Date of Report: 10/14/2020
Interim #1: 10/28/2020

BURNED-AREA REPORT

PART I - TYPE OF REQUEST

A. Type of Report

☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. No Treatment Recommendation

B. Type of Action

☐ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

☒ 2. Interim Request # 1
☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION*

*Statistics such as burn severity (acres), miles of stream, etc. were determined by watershed boundaries, regardless of Forest/Region. This 2500-8 covers 9 watersheds. Watersheds that are only partially on the Rogue River-Siskiyou NF and are primarily on the Klamath NF (i.e. Indian Creek), will be included in the R5 2500-8. Statistics associated with NFS infrastructure, natural and cultural resources not associated with watersheds were determined by Forest boundaries. This 2500-8 covers the R6, Rogue River-Siskiyou NF portion of the Slater Fire. In addition, acres used in this assessment are calculated from the Initial BARC imagery from September 29; since then the fire has incrementally grown by roughly 2,500 acres.

A. Fire Name: Slater Fire

B. Fire Number: CA-KNF-007035

C. State: OR; CA

D. County: OR – Josephine; CA – Del Norte, Siskiyou

E. Region: R6; R5

F. Forest: Rogue River-Siskiyou; Klamath, Six Rivers

G. District: R6 RSF - Wild Rivers RD

H. Fire Incident Job Code: P5NKM3

I. Date Fire Started: 09/08/2020

J. Date Fire Contained: Est. 11/01/2020

K. Suppression Cost: ~~**$41.3M as of 10/12/2020**~~
$50.5M as of 10/27/2020

L. Fire Suppression Damages Repaired with Suppression Funds (estimates):

1. **Fireline repaired (miles):** Across all ownerships, as of 10/20/2020, 29 miles of fireline repair completed out of a total of 350.2 miles. 58 miles of the 350.2 miles of fireline are showing as 'no repair needed'.
2. **Other (identify):** As of 10/20/2020, 12 repair points (ex. drop points, safety zones) out of 488 are completed. So far 49 of those 488 locations are shown as 'no repair needed'.

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
171003110100	Althouse Creek	30,243	13,920	46%
171003110201	Upper Sucker Creek	14,752	5,705	39%
171003110202	Middle Sucker Creek	17,591	5,004	28%
171003110301	Upper East Fork Illinois River	10,319	5,528	54%
171003110302	Dunn Creek	16,508	11,961	72%
171003110303	Lower East Fork Illinois River	30,952	8,111	26%
171003110401	Upper West Fork Illinois River	8,154	120	1%
171003110402	Elk Creek	17,350	12,498	72%
171003110403	Middle West Fork Illinois River	15,408	1,969	13%

N. Total Acres Burned: (R6)

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS:	
ROGUE RIVER-SISKIYOU NF	58,560
OTHER FEDERAL:	
BLM	2,866
STATE	
PRIVATE	9,118
TOTAL	**70,544**

O. Vegetation Types: Habitats are varied within the Slater Fire areas and range from oak woodland with white oak) and black oak and poison oak as the dominant shrub cover at lower elevations, to mixed conifer forests: Douglas-fir and tanoak, white fir and Douglas-fir or red fir at the highest elevations. Significant numbers of sugar pine, Ponderosa pine, and incense cedar also occur with canyon live oak, California bay laurel, Pacific madrone, and chinkapin. Common shrubs include manzanita species, huckleberry oak, coffeeberry, shrub form tanoak, labrador tea, and western azalea. Open Jeffrey pine woodlands occur on the west and southwest facing serpentine slopes. Also on serpentine soils, mixtures of several conifers can be found: Port Orford cedar in riparian areas, western white pine, Douglas-fir, knobcone pine, and Brewer spruce in isolated populations. California pitcher plant occurs in localized seeps, streamsides, or across broad terraces and is associated with a number of sensitive or endemic plants including Gentiana setigera, Viola primilifolia var. occidentalis, Castilleja elata, Cypripedium californicum, Hastingsia alba,Hastingsia bracteosa var.bracteosa, and Lilium pardilinum ssp. vollmeri.

P. **Dominant Soils:** Dominant soils are Inceptisols with minor amounts of Mollisols, Alfisols, and Ultisols. Soils are generally formed from residuum and colluvium derived from mudstone or conglomerate, metavolcanics and/or metasedimentary rock. There are also areas of alluvium and colluvium derived from ultramafic rock and metasedimentary rock; and colluvium derived from extrusive igneous and altered sedimentary rock. Soils formed under conifer dominant forests with deciduous tree component and an understory of shrubs, forbs, and grass. Soils in the burn area are dominantly loamy-skeletal, mesic or frigid, shallow or moderately deep (less than 50 centimeters (cm) but can be up to 100 cm thick) Dystroxerepts. Most of the soil development in these soils occurs within the upper few centimeters of the soil profile but are void of accumulations or alterations for the most part between 18 and 100 cm of the soil thickness. These soils lack thick organic accumulations at the soil surface, generally have weak or moderate soil structure, and based on the soil particle-size control section have more than 35 percent rock

fragments throughout most of the profile. Non-skeletal soil series comprise less than 1/3 of the acres burned and are scattered throughout the area. Fine earth textures are mapped as dominantly sandy loam but do contain some concentrations of clay loam in areas. Slopes range from moderately steep to very steep.

Q. Geologic Types: The Slater Fire lies within the Coast Range Physiographic Province and is underlain predominantly by the Rattlesnake Creek Terrane of the Paleozoic and Mesozoic Franciscan Assemblage. Rock types are composed of metasedimentary and metavolcanic rocks, ultramafic rock, granitic intrusive rock from Jurassic volcanism, and Quaternary sediments in the valleys. Steep dissected slopes composed of dormant landslides and with smaller active landslides within their toe zones are the dominant geomorphic features. Most active landslides are on steep channel banks and can occur upslope within larger dormant landslides or in other upland areas. Several large earthflows are in the fire area, most notably the Grayback Road Slide near Des Moines Creek which moves a few inches most years. Resource aerial photography show that steeper drainages have evidence of past debris flows due to extreme weather events such as the 1964/65 floods. Small debris slides occurred post-Natchez Fire in response to 2019 spring convective storms, but they dissipated quickly and resulted in no impacts to roads and resources.

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	258.2
INTERMITTENT	23.1
EPHEMERAL	28.3
OTHER	0

S. **Transportation System:**
Trails: *National Forest (miles):* 27.96 *Other (miles):* 0
Roads: *National Forest (miles):* 257.02 *Other (miles):* 23.72

Table 4: Miles of Road by Maintenance Level

ROADS: NATIONAL FOREST TOTAL R6 (MILES)	**257.02**
1 - BASIC CUSTODIAL CARE (CLOSED)	42.85
2 - HIGH CLEARANCE VEHICLES	189.24
3 - SUITABLE FOR PASSENGER CARS	15.15
4 - MODERATE DEGREE OF USER COMFORT	0
5 - HIGH DEGREE OF USER COMFORT	9.78
OTHER (MILES)	**23.72**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): (R6)

Table 5: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (BLM)	State	Private	Total	% within the Fire Perimeter
Unburned	2,090	516		522	3,128	4%
Low	38,118	2,307		7,142	47,567	67%
Moderate	17,181	42		1,442	18,665	27%
High	1,171	1		12	1,184	2%
Total	58,560	2,866		9,118	70,544	100%

B. Water-Repellent Soil (acres): The extent of water repellent soils is estimated to be at least 9,075 acres for the Slater Fire or 50% of the moderate and high soil burn severity areas. A rating of none to strong was observed in both non-burned and burned areas of all soil burn severity ratings. Water repellency of fine earth component of soils is not identified with particular soil textures or parent materials in the burn area so identifying concentrations or where water repellent soils are on the landscape is limited to a general assessment that hydrophobicity is common on the landscape and present to varying degrees. Furthermore, observations found that hydrophobicity of soils occurs at the mineral soil surface in unburned and burned areas and less frequently down to 7 cm. Root scorching or dry and brittle classifications do not exceed 1 to 1.5 cm into the mineral soil profile. This suggests that hydrophobicity below 2 cm is likely background hydrophobicity and not related to fire intensity or duration.

C. Soil Erosion Hazard Rating: Approximately 2,574 acres of low (4%); 43,574 acres of moderate (68%); 16,747 acres of high (26%); and 1,072 acres of very high (2%) erosion hazard risk were estimated for the Slater Fire.

D. Erosion Potential: Average of 35 tons/acre for the first year following fire.

E. Sediment Potential: Average of 1,492 cubic yards per square mile for the first year after the fire.

F. Estimated Vegetative Recovery Period (years): Vegetation recovery will vary depending on plant association group, soil type, aspect, and soil burn severity. Areas that burned at low severity will generally recover within the first two years. Areas that burned with moderate soil severity may recover the shrub layer, for the most part, in 3-5 years with canopy formation occurring much later. For sites with high soil burn severity and full vegetative stand- replacement, recovery may take decades.

G. Estimated Hydrologic Response (brief description): The fire primarily burned the East Fork Illinois watershed, which includes the Sucker Creek, Dunn Creek and Althouse Creek subwatersheds. Portions of the West Fork Illinois River watershed were also affected. Many of the soils in this area are very rocky and have a low infiltration capacity under pre-fire conditions. The fire has reduced or eliminated canopy and ground cover, as well as altered soil structure in varying degrees across the fire area. These changes will lead to reduced precipitation interception and infiltration capacity, as well as elevated runoff compared to pre-fire conditions.

Watershed response will likely be in response to long-duration frontal storms that occur from November through March but may also be caused by rain on snow events in the transition zone between rain and snow. These storms map produce an initial flush of ash, rill and gully erosion in headwater drainages and on steep slopes within the burned area, debris-laden flash floods in response to high-intensity rain events, elevated peak flows, and potentially debris flows. Water quality may be diminished during these peak flows, as well as after high-intensity summer rains, due to elevated ash, fine sediment, and nutrient loading. Elevated post-fire response will gradually diminish over time as vegetation and groundcover levels recover over the next several years, although some impacts are likely to persist for a decade or longer.

Within these 6th-field subwatersheds, 29 drainages were delineated to evaluate the potential values at risk. Estimated post-fire runoff in many drainages suggested a one-to-threefold increase over pre-fire flow for the 5-year, 6-hour storm event.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Slater Fire was discovered early on the morning of September 8, burning near Slater Butte on the Klamath National Forest. An historic wind event on that day of very strong east winds drove the fire into the Indian Creek watershed above the community of Happy Camp, CA, which funneled the fire north to the Siskiyou Crest into Oregon and the Rogue River-Siskiyou National Forest. When the fire reached the crest, it was again pushed by the same strong east winds to the west and northwest to Highway 199, as well as threatening communities in the Illinois Valley towards Cave Junction and burning onto BLM and private lands. Most of this fire's growth occurred very rapidly, growing to almost 100,000 acres in the first 24 hours. As of October 22 the Slater Fire was at 156,648 acres and 85% containment, with an estimated containment of November 1, 2020. The Rogue River-Siskiyou NF BAER Team began their assessment of the R6 portion of the fire on October 7, 2020 with the final close-out with the forest on October 22, 2020. The R6 Rogue River-Siskiyou team worked closely with the R5 BAER team on the assessment, including determination of the final Soil Burn Severity map for the entire fire and collaboration on hydrologic and soils modelling, among other resources. The Critical Values spreadsheets in the project file summarizes critcal values evaluated and the risk assessment to identify where a BAER emergency exists that warrants treatment. The risk assessment focused on the most probable damaging storm events, which are typically longer duration wetting rains and/or rain-on-snow that occur in the fall or snowmelt in the spring.

A. Describe Critical Values/Resources and Threats (narrative):

Table 6: Critical Value Matrix

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	RISK		
Very Likely	**Very High**	**Very High**	**Low**
Likely	**Very High**	**High**	**Low**
Possible	**High**	**Intermediate**	**Low**
Unlikely	**Intermediate**	**Low**	**Very Low**

1. Human Life and Safety (HLS):

Critical Value	Probability	Consequence	Risk Rating	Threat
People in Bolan Lake Campground	Likely	Major	Very High	Hazard trees with imminent threat to campsites and CXT toilet
People at Page Mt Sno-Park tube hill and parking area	Likely	Major	Very High	Hazard trees with imminent threat to falling into rec areas
People at Trailheads	Possible	Major	High	Hazard trees with imminent threat to falling into parking areas
People gathering around dangerous FS debris sites	Possible	Major	High	Injury from burnt remnants
People travelling on FS Trails in the fire area	Possible	Major	High	Hazards including falling trees, rockfall and unstable trail tread
People travelling on roads intersecting fire boundary, and impacted by burned area	Possible	Major	High	Potential of snags/trees falling, rock fall, road failures from stump burnouts, pavement damage, flooding, debris flows, or other unforseen hazards

2. Property (P):

FS Trails within the burn area: Black Butte #1272, Black Butte Tie #1273, Bolan Lake # 1245, Boundary Trail #1207, Crazy Peak #1275, East Fork Illinois				

River #1274, Kings Saddle #1245A, Osgood Ditch #1276, Page Mountain Bicycle Trail #1284, Sanger Creek #1271, Sanger Peak #1270A, Tanner Lake #1243, Tanner Tie #1243A				
NFSRs: 48, 4812, 4800083, 4800065, 4800057, 4804, 4810, 4808, 4703, 4812041, 4812040, 4812535, 4812570, 4904				Road shoulder stump and root burnouts collapsing from increased surface runoff and saturation, causing shoulder slumping and prism collapse
NFSRs: 4812, 4800083, 4812040, 4812041, 4812535, 4812570				
NFSRs: 4906, 4703, 4803, 4804, 4800070				
Althouse Creek Tributary 1 (NFSR 4800083)				
Dunn Creek Tributary 1 (NFSR 4904)				
Dunn Creek Tributary 2 (NFSR 4904)				Crossing is in critical Coho habitat. Road fill failure leading to moderate amounts of fine sediement in watershed. Loss of access.
Dunn Creek Tributary 4 (NFSR 4904)				
Dunn Creek Tributary 5 (NFSR 4808)				
East Fork Bolan Creek (NFSR 4703)				
East Fork Indian Creek (NFSR 4812041)				Road fill failure leading to large amounts of fine sediement in watershed. Modelled flow is 540% over existing capacity.
Elder Creek Lower (NFSR 48)				Road fill failure leading to large amounts of fine sediement in watershed. Directly adjacent to Critical Coho habitat. Modelled flow is 45% over existing capacity.
Elder Creek Tributary 1 (NFSR 4800057)				Road fill failure leading to large amounts of fine sediement in watershed. Diversion potential. Modelled flow is 1900% over existing capacity.
Grizzly Gulch (NFSR 4612098)				Road fill failure leading to large amounts of fine sediement in watershed. Modelled flow is 49% over existing capacity.
North Fork Dunn Creek Trib. (NFSR 4808)				Crossing is near critical Coho habitat. Road fill failure leading to large amounts of fine sediement in watershed. Modelled flow is 1500% over existing capacity.
North Fork Dunn Creek (NFSR 4808)				Crossing is near critical Coho habitat. Road fill failure leading to

				large amounts of fine sediement in watershed. Modelled flow is 245% over existing capacity.
West Fork Althouse Ck Tributary 2 (NFSR 4800083)				Road fill failiure leading to large amounts of fine sediement in watershed upstream of critical Coho habitat. Modelled flow is 120% over existing capacity.
West Fork Althouse Creek (NFSR 4800083)				Road fill failure leading to large amounts of fine sediement in watershed upstream of citical Coho habitat. Modelled flow is 141% over existing capacity.
Broken Kettle Creek Tribs (NFSR 9900444) 3 crossings				Road fill failure leading to large amounts of fine sediement in watershed directly in critical Coho habitat. Modelled flows are 866%, 320%, and 426% over existing capacities.

3. Natural Resources (NR):

Municipal Water Quality				Elevated loading of ash, fine sediment, nutrients, DOC.
Illinois River Designated Wild and Scenic River				Impacts to outstandingly remarkable values of recreational boating, fishing and scenery.
Hydrologic Function				Reduction in watershed health and water quality.
				Steep/very steep slopes, loss of overstory vegetation, effective ground cover, and litter/duff results in increased susceptibility to accelerated erosion for 1 to 5 years.
(T) Northern spotted owl Suitable Habitat, Northern spotted owl sites, Critical Habitat Suitable Owl Habitat				Post-fire impacts from the fire including greater risk from blowdown, mass soil movement, flooding and insects and disease could result in additional mortality to remaining live trees and further reduce NSO suitable habitat and usable Critical Habitat and threaten the viability of remaining owl sites.
				Post-fire impacts from fire to coastal marten habitat include risk from blowdown, mass soil movement, flooding and insect and disease which could result in additional mortality to remaining live trees and shrubs. This would further reduce suitable marten habitat.
				Substantial inputs of fine sediment may occur from fire effects impacting the road system and causing associated stream crossings to fail.

4. **Cultural and Heritage Resources:**

B. Emergency Treatment Objectives:

Proposed Land Treatments

The objective of the land treatments are to:

a. Foster the recovery of intact native plant communities in the burned area by minimizing the proliferation of noxious weed populations (L1a).
b. Retard the spread of invasive weeds as a result of suppression activities (L1b).
c. **NOTE:** No active land treatments are being proposed for soil productivity or municipal supply water quality. Allowing for natural recovery is the recommended course of action. Many areas will have vegetation recovery within 1-5 years in moderate/high burn severity areas; low burn severities should have quicker vegetative recovery and provide a needle-cast for mulch to cover exposed soils. Moderate soil burn severity areas may also have the potential for needle-cast for mulch. Soils contain a high percentage of rock cover and fragments which also protect soils from accelerated erosion. Due to the large area of the fire impacting water quality, treatments would have to be applied across the watersheds and are unlikely to reduce the risk to an acceptable level at the watershed scale.
d. **NOTE:** No active land treatments are being proposed for T&E habitat for wildlife. Habitats were impacted by the fire and will take decades to recover habitat conditions, outside the scope of BAER.

Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

a. Protect road and trail investments from damage or loss due to increased post-fire runoff and erosion (RT1a, RT2, RT3, RT4, RT10, RT12, RT13).
b. Reduce sedimentation into streams that would degrade critical habitat and water quality important for T&E Fish species and municipal drinking water (RT1a, RT2, RT3, RT4, RT10, RT12).
c. Improve road crossing drainage by increasing ditch and catchment basin capacity, fortifying crossings and reducing potential for channel diversion, and increasing flow capacity by up-sizing culverts where lesser treatments would not effectively mitigate the risk to critical T&E fish habitat, and municipal water quality (RT1a, RT2, RT4, RT10).
d. **NOTE:** 18 Road/stream crossings that showed an elevated level of concern for failure through hydrologic modelling, were put through a prioritization process based on potential level of loss to road infrastructure, access to other critical infrastructure, and potential impacts to Threatened SONCC Coho critical habitat if they were to fail. Drainages with critical Coho habitat were prioritized in order of importance: 1. Broken Kettle Creek; 2. Elk Creek; 3. Dunn Creek; 4. Elder Creek; 5. Althouse Creek. Then treatment options were prioritized to determine least expensive treatment necessary to be reasonably successful in mitigating unacceptable risk. This resulted in 3 locations where it was deemed storm patrol should be sufficient to mitigate risk (RT2). It was determined that 6 locations could reasonably be treated through construction of hardened crossings/armored dips to mitigate the risk of failure (RT4). Crossing replacement is recommended for 9 modelled crossings, and were prioritized for replacement over other treatment options based on considerations that included: their location in relation to priority protection of Threatened SONCC Coho and critical habitat, estimated quantities of fill that could be lost that would increase cost to rebuild, and percent over existing capacity that was modelled. While not BAER critical values, the presence of DOD fiber optic line, access to overhead power lines, and access to private property that must be maintained were also considered as secondary factors that the implementation team would need to be aware of(RT10). In order of highest to lowest priority of these 9 locations:
    1) Broken Kettle Tributary 1 (NFSR 9900444)
    2) Broken Kettle Tributary 2 (NFSR 9900444)
    3) Broken Kettle Tributary 3 (NFSR 9900444)
    4) West Fork Althouse Creek (NFSR 4800083)
    5) North Fork Dunn Creek (NFSR 4808)
    6) North Fork Dunn Creek Tributary (NFSR 4808)
    7) East Fork Indian Creek (NFSR 4812041)

8) Elder Creek Tributary 1 (NFSR 4800057)
9) East Fork Bolan Creek (NFSR 4703)

Proposed Protection/Safety Treatments:
The objective of the protection/safety treatments are to:

a. Protect human life and safety by raising awareness through posting hazard warning signs at recreation sites and trailheads, and along roads entering the burned area to warn users of potential hazards resulting from post-fire conditions (P1a, P1b).
b. Protect Forest Service infrastructure and human life/safety in areas where we invite the public to congregate (P3a), as well as for worker safety by removing hazard trees associated with BAER treatments (RT3, RT4, RT10, RT12, RT13, P6, P7).
c. Protect Forest Service infrastructure and human life/safety on a heavily travelled ML5 road (NSFR 48) through temporarily patching localized areas of heat-damaged pavement to protect it from more extensive damage expected from increased storm runoff and freeze-thaw of moisture in the pavement this winter, before permanent repairs can be completed next summer (P6).
d. Protect Forest Service infrastructure and human life/safety through stabilizing areas of shoulder stump and root burn-outs that can cause shoulder slumping and road collapse from increased runoff and saturation (RT12).
e. Protect human life/safety from exposure to burned remnants and hazards around FS infrastructure damaged or destroyed in the fire (P7).

Proposed Channel Treatments: None proposed.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: 90
Channel: N/A
Roads/Trails: 75
Protection/Safety: 90

D. Probability of Treatment Success

Table 7: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	80	85	90
Channel	N/A		
Roads/Trails	80	85	90
Protection/Safety	80	90	95

E. Cost of No-Action (Including Loss): Approximately $10,696,493.00, based on road and trail reconstruction, damage or loss of FS structures, and expansion of noxious weeds. Costs of injuries to public and personnel, loss of water quality, soil productivity, T&E species, or cultural resources were not quantified.

F. Cost of Selected Alternative (Including Loss): $1,177,440

G. Skills Represented on Burned-Area Survey Team:

☒ Soils ☒ Hydrology ☒ Engineering ☒ GIS ☒ Archaeology
☒ Weeds ☒ Recreation ☒ Fisheries ☒ Wildlife
☒ Geology

Team Leader: Joni Brazier
Email: joni.brazier@usda.gov **Phone(s):** 541-471-6760

Forest BAER Coordinator: Joni Brazier, Rogue River-Siskiyou National Forest

Email: joni.brazier@usda.gov **Phone(s):** 541-471-6760

Team Members: *Table 4: BAER Team Members by Skill*

Skill	Team Member Name
Team Lead(s)	Joni Brazier, Kailey Clarno (t)
Soils	Lizeth Ochoa, Brien Park (t)
Hydrology	Jamie Krezelok, Lindsey King (t)
Engineering	Brett Yaw, Chris Tweed (t), Tim Merten
GIS	Upekala Wijayratne, Brent Hasty
Archaeology	Jamie Moore
Weeds	Stu Osbrack, Kailey Clarno
Recreation	Kristin Ballard, Tyler Rhodes (t)
Other	Steve Burns (Fish); Sheila Colyer (Wildlife); Derek Beal (Geology)

H. Treatment Narrative:

Land Treatments:

L1a. / L1b. Invasives EDRR and Invasives EDRR Suppression: Detection surveys within fire perimeter for invasive plants that may have been introduced near Forest Service sensitive plants, meadows, Botanical Areas as a result of fire disturbance. Detection surveys within fire perimeter near known invasive plant locations that are at high risk to spread due to fire caused disturbance. Detection surveys will be focused in areas of increased probability of infestation including areas near sensitive plant populations, meadows, and botanical areas in areas with 25-100% basal area loss with invasive plant populations nearby. EDRR is prioritized on 330 acres. The potential spread of invasive plants into native plant communities is 11,183 acres. Objective is to prevent invasive plants from spreading into the fire area on fire-exposed mineral soil. Target species are Oregon Department of Agriculture-designated noxious weeds and other non-native plants judged to be a risk to native ecosystems and which are practical to detect and treat. Suppression damage invasive plant detection surveys – Detection surveys would be focused in areas of increased probability of infestation due to suppression disturbance on NFS lands including: 22.16 miles of dozer lines, 17.93 miles of hand line, 7 helispots, 2 staging areas, 12 drop points, 27 pushouts, in areas that were not previously infested. The disturbance footprint of these areas equates to 65 acres.

Treatment	Units	Unit Cost	# of Units	Total Cost
L1a. - Invasives EDRR	Acres	$129	330	$42,570
L1b. - Invasives EDRR-Suppression	Acres	$150	65	$9,750

Channel Treatments: None Proposed

Roads and Trail Treatments:

Only those FS roads and trails within or below areas burned at moderate or high SBS and have increased risk of damage due to post-fire conditions, are recommended for emergency response. Proposed treatments are designed to improve drainage at drainage crossings and along adjacent slopes in order to remove higher levels of runoff from trails and roads before extensive damage or loss of infrastructure can occur. Roads and trails were designed to be practical, economic treatments to mitigate risk to acceptable levels.

RT1a. Road Drainage (storm proofing existing drainage features): Storm proof drainage features identified for critical value roads that are susceptible to damage or failure due to increase post-fire flows. Activity will include cleaning culverts, enhancing ditches, catchment basin and lead-out ditch capacity where they exist, road berm or ditch slump removal, and replacement of burn-out drop inlet covers as

necessary to handle post-fire flows, sediment and debris. This request also includes felling of hazard trees along the portion of road to be worked on to mitigate safety concerns.

Slater Fire Treatment	Units	Unit Cost	# of Units	Total Cost
Clean CMP	Each	$220.00	101	$22,220.00
Road Surface Maintenance	Mile	$650.00	104.5	$67,925.00
Ditch Cleaning	Mile	$800.00	104.5	$83,600.00
Ditch Enhance	Foot	$25.00	75	$1,875.00

Slater Fire Total RT1a request for $175,620.00.

RT2- Storm Inspection and Response: Storm inspection and response will keep culvert and drainage features functional by cleaning sediment and debris from in and around features between or during storms. Increase the frequency of storm inspections and availability of equipment to clean out culvert inlets due to local "chinook" weather events. Recommend installing "snow" poles or markers to help in locating the culvert inlets if they become plugged. This work will be accomplished through Forest Maintenance Contract, equipment rental, and general labor. Costing is for road, ditch, and ditch relief/small drainage culverts by the mile and larger stream crossings by the each (14 crossings).

Slater Treatment	Units	Unit Cost	# of Units	Total Cost
Storm Inspection and Response	Mile	$425.00	104.5	$44,412.50
Storm Inspection and Response (stream crossings)	Each	$550.00	14	$7,700.00

Slater Fire Total RT2 request for $52,112.50.

RT3- Culvert Removal: Two culvert removals are proposed. One removal will take place on the 4800057 and will remove a 48" culvert that has already washed out. The culvert remains plugged. Fill slopes will need layback. The other removal will take place on the 4804 and will remove to culverts on a short loop road that access a pump chance. The identified risk is for plugging and overtopping of the main arterial.

Slater Treatment	Units	Unit Cost	# of Units	Total Cost
Culvert Removal	Each	$ 1900.00	2	$ 3800.00

Slater Fire Total RT3 request for $ 3800.00.

RT4 – Armored Critical/Drain Dip: Drain dips and waterbars are recommended for roads downslope or within the moderate-high SBS areas with inadequate drainage for post-fire short-term increased storm runoff. These have been identified at risk for gullying, loss of adequate water distribution, possible fill or ditch failure, and loss of surfacing. Critical dips are recommended in locations where the existing culvert is undersized for post-fire short-term increased runoff. These sites are at risk of plugging, overtopping and road prism failure. Installation of these features provide increased capacity and reduce the associated risk to road infrastructure. There are two different types of armored dips. The 10 cy type will address drainage issues related to road, ditch and small drainage risks. The 25 cy type will address stream crossing risks and includes armoring for dip and fill slope.

Slater Treatment	Units	Unit Cost	# of Units	Total Cost
Armored Critical/Drain Dip (10cy)	Each	$1,310.00	31	$40,610.00
Armored Critical/Drain Dip (25cy)	Each	$2,610.00	6	$15,660.00

Slater Fire Total RT4 request for $ 56,270.00.

RT10- Up-sized Culvert: Culvert up-sizing will address damaged and significantly undersized crossings. These crossings are at increased probability of failure and the magnitude of consequences warrant replacement. Up-sizing is proposed at 15 smaller drainages and ditch relief crossings and at 9 larger stream crossings. Less expensive treatments were considered and deemed infeasible or not effective for each site; a summary of that exercise is included in the description of this treatment, below.

Ditch relief and small drainage culverts (culverts that drain too small of an area to model accurately) are at a greater risk of failing than their large drainage counter parts. Small diameter culverts are often located in steep basins, plug more quickly, plug more easily and are more likely to have a complete loss of capacity. Because of these higher probabilities, the assessment team took a close look at small diameter culverts on the Slater fire. The overwhelming majority of culverts will simply need cleaning. The risk they pose to the transportation system if fire debris is cleaned from their inverts and monitored annually during the emergency is unlikely. However, there are 15 ditch relief and small drainage culverts in the fire perimeter that were identified to have elevated probability of failure and elevated magnitude of consequences. This elevated probability of failure arises from the combination of several factors including all of the following: Crossing Size, Crossing Condition, Burn Severity, Steepness of upstream slopes, Slope stability, Bank full width, Road fill height, Confinement of channel, and Debris load. All of these factors combined to determine the least expensive, effective treatment for each site.

Crossing replacement is recommended for the modeled crossings at 9 locations. Crossings are sized for the predicted flow event. Specific information for each crossing is listed in Part V, Section A, 2. Property table (above) which includes the results of hydrologic modelling. An explanation of how these treatments and locations were prioritized is summarized in Part V, Section B, Proposed Road and Trail Treatments (d) (above). The following shows stream crossings proposed for replacement in prioritized order.

1. Broken Kettle Tributary 1 (NFSR 9900444) (96"x40')
2. Broken Kettle Tributary 2 (NFSR 9900444) (72"x38')
3. Broken Kettle Tributary 3 (NFSR 9900444) (84"x56')
4. West Fork Althouse Creek (NFSR 4800083) (108"x60')
5. North Fork Dunn Creek (NFSR 4808) (108"x60')
6. North Fork Dunn Creek Tributary (NFSR 4808) (54"x60')
7. East Fork Indian Creek (NFSR 4812041) (42"x38')
8. Elder Creek Tributary 1 (NFSR 4800057) (66"x50')
9. East Fork Bolan Creek (NFSR 4703) (96"x150')

Slater Treatment Ditch Relief and Small Drainage Culvert Replacements (un-modeled)				
Slater Treatment	Units	Unit Cost	# of Units	Total Cost
24" CMP	Lf	$65.60	264	$17,318.40
30" CMP	Lf	$69.80	102	$7,119.60
36" CMP	Lf	$72.80	288	$20,966.40
60" CMP	Lf	$113.60	60	$6,816.00
				$52,220.40

Slater Treatment Stream Crossing Replacements (modeled)				
Slater Treatment	Units	Unit Cost	# of Units	Total Cost
42" CMP	Lf	$75.80	38	$2,880.40
54" CMP	Lf	$111.30	60	$6,678.00
66" CMP	Lf	$120.50	50	$6,025.00
72" CMP	Lf	$135.40	38	$5,145.20
84" CMP	Lf	$146.65	56	$8,212.40
96" CMP (2 crossings)	Lf	$168.55	192	$32,361.60
108" CMP (2 crossings)	Lf	$187.75	120	$22,530.00

	$83,832.60

Slater Fire Total RT10 request for $ 136,053.00

RT12- Fill-Slope Stabilization (Shoulder Burn-out Repair (safety)): Restore public safety in specific locations where tree stumps/trees burned out creating localized road shoulder failures. Sites are difficult to see on steep, windy roads especially in the rain or at night. Several sites along 48, 4804 4800083, 4812, 4812041. Still need to check other roads, 4810, 4904, 4906

Slater Treatment	Units	Unit Cost	# of Units	Total Cost
Shoulder Burn-out Repair (safety)	Each	$1,600.00	3	$4800.00

Slater Fire Total RT12 (safety) request for $ 4,800.00

RT13. Trail Drainage: 6.6 miles of trail will require drainage treatments due to increased water compromising trail tread where trails cross through moderate and high SBS. Work will include installing drainage (rolling grade dips, grade reversals, nicks), water bars (only where necessary, and then only with rock), armoring drainage crossings, restoring out slope, re-establishing tread, and snagging trees as appropriate for worker safety.

Treatment	**Units**	**# of Units**	**Unit Cost**	**Total Cost**
RT13. Trail Drainage				
Trail Name & Number				
Black Butte #1272	Miles	0.13	$5,890	$765.70
Black Butte Tie #1273	Miles	0.40	$5,890	$2,356
Boundary Trail #1207	Miles	0.84	$5,890	$4,947.60
Crazy Peak #1275	Miles	1.01	$5,890	$5,948.90
East Fork Illinois River #1274	Miles	0.01	$5,890	$58.90
Kings Saddle #1245A	Miles	0.09	$5,890	$530.10
Osgood Ditch #1276	Miles	0.01	$5,890	$58.90
Page Mountain Bicycle Trail #1284	Miles	3.68	$5,890	$21,675.20
Sanger Creek #1271	Miles	0.34	$5,890	$2,002.60
Sanger Peak #1270A	Miles	0.01	$5,890	$58.90
Tanner Lake #1243	Miles	0.02	$5,890	$117.80
Total:		6.6		**$38,874**

RT16. Implementation Team:
IMPLEMENTATION COSTS – Personnel

Slater Implementation	Units	Unit Cost	# of Units	Total Cost
GS-9	Day	$400.00	20	$8,000.00
GS-11	Day	$500.00	20	$10,000.00
Implementation Team – Per Diem	Day	$155.00	40	$6,200.00
Implementation Team – Airfare/Rental Car	LS	$4,000.00	1	$4,000.00

Slater Fire Total Implementation request for $ 28,200.00

Protection/Safety Treatments:
Treatments are specifically designed to protect the public, employees, and contractors from immediate threats as a result of the fire, as well as monetarily valuable Forest Service infrastructure such as recreation area restrooms, picnic tables, and host facilities. Threats include hazard trees, rock fall, damaged paved road surfacing, potential flood and debris flows, and harm from burned structure remnants.
Initial Request included public warning signs for the fire area; 26 sign locations identified and previously funded (23 road hazard signs, 3 trail/rec area hazard signs).

P1a – Road Warning Signs: Signs will inform users of the dangers associated with entering and recreating within the burned area. Location of signs are shown on maps included in 2500-8 close-out packet. (This item was included in the original 2500-8)

Slater Treatment	Units	Unit Cost	# of Units	Total Cost
Warning Signs	Sign/Post	$400.00	26	$10,400.00

Slater Fire Total P1a request for $ 10,400.00

P1b. Trail/Recreation Hazard Signs. This cost estimate is for placing information boards and posting hazard related signs to notify the public of post-fire hazards. It also includes temporary safety fencing (standard orange plastic mesh fence used at construction sites and ski areas) that would be installed and used with signage at the Page Mountain sno-park once snow is present at the sno-park tube hill to define the safe footprint of the recreation area, to protect the public from buried hazards such as felled hazard trees and unsettled stump hole burnouts, since the vegetation that once defined the tube hill is no longer present, and snow cover will hide but not mitigate the underlying safety concerns. Effective closure of this site to the public is considered unfeasible due to the inability to effectively close off or gate the access. Therefore the safety fencing along with standard hazard warning signs was determined a simple and least-cost minimum treatment to warn the public of hazards in the area.

Treatment	Units	# of Units	Unit Cost	Total Cost
P1b. Trail/Recreation Hazard Signs				
Installation of Trail Warning Signage	Sign/Post	14	$125	$1,750
Maintenance of Warning Signage for 12 Months	Replacement signs	14	$125	$1,750
Hazard Warning Signs for Page Mountain Sno-Park (Already funded)	Sign/Post	3	$400	(Already funded in Initial 2500-8 as part of 26 Road Hazard Signs)
Safety Fencing for Tube Hill	100' Rolls	12	$40	$480
Post for Safety Fence at Tube Hill	10' T Post	150	$15	$2,250
Total:				**$6,230**

P3a. Hazard Tree (Developed Sites). Work will include felling of hazard trees in the immediate vicinity of trailheads and trailhead parking areas for human life and safety of public and BAER implementation team members for hazard sign installation. It also includes the felling of hazard trees threatening high value USFS infrastructure at recreation sites. For manual felling, the cost of hazard tree removal is estimated at $90 per tree based on recent removal costs provided by local

concessionaires (cost may be higher or lower per tree due to size, complexity and number of adjacent structures). At the Page Mountain Sno-Park, cost estimations determined that using a mechanized feller to fell the trees would be significantly less expensive as well as safer for the felling crew, in this single area of high concentration hazard trees. All trees would be felled and left in place.

Treatment	Units	# of Units	Unit Cost	Total Cost
P3a. Hazard Trees (Developed Site)	**Hand Felling**			
Bolan Campground	Hazard Trees	125	$90	$11,250
Bolan Lookout Vault Toilet	Hazard Trees	10	$90	$900
Black Butte Trailhead	Hazard Trees	15	$90	$1,350
Boundary Trailhead	Hazard Trees	25	$90	$2,250
Kings Saddle Trailhead	Hazard Trees	15	$90	$1,350
			Total:	**$17,100**

Treatment	Units	# of Units	Unit Cost	Total Cost
P3a. Hazard Trees (Developed Site)	**Mechanized Felling**			
Page Mountain Sno-Park including Tube Hill, parking area, Camp Host Shelter, Page Mountain Warming Shelter	Days (includes Mobilization, daily rate, and contract admin.)	3	$2708.33	$8,125
			Total:	**$8,125**

P6- Infrastucture Protection (Pothole patching): Fire burned over the ML5 48 Road and consummed the oil in the pavement in localized spots, causing the paving to start to break down. Increased storm runoff and freeze-thaw of moisture in the pavement this Fall/Winter/Spring will continue to break apart the pavement and cause deeper roadbed damage, requiring more expensive treatments to repair next summer if nothing is done to temporarily patch the damage this Fall. Pothole patching is the minimum treatment necessary to temporarily protect the paving from further breakdown through the winter, until permanent repairs can be made to the pavement next summer. While rough road signage would mitigate the safety risk for the public travelling on this ML5 road, it would not mitigate the unacceptable risk to the road infrastructure.

Slater Treatment	Units	Unit Cost	# of Units	Total Cost
Pothole patching	Ton	$1,500.00	3	$4,500.00

Slater Fire Total RT15 request for $ 4,500.00.

P7. Infrastructure Removal (burnt remnants causing safety hazard). Work will include removing debris (hazards from exposed metal, concrete, nails and other building materials), of USFS structures, including buildings and sign remnants, and filling in the Bolan Lookout pit toilet. No hazardous materials are present. Cleanup of the burnt remnants is necessary for worker safety for other treatments in the area of both of these sites. In addition, it would cost more to install a gate on the Bolan Mountain Lookout site than to remove the remnants (access still needs to be maintained

because of communications equipment/repeater at the site), and closure of the Page Mountain sno-park to the public is considered unfeasible due to the inability to effectively close off or gate the access.

Treatment	Units	# of Units	Unit Cost	Total Cost
P7. Infrastructure Removal				
Bolan Lookout and pit toilet, Page Mountain Sno-Park Warming Shelter, Page Mountain Sno-Park Storage Shelter, Page Mountain Signs	Day	3	$4,000	$12,000
			Total:	**$12,000**

I. Monitoring Narrative:

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			NFS Lands				Other Lands				All
		Unit	# of		Other		Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	# of units	$	Units	$	$
A. Land Treatments										
L1a. Invasives EDRR	Acres	129	330	$42,570	$0		$0		$0	$42,570
L1b. EDRR Suppression	Acres	150	65	$9,750	$0		$0		$0	$9,750
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$52,320	$0		$0		$0	$52,320
B. Channel Treatments										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
RT1a. Road Drainage	Miles	1,681	104.5	$175,620						
RT2. Storm Inspection/Res	Miles	499	104.5	$52,112						
RT3. Culvert Removal	Each	1,900	2	$3,800						
RT4. Armored Dip	Each	1,521	37	$56,270						
RT10. Up-sized Culvert	Each	5,669	24	$136,053						
RT12. Fill-slope stabilizatio	Each	1,600	3	$4,800						
RT13. Trail Drainage	Miles	5,890	7	$38,874						
RT16. Implementation Tean	Days	1,410	20	$28,200	$0		$0		$0	$28,200
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$495,728	$0		$0		$0	$28,200
D. Protection/Safety										
P1a. Road Hazard Signs	Each	400	26	$10,400	$0		$0		$0	$10,400
P1b. Trail/Rec Hazard Sign	Each	125	28	$3,500						
P1b. Rec Area fencing	Each	2,730	1	$2,730						
P3a. Hazard Trees (hand)	Each	90	190	$17,100						
P3a. Hazard Trees (mech)	Day	2,708	3	$8,125						
P7. Infrastructure Remova	Day	4,000	$3	$12,000						
P6. Infrastructure Protecti	Ton	1,500	3	$4,500						
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$58,355	$0		$0		$0	$10,400
E. BAER Evaluation										
Initial Assessment	Report	$78,528	1	---	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$606,403	$0		**$0**		**$0**	**$90,920**
Previously approved				$10,400						
Total for this request				**$596,003**						

PART VII - APPROVALS

1.  10-29-2020

Forest Supervisor Date