds that were totally burned. These are Rattlesnake, Little Rattlesnake watersheds and north slopes of Sheep, Grape, Correl and Elk Creeks.

Emergency Condition: Moderate to high burn intensities on high erosion potential landtypes has removed vegetative cover and created hydrophobic soils that have the potential to increase overland flow, soil surface erosion resulting in increased sediment potential. Many of these areas are in old clear cuts and on slopes that have have burned so hot that all vegetative cover was destroyed.

Mitigation Objectives: Controlling soil surface erosion, overland flow and reducing sediment.

Treatment: Install silt fence/strawbale sediment barriers in areas described in section above.

Emergency Condition: There are approximately 220 total miles of system roads within the fire area. 155 miles are maintained by the Forest Service with 126 miles needing some form of treatment as a result of damage to watersheds above the roads.

Mitigation Objectives: Controlling road damage from potential increased runoff and mud/debris flow.

Treatment: Prescriptions for; inslope roads, out slope roads, miscellaneous roads, and road obliteration.

Maintenance Requests for Channel Treatment Structures

Foothills BAER Maintenance Needs Following 1993 Winter Runoff

The Foothills Fire area after six years of drought finally received normal to above normal winter precipitation. The spring runoff in the low to mid elevation areas is now completed and we have assessed the condition of many of the channel treatment structures, primarily the straw bale check dams. No channel treatment structures are located in the higher elevations within the fire area. Approximately 10% to 15% of these structures are in need of some form of maintenance which is better than our original estimate of 25% needing maintenance during the initial planning and construction phase last fall.

The majority of the maintenance work will center on: improving energy dissipators below the structure outlets, eliminating lateral stream migration around the sides of the structures and eliminating stream piping underneath the structures. Approximately 3,000 structures were installed and we estimate that approximately 300 need maintenance. The three main objectives for the structures are: elimination of stream down cutting, de-synchronizing stream flows, increasing sediment storage and protection of downstream culverts. Maintenance work is planned to begin this June to avoid adverse affects from high intensity thunderstorms.

NONSTRUCTURAL TREATMENTS

Criteria used in determining priority treatment areas are: vegetative types, expected vegetative recovery period to a level of at least 30% ground cover in 2 years, landtypes and percentage of watershed burned at medium and high intensities.

Emergency Condition: A significant portion of the burned acres will fail to have at least 30% ground cover, in the next two years under natural vegetative recovery conditions.

Mitigation Objectives: Provide for ground cover protection and slope stabilization.

Treatment: Aerial grass seed approximately 74,400acres at the rate of approximately 30 pure live seeds/square foot. Most of these acres are on moderate and high burn intensity areas. Range drill about 1000 acres in critical areas that will need additional protection from overland flow and soil erosion from higher slopes draining directly onto these critical areas.

Emergency Condition: Cattle grazing in burned areas will adversely effect vegetation recovery in the upland and riparian areas.

Mitigation Objectives: Control cattle access to burned area to allow for vegetative recovery.

Treatment: An area closure on all allotments within the burned area for at least 2 years. The need to continue this after 2 years will be determined at that time. Approximately 40 miles of temporary fencing will be needed to protect Forest service land from off forest trespass livestock.

SEED MIXES PROPOSED IN THE BURN AREA

Based on input from research specialist and rehab team members the following seed mixes will be used for the Foothills Fire Rehab.

Standard Fire Seed Mix (will be used over the majority of the fire with exceptions noted for the subsequent mixes)

Slender Wheatgrass----2 lbs/ac	7.4 pls/sq ft @ $1.00/lb	2
Mountain Brome(Bromar)2 lbs/ac	4.2 pls/sq ft @ $1.25/lb	2.50
Orchard Grass (Paiute)1 lb/ac	8.6 pls/sq ft @ $1.50/lb	1.50
Yellow Sweet Clover---2 lb/ac	12.0 pls/sq ft @ $ .50/lb	1.00
Total-- 7 lb/ac	32.2 pls/sq ft $ 7.00/ac	$7.00

Low elevation Seed Mix (for use on low elevation, extremely dry southwest slopes)

Western Wheatgrass----2 lbs/ac	4.4 pls/sq ft @ $3.50/lb	$7
Thickspike Wheatgrass-2 lbs/ac	6.2 pls/sq ft @ $ 3.50/lb	$7
Blue Bunch Wheatgrass-2 lbs/ac	6.2 pls/sq ft @ $ 3.50/lb	$7
Yellow Sweet Clover---2 lb/ac	12.0 pls/sq ft @ $ .50/lb	$1
Total-- 8 lbs/ac	28.8 pls/sq ft $ 22.00/ac	22