

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 EFFS-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 DESCRIPTION9 Fire Name: Wheeler Point B. Fire Number: OR-95S-H72C. State: Oregon D. County: WheelerE. Region: R-6 F. Forest: UmatillaG. District: HeppnerH. Date Fire Started: 8/10/96 I. Date Fire Controlled: Est. 8/21/96J. Suppression Cost: \$ 3,500,000 (8/16/96)

K. Fire Suppression Damages Repaired with EFFS-PF12 Funds:

1. Fireline waterbarred (miles) 30 miles of perimeter line 10% W/WB  
2. Fireline seeded (miles) none to date  
3. Other (identify) expect secondary cat/hand lines > 30 miles

L. Watershed Number: 0707020419, 0707020420, 0707020421M. NFS Acres Burned: 7,506 Total Acres Burned: 22,000 (8/16/96)Incident Status Summary (ICS 209 8/16/96) Expected: 22,000 (8/16/96)

Ownership type:

( 0 ) State ( 0 ) BLM (14,494) PVT ( 7,506) USFS

- N. Vegetation Types: Dry Ponderosa pine/Douglas-Fir forests with grassy understories
- O. Dominant Soils: Mantle of volcanic ash overlying silt loam to clayey textured subsoils, abundant angular profile rock
- P. Geologic Types: Basalt Flows forming gently sloping plateau scablands and steep rocky escarpments to the north and gently sloping

colluvial slopes to the south.

- Q. Miles of Stream Channels by Class:\*

I-- 2                      II-- 0                      III-- 26                      IV-- 110

\* Miles identified from USGS Spray NW. OR. 7.5 minute series quad

- R. Transportation System: \*

Trails: 0 (miles)                      Roads: 68 (miles)

\* 11 miles of road parallel class I and III streams within 300 feet. Open roads consist of 37 miles and closed roads consist of 31 miles.

### PART III - WATERSHED CONDITION

- A. Fire Intensity (Acres): 1388 (low)    1813 (moderate)    4305 (high)

- B. Water Repellant Soil (Acres):\* 0

\* Water Repellancy limited to the surface 1/2 inch of surface wood and volcanic ash.

- C. Soil Erosion Hazard Rating (Acres):

840 (low)    3600 (moderate)    3510 (high)

- D. Erosion Potential: \* 10 tons/acre/yr.

- E. Sediment Potential:\* 105 cu. yds/sq. mile

\* For High and Moderate Burn Intensity. Class IV streams have evidence of high coarse bedload movement.

### PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period: 3 years.

- B. Design Chance of Success: 90 percent.

- C. Equivalent Design Recurrence Interval: 10 years.

- D. Design Storm Duration: 0.5 hours.

- E. Design Storm Magnitude: 0.5 inches.

- F. Design Flow: 0.9 cfs/m.

- G. Estimated Reduction in Infiltration: 25 percent.

- H. Adjusted Design Flow: 2.4 cfs/m.\*

\* A short duration, high intensity (convective) storm event during May and June has been identified as the storm type most likely to cause damage in the burned area. The adjusted design flow represents an approximation of a potential short-term flow from an intermittent channel typical of the area given degraded infiltration conditions.

## PART V - SUMMARY OF ANALYSIS

A. Describe Emergency: The Wheeler Point Fire began on 8/10/96 on private land adjacent to the Umatilla National Forest. Over a 5 day period the fire grew from 1,500 acres to 22,000 acres. Approximately 1/3 of the fire acreage is on National Forest Lands. The fire burned mostly in dry ponderosa pine, sagebrush flats, interspersed with stream riparian zones and wet meadows. The area contains a high level of relief. The fire area contains the following: three class 3 streams and a total of 138 miles of stream; 3 active grazing allotments; numerous plantations; 68 miles of road; and a high potential for noxious weed invasion. The upper elevational areas of the fire is extremely steep with steep stream channel gradients. Large amounts of coarse bedload sediment is transported and stored in these headwater streams. This bedload sediment poses a risk of blocking road culverts trigger road washouts on mainline, secondary, and closed roads. A large portion of the high intensity fire area was in volcanic ash with high erosion hazards. The fire area was essential weed free, however, the fire camp located on private land was heavily infested with noxious weeds.

### B. Emergency Treatment Objectives:

The burned area emergency rehabilitation of the Wheeler Point Fire area has 4 main objectives: (1) Maintain soil productivity and reduce the risk of soil loss, (2) reduce the risk of erosion related damage to the forest road network, (3) maintain hydrologic function and minimize the risk of sedimentation of streams and (4) maintaining functioning plant communities by minimizing the risk of noxious weed invasions. The emergency treatment objective is to provide immediate soil cover and improve infiltration by establishing vegetation through seeding and fertilization. Road and land treatments to reduce erosion and sedimentation onto private property and fish habitat.

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

Land 90 %      Channel 90 %      Roads 90 %      Other 90 %

### D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss & Survey): \$3,051,225

F. Cost of Selected Alternative (Including 10% Loss & Survey): \$630,580

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input checked="" type="checkbox"/> Timber	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Public Affairs		<input checked="" type="checkbox"/> Recreation

Team Leader: \s\ Wally Murphy

Phone: (541) 278-3762

DG Address: W. Murphy: R06F14A

## H. Treatment Narrative:

### Land Treatments (See Appendix 1 for summary of seed mixes)

**Existing Condition:** High intensity fire affected 4,305 acres on the Umatilla National Forest portion of the Wheeler Point Fire. The high intensity fire zone is characterized by the total absence of live tree crowns and total absence of ground vegetation. Soils in the high intensity fire zone show no residual organic increment in the A horizon and are a mosaic of layers of thick, grey ash and oxidized (red) patches on the soil surface. High intensity fire affected all of the coarse vegetative types with greatest damage recorded in the dry forest and dry forest/grassland types.

Moderate intensity fire affected 1,813 acres of the Wheeler Point fire. This zone is characterized by scorched tree crowns, >50% dead tree crowns, and >50% burned understory shrubs. No litter is evident in the black and grey ash mosaic on the soil surface in the moderate intensity zone.

Low fire intensity was recorded in 1,388 acres of the Wheeler Point Fire. This zone is characterized by live tree crowns, absence of crown scorching, and a black ash layer on the soil surface. Unburned woody material is present and litter is still detectable in the ash layer. Although blackened, root crowns of perennial plants in this zone appear to be viable. Understory shrubs are >50% unburned in this zone.

**Purpose:** To minimize soil erosion by providing vegetative soil surface cover and sub-surface root mass. This should help maintain site productivity and reduce sediment delivery to streams and private property while providing preventative treatment for noxious weeds.

**Treatment:** Aerial seed and fertilize all high and moderate intensity burn areas. Class I and III streams will not have fertilizer treatment within 100 feet either side of the channel. No log terracing treatments are proposed because of ground conditions not conducive.

### Channel Treatments

**Existing Condition:** Most channels are confined with gradients ranging from 5 to greater than 12 percent. High bedload movement and consumption of large woody material during the fire makes these channels susceptible to debris torrents. Streamflow is very low to non-existent in these streams and they are non-fish bearing.

**Purpose:** Retain bedload sediment in upper watersheds and reduce bedload transport down stream.

**Treatment:** Install small sediment trapping structures (large woody material) in headwater class IV streams. Large woody material diameter will range from 12 to 16 inch with a length of approximately 40 feet.

## Road and Trail Treatments

**Existing Condition:** 68 miles of road with 11 miles paralleling class I or III streams. Roads cross headwater streams which have high gradients. Many of the culvert basins will not handle the expected coarse bedload sediment that is expected to be delivered. Current road drainage structures on many open and closed roads are inadequate. Without road treatments, likelihood of road washouts is 100%.

**Purpose:** Prevent bedload debris from plugging culverts to reduce the hazard of channel blockage and road washouts into class III streams.

**Treatment:** Clean existing culvert collection basins. Remove culverts that are undersized and at risk. On open roads, replace undersized culverts with reinforced cross drains and armour road fill slopes.

**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			Other Lands			All Total \$
			Number of Units	EFFS- FW22 \$	Other \$ ident.	Number of Units	Fed \$ SCS ident.	Non Fed \$ State ident.	
A. LAND TREATMENTS									
1. hand seed/fert	ac	70	100	7000					
2. aerial seed (high)	ac	47	2784	130848					
3. aerial seed (mod)	ac	31	1449	44919					
4. aerial fertilize	ac	21	4233	88893					
sub-total				271660					
B. CHANNEL TREATMENTS									
1. large woody debris	str	30	264	7920					
sub-total				7920					
C. ROADS AND TRAILS									
1. culvert basins	str	250	5	1250					
2. remove culverts	str	250	20	5000					
3. install cross drain	str	500	10	5000					
4. road revegetation	ac	160	115	18400					
sub-total				29650					
E. BAER EVALUATION/ ADMINISTRATIVE SUPPORT									
1. BAER SURVEY				16225					
F. TOTALS									
				\$325,455					

**PART VII - APPROVALS**

- /s/ Thomas K. Reilly 08/21/96  
Forest Supervisor (Signature) Date
- /s/    
Regional Forester (Signature) Date

## APPENDIX--1

### WHEELER POINT SEEDING/FERT. RECOMMENDATION

#### Wheeler Point Burn Area Emergency Rehabilitation Report

#### Seeding Prescriptions

##### I. Forested and Non-forested Areas

###### A. Summary of Recommendation

1. Seeding is recommended for high and moderate fire intensity zones in dry forest, dry forest-grassland, and cool forest coarse vegetative types.
2. Seeding is not recommended in:
  - a. low intensity burn zones
  - or
  - b. vegetation types--rocky forest, scabland, escarpment, and aspen meadow.

###### B. Recommended Seeding Prescription for High and Moderate Fire Intensity Zones

1. Species composition:
  - a. Soft White Winter Wheat--45%
  - b. Annual Ryegrass--40%
  - c. Sainfoin ('Remont')--15%
2. Seeding Rate
  - a. High Intensity Burn Zones (rate to achieve 30 PLS)
    1. Soft White Winter Wheat--52 lbs/acre
    2. Annual Ryegrass--3 lbs/acre
    3. Sainfoin--16 lbs/acre
  - b. Moderate Intensity Burn Zones (rate to achieve 15 PLS)
    1. Soft White Winter Wheat--26 lbs/acre
    2. Annual Ryegrass--1.5 lbs/acre
    3. Sainfoin--8 lbs/acre

###### C. Rationale for Prescription

###### 1. Seeding vs. no seeding

The recommendation to seed high and moderate intensity fire zones falling within dry forest, dry forest-grassland, and cool forest coarse vegetative types is based on the potential for extreme rill-type erosion of volcanic ash soils on 20-30% slope. Soil erosion adversely affects biological productivity and should be prevented before it becomes a long-term---and potentially irreversible---problem in the Wheeler Point Burn rehabilitation area.

No seeding is recommended for low fire intensity zones to minimize competition with native species.



No seeding is recommended for the following coarse vegetative types: rocky forest, escarpment, scabland, and aspen meadow. Because limited contact between seed and soil could be anticipated in these vegetative zones, the success rate was considered to be marginal in terms of a cost:benefit ratio.

2. Native species vs. non-native species

Sufficient supplies of native, provenance source seeds are not available. Consequently, non-persistent, non-native species were selected.

3. Species Selection Criteria

Soft White Winter Wheat (Triticum aestivum 'Madsen') persists for up to three years (Bluewood Ski Area, Walla Walla Ranger District) with progressive decline in seed production. Its relatively large seed size insures excellent distribution when applied aerially. It is recommended that local source seed (eastern Oregon) be used to defuse any future claims regarding pathogen sources. This is particularly important since kernel bunt disease has recently caused quarantine measures to be invoked in Texas, Montana, and Washington.

Annual Ryegrass (Lolium multiflorum) is a long season grass that does not contribute significantly to ladder fuels. On harvest units of the Placer Timber Sale (North Fork John Day Ranger District) this species has demonstrated a persistence of two to four years.

Sainfoin (Onobrychis viciaefolia) is an attractive, non-persistent legume commonly grown for forage in Scotland. This species benefits soils through nitrogen fixation. All traces of this species disappeared within five years of seeding (Interstate 84 construction in Pendleton and Baker City, Oregon, and on the Lane-Bear Timber Sale (North Fork John Day Ranger District)).

If Sainfoin (Holy Clover) is not available for the prescription mix, an alternative legume would be Bird's Foot Trefoil (Lotus corniculatus). However, its small seed size adversely affects the success rate of aerial application and the species is persistent but not aggressive (Swamp Creek Timber Sale and Mottet Timber Sales, Walla Walla Ranger District).

## Fertilizer Prescription

### A. Summary of Recommendation

In the high fire intensity zones there was no evidence of residual organic material in the A horizon. In order to ensure successful and rapid seedling establishment, application of fertilizer is recommended in the high fire intensity zones identified for seeding (above).

In the moderate fire intensity zones, the application of fertilizer should stimulate the recovery of surviving plant species. Therefore, the application of fertilizer is recommended in the moderate fire intensity zones identified for seeding (above).

Class III riparian corridors (Alder, Wheeler, and Corncob Creeks) should be excluded from fertilizer application because of potential adverse effects on riparian invertebrates.

### B. Fertilizer Formulation

Consistent with agricultural mixes applied to sulfur-deficient soils derived from Columbia River basalt, a mixture of ammonium nitrate (75%) and ammonium sulfate (25%) is recommended. The resultant mix should provide 20 pounds of Nitrogen per acre when applied at the rate specified below.

### C. Rate

The 30-0-0-6 percent N,P,K, and S formulation resulting in 20 pounds per acre of usable Nitrogen should be applied at a rate of 66 pounds per acre.

### D. Rationale for Fertilizing Seeded Areas

In order to maximize the success of the seeding plan discussed above, it is necessary to replenish and/or replace the essential macronutrient element (N) released from the soil during the fire. Supplemental sulfate should increase the utilization of the applied nitrate and ammonia.

The simultaneous application of seed and fertilizer should ensure the rapid establishment of seedlings and their soil-protecting root systems.

# APPENDIX--2

## Cost / Risk Worksheet

Fire Name: Wheeler Point Acres: 22,000

Analysis Date: 20-Aug-96

Alternative: Initial High Level of Treatment

TREATMENT		Number of Units	Unit Cost	Amount
Hand Seed/Fertilization	ac	100	\$70	\$7,000
Aerial Seed(hi burn int)	ac	2,784	\$47	\$130,848
Aerial Seed(mod burn int)	ac	1,449	\$31	\$44,919
Aerial Fertilization	ac	4,233	\$21	\$88,893
Chan Log Struct(machine)	str	264	\$30	\$7,920
Chan Log Struct (hand)	str	0	\$10	\$0
Culvert Basin Clean out	str	5	\$250	\$1,250
Culvert removal	str	20	\$250	\$5,000
Cross Drain Installation	str	10	\$500	\$5,000
Road Revegetation	ac	160	\$115	\$18,400
		SUB Total----->		\$309,230
BAER Survey Cost				\$16,225
		Total:		\$325,455

Probability of Success 0.9

VALUES AT RISK: \_\_\_\_\_

Potential Resource Value Loss

Soil Productivity Loss	\$2,250,000
Road Loss	150,000
Grazing Opportunity	260,000
Noxious Weed Infestation (Treatment Cost)	335,000
Noxious Weed Infestation (Loss of Forage)	40,000
BAER Survey	16,225
Total ---->	\$3,051,225

Alternative Cost:

TREATMENT TOTAL:	\$325,455
10% RISK	\$305,125
TOTAL:	\$630,580

Cost / Risk Worksheet

Fire Name: Wheeler Point Acres: 22,000

Analysis Date: 20-Aug-96

Alternative: Initial No Action

TREATMENT		Number of Units	Unit Cost	Amount
Hand Seed/Fertilization	ac	0	\$70	\$0
Aerial Seed (hi burn int)	ac	0	\$47	\$0
Aerial Seed (mod burn int)	ac	0	\$31	\$0
Aerial Fertilization	ac	0	\$21	\$0
Chan Log Struct (machine)	str	0	\$30	\$0
Chan Log Struct (hand)	str	0	\$10	\$0
Culvert Basin Clean out	str	0	\$250	\$0
Culvert removal	str	0	\$250	\$0
Cross Drain Installation	str	0	\$500	\$0
Road Revegetation	ac	0	\$115	\$0
Total----->				\$0

Probability of Success 0.25

VALUES AT RISK

Potential Resource Value Loss

Soil Productivity Loss	\$2,250,000
Road Loss	150,000
Grazing Opportunity	260,000
Noxious Weed Infestation (Treatment Cost)	335,000
Noxious Weed Infestation (Loss of Forage)	40,000
BAER Survey	16,225

Total ----> \$3,051.225

Alternative Cost:

TREATMENT	\$ 0
BAER SURVEY	\$16,225
RESOURCES LOST	\$3,035,000
TOTAL	\$3,051,225

# Cost / Risk Worksheet

Fire Name: Wheeler Point Acres: 22,000

Analysis Date: 20-Aug-96

Alternative: Initial Low Level of Treatment

TREATMENT		Number of Units	Unit Cost	Amount
Hand Seed/Fertilization	ac	100	\$70	\$7,000
Aerial Seed(hi burn int)	ac	2,784	\$47	\$130,848
Aerial Seed(mod burn int)	ac	0	\$31	\$0
Aerial Fertilization	ac	4,233	\$21	\$88,893
Chan Log Struct (machine)	str	0	\$30	\$0
Chan Log Struct (hand)	str	264	\$10	\$2,640
Culvert Basin Clean out	str	5	\$250	\$1,250
Culvert removal	str	15	\$250	\$3,750
Cross Drain Installation	str	3	\$500	\$1,500
Road Revegetation	ac	0	\$115	\$0
BAER Survey				\$16,225
Total----->				\$252,110

Probability of Success 0.85

VALUES AT RISK: \_\_\_\_\_

## Potential Resource Value Loss

Soil Productivity Loss	\$2,250,000
Road Loss	150,000
Grazing Opportunity	260,000
Noxious Weed Infestation (Treatment Cost)	335,000
Noxious Weed Infestation (Loss of Forage)	40,000
BAER Survey	16,225
Total	\$3,051,225

Alternative Cost: _____	
TREATMENT	\$252,110
RESOURCES LOST	\$2,579,750
TOTAL:	\$2,831,860