

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:** PioneerB. **Fire Number:** ID-BOF-000539C. **State:** IdahoD. **County:** BoiseE. **Region:** IntermountainF. **Forest:** BoiseG. **Districts:** Idaho City, Lowman, EmmettH. **Fire Incident Job Code:** P4KGG1 (0402)I. **Date Fire Started:** 7/18/2016J. **Date Fire Contained:** Est 10/15/16K. **Suppression Cost:** 74.1 M as of 8/30/16**L. Fire Suppression Damages Repaired with Suppression Funds**

1. Fireline waterbarred (miles): Approximately 34 miles of Dozer line and unknown amount of handlines were constructed during the fire. All dozer lines will be repaired using excavators and handcrews. Where appropriate, water bars will be constructed.
2. Fireline seeded (miles): Dozer lines are planned for seeding to occur prior to snowfall. All lines, except for those with rare plant concerns, will be seeded with a stabilizing seed mix.
3. Other (identify): Spike camps and parking areas will have rehabilitation activities implemented, including seeding, planting, ripping or scarification, and access blockage where needed. See Pioneer Fire suppression rehab plan for more information.

M. Watershed Number:

Pioneer South HUC 6 Watersheds	Watershed number	Acres Burned	Percent of Watershed Burned
Bear River	170501110402	1,609	7.1%
Big Owl Creek-North Fork Boise River	170501110404	125	0.8%
Fivemile Creek-South Fork Payette River	170501200304	42	0.2%
Headwaters Mores Creek	170501120301	132	0.7%
Kirkham Creek-South Fork Payette River	170501200306	230	1.0%
Lower Crooked River	170501110504	3,921	27.0%
Middle Crooked River	170501110503	20,458	97.6%
Pikes Fork	170501110502	12,002	92.2%
Rock Creek	170501200305	10,251	94.4%
Tenmile Creek	170501200205	13	0.1%
Upper Crooked River	170501110501	9,345	50.7%
Grand Total		58,128	

N. Total Acres Burned:

Pioneer South Soil Burn Severity (acres)		
PRIVATE	USFS	Grand Total
335	57,793	58,128

O. Vegetation Types: Vegetation is dominated by coniferous forest consisting of Douglas Fir and Ponderosa Pine at lower elevations, transitioning to Lodgepole Pine, Sub-Alpine Fir, and Whitebark Pine at higher elevations. Aspen stands occur throughout the area. A wide variety shrubs and grasses exist throughout the fire perimeter. Sacajawea's bitterroot (*Lewisia sacajaweanana*) is an endemic species occurring in central Idaho, a Regional Forester's Sensitive Species. Whitebark pine (*Pinus albicaulis*) is an ESA candidate species, and a Regional Forester's Sensitive Species. Rare high elevation riparian native plant communities of concern include: *Carex scopulorum*-dominated wet meadows in glaciated basins. The *Abies lasiocarpa/Calamagrostis canadensis* habitat type occurs adjacent to these meadows, with an overstory of *A. lasiocarpa*, *Picea engelmannii*, and *Pinus contorta*. Riparian communities along moderate-size creeks in the *Abies lasiocarpa/Maianthemum racemosum subsp. amplexicaule* habitat type. A narrow, linear habitat restricted to stream margins. These communities are habitat for Tall Swamp Onion (*Allium validum*), a species of concern in south central Idaho.

P. Dominant Soils: gravelly sandy loams with 15-50% fine gravels

Q. Geologic Types: The Boise Basin is underlain chiefly by granite, but within it there are also later intrusive porphyritic rocks, lamprophyres and pegmatites, small areas of lavas and lake beds, and bench and stream gravels. The granite is part of the Idaho batholith, an intrusive mass whose area exceeds 20,000 square miles. The age of this granite is considered late Cretaceous or early Tertiary. Porphyritic dike rocks, which comprise diorite porphyry, rhyolite, quartz diorite porphyry, and related varieties, are most abundant in the zone extending northeastward from Quartzburg. The mineral deposits are known for their precious metal production (predominantly gold), but significant amounts of base metals were produced from most of the deposits in the Grimes Pass area. Sulfide minerals, present in variable amounts, included pyrite, arsenopyrite, sphalerite, tetrahedrite, chalcopyrite, and galena (Anderson, 1947).

R. Miles of Stream Channels by Class:
 Perennial: 175 Intermittent: 58

S. Transportation System (miles)
 All System Roads: 344 Trails: 111

PART III - WATERSHED CONDITION

A. Burn Severity:

Pioneer South Soil burn Severity	acres	percent	private	USFS
High	3,325	6%	11.2	3,314.3
Moderate	19,389	33%	80.5	19,308.9
Low	25,397	44%	160.8	25,236.7
Very / Unburned	10,016	17%	82.6	9,932.9
Total Analysis Area	58,128	100%	335.0	57,792.8

B. Water-Repellent Soil (acres):

It is crudely estimated about 35% of the fire area observed has fire-elevated water repellency. Water repellency is common and widespread, varying from slight and surficial in low SBS to severe at 1-4 inches depth in moderate and high SBS. Repellency is fairly continuous in mod-high, which is expected to exacerbate runoff production; moderate SBS areas will have a runoff response similar to high SBS, but with less erosion response. Unburned areas had no repellency except in particular vegetation types.

C. Soil Erosion Hazard Rating (acres):

Landtype inherent surface erosion hazards range low to high for bare soils. Reduced infiltration due to water repellency will push many soils toward the high rating.

D. Erosion Potential:

ERMiT estimates average 0.5 tons/acre, ranging 0 to 12 tons/acre for a 10-year runoff event, based on a nearby 47-year climate record (Deadwood Dam) and PRISM localized. These numbers are low due to most precip coming as snow. Summer thunderstorms could trigger much larger erosion events, but probability of occurrence is unlikely to possible.

E. Sediment Potential:

Estimated 50% delivery ratio for about 15,000 tons of sediment in all streams combined for a 10-year runoff event.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 1-3 grass, 20-25 shrubs, 20-50 conifers

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

C. Equivalent Design Recurrence Interval, (years): 5 year post-fire

D. Design Storm Duration, (hours):	<u>6 hr. and 24 hr*</u>
E. Design Storm Magnitude, (inches):	<u>1.6 in and 2.5 in</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>67 cfs/mi²**</u>
G. Estimated Reduction in Infiltration, (percent):	<u>83%***</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>123 cfs/mi²</u>

*Actual model input was an SCS Type II rainfall distribution, which captures shorter duration events **Mean estimated post-fire normalized flow from watersheds less than 5 mi² in drainage area ***All burned acres within the analyzed burn perimeter are expected to experience at least a partial reduction in infiltration

PART V - SUMMARY OF ANALYSIS

Background: The Pioneer Fire started on July 18th 2016 and was 58% contained as of August 30. A BAER assessment team began field reconnaissance of the burned area on August 17. The initial BAER assessment focused on areas that had minimal fire behavior and were not expected to continue to grow. The initial analysis area, known as Pioneer South, includes the portions of the fire draining to the North Fork Boise River via the Crooked River and the South Fork Payette River via Rock Creek. The Pioneer South analysis area is 58,128 acres. Additional BAER assessment surveys and additional interim requests for BAER emergency treatments will be needed for unassessed areas as the fire nears containment.

A. Describe Critical Values/Resources and Threats (narrative):
(formatted to incorporate "Critical Values and Risk Assessment" from WO ID 2520-2015-1)

1. Human Life and Safety:

Potential threats to visitors/recreating public, residents of private lands, & agency personnel include flooding and debris flows, hazard trees, loss of ingress and egress, and rockfall along/at roads, trails, designated developed and dispersed sites, permitted sites, and FS administrative sites that are downstream or downslope of burned slopes, especially those with a moderate-high burn severity.

High Risk (possible, major) to **forest visitors and Forest Service employees** within and adjacent to the burn area along State Highway 21, National Forest System roads and trails, and near recreation sites due to the increased threat **of falling trees, rocks, flash floods and debris flows** within the burned area. High risk to motorists and trail users from lack of directional and object marker signage in the burned area. (*Treatment: PS01 Safety Signs, PS02 Temporary Trail Closure*)

Very High Risk (likely, major) to **forest visitors and Forest Service employees** utilizing road systems within the Rock Creek drainage (NFS Road 594) due to the increased threat of **flash floods, debris flows, falling rocks and trees** and the potential for loss of ingress and egress. (*Treatment: PS02 Temporary Road Closure*)

There may be an increased threat to private residents within and adjacent to the fire perimeter including residents in Lowman near the mouth of Rock Creek including Lowman recreation residences, private inholdings in Enda Creek and Kempner Ranch, and at permitted sites such as Ee-Da-How Camp. The potential for flash flooding, debris flows, falling rocks and trees poses a threat as well as loss of ingress and egress to landowners if road systems are impacted. Several private residences exist within and downstream from the fire area. Coordination and information sharing with landowners and emergency services is recommended.

2. Property:

High Risk (possible, major) to **NFS road prisms and bridges** (see list in treatment RT01) at intermittent and perennial drainages from **increased runoff, erosion, and debris flows**. Undersized culverts and inadequate drainage structures are not expected to convey the expected increase in post-fire runoff and erosion and may severely damage **Forest Service road infrastructure** and will likely result in **negative effects to water quality and designated critical habitat or occupied habitat for ESA listed species (bull trout)**. Locations include most maintenance level 2 and 3 roads within and adjacent to the fire area. (*Treatments RT01 Road Drainage Reconstruction, RT02 Storm Patrols*)

High Risk (possible, major) to **NFS trail prisms** (see list in treatment RT03) from **increased overland flow and accelerated erosion** concentrating on route segments downslope from areas burned at moderate and high severity. Failure of these trail segments constitute a loss of **Forest Service infrastructure** and are expected to deliver sediment to streams downslope and adjacent to the trail resulting in **negative effects to water quality and designated critical habitat or occupied habitat for ESA listed species (bull trout)**. (*Treatment RT03 Trail Drainage Reconstruction*)

High Risk (possible, major) to stationary **developed recreation site infrastructure** from **hazard trees** at Whoop-Um-Up trailhead and campground, Edna Creek trailhead and campground, Beaver Creek cabin, Gold Fork trailhead and Elkhorn Loop trailhead. Fire weakened trees pose a **threat to buildings and infrastructure** at these developed recreation sites. (*Treatment PS03 Recreation Facility Hazard Removal*)

Very Low Risk (unlikely, minor) to Beaver Creek Cabin septic system. Increased stream flows in Beaver Creek have the potential to affect the septic system adjacent to the cabin. Potential for flooding and its consequences indicated treatment is not warranted.

Low risk (likely, minor) to other low-lying Forest Service infrastructure, including Gold Fork Park and Ski Area parking lot, Edna Creek Campground and foot bridge, and WhoopUmUp Campground. The threat is from exacerbated post-fire debris-bulked flooding causing washout. Potential for flooding and its consequences indicated treatment is not warranted.

There may be an increased threat to non-USFS low-lying infrastructure (such as: Ee-Da-How Camp, private inholding bridge on Edna Creek, Mores Creek Summit SNOTEL site, Idaho Power Cloud Seeding Facilities) in locations downstream or adjacent to streams and hillslopes with moderate and high burn severity. Coordination and information sharing with landowners, permittees, and emergency services is recommended.

3. Natural Resources:

High Risk (possible, major) to ESA listed **bull trout (*Salvelinus confluentus*) designated critical habitat or suitable occupied habitat throughout the fire area**. Potential threats include short- and long-term modification of suitable and occupied or designated critical habitat due to **channel scouring from increased stream flows, accelerated erosion, increased sediment delivery, debris flows, and potential stream channel diversion down road prisms**, below moderate and high burn severity areas. (*Treatments RT01 Road Drainage Reconstruction, RT02 Road Storm Patrol, RT03 Trail Drainage Reconstruction, RT-04 Unauthorized road decommissioning*)

Very High Risk (likely, major) to ESA-listed **bull trout (*Salvelinus confluentus*) suitable occupied habitat in the Edna Creek drainage**. Potential threats include short- and long-term modification of suitable and occupied habitat due to **channel scouring from increased stream flows, stream channel diversion, accelerated erosion, increased sediment delivery, and debris flows** below moderate and high burn severity areas. Very High risk is associated with Edna Creek due to the greater amounts of high and moderate soil burn severity within the watershed. (*Treatments RT-04 Unauthorized road decommissioning, RT01 Road Drainage Reconstruction, RT02 Road Storm Patrol, RT03 Trail Drainage Reconstruction*)

Very High Risk (very likely, major) to **native and naturalized plant communities** including: Sacajawea's bitterroot, rare high elevation riparian native plant communities of concern, and tall swamp onion due to the threat from the **spread of noxious weeds and invasive plant species**. Invasive weed species that exist within and adjacent to the fire area that may impact native plant communities include: Spotted knapweed, Diffuse knapweed, Rush skeleton weed, Canada thistle, Houndstongue, Dalmation toadflax and Oxeye daisy. (*Treatment L-01 Early Detection and Rapid Response*)

Very High Risk (likely, major) to Whitebark Pine from alterations in native communities from post fire subalpine fir regeneration, loss of mature seed source trees. Whitebark pine is not a BAER critical value because it is not listed under the Endangered Species Act. No treatments proposed.

Low to Intermediate Risk (possible to very likely, moderate to minor) to Soil Productivity and hydrologic function within High and Moderate Soil Burn Severity areas as accelerated erosion from moderate and high burn severity areas are expected. The loss of effective ground cover and above ground organic matter will leave the soil resource susceptible to erosive forces for 8 to 10 years. Over the long term loss of surface soils can lead to decreased site productivity and increased potential for the spread of invasive plant species and noxious weeds from known populations within and adjacent to the burned area. Additional threats to soil quality from accelerated erosion and introduction of non-native and invasive plant species exist from unauthorized OHV intrusions due to the loss of physical and vegetative barriers. No soil and hydrology specific treatments recommended however, other treatments will result in benefits to this value. (*Treatments LT02 Unauthorized road decommissioning RT01 Road Drainage Reconstruction, RT02 Road Storm Patrol, RT03 Trail Drainage Reconstruction*)

4. Cultural and Heritage Resources:

High Risk (likely, moderate) to **critical Cultural and Heritage Resources** within the burn perimeter as a result of **increased potential for looting** resulting from increased public access to sites and exposure of previously concealed artifacts and features, and **loss of sites and/or site integrity as a result of erosion, runoff, and flash flooding** from post wildfire storm events. *(PS-04 Cultural Resource Protection Patrols)*

There are numerous NFS values that are not BAER Critical Values in addition to non-NFS values potentially at risk from post-fire threats originating primarily on NFS lands. These are summarized in a "Values at Risk" (VAR) table in the assessment record. Treatments for these other values have not been identified. Activities to address the non-BAER Critical Values on NFS lands can be considered for discretionary program funding. It is recommended the non-NFS values potentially threatened by post-fire conditions be communicated to the appropriate parties through interagency coordination procedures.

B. Emergency Treatment Objectives:

- Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on roads and trails, reinforcing trail tread, improving trail drainage and stream crossings, and communicate hazard of flooding, debris flows, and rock fall. Communicate to cooperating agencies and community groups. Consider temporary closures to protect public users of NFS lands and recreation facilities.
- Protect or minimize damage to NFS investments in roads and trail infrastructure by installing drainage features capable of withstanding potential increased stream flows and/or debris flows. Minimize damage to key NFS travel routes.
- Protect or mitigate potential post-fire impacts to critical natural and cultural resources within the burned area.
- Treat invasive plants that are a threat to naturalized ecosystems by minimizing the expansion of existing populations in the burned area and control of expected invasion of noxious weeds within and adjacent to the area where soils/vegetation was disturbed as a result of fire suppression activities.
- Assist cooperators, other local, State, and Federal agencies with the interpretation of the assessment findings to identify potential post-fire impacts to communities and residences, domestic water supplies, public utilities (including hydropower facilities, power lines, roads, and other infrastructure).

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

Land 80% Channel NA Roads/Trails 80% Protection/Safety 90%

D. Probability of Treatment Success

Treatment	Years after Treatment		
	1	3	5
Land	80	85	90
Channel	NA	NA	NA
Roads/Trails	80	90	95
Protection/Safety	90	80	70
Initially, visitors will heed the warning signs. Complacency is expected after the initial year unless there is a damaging event.			

E. Cost of No-Action (Including Loss): Expected benefit of treatment for market values is estimated to be \$XXX. For more information see Pioneer VAR tool spreadsheet in the project record.

F. Cost of Selected Alternative (Including Loss):\$ XXX is the cost of treatment to address emergency conditions for market and non-market critical values. \$XXX is the cost of treatments to address emergency conditions for critical values with market values only.

G. Skills Represented on Burned-Area Survey Team:

- | | | | | |
|---|--|---|---|---|
| <input checked="" type="checkbox"/> Hydrology | <input checked="" type="checkbox"/> Soils | <input checked="" type="checkbox"/> Geology | <input checked="" type="checkbox"/> Range | <input checked="" type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Forestry | <input checked="" type="checkbox"/> Wildlife | <input type="checkbox"/> Fire Mgmt. | <input checked="" type="checkbox"/> Engineering | <input checked="" type="checkbox"/> Minerals/HAZMAT |
| <input type="checkbox"/> Contracting | <input checked="" type="checkbox"/> Ecology | <input checked="" type="checkbox"/> Botany | <input checked="" type="checkbox"/> Archaeology | <input checked="" type="checkbox"/> Vegetation |
| <input checked="" type="checkbox"/> Fisheries | <input type="checkbox"/> Research | <input checked="" type="checkbox"/> GIS | <input type="checkbox"/> Landscape Arch | |

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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.)

Land Treatments:

L-01 EDRR: Reduce the potential for establishment of new noxious weed infestations in native or naturalized communities, particularly establishment of new noxious weed infestations in highly susceptible burned areas, prevent spread of existing infestations, and decrease rate of spread of weed density from existing infestations.

Invasive plants and weed assessments will be conducted in FY2017 for Early Detection and Rapid Response (EDRR) on any new infestation located within the fire perimeter. Treatments will occur at proper phenology of each species to ensure maximum control. This treatment will be supplemented by natural re-vegetation.

Assess areas that have a high potential for weed/invasive species establishment. Critical areas include roads, dozer lines, pit reservoirs, ephemeral drainages and burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive plant species populations. Disturbed areas within and along the fire perimeter, such as dozer lines, hand lines, staging areas and safety zones will also be prioritized for monitoring. Acres priority for EDRR are as follows:

- 1) 1,731 acres: Fire Points @ 80 acres, Fire Lines @ 372 acres and Roads/Trails @ 1,279 acres.
- 2) 2,100 acres: potential source areas adjacent to the fire perimeter.

1. Conduct short-term monitoring in FY2017 using early detection and rapid response (EDRR) assessment/monitoring of noxious weed/non-native invasive plant species infestations within the burned area. Monitoring to determine the post-fire presence or spread of invasive species throughout the fire area.

2. Inventory/assessment, photos and map new noxious weed infestations within burned area using GPS technology and upload into the Idaho City Ranger District and Lowman Ranger District GIS Noxious Weeds database.

3. Chemical treatments using pickups, UTVs and backpack spray units will be used on any noxious weeds located within the fire on public lands. Coordination with County Departments of Agriculture and or the private land owner will be conducted on noxious weeds found on private lands inside and outside of the burn perimeter.

EDRR Treatment Cost Estimate.

Item	UOM	Unit cost	# of units	Total Cost
Early Detection and Rapid Response Invasive plant species	acre			

Channel Treatments: none proposed

Road and Trail Treatments:

RT-01 Road Drainage Reconstruction: Increased runoff resulting from burned slopes impacting stream channels which are adjacent to roads will cause damage to roadway surfaces, drainage structures, and increase associated threats to Human Life and Safety (loss of ingress/egress) and Natural Resources (damage to designated critical or suitable occupied habitat for bull trout) unless treatments are implemented to minimize the effects from the post fire flows.

The purpose of this treatment is to mitigate additional risk to Human Life and Safety, property, emergency ingress/egress, loss of access to visitors and local residents, and impacts to water quality, riparian areas, and bull trout (listed species). Approximately **344 miles** of Forest Roads and seven major bridge crossings are located within or directly adjacent to the fire perimeter, representing a significant financial property investment. Adjacent communities such as Lowman, and isolated in-holdings such as Kempner Ranch, are located within or adjacent to the fire perimeter, the roads and bridges provide critical access needs and emergency

ingress/egress to the public and administrative personnel. Protect road infrastructure and minimize sediment delivery into the watersheds that run into the Crooked River, Pikes Fork Creek, Banner Creek and the South Fork Payette River which contain ESA listed fish species (bull trout).

Of the 344 miles within the perimeter, approximately 217 miles are open to motor vehicles, approximately 155 miles were surveyed or had reconnaissance performed. Treatments are proposed on 113 of the 155 miles surveyed.

Road systems are necessary for administrative use, recreation, and other uses and represent a significant financial investment in property.

The roads listed below were found to have **high risk** of drainage system failure due to the expected increase in flows. The minimal treatments required to remedy these issues are:

1. Spot Outsloping – Outsloped road templates disperse water and reduce erosion. Outsloping is useful in most locations, particularly for dispersing surface drainage on flat road grades. Outsloping is often combined with other road treatments, including rolling dips and armored crossings to control water and handle increased post-fire flows.
2. Drain Dips (with or without armor) – Roadway dips modify the road drainage by altering the template and allowing surface flows to run off the road to prevent any excessive erosion of the surface. The armor consisting of rip rap is placed where runoff could possibly cause erosion to the road surface and fillslope.
3. Waterbars – Purpose and function is similar to rolling drain dips except the length of the structure is more abrupt and is recommended for roads that do not receive any or very little traffic.
4. Overflow Structures – Overflow structures reduce risk from fillslope erosion and downcutting the road infrastructure. The structures also reduce adverse effects to soil, water, and aquatic habitat from fillslope erosion.
5. Culvert Installations –culverts will be installed/replaced on insloped roads that have insufficient relief culverts to prevent scouring of the ditch bottoms and resultant sediment delivery to streams. Where feasible and cost effective, replacement culverts will be installed in small perennial streams to handle post-fire flows.
6. Debris Racks – The debris rack is a barrier in front of the culvert inlet or across the stream channel prior to the culvert which is used to prevent debris from plugging the culvert.
7. Culvert Cleaning – Culvert cleaning includes the cleanout of catchment basins, inlets and outlets. The cleanout of catchment-basins below the inlet of the culvert is done to capture the sediment transported from the channel or ditch. Capturing the sediment will help in preventing the culvert inlet from being partially plugged or completely buried. Culvert outlet cleanout is done to remove any material that would impede the flow of water through the outlet of the culvert.
8. Ditch Cleaning – The cleanout of drainage ditches is required to remove any debris that may deflect the flow out of the ditch and also to ensure the flow reaches the outflow structure.
9. Roadside Streambank Stabilization – Placement of riprap to protect road fillslope from increased stream flows that leads to the loss of the road itself and to decrease the risk of washing road fill into adjacent streams.
10. Corrugated Inlet Guard – Installation of a corrugated inlet guard protects the inlet of the culvert from becoming filled with sluff material coming off of the cut bank.
11. Road Template Reshaping – Road surfaces that channel water down the roadway need to be reshaped to shed the increased flows quickly before additional road surface

erosion occurs. This will be accomplished by a combination of insloping and removal of berm where water will drain off the road surface.

Roads to be treated:

NFSR #025N (1.3 miles to be treated)

Culvert Installations (drainage culverts): 18"x30', 24"x26'

Culvert Cleaning: 7 Each

Road Template Reshaping/Ditch Cleaning: where needed along 1.3 Miles

NFSR #312 (4.7 miles to be treated)

Culvert Cleaning: 12 Each

Construct/Reconstruct Drain Dip: 7 Each

Road Template Reshaping/Ditch Cleaning: where needed along 4.7 Miles

NFSR #323 (7.8 miles to be treated)

Culvert Installations (drainage culverts): 18"x110', 24"x30'

Culvert Cleaning: 42 Each

Construct/Reconstruct Drain Dips: 6 Each

Debris Racks: 8 Each

Road Template Reshaping/Ditch Cleaning: where needed along 7.8 Miles

NFSR #328 (1.1 miles to be treated)

Culvert Cleaning: 10 Each

Construct/Reconstruct Drain Dip: 2 Each

Road Template Reshaping/Ditch Cleaning: where needed along 1.10 Miles

NFSR #328A (3.4 miles to be treated)

Culvert Cleaning: 29 Each

Debris Racks: 1 Each

Road Template Reshaping/Ditch Cleaning: where needed along 3.4 Miles

NFSR #328A9 (0.80 miles to be treated)

Road Template Reshaping/Ditch Cleaning: where needed along 0.80 Miles

Construct water bars: 21 Each

NFSR #328D (1.75 miles to be treated)

Culvert Cleaning: 4 Each

Construct water bars: 46 Each

Road Template Reshaping/Ditch Cleaning: where needed along 1.75 Miles

NFSR #328E (0.40 miles to be treated)

Culvert Installations (drainage culvert): 18"x44' Each

Construct/Reconstruct Drain Dip: 1 Each

Road Template Reshaping/Ditch Cleaning: where needed along 0.40 Miles

NFSR #336 (2.46 miles to be treated)

Culvert Cleaning: 15 Each

Construct/Reconstruct Drain Dip: 4 Each

Debris Rack: 1 Each

Culvert Installations (drainage culverts): 18"x82', 24"x62'

Road Template Reshaping/Ditch Cleaning: where needed along 2.46 Miles

NFSR #336B (3.5 miles to be treated)

Construct/Reconstruct Water Bars: 92 Each

Road Template Reshaping/Ditch Cleaning: where needed along 3.5 Miles

NFSR #348 (3.0 miles to be treated)

Culvert Cleaning: 12 Each

Road Template Reshaping/Ditch Cleaning: where needed along 3.0 Miles
NFSR #351 (3.1 miles to be treated)

Culvert Cleaning: 22 Each

Construct/Reconstruct Drain Dip: 2 Each

Road Template Reshaping/Ditch Cleaning: where needed along 3.1 Miles
NFSR #362 (10.4 miles to be treated)

Culvert Cleaning: 148 Each

Construct/Reconstruct Drain Dip: 8 Each

Debris Racks: 4 Each

Culvert Installations (drainage culverts): 24"x36'

Road Template Reshaping/Ditch Cleaning: where needed along 10.4 Miles
NFSR #362B (0.71 miles to be treated)

Culvert Cleaning: 15 Each

Construct/Reconstruct Drain Dip: 1 Each

Culvert Installation (small perennial): 24"x36'

Road Template Reshaping/Ditch Cleaning: where needed along 0.71 Miles
NFSR #362D1 (1.50 miles to be treated)

Culvert Cleaning: 10 Each

Road Template Reshaping/Ditch Cleaning: where needed along 1.50 Miles
NFSR #362F (3.90 miles to be treated)

Culvert Cleaning: 30 Each

Culvert Installations (drainage culverts): 24"x150',

Culvert Installations (small perennial): 36"x36'

Road Template Reshaping/Ditch Cleaning: where needed along 3.90 Miles
NFSR #362F4 (0.70 miles to be treated)

Culvert Cleaning: 2 Each

Culvert Installations (drainage culverts): 24"x64'

Road Template Reshaping/Ditch Cleaning: where needed along 0.70 Miles
NFSR #362G (2.8 miles to be treated)

Culvert Cleaning: 5 Each

Road Template Reshaping/Ditch Cleaning: where needed along 2.80 Miles
NFSR #385 (4.5 miles to be treated)

Culvert Cleaning: 27 Each

Construct/Reconstruct Drain Dip: 5 Each

Road Template Reshaping/Ditch Cleaning: where needed along 4.5 Miles
NFSR #385H (2.70 miles to be treated)

Construct/Reconstruct Drain Dip: 1 Each

Construct Waterbars: 72

Outsloping: where needed along 2.70 Miles
NFSR #393 (8.4 miles to be treated)

Culvert Cleaning: 43 Each

Construct/Reconstruct Drain Dip: 5 Each

Road Template Reshaping/Ditch Cleaning: where needed along 8.4 Miles
NFSR #393D (1.1 miles to be treated)

Construct Waterbars: 29

Outsloping: where needed along 1.10 Miles
NFSR #394 (2.5 miles to be treated)

Construct Waterbars: 66

Outsloping: where needed along 2.5 Miles

NFSR #551 (2.80 miles to be treated)

Culvert Cleaning: 25 Each

Road Template Reshaping/Ditch Cleaning: where needed along 2.80 Miles

NFSR #551A (1.3 miles to be treated)

Construct Waterbars: 34

Outsloping: where needed along 1.30 Miles

NFSR #588 (3.2 miles to be treated)

Culvert Cleaning: 23 Each

Road Template Reshaping/Ditch Cleaning: where needed along 3.2 Miles

NFSR #588A (1.3 miles to be treated)

Culvert Cleaning: 9 Each

Construct/Reconstruct Drain Dip: 4 Each

Road Template Reshaping/Ditch Cleaning: where needed along 1.3 Miles

NFSR #594 (14.3 miles to be treated)

Culvert Cleaning: 112 Each

Construct/Reconstruct Drain Dip: 10 Each

Debris Racks: 14 Each

Culvert Installations (small perennials): 24"x96'

Road Template Reshaping/Ditch Cleaning: where needed along 14.3 Miles

NFSR #594A (9.0 miles to be treated)

Culvert Cleaning: 68 Each

Construct/Reconstruct Drain Dip: 11 Each

Road Template Reshaping/Ditch Cleaning: where needed along 9.0 Miles

NFSR #594A1 (0.70 miles to be treated)

Construct Waterbars: 18

Outsloping: where needed along 0.70 Miles

NFSR #594A4 (0.90 miles to be treated)

Construct Waterbars: 24

Outsloping: where needed along 0.90 Miles

NFSR #594B (2.60 miles to be treated)

Construct/Reconstruct Drain Dip: 3 Each

Construct Waterbars: 68

Road Template Reshaping/Ditch Cleaning: where needed along 2.60 Miles

NFSR #594D (1.70 miles to be treated)

Construct Waterbars: 24

Road Template Reshaping/Ditch Cleaning: where needed along 1.70 Miles

NFSR #X501N (1.0 miles to be treated)

Construct Waterbars: 26

Outsloping: where needed along 1.0 Miles

NFSR #X501O (0.3 miles to be treated)

Construct Waterbars: 8

Outsloping: where needed along 0.3 Miles

*See Road Drainage Reconstruction treatment specification form for complete cost description

RT-02 Road Storm Patrols: The overall purpose of this treatment is to reduce the potential for loss and further damage to Forest roads and bridges as a result of storm events. In addition, the treatment reduces the risk to designated critical or suitable occupied habitat for bull trout by

mitigating the additional loss of infrastructure and associated sediment/debris that in turn causes an impact to water quality and riparian areas.

Roads within the fire perimeter contain drainage structures that cross intermittent and perennial streams located in watersheds that have a moderate to severe soil burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging culverts or exceeding their maximum flow capacity. If these flows plug drainage structures, the result will likely be additional erosion and debris further down the drainage due to the failures of the fill slopes of the roads.

The purpose of the treatment is to implement work needed to reduce the potential for damage or failure of road surfaces and flow conveyance structures (culverts, bridges) across roads in order to provide safe access across FS lands. Engineering and District personnel, including engineering equipment operators, will respond to roads within the fire perimeter during or after high-intensity summer thunderstorms and spring snow-melt. Patrols will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows. As required, the patrols will take action with the heavy construction equipment to minimize the damage to the infrastructure and threat to Forest travelers and administrative personnel.

See Road Storm Patrols treatment specification form for complete list of roads to be visited for storm patrols.

RT-03 Trail drainage reconstruction: There are 21 miles of motorized trails, 82 miles of cross-country ski /mountain bike trails, and 8 miles of hiking/pack trails within the fire area. Trail drainage is insufficient on approximately 20 miles of trails to handle anticipated increases in runoff following the fire in the burned areas of moderate to high severity. In these areas, drainage dips, water-bars and log checks would be used to correct the deficiencies.

The proposed treatment will clean existing trail drainage structures and install additional water bars and rolling grade dips on 20 miles of trails within the burn perimeter. All 20 miles of trail fall within areas burned at high or moderate burn severity or are located downslope of areas within the drainage that burned at high or moderate burn intensity. The treatment will prevent erosion and further failure of the trail tread which would be considered a loss of Forest Service property and would potentially delivery sediment to streams including designated critical habitat or suitable occupied habitat for bull trout (ESA listed species). This treatment would also provide for safety of trail users and employees working in the burned area. Hazard tree identification and falling in the vicinity of work sites is required prior to beginning drainage structure work.

RT-04 Unauthorized Road Stabilization: The purpose of this treatment is to restore hillslopes to a more natural condition by improving infiltration and reducing hillslope erosion. The intent is to decrease sediment transport and delivery and reduce debris flow potential into Pikes Creek, Banner Creek, and Crooked River, all of which contain designated critical habitat or occupied habitat for ESA listed bull trout.

Stabilization unclassified routes improves water infiltration, restores hillslope hydrology, stabilizes soil, and reduces erosion of side-cast material. Removing points of access to these

features reduces unauthorized motorized vehicle use, decreasing the potential for spread of invasive plants and noxious weeds.

Increased runoff from burned slopes adjacent stream channels increases the probability and magnitude of damage caused by unmaintained and unauthorized road templates. Increased sediment delivery and mud and debris flows can impact bull trout designated critical or suitable occupied habitat if decommissioning measures are not implemented. Additional impacts from eroded material being delivered to downslope open roads at crossings with intermittent and ephemeral drainages are likely.

The unauthorized roads listed below have road drainage issues and at a minimum will require all or part of the treatments. The unauthorized roads are listed individually and represent approximately 8.1 miles identified as being located within estimated sediment delivery distances of bull trout designated critical habitat.

UR #X312X1 (0.24 miles to be treated)

Located off of the Pikes Fork Road Number 312 beginning at UTM NAD 83 Zone 11 4870557N, 616207E

UR #X312X2 (1.81 miles to be treated)

Located off of the Pikes Fork Road Number 312 beginning at UTM NAD 83 Zone 11 4872017N, 617807E

UR #X312X3 (3.08 miles to be treated)

Located off of the Pikes Fork Road Number 312 beginning at UTM NAD 83 Zone 11 4871748N, 618418E

UR #X336X1 (0.45 miles to be treated)

Located off of the Sawmill Creek Road Number 336 beginning at UTM NAD 83 Zone 11 4870884N, 616350E

UR #X336X2 (0.68 miles to be treated)

Located off of the Sawmill Creek Road Number 336 beginning at UTM NAD 83 Zone 11 4870999N, 616376E

UR #X384X1 (0.20 miles to be treated)

Located off of the Little Owl Creek Road Number 384 beginning at UTM NAD 83 Zone 11 4869402N, 614816E

UR #X385X1 (0.08 miles to be treated)

Located off of the Banner Creek Road Number 385 beginning at UTM NAD 83 Zone 11 4871661N, 616616E

UR #X385X2 (0.22 miles to be treated)

Located off of the Banner Creek Road Number 385 beginning at UTM NAD 83 Zone 11 4875384N, 617472E

UR #X385X3 (0.35 miles to be treated)

Located off of the Banner Creek Road Number 385 beginning at UTM NAD 83 Zone 11 4875366N, 617564E

UR #X385X4 (0.37 miles to be treated)

Located off of the Banner Creek Road Number 385 beginning at UTM NAD 83 Zone 11 4875619N, 617513E

UR #X385X5 (0.27 miles to be treated)

Located off of the Banner Creek Road Number 385 beginning at UTM NAD 83 Zone 11 4875908N, 617551E

UR #X385X6 (0.32 miles to be treated)

Located off of the Banner Creek Road Number 385 beginning at UTM NAD 83 Zone 11 4876874N, 617751E

Protection/Safety Treatments:

PS-01 Hazard Warning Signs The overall purpose of this treatment is to reduce risks to human life and safety by warning motorists and/or Forest visitors of existing threats while traveling within and downstream of the burned area.

“Entering Burned Area” signs are needed to alert the public of possible threats to their life and safety that exist within or downstream of a burned area. The signs contain language specifying items to be aware of when entering a burn area such as falling trees and limbs, rolling rocks, and flash floods.

The highway warning signs are needed in site-specific locations to alert those traveling the roads through and downstream of the burned area of upcoming dangers such as sharp curves, falling rocks, “Flood Risk - No Parking or Standing”, etc.

The directional signs are needed to safely direct motorists to their destination without taking a wrong turn, especially during emergency or severe weather conditions. Signs will be located at strategic intersections to inform the traveler of their current location corresponding to the Forest Visitor Map and Motor Use Vehicle Map (MVUM.) and their intended destination with corresponding distances that can be reached from that junction.

Barricade and object markers are needed to delineate obstructions and/or hazards to ensure the motorist safety.

Road/trail route markers are needed at the beginning of the road/trail and major intersections. The route markers identify the road/trail or route number corresponding to the Forest Visitor Map and Motor Use Vehicle Map (MVUM.) Maintenance Level (ML) 3 roads or higher are identified with horizontal route markers and Level 2 roads are identified with vertical route markers (Carsonites.) These signs inform the traveler of their current location and assist in navigating to safety during times of severe weather and flooding/debris flows.

PS-02 Temporary Closures and Enforcement: Temporary closure to NFS road and trail systems affected by the Pioneer fire is needed to protect public safety from hazard trees along travel routes. There is an extensive network of roads and motorized and non-motorized trails within the fire area, including hiking/pack trails, motorcycle trails, ATV trails, and groomed and ungroomed cross-country skiing/ mountain biking trails. Some motorized trails and ski trails are co-located on designated system roads. There are 217 miles of open roads, 21 miles of motorized trails, 82 miles of cross-country ski /mountain bike trails, and 8 miles of hiking/pack trails. Closure areas and identified routes would be in place until hazards/threats within the burn area and along specific routes have been evaluated by the local unit and a determination that the risk has been mitigated or reduced to an acceptable level.

Temporary trail closure in the Beaver Creek/Crooked River area is proposed to address the high risk from hazard tree and flood threats along the extensive trail network in the vicinity of Highway 21. Beaver Creek/Crooked River closure would involve development of a closure order and closure enforcement by LEOs/FPOs. NFS road 594 Rock Creek temporality restricts motorized public access along a segment of National Forest System Road (NFSR) 594 in a portion of the Rock Creek drainage. This treatment includes initiating a signed area closure order, installing road gates at the primary ingress/egress routes to the area of concern within the drainage, and patrolling the road and area to enforce the closure.

PS-03 Recreation Facility Hazard Removal

The fire burned around several campgrounds, recreation facilities and trailheads. The treatment is to fall hazard trees in the campground, cabin, and trailheads. Hazard removal treatments would occur at: Whoop-Um-Up trailhead and campground, Edna Creek trailhead and campground, Beaver Creek cabin, Gold Fork trailhead and Elkhorn Loop trailhead. The purpose of the treatment is to prevent damage to recreation infrastructure from fire damaged trees. The fire burned in the surrounding areas of the campgrounds, cabin and trailheads resulting in the mortality to pockets of trees in and around the developed sites. A dead tree is considered a hazard tree in a developed area setting. Falling of these trees will prevent further damage to campground structures (undamaged by the fire) and also prevent unnecessary injury to the public or their property.

PS-03 Cultural Resource Protection Patrols

The primary purpose of resource protection patrols is to reduce or mitigate the risk of archeological looting in the Banner Historic Mining District during a time (now through Fall 2016) when hunters and post-fire "sightseers" are expected to be in the area. This treatment would be implemented after fire closures are lifted. These sites are most vulnerable to looting immediately after a fire when there is no vegetation to help obscure artifact visibility. Most of the cultural resources of immediate concern are in the Banner area, however a handful of other sites of concern are also located in the Edna Creek and Pikes Fork drainages.

There is a high risk to cultural resource sites within the burn perimeter as a result of increased potential for looting resulting from increased public access to sites and exposure of previously concealed artifacts and features, and loss of sites and/or site integrity as a result of erosion, runoff, and flash flooding from post wildfire storm events.

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.)

LT-01 Treatment sites will be evaluated annually for the next three years to ensure control methods are meeting resource objectives and to inventory for new invaders. Weed specialist/technicians will visit chemically treated sites after treatment; this is especially important for weed populations that are sprayed to ensure efficacy of herbicide application. Initiate follow-up treatments if additional non-native species or new infestations are discovered. Control will be considered successful upon determination that all noxious weeds have been controlled and non-native invasive plants have not spread beyond their pre-fire locations.
RT-01 Road drainage reconstruction will be monitored during storm patrols.
RT-03 Trail drainage reconstruction will be monitored for effectiveness after storm events.

Associated activities obligated under ID-FSM2520-2015-1 need to be considered in the BAER funding request when emergency response actions are authorized. These are accumulated tasks above the normal program of work and generally not accounted for in out-year program planning. Because implementation of approved BAER response actions trigger these required tasks and the unit's allocated budget does not account for these obligations, BAER funding is the appropriate authorization to ensure this coordination and consultation is completed.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #__

PART VII - APPROVALS

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|----|--|----------------------------------|
| 1. | <u>Cecilia R. Seesholtz</u>
Forest Supervisor (signature) | <u>September 1, 2016</u>
Date |
| 2. | <u>Nora B. Rasure</u>
Regional Forester (signature) | <u>September 6, 2016</u>
Date |