

Date of Report: 10/23/12

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST**A. Type of Report**

- ☒ 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)
☐ 2. Interim Report #_____
 ☐ 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 DESCRIPTIONA. Fire Name: McQuireB. Fire Number: ID-NPF-000531C. State: IDD. County: IdahoE. Region: 01F. Forest: Nez PerceG. District: Red River Ranger DistrictH. Fire Incident Job Code: P1G64MI. Date Fire Started: 08/27/2012J. Date Fire Contained: not contained as of 10/20/2012K. Suppression Cost: \$23,280,000 as of 10/11/2012**L. Fire Suppression Damages Repaired with Suppression Funds**

1. Dozer Fireline repaired (miles): 34 as of 10/22/2012
2. Hand Fireline repaired (miles): 5 as of 10/22/2012

M. Watershed Numbers: National Forest

170602070303 1 acre, 170602070204 25 acres, 170602070226 2144 acres, 170602070310 2017 acres,
170602070203 1260 acres, 170602070230 312 acres, 170603050415 601 acres, 170602070232 2520 acres,
170603050304 1988 acres, 170603050417 1894 acres, 170603050419 926 acres, 170602070301 3112 acres,
170602070231 1030 acres, 170603050303 274 acres, 170602070201 9622 acres, 170602070202 3959
acres, 170603050305 4195 acres, 170602070315 34 acres, 170603050416 4035 acres, 170603050206 13
acres, 170603050418 3639 acres

N. Total Acres Burned: NFS: 43,600 acres Other Federal (BLM): -0- State: -0- Private:

O. Vegetation Types: Common forest types include lodgepole pine stands; mixed lodgepole pine and subalpine fir; mixed conifer stands of grand fir, Douglas-fir, and Western Larch with interspersed lodgepole pine stands. There are some dryer slopes with mixed Douglas-fir and Ponderosa pine on south and west exposures in the Crooked River watershed.

P. Dominant Soils: The dominant soil Great Groups found in the burn area is andic and entic cryochrepts. Most soils in the burn area have surface layers formed in loess that has been influenced by volcanic ash. A layer of this loess was deposited on the survey area approximately 6,700 years ago by the eruption of Mount Mazama in Oregon. Additional loess that has been influenced by volcanic ash was deposited by eruptions of Mount St. Helens and Glacier Peak. These loess deposits range from over 36-inches thick in depressions to very thin deposits that may be mixed with underlying materials on steep southerly aspects at lower elevations to no deposits on the most southerly end of the burn area. Soil surface layers formed in loess are an excellent medium for plant growth. Soils with the thickest loess surface layers tend to be the most productive. Although most soil surface layers are formed in loess that has been influenced by volcanic ash or loess mixed with subsoil material, lower soil layers are formed in materials derived from other sources. This ash influenced surface layer is resistant to erosion when undisturbed, but if disturbed it has a high risk of surface erosion.

Q. Geologic Types: The dominant geologies for the burn area are Idaho batholith granitics, Precambrian schist, and Middle Proterozoic quartzite. Soils formed on the Precambrian micaceous schist are highly susceptible to mass wasting events.

R. Miles of Stream Channels by Order or Class: National Forest
1st order 81.56 miles, 2nd order 25.57 miles, 3rd order 10.34 miles Total Stream Miles 117.5

| | | | |
|---------------------------|-------------------------|--------------------|------------------------|
| S. Transportation System: | Trails: National Forest | <u>28.36 miles</u> | <u>Other -0- miles</u> |
| | Roads: National Forest | <u>84.49 miles</u> | <u>Other -0- miles</u> |

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 15,647 (low) 15,778 (moderate) 3361 (high)

B. Water-Repellent Soil (acres): 19,139 (continuous moderate and deep depths from field measured results)

C. Soil Erosion Hazard Rating (acres): 6881 (low) 29,066 (moderate) 7652 (high)

D. Erosion Potential: tons/acre 6.49 (low) 12.0 (moderate) 17.7 (high)

E. Sediment Potential: yd³/mi² exists, not quantified

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 2-4 grass/shrubs 20-50 conifers

B. Design Chance of Success, (percent): 60

C. Equivalent Design Recurrence Interval, (years): 10

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

E. Design Storm Magnitude, (inches): 2.2 inches

F. Design Flow, (cubic feet / second/ square mile): 35-45 cfs/sq. mi.

| | |
|--|-------------------------|
| G. Estimated Reduction in Infiltration, (percent): | <u>60</u> |
| H. Adjusted Design Flow, (cfs per square mile): | <u>40-90 cfs/sq.mi.</u> |

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats: The primary values at risk resulting from the McQuire Fire are transportation infrastructure (roads, trails, and culverts), water quality, and native fisheries for ESA-listed species, native vegetation communities, and heritage sites.

Infrastructure: Due to fire effects, modest rain events are likely to cause extensive erosion and mass movement on steep hillslopes throughout the burned area. Additionally, reduced canopy interception, combined with lack of groundcover and hydrophobicity will cause increased runoff response compared to pre-fire conditions. Thus, streams in and downstream of the burned area are likely to generate higher stormflows in the first few years following the fire. Larger flow events in part are a function of increased surface runoff from bare hillslopes. Furthermore, burned and exposed soils are more susceptible to entrainment and transport to stream channels. This combination of increased runoff and greater susceptibility to erosion threatens transportation infrastructure. Poorly drained roads and undersized culverts are more likely to fail in the post-fire hydrologic setting.

There are three passenger-car rated roads (Roads 222, 1188, and 233), as well as numerous Maintenance Level 1 and 2 roads within the burn perimeter. These roads provide access for short-term BAER and other post-fire restoration work, as well as the long-term forest management. They also provide access into private land, including the town of Dixie. Some segments of these roads are currently poorly drained, and are at risk of severe post-fire erosion. Two culverts were found to be undersized for the post fire design (10-year precipitation) event, and are recommended for replacement. Waterbar construction is recommended on Level 1 and 2 roads to effectively drain the prisms under post fire conditions. These improvements will improve the probability that road crossings will withstand a post-fire runoff event.

Water Quality: The streams in the burned area generally maintain good water quality. Erosion from steep burned hillslopes would compromise water quality through transport and deposition of fine sediment in important fishery streams. The elevated erosion and potential failures from roads and trails also compromise water quality. Treatments to improve road and trail drainage to withstand post-fire events will provide protection for water quality as well.

Fisheries: Specific areas where adverse effects are mostly likely to occur are associated with pockets of high fire severity, particularly in the Big Creek watershed where high severity fire occurred on landslide prone terrain. Areas in upper Crooked Creek are also a concern. To better protect fishery resources, specifically the interior redband trout populations that inhabit these areas and ESA-listed Snake River spring/summer Chinook salmon, Snake River steelhead trout, and Columbia River bull trout that are found downstream in the lower nine miles of Crooked Creek, implementation of infrastructure treatments is recommended. Examples of infrastructure protection would include culvert replacement where increased water yield and increased streamflow could result in culvert failure, and construction of drivable dips at stream crossings that would accommodate debris flows, rather than result in loss of the road surface and fill.

Native Vegetation/Soil Productivity: Native vegetation communities and soil productivity are at risk from rapid expansion of noxious weeds from existing populations to adjacent areas within the burned area. Disturbance may increase the susceptibility of an otherwise intact plant community to weed invasion by increasing the availability of a limited resource (Hobbs 1989). Natural or human caused fires are broad scale disturbances that influence the amount of available habitat for weed establishment and may promote invasive weeds (D'Antonio, 2000; Belsky and Gelbard 2000; Pauchard et al. 2003).

Most of the known weed populations that are within the fire area, are adjacent to burn areas. The susceptible habitats within the McGuire fire contain known infestations of spotted knapweed, Canada thistle, Orange hawkweed, Tall hawkweed, and Yellow hawkweed. Small spot infestations of spotted knapweed and Tall Hawkweed are scattered along forest road numbers 222, 9535, 9536, 1188, 1190, 9502, 9505, 9554 and 1803 which run through the fire perimeter. Most of these roads have moderate to high burn areas above and below the road where weed populations will spread, from these existing populations. Other discrete or small populations were identified along forest road numbers 1195, 1196, 1194, 1150 and 9838 leading into the burned area. Spotted knapweed, Canada thistle, and Tall hawkweed are invasive weeds that can readily out-compete native plants and dominate disturbed sites. In addition, there are two infested gravel pits along Road 222.

Heritage: After a review of the Nez Perce National Forest Heritage Resource Department Files, it was determined that around 30 previously documented cultural resource sites were located within the McGuire Fire area and within the potential area of effect from the fire. Four new cultural resource sites were located during the post fire BAER inventory within the fire area perimeter. Adding these resources, there are now 34 cultural resource sites within the fire activity area. From site visits and reviewing the GIS fire severity map, 11 of the sites were not effected by the fire, four sites were partially burned, but the integrity remains, and nine sites were burned or affected by fire suppression. A few sites were not located and the four new sites were discovered, but not fully recorded.

- B. Emergency Treatment Objectives:** Roughly 44 percent of the burned area (~30 mi²) was rated moderate to high severity. The burned area is on steep hillslopes with highly erosive soils. Even low severity slopes on steeper hillslopes devoid of canopy or ground cover are at risk of increased erosion and runoff. Landslide prone areas within the fire with high and moderate burn severity are at risk for post-fire erosion and runoff risk.

Emergency treatment objectives are to protect roads, trails and culverts susceptible to damage from erosion and elevated runoff within and immediately downstream of the burned area, to prevent the expansion of noxious weeds, and to protect a heritage site in areas burned in the fire, while providing for BAER implementation worker safety.

Drainage on roads and trails will be improved to allow for discharge of elevated runoff in a manner that protects both the travel surface and stream water quality and aquatic habitat. Undersized culverts identified on open roads will be upgraded to pass the post-fire 10-year (10% exceedence probability) event. Weed populations adjacent to burn areas where there is a threat of expansion will be treated in the first growing season following the fire, allowing for a more robust native vegetation recovery.

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

Land 70% Channel N/A Roads/Trails 70% Protection/Safety 90%

D. Probability of Treatment Success

| | Years after Treatment | | |
|--------------------|-----------------------|----|----|
| | 1 | 3 | 5 |
| Heritage | na | na | na |
| Weed treatment | 50 | 50 | 50 |
| Channel | na | na | na |
| Roads/Trails | 70 | 80 | 90 |
| Protection/Safety* | 90 | 90 | 80 |

E. Cost of No-Action (Including Loss): >500,000

The potential cost of no action includes the failure of culverts/stream crossings on major roads in the burned area, severe erosion damage on several public roads needed for FS and public access, entrainment and deposition of road sediment in important fishery streams, and erosion damage and failure

of trails. The cost of repairing roads, trails, and stream crossings would most likely exceed the cost of the selected alternative. The value of critical habitat for three separate ESA-listed fish species, as well as species of concern, cannot easily be quantified, but would likely far exceed the cost of sediment-mitigation measures proposed here. The value of protecting the ecological integrity and soil productivity of the burned area from noxious weed infestation likely exceeds the cost of weed treatment and monitoring, although this too was not quantified.

F. Cost of Selected Alternative (Including Loss): \$177,584

In accordance with the revised Forest Service manual, the risk matrix below, Exhibit 2 of Interim Directive No. 2520-2010-, was used to evaluate the Risk Level for each value identified during the McQuire fire BAER assessment. Only treatments that had a risk of Intermediate or above are recommended for BAER authorized treatments.

| Probability of Damage or Loss | Magnitude of Consequences | | |
|-------------------------------|--------------------------------|---------------------------------------|----------|
| | Major | Moderate | Minor |
| | RISK | | |
| Very Likely | Very High roads, trails | Very High weeds, heritage | Low |
| Likely | Very High fisheries | High | Low |
| Possible | High | Intermediate soil productivity | Low |
| Unlikely | Intermediate | Low | Very Low |

G. Skills Represented on Burned-Area Survey Team:

| | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Hydrology | <input checked="" type="checkbox"/> Soils | <input checked="" type="checkbox"/> Range | <input checked="" type="checkbox"/> Weeds |
| <input type="checkbox"/> Forestry | <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"/> Botany | <input checked="" type="checkbox"/> Archaeology |
| <input checked="" type="checkbox"/> Fisheries | <input type="checkbox"/> Research | <input type="checkbox"/> Air Quality | <input checked="" type="checkbox"/> GIS |

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H. Treatment Narrative:

Land Treatments: Areas infested with noxious weeds will be treated within the burn perimeter to reduce the probability of spread into uninfested burned areas. BAER funding is only available for the first year of the treatments (2013). In 2013, existing weed populations will be treated. If subsequent monitoring identifies weeds populations not effectively removed with initial treatment, additional treatment will be planned, and funds requested in an interim request. Many of the weeds are difficult to find the first year after a fires, so the areas around known populations within the burn perimeter will be covered twice in 2013 to ensure that all new populations are located and treated effectively. Other funding sources will be sought in out-years to treat any expansions of noxious weeds identified in subsequent monitoring. All of this work will be accomplished using ground-based equipment. Treatment will include the following:

- Mix of spraying and hand-pulling, as appropriate, in spring/early summer 2013 before weeds begin to seed
- Using approved herbicides and application techniques based on weed species, topography and environmental factors, in compliance with NPNF Weeds EIS.

At least one Heritage site is at risk of damage from increased weakness in burned tree roots which could cause the trees to fall and further damage the site and are also a hazard to BAER workers documenting the site within the fire. The site was located by the BAER team archeologist and partially documented.

Channel Treatments: No channel treatment prescribed at this time.

Roads and Trail Treatments: Road treatments will be targeted at effectively draining anticipated increased runoff in the first year following the fire. The primary identified work will include:

- Replacing culverts that are downstream of severely burned areas to ensure proper conveyance for post-fire design flows (10-year return internal precipitation event)
- Clearing culvert inlets to prevent clogging during increased flows
- Constructing waterbars along roads within and near the burn perimeter in order to protect the road prism and prevent major erosion
- Clearing selective hazard trees along Road 222 and Road 1188 for safety
- Installing warning signage to warn the public of hazardous conditions
- Storm monitoring along the roads to inspect and ensure drainage is functioning properly

Trail work will treat the segments of the trail system within the burned area that is at high risk of damage from elevated post-fire runoff and erosion. Treatments will consist of replacement of burned drainage structures, installation of new drainage structures for additional drainage in anticipation of greater runoff and erosion, cleaning of existing intact drainage structures, and fill slope repair of eroding trail segments, especially on steep slopes and near streams. Visitor warning signs will also be posted at trailheads.

Protection/Safety Treatments: To provide for worker safety during implementation of trail drainage improvements, selected hazard trees along the trails mentioned above where drainage and stabilization work is being conducted will be removed to protect BAER crews. Roads have generally been snagged as part of suppression efforts.

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.)

Monitoring of road and trail treatments will occur during and after implementation in 2012-13 to ensure that treatment objectives are met. Hillslope and road treatments will be monitored again after snowmelt and during the summer to evaluate effectiveness.

In 2013 all of the likely areas of infestation will be re-surveyed by NP-CNF Weeds staff. Any noxious weed populations not effectively treated during initial treatment efforts will be targeted for additional herbicide application within one year of fire containment. Beyond that time period normal program funds will be used to continue the effort.

Similarly, heritage site mitigated in the initial BAER implementation will be monitored in 2013 to ensure effectiveness of treatments.

VI – Emergency Stabilization Treatments and Source of Funds

| Line Items | Units | Unit Cost | NFS Lands | | Other \$ | | Other Lands | | | | All Total \$ |
|---|-------------|-----------|------------|------------------|----------|--|-------------|--------|------------|------------|--------------|
| | | | # of Units | BAER \$ | | | # of units | Fed \$ | # of Units | Non Fed \$ | |
| A. Land Treatments | | | | | | | | | | | |
| Heritage | each | | | | | | | | | | |
| Heritage Site Protection Directional Falling | each | 635.00 | 1 | \$635 | | | | | | | |
| Weed Spraying | acres | 300.00 | 88 | \$26,400 | | | \$0 | | | \$0 | \$0 |
| Weed Assessment | day | 500.00 | 15 | \$7,500 | | | | | | | |
| <i>Subtotal Land Treatments</i> | | | | \$34,535 | | | | | | | |
| B. Channel Treatments | | 0 | | | | | | | | | |
| | | | | | | | \$0 | | | \$0 | \$0 |
| C. Road and Trails | | | | | | | | | | | |
| McQuire Fire | | | | | | | | | | | |
| Spot Retread/slumps/filling holes | mile | 120 | 26.57 | \$3,188 | | | | | | | |
| Clean Drain Structures | mile | 30 | 157 | \$4,710 | | | | | | | |
| Replace Drainage Structures | each | 115 | 85 | \$9,775 | | | | | | | |
| Install Additional Drain structure | each | 115 | 65 | \$7,475 | | | | | | | |
| Fill Slope Repair | mile | 1,300 | 5.55 | \$7,215 | | | | | | | |
| Repair Damaged Turnpikes | each | 500 | 1 | \$500 | | | | | | | |
| Driveable Waterbars (Level 2-5 roads) | each | 500 | 50 | \$25,000 | | | | | | | |
| Waterbars (Level 1 Roads) | each | 400 | 75 | \$30,000 | | | | | | | |
| Debris Removal Culvert Inlets | each | 200 | 30 | \$6,000 | | | | | | | |
| Installation of 2 Squash CMP Culverts | each | 7995 | 2 | \$15,990 | | | | | | | |
| <i>Subtotal Roads and Trails</i> | | | | \$109,853 | | | \$0 | | | \$0 | \$0 |
| D. Protection/Safety | | | | | | | | | | | |
| Fire Affected Warning Signs | each | 460 | 10 | \$4,600 | | | | | | | |
| Hazard Tree Removal on Trails | mile | 800 | 26.67 | \$21,336 | | | | | | | |
| Selective hazard tree removal on roads 222 and 1188 | mile | 800 | 5 | \$4,000 | | | | | | | |
| Fabrication and Install warning signs | each | 625 | 4 | \$2,500 | | | | | | | |
| <i>Subtotal Protection/Safety</i> | | | | \$32,436 | \$0 | | \$0 | | | \$0 | \$0 |
| E. BAER Evaluation | | | | | | | | | | | |
| Assessment | | | | | | | \$0 | | | \$0 | \$0 |
| <i>Subtotal Evaluation</i> | | | | \$0 | \$41,650 | | \$0 | | | \$0 | \$0 |
| F. Monitoring | | | | | | | | | | | |
| <i>Heritage Protection Monitoring</i> | | | | | | | \$0 | | | \$0 | \$0 |
| Heritage Effectiveness Monitoring | each | 760.00 | 1 | \$760 | | | | | | | |
| Monitoring of Roads in Table 5 for Effectiveness | day | 500 | 5 | \$2,500 | | | | | | | |
| <i>Subtotal Monitoring</i> | | | | \$3,260 | \$0 | | \$0 | | | \$0 | \$0 |
| G. Totals | | | | \$180,084 | | | \$0 | | | \$0 | \$0 |
| Previously approved | | | | | | | | | | | |
| Total for this request | | | | \$180,084 | \$0 | | | | | | |

PART VII - APPROVALS

1. /s/ Rick Brazell 10/23/2012
Nez Perce-Clearwater NF Forest Supervisor Date

2. _____ 10/ /2012
Region 1 Regional Forester