

MESSAGE SCAN FOR EARL RUBY

To EARL

From: Earl C. Ruby:R05F16A

Postmark: Sep 19,92 7:31 AM

Delivered: Sep 19,92 7:32 AM

Status: Previously read

Subject: Forwarded: Burned-Area Emergency Rehabilitation Funds.

Comments:

From: Earl C. Ruby:R05F16A

Date: Sep 19,92 7:31 AM

Previous comments:

From: MAIL:R05F16D52A

Date: Sep 16,92 10:07 AM

Previous comments:

From: Director, RWM:R05A

Date: Sep 15,92 2:03 PM

No hard copy to follow

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United States
Department Of
Agriculture

Forest
Service

RO

REPLY TO: 2520/6520

DATE: September 15, 1992

SUBJECT: Authorization for Expending Burned-Area Emergency Rehabilitation
Funds (EFFS-FW22) - Ruby Fire

TO: Forest Supervisor, Stanislaus National Forest

Attached is the approved Burned-Area Emergency Rehabilitation Report for the Ruby fire. You are authorized to expend up to \$240,000 of EFFS-FW22 funds for the emergency rehabilitation treatments indicated in Part VI of the enclosed FS-2500-8 report.

For sake of expediency, \$240,000 instead of your request of \$255,980 is approved because \$240,000 is the remaining amount available for regional approval during FY92. We understand that through on-site investigation during project implementation, the lower unit cost contour tillage practice may replace some of the higher unit cost mulching acres. You are authorized to make the necessary adjustments between these two treatments. Should the total amount needed exceed the amount approved for these two treatments, please submit an interim report requesting additional funding authorization. We will either submit the request for Washington office approval, or would have requested approval for increasing the region's authorization level.

The hand waterbarring of OHV trails does not qualify for EFFS-FW22 because it is correcting a problem that existed prior to the fire. Even though it is a necessary treatment, it should be accomplished with appropriate funds.

For clarification, contour tillage is appropriate because it is used to alleviate increased hydrophobisity caused by the fire. Flood patrol, overflow dips, and rock crossing are qualifying treatments because they are in lieu of more expensive soil disturbing treatments.

Your burned-area emergency rehabilitation team and team leader are to be congratulated for an excellent job in evaluating the watershed emergency, prescribing an appropriate mix of treatments and describing the treatments. This greatly facilitated the approval process.

/s/ Ray Quintanar for

RONALD E. STEWART
Regional Forester

Enclosure

BURNED-AREA REPORT
(Reference FSH 2509.13, Report FS-2500-8)PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 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)
☐ 2. Interim Report
 ☐ 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: Ruby Fire B. Fire Number: STF 1353
C. State: California D. County: Tuolumne
E. Region: R-5 F. Forest: Stanislaus
G. District: Mi-Wok
H. Date Fire Started: 09/07/92 I. Date Fire Controlled: 09/09/92
J. Suppression Cost: \$2,014,588
K. Fire Suppression Damages Repaired with FFFS-PF12 Funds:
 1. Fireline waterbarred (miles) 12.9
 2. Fireline seeded (miles) 0
 3. Other (identify) tilled helispot and will treat fire camp.
L. Watershed Number: 1804001000-04 Rose Creek Watershed
M. NFS Acres Burned: 2883 Total Acres Burned: 3460
 Ownership type:
 () State () BLM (☒) PVT () 577 acres
N. Vegetation Types: Ponderosa Pine
O. Dominant Soils: Holland, McCarthy, Jocal
P. Geologic Types: Granitic dominant with some volcanic ash and lahar flow. Some andesite and medasediments.
Q. Miles of Stream Channels by Order or Class:
 2 = 3 mile 3 = 6.5 mi 4 = 6.6 mi
R. Transportation System:
 Trails: 25(non-system)(miles) Roads: 14.9 (miles)

PART III - WATERSHED CONDITION

- A. Fire Intensity (Acres): 505 (low) 583 (moderate) 2357 (high)
- B. Water Repellant Soil (Acres): 2930
- C. Soil Erosion Hazard Rating (Acres):
0 (low) 505 (moderate) 2930 (high)
- D. Erosion Potential: 19 tons/acre
- E. Sediment Potential: 12,160 cu. yds/sq. mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period: 5 years.
- B. Design Chance of Success: 80 percent.
- C. Equivalent Design Recurrence Interval: 25 years.
- D. Design Storm Duration: 6 hours.
- E. Design Storm Magnitude: 3 inches.
- F. Design Flow: 100 cfs.
- G. Estimated Reduction in Infiltration: 70 percent.
- H. Adjusted Design Flow: 170 cfs.

PART V - SUMMARY OF ANALYSIS

A. Describe Emergency:

Based on the field survey it is believed that the following emergencies exist per section 02 of FSH 2509.13:

1. Loss of Site Productivity - Based on the field survey, high soil loss at the rate of 19 tons per acre is expected on 2930 acres. This figure exceeds the rate of soil formation of approximately 1 ton per acre per year.
2. Loss of Water Control and Deterioration of water quality - due to the increased efficiency of the watershed as a result of the fire, it is imperative to control the water on both the hillslopes and in the channels. Lack of soil cover and extent of hydrophobic soils increases the risk of flash floods, floods, and stream bulking.
3. Threat to Human Life - The Rose Creek bridge located on the county maintained Italian Bar Rd is at the base of the burned area. A threat to human life exists due to high peak flows creating flooding or flash floods caused by the increased watershed efficiency.
4. Threat to Property - The potential loss of existing Forest Service roads may occur in the following manner. A.) Roadbed washouts may occur and require major reconstruction if not armored and treated. B.) Loss of administrative access to areas within the fire.

B. Emergency Treatment Objectives:

To address the above emergencies identified by the BAER team the following objectives have been set.

- 1.) Maintain on site soil productivity and reduce the potential of accelerated erosion by aerially seeding, straw mulching on contours, contour tilling, place-

ment of log erosion barriers (LEBs) on steep, unstable sites, and mulching below volcanic ridges. The variety of treatments is in response to input from Line-officers to a.) address the burn emergency and b.) maintain opportunities for reforestation and logging of the area.

2.) Maintain control of water on hillslopes by treating these areas through mulching of hillslopes, contour tilling to increase infiltration, placement of waterbars on motorcycle enduro trail which could channelize water. Maintain control of water once in the channel by channel clearing in the event sediment and material within the channel becomes mobilized.

3.) Reduce threat to human life by increasing the awareness of the 109 residents which utilize the bridge on a daily basis through signs, and direct mailing to these residents. Associated with this is the treatment of the hillslopes by reducing the amount of material which may be potentially mobilized in a given storm event.

4.) Reduce threat to Forest Service roads by armoring and preparing culverts and crossings for increasing levels of run-off and debris flows so to avoid major reconstruction costs and damage to other resource values.

C. Probability of Completing Treatment Prior to First Major Damage Producing Storm:

Land 80 % Channel 80 % Roads 80 % Other NA %

D. Probability of Treatment Success

	<----Years after treatment----->		
	1	3	5
Land	80%	100%	100%
Channel	80%	95%	100%
Roads	90%	95%	100%
Other	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): \$ 609,920.00

F. Cost of Selected Alternative (Including Loss): \$ 454,143.00

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range
<input checked="" type="checkbox"/> Timber	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Silviculture	<input type="checkbox"/> _____	<input checked="" type="checkbox"/> Line Officer	_____

Team Leader: Carolyn Madden

Phone: 209-795-1381

DG Address: R05F16D52A

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.

The following are the proposed emergency treatments for the Ruby fire. These treatments were developed based on BAER objectives, team recommendations, and Line-officer input.

1.) Loss of soil and on-site soil productivity:

Numerous treatments are recommended in order to maintain on-site soil productivity. Treatment variation is based on site specific concerns, availability of personnel, and MiWuk district experience in treating emergency fire rehabilitation.

Contour tilling treatment is recommended on areas which are backlogged plantations and targeted for reforestation in Spring of 1993. Tilling would occur on the contour and the soil would be tilled to a depth of 6 inches to increase infiltration. The tilling would occur with one pass of 8 feet in width with 25 feet in between passes. Mi-Wok district personnel has found this treatment to be highly effective as it increases infiltration and reduces run-off. The district has skilled personnel which could implement this treatment in a timely and highly cost-effective manner. Treatment of hillslopes above the 4N17 road would also occur, and the district would be willing to treat more acres in this manner once further field reconnaissance is done to determine the number of acres under 25% slope which would be suitable for this treatment. The projected acres to be treated by this method is 480 acres. However, since only one fourth of these acres will actually be treated this is equivalent to 120 acres.

Contour mulching is recommended for steeper slopes that can not be tilled on the North side of Rose Creek. Contour strips would be 20 feet wide and placed every 20 feet. The objective is to obtain 50% ground cover for maintaining soil productivity and maintaining control of water on the hillslopes. The district has two O.C. crews currently available to do this type of work. The total acres to benefit from this treatment is 421 acres, but only one half of the acreage would receive actual straw application to achieve 50% ground cover.

Log Erosion Barriers (LEBs) are recommended on 54 acres within the burn. These acres have been specifically targeted due to the steep slope, high erosion

hazard rating, and previous instability. Once again the MiWuk District has considerable expertise in implementing this treatment as a result of the Stanislaus Complex in 1987. The District Ranger feels confident that she has the crews to implement this treatment in a timely manner. Rehab team members also felt that these slopes were too steep for seeding and placement of straw would be unfeasible due to the location and inaccessibility of these areas.

Helicopter seeding of barley over 700 acres on the South side of Rose Creek. Barley was recommended based on input from the Line-officers and district plans for logging these slopes next year. The team recommended barley because of its non-persistence except in areas where it becomes disturbed and the seed released. The district already has a portion of the Ruby fire under timber contract and is in the process of renegotiating timber rates. It is feasible that if California experiences another light winter that a good portion of the south side would be logged prior to March 1, 1993. Logging slash generated either this year or next season would provide soil cover for the second year that might not be achieved with barley, again due to its non-persistence. Application rates of barley would be increased to 30 pure live seeds per square foot to achieve the desired erosion control. Application by helicopter has been selected over fixed wing due to a number of plantations that will be reforested this spring and undergo tilling, and due to the availability of a helicopter on the MiWuk District which is presently under contract. Procurement and application of the barley seed will be done in conjunction with the barley seeding of the Old Gulch burn on Calaveras RD.

Mulching below volcanic ridges was identified as a treatment due to the high efficiency of these volcanic areas to shed water. Under normal conditions this water would infiltrate into the soil and be deflected by ground cover in the event of any overland runoff. Current fire conditions have created strongly hydrophobic soils with very little soil cover. These 24 acres could be effectively treated due to road access. A straw blower could be used to provide a buffer strip below the volcanic ridges and outcrops.

2.) Loss of water control and deterioration of water quality:

Channel clearing along Rose Creek will be done with O.C and Hotshot crews that are available on the MiWuk district. This treatment will reduce the potential threat to cliff off-site at the Rose Creek bridge. Field review indicated the potential for stream bulking and large woody debris being carried downstream if left untreated. In the analysis of this action over a channel patrol it was determined based on previous treatments in the A-Rock fire that this would be a more cost effective treatment.

Hand waterbarring of non-system enduro motorcycle trails was identified as a need due to the potential for these trails to channelize water and create damage both on-site and off-site. Roughly 25 miles of trail exists but for the most part the trail is on an old railroad grade which is outsloped. Potential for damage exists only on steep portions that cut down the slope and have inadequate drainage features.

3.) Threat to Human Life:

Treatments to reduce the threat to human life are more educational and informative in nature. An estimated 109 families utilize the Rose Creek bridge, but many of these are only occasional visitors to the areas and have other permanent residences. Treatments would include signs which would be posted on either side of the bridge to provide warning to travelers that there is a

potential threat of flooding at the bridge. Signs would also be posted at other access routes so adequate warning is available. In addition letters would be sent from the district to inform local residents about the nature of the watershed condition due to the fire and precautions they may want to take if thunderstorms or rain events occur.

4.) Threat to Property:

Treatments to reduce the threat to Forest Service property in terms of the transportation system are described below:

Flood Patrol was recommended on the collectors 4N17 and 4N16 to ensure that culverts do not become plugged and create major blow outs. A backhoe would be available to provide necessary emergency treatment if weather conditions posed a severe threat to these roads. An estimated 12 patrols was budgeted for based on experience from the A-Rock fire and Cotton Fire.

Snorkel Pipes - 4N17 has several relatively high fills with small 18 to 24" culverts through them. Some of these are difficult to reach with a backhoe for cleaning or unblocking obstructions. Experiences elsewhere on the forest indicate that a vertical riser pipe, perforated to some extent will allow flows to continue to enter the culvert, even after debris flow have covered over the inlet. This prescription was successfully used in the rehab for the Stanislaus Comple Fire of 1987 and the A-Rock and Cotton Fires of 1990.

Culvert Clearing would involve roughly 5 days of a ten person crew to remove woody debris along the channel and above the culvert so to prevent material from blocking the culvert and creating a culvert blow out. This treatment involves bucking and removing fallen trees and woody debris from the catch basins of culvert inlets and for a short distance upstream. It complements the Flood Patrol treatment by removing material from the channels before it has a chance to float and plug the culverts.

Placement of Dips - this treatment involves constructing overflow dips at selected locations on roads affected by the burn. The purpose is to provide a route for water to get it across and off the road with the minimum damage. The dips will need to be spot rocked to restore the structure that existed prior to construction and to assure that they aren't beat out by traffic during wet weather. In some cases these dips are used as a backup to the patrol treatment. 3N32, 4N16, and selected areas of 4N17 would benefit from this treatment.

Spot Rocking - this treatment involves rocking a short section of road to armor it from damaging runoff. This was a particularly effective treatment where it was used on the A-Rock rehab effort. This treatment is proposed on the steep 0.1 mile section of 4N17 near its intersection with 4N62Y and on the steep switchback on 3N32 as it leaves 4N17.

Rocked Crossings are required on a couple of roads to protect the road and hillslope values. This treatment would provide a rocked crossing in ephemeral drainages to minimize disturbance of existing soil and prevent traffic from causing sedimentation. These crossings would be constructed with 6" minus riprap, capped with smaller rock. Upper 4N17 and 3N57A could benefit from this treatment.

The intent of all the road treatments is to prevent anticipated increased surface flows (because of fire caused vegetation loss) from causing road failures that would adversely affect water quality and downstream values."

Mulching above Forest Service roads on roughly 11 miles or 66 acres. This treatment was successfully implemented on the A-Rock fire in 1990. Beneficial effects include the slowing of water as it moves on the hillslopes and prevents it from gathering speed prior to it reaching the road. This treatment can be easily implemented by utilizing a straw mulcher mounted on the back of a pick up truck. The Stanislaus has two straw mulchers and much experience in implementing this type of treatment.

LEAST COST + RISK ECONOMIC ANALYSIS

Alternative 1

No Action Cost + Risk = \$610,520.00

Cost of treatment = \$ 0.00

Values at Risk = \$610,520.00 (Soil productivity and transportation system)*

* No value was selected for human life.

Alternative 2

Cost + Risk = \$454,143.00

Cost of treatment = \$250,355.00

Treat Emergency on Forest Service lands.

Treatment includes:

- 1.) Contour strip mulching 421 gross acres.
- 2.) Tilling on contour approx. 6 inches deep, 480 gross acres.
- 3.) Log erosion barriers on 54 acres
- 4.) Helicopter seeding with barley
- 5.) Channel Clearing of Rose Creek for 2 miles
- 6.) Flood Patrol of Collectors 4N16 and 4N17
- 7.) Snorkels
- 8.) Culvert Clearing
- 9.) Dips on collectors
- 10.) Spot rocking
- 11.) Mulching above roads
- 12.) Mulching below volcanic lahar flows
- 13.) Rocked Crossings
- 14.) Waterbarring of non-system OHV trail
- 15.) Signs and letters of flood potential

COSTS:

INITIAL TREATMENT = \$250,355

FALLBACK = \$ 38,400

VALUES AT RISK

SUCCESSFUL INITIAL TREATMENT = \$311,004

SUCCESSFUL FALLBACK = \$356,229

ALL FAIL = \$609,920

Note: Four alternatives were reviewed and for this document only the selected alternative was included.

HIP

is

11/11/2019

0,200

□ □ □ □ □

1,600

1,250

ROCKED CROSSINGS	EACH	1000	3	\$ 3,000					\$
3,000									
MULCH ABOVE ROADS	ACRE	425	66	\$28,050					\$2
8,050									

E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT

TEAM LEADER	DAY	225	5	\$ 1,125					\$
1,125									
TEAM MEMBER	DAY	225	20	\$ 4,500					\$
4,500									
F. TOTALS		16,666	1850.25	\$240,000					\$2
40,500									

PART VII - APPROVALS

1. /s/ JANET L. WOLD September 14, 1992
Forest Supervisor (Signature) Date
2. /s/ Ray Quintanar (Acting) for September 15, 1992
Regional Forester (Signature) Date