Date of Report: 10/6/2021

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 #___

☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Trestle Creek Complex

B. Fire Number: 2021-IDIPF-000452

C. State: Idaho

D. County: Bonner

E. Region: Northern Rockies

F. Forest: Idaho Panhandle

G. District: Sandpoint

H. Fire Incident Job Code: P1N5GH (0104)

I. Date Fire Started: 7/7/2021

J. Date Fire Contained: 10/15/2021

K. Suppression Cost: 14,000,000

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

1. **Fireline repaired (miles): 45 miles**
2. **Other (identify):**

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
1701021312	Lightning Creek	75,305	3142	4%
1701021401	Pack River	182,415	1055	1%
1701021402	Sand Creek-Lake Pend Oreille	255,447	2915	1%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	7112

OWNERSHIP	ACRES
OTHER FEDERAL (LIST AGENCY AND ACRES)	0
STATE	0
PRIVATE	0
TOTAL	0

O. Vegetation Types: Vegetation habitat types across the burned area consist of subalpine fir forest (67%), Douglas-fir forest (<1%), grand fir forest (1%), western hemlock forest (21%), and western red cedar forest (7%). The remaining three percent is scree slopes. Dominant understory species in subalpine fir forest includes rusty menziesia, common beargrass, Hitchcock's smooth woodrush, claspleaf twistedstalk, and bride's bonnet. In Douglas-fir and grand fir forest, the dominant understory species consist of mallow ninebark, bride's bonnet, common beargrass, thinleaf huckleberry, and starry false lily of the valley. In western hemlock and western red cedar dominated forest types, dominant species include bride's bonnet, common beargrass, rusty menziesia, western oakfern, common ladyfern, and devils club.

P. Dominant Soils: Dominant soils include the McCay-Typic Haplocryands-Frizzelcreek families, Redraven-Rubycreek-Muddycreek families, Highfalls-Pearsoncreek-Newbell families, Pearsoncreek-Highfalls families, and Typic Fluvicryands-Handoff families. Collectively these soils make up around 55 percent of the burned area. They have volcanic ash cap mantles (source material being loess from the Mt. Mazama eruption around 2850 BC) anywhere from roughly 9 inches to 19 inches thick with silt loam surface textures over rocky, silt loam or fine sandy loam textured subsoil derived from primarily glaciated meta-sedimentary rock formations. Most soils are 150 cm or deeper and are moderately well to well-drained.

Q. Geologic Types: Geology within the burned area is largely dominated by glaciated meta-sedimentary belt formations (79%). Other geology includes scree slopes from meta-sedimentary formations (9%), residual meta-sedimentary belt geology (6%), stream channel, stream terrace, and floodplain alluvium (4%), and glaciated granitics (2%).

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	7
INTERMITTENT	1.7
EPHEMERAL	0
OTHER (DEFINE)	0

S. **Transportation System:**
Trails: *National Forest (miles):* 10.3 *Other (miles):*
Roads: *National Forest (miles):* 6.6 *Other (miles):*

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	1029	0	0	0	1029	14%
Low	2994	0	0	0	2994	42%
Moderate	2346	0	0	0	2346	33%
High	743	0	0	0	743	10%
Total	7112	0	0	0	7112	

B. Water-Repellent Soil (acres): Approximately 1,916 acres or roughly 27% of the assessed burned area.

C. Soil Erosion Hazard Rating: Low = 3,613 acres (51%); Moderate = 3,502 acres (49%)

D. Erosion Potential:

Landtype units (soil units) with the highest erosion potential were analyzed and identified on National Forest System lands across the assessment area using a GIS exercise in ArcMap. Units with high erosion potential meet all of the following criteria: A.) rate at least moderate for one landtype interpretation out of a selection consisting of mass failure potential, surface erosion hazard potential, subsurface erosion hazard potential, and/or sediment potential, B.) exceed 100 tons/acre modeled sediment delivery rate, and C.) occupy at least 1% of the interpreted acres for the fire.

The landtype unit with the greatest concern for high erosion potential post-fire is 251 and makes up approximately 4 percent of the burned area on NFS land. This landtype and others like it typically occupy dissected backslope positions, have a moderate subsurface erosion hazard rating, and a sediment delivery rating of around 126 tons/acre. For some context, roughly 150 tons/acre is the equivalent of a one-inch layer depth of soil across an acre area. These unit's long slope lengths and broad slope widths provide ample surface area for sheet and rill erosion to transport considerable volumes of runoff-entrained sediments downslope.

Landtype unit 234 and similar units typically occupy slopes adjacent to draws and occupy roughly 7% of the burned area interpreted. This landtype has high mass failure potential, a moderate surface erosion rating, a moderate subsurface erosion rating, and a high sediment potential rating. Occupying draws, these units are expected to contribute greatly to erosion hazard due to the high volumes of water they conduct from upslope confluences.

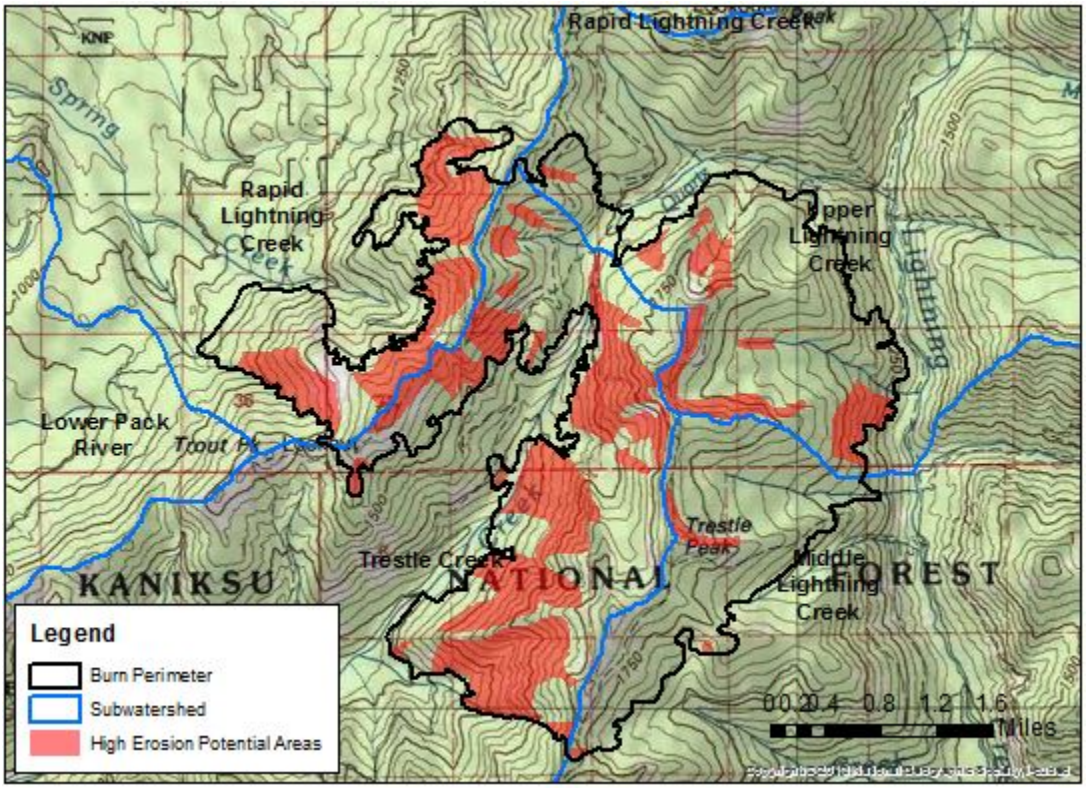
Collectively, high erosion potential areas make up roughly 31 percent of the burned area. More information about these locations can be referenced in the table below. The table also consists of select soil attributes, interpretations, and values for those units that are of the greatest concern for high erosion potential. *Acres are estimates based on the size of the fire at the time of analysis. Acreage estimates may vary slightly by report due to rounding error and method of geospatial analysis.

Landtype Unit	Dominant Slope Range	Sediment Potential Rating	Surface Erosion Rating	Subsurface Erosion Hazard Rating	Mass Failure Potential	Mean Post-fire Sediment Delivery (Tons/Acre)	Low/Unburned SBS* (%)	Mod SBS* (%)	High SBS* (%)
284	35-55%	Low	Low	Moderate	Low	144.10	64 (<1%)	32 (<1%)	0
231	15-35%	Moderate	Low	Moderate	Low	115.92	47 (1%)	48 (1%)	8 (<1%)
222	35-55%	Low	Low	Moderate	Low	125.19	53 (1%)	43 (1%)	9 (<1%)
232	55-80%	High	Low	Moderate	Moderate	191.17	60 (1%)	49 (1%)	12 (<1%)
262	55-80%	Low	Moderate	Moderate	Moderate	175.85	117 (2%)	31 (<1%)	4 (<1%)
234	55-80%	High	Moderate	Moderate	High	128.16	58 (1%)	60 (1%)	38 (1%)
252	55-80%	Moderate	Moderate	Moderate	Moderate	143.38	137 (2%)	16 (<1%)	3 (<1%)
180	35-80%	High	Moderate	Moderate	High	163.03	109 (2%)	46 (1%)	4 (<1%)
241	80-100%	Moderate	Moderate	Moderate	Moderate	143.38	88 (1%)	70 (1%)	9 (<1%)
255	55-80%	High	Moderate	Moderate	High	143.38	166 (2%)	55 (1%)	27 (<1%)
225	35-55%	Low	Low	Moderate	Low	157.57	53 (1%)	167 (2%)	17 (<1%)
251	35-55%	Low	Low	Moderate	Low	126.04	301 (4%)	79 (1%)	6 (<1%)
Totals							1253 (18%)	696 (10%)	137 (2%)

These identified landtype units with high erosion potential on NFS lands were also summarized by their extent across watersheds impacted by the fire (Table 4 and Figure 2). The watersheds with extents of high erosion potential acres are the Trestle Creek (10%), Rapid Lightning Creek (2%), and Upper Lightning Creek (3%). The table below gives a breakdown of the high erosion potential acres and extent by watershed impacted by the Trestle Fire.

Watershed name	Total Watershed Acres	High Erosion Potential Acres* and Extent in Watershed
Middle Lightning Creek	28,112	47 (<1%)
Rapid Lightning Creek	31,152	514 (2%)
Trestle Creek	12,540	1,280 (10%)
Upper Lightning Creek	13,527	339 (3%)

The figure below shows high erosion potential acres displayed in red within the watersheds impacted by the fire highlighted in blue.



E. Sediment Potential:

The ERMiT model, which was developed specifically for post-fire erosion modeling, produces sediment potential predictions based on customized climate parameters specific to nearby weather station's data and soil, vegetation, and landscape characteristics such as soil burn severity, vegetation cover type, surface soil texture, rock fragment content, hillslope gradient, and hillslope length. Sediment delivery rates for the first year following wildfire activity are in tons per acre and have a 10% probability that sediment delivery will be exceeded. Customized climate parameters from the Sandpoint Experimental Station were used in running the ERMiT model for the Trestle Fire (more information on this can be referenced in the Modeling Explanation and Assumptions document that is under the project record folder for Soils).

ERMiT predicted the unburned, pre-fire sedimentation rate averaged across the fire on NFS lands to be 0 tons per acre.

The predicted post-fire sedimentation rate averaged across the fire on NFS lands is approximately 103 tons per acre, with a 10% probability of exceedance. 103 tons/acre is roughly the equivalent of 2/3 inch of soil depth across an acre area.

Reporting an average sedimentation rate for the entire fire can mask site specific soil loss seen at the hillslope level. Therefore, it is useful to summarize soil loss by soil unit, a smaller unit of analysis that appropriately reflects site specific post-fire effects. The table below shows the pre- and post-fire sedimentation rates for each soil unit modeled within the fire on NFS lands. *Acres are estimates based on the size of the fire at the time of analysis. Acreage estimates may vary slightly by report due to rounding error and method of geospatial analysis.

Soil Unit	Dominant Vegetation Type	Acres*	Percent of Total Area	Mean Post-fire Sediment Delivery (Tons/Acre)
102—Peasroncreek-Typic Udifluvents-Marblecreek families, complex	mixed coniferous and alpine forest with associated riparian plants	122	2	12.39
180—McCay-Pearsoncreek families, complex	mixed coniferous and alpine forest	160	2	163.03
196—Rubble land	talus and rock outcrop	573	8	121.15
199—Rubble land-Ahrs family-Typic Haplocryands family, complex	scree and mixed forest types	35	0	105.48
220—Angelbasin-Typic Haplocryands-Lithic Dystrocryepts families, complex	mixed subalpine forest	25	0	51.18
221—McCay-Typic Haplocryands-Frizzelcreek families, complex	mixed subalpine forest	903	13	127.64
222—McCay-Typic Haplocryands-Frizzelcreek families, complex	mixed subalpine forest	104	1	125.19
223—McCay-Typic Haplocryands-Frizzelcreek families, complex	mixed subalpine forest	35	0	166.98
224—Redraven-Rubycreek-Muddycreek families, complex	mixed subalpine forest	828	12	128.32
225—Redraven-Rubycreek-Muddycreek families, complex	mixed subalpine forest	327	5	157.57
226—Redraven-Rubycreek-Muddycreek families, complex	mixed subalpine forest	43	1	139.11
231—McCay-Typic Haplocryands-Frizzelcreek families, complex	mixed subalpine forest	103	1	115.92
232—McCay-Typic Haplocryands-Frizzelcreek families, complex	mixed subalpine forest	121	2	191.17
233—Redraven-Rubycreek-Muddycreek families, complex	mixed subalpine forest	47	1	97.76
234—Redraven-Rubycreek-Muddycreek families, complex	mixed subalpine forest	155	2	128.16
235—Muddycreek family-Rock outcrop-Rubycreek family, complex	mixed subalpine forest	186	3	96.11
241—Redraven family-Rock outcrop-Typic Fulvicryands family, complex	mixed subalpine forest	167	2	108.68
242—Redraven-Typic Fulvicryands families, complex	mixed subalpine forest	57	1	99.07
250—Highfalls-Pearsoncreek-Newbell families, complex	mixed coniferous forest	150	2	79.53
251—Highfalls-Pearsoncreek-Newbell families, complex	mixed coniferous forest	386	5	126.04
252—Highfalls-Pearsoncreek-Newbell families, complex	mixed coniferous forest	156	2	143.38
253—Pearsoncreek-Highfalls-Newbell families, complex	mixed coniferous forest	38	1	72.33
255—Pearsoncreek-Highfalls-Newbell families, complex	mixed coniferous forest	252	4	112.95
260—Highfalls-Pearsoncreek families, complex	mixed coniferous forest	242	3	119.41
261—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	489	7	92.03

262—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	152	2	175.85
263—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	131	2	60.04
265—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	83	1	97.58
272—Pepoon-Newbell families-Rock outcrop complex	dry mixed coniferous forest	30	0	97.49
280—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	76	1	122.96
281—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	40	1	64.70
283—Pearsoncreek-Highfalls-Newbell families, complex	mixed coniferous forest	66	1	111.21
284—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	96	1	144.10
288—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	42	1	35.95
289—Pearsoncreek-Highfalls families, complex	mixed coniferous forest	15	0	35.30
290—Pearsoncreek-Highfalls-Newbell families, complex	mixed coniferous forest	67	1	58.58
320—Redraven-Roman-Molly families, complex	mixed subalpine forest	19	0	27.85
322—Redraven-Roman-Molly families, complex	mixed subalpine forest	55	1	174.60
350—Andic Humudepts-Humic Udivitrands-Pearsoncreek families	mixed coniferous forest	39	1	31.39
360—Glaciercreek-Humic Udivitrands-Pearsoncreek families	mixed coniferous forest	52	1	69.11
363—Humic Udivitrands-Glaciercreek-Pearsoncreek families, complex	mixed coniferous forest	4	0	0.49
408—Typic Fluvicryands-Handoff families, complex	grasses and forbs	393	6	146.70
Totals		7,065	100	103

F. Estimated Vegetative Recovery Period (years):

High soil burn severity comprised 10% of the burn and is where one might expect post-fire soil conditions to heavily impact soil productivity, and subsequently vegetative recovery. Moderate soil burn severity results in a widespread loss of forest floor cover, which alters hydrologic function, but typically the soil heating and the consumption of organic matter is not sufficient to damage roots, soil structure, or the native seed bank. Substantial soil loss in the over steepened drainages with elevated debris flow susceptibility may take longer for vegetative recovery. Areas with low and moderate burn severity that do not experience debris flows are expected to revegetate over a period of 1 to 3 years.

G. Estimated Hydrologic Response (brief description):

Hydrologic response following the Trestle wildfire will include reduced interception and infiltration of precipitation, increased runoff and erosion, higher stream flow volumes for a given precipitation input, and a more rapid rise of stream levels compared with those of unburned conditions. Additionally, the probability of severe erosion, debris torrents, and hillslope failures is higher, and will remain so for at least the next few years. Below is a description of the 12th HUC subwatersheds (proportion of burned area; Middle Lightning Creek (4.5%), Rapid Lightning Creek (3.4%), Upper Lightning Creek 13.6%, Trestle Creek 23.2%) that will likely be affected by the aforementioned processes.

The terrain within the fire perimeter is very steep (43% mean slopes) with a mix of dendritic and parallel type drainages patterns. This can be seen (parallel) throughout the adjacent hillslopes in the Trestle Creek watershed and face tributaries in Lighting Creek (steepness and outcrop control). However, there are scattered scree hillslope formations (talus rubble land) that account for higher infiltration than normal in the ridgelines of the fire, which don't follow conventional drainage patterns or runoff response. Therefore, the burned area can be seen as having moderate infiltration in the context of hydrologic runoff.

As you move from the headwaters and adjacent hillslopes to the riverine environments (Lighting and Trestle Creek) you continue to stay in a high energy (transport) system. This can be seen in the grain composition (cobble, boulder) and steepness (step-pool morphology). Once the tributaries have reached these main arterial streams (4th to 5th Strahler order), depositional areas are localized. This sequence of localized deposition and predominant transport continues until it reaches either Lake Pend Oreille or lower gradient floodplains (e.g. transitional).

The overall burn within these areas was widespread but mostly affected hillslope areas. The burn also exhibited patchy burn intensities and was mostly low and unburned SBS, which can be seen in the proportion of Soil Burn Severity (SBS) e.g. unburned = 15%, low = 42%, moderate = 33%, high = 10%. Of note, most of the riparian area (300 ft buffer around NHDPlus High Resolution) is intact in the 1-to-3 Strahler order streams, e.g. high = 2%, moderate = 20%, low = 54%, unburned = 24%. Thus, a lot of the vegetation in the riparian area was retained and could ameliorate sediment that erodes from burned hillslopes. The coupling of mosaic type burning and sufficient intact riparian areas will be a strong driver in reducing the potential for severe post fire hydrologic responses, e.g. interception, infiltration, runoff and erosion.

PART V - SUMMARY OF ANALYSIS

Introduction/Background The Trestle Complex is located on the Sandpoint Ranger District of the Idaho Panhandle National Forests. The fires were originally detected on July 7th, 2021 due to a thunderstorm that ignited multiple fires throughout the Idaho Panhandle. The Idaho Panhandle National Forest began initial attack and identified opportunities to group and manage multiple fires within several complex incidents. The Trestle Complex began with 7 small separate fires that eventually merge in to one larger fire. The Trestle Creek Complex saw significant growth July 30 – August 1 as a weather system moved into the region. Winds from the northeast reached 25 mph causing wind-driven fire growth to the southwest and starting spot fires up to ¾ of a mile ahead of the fire. Cooler air and moisture moved into the area helping with containment. As of 10/01/2021 containment is at 99%, with full containment estimated to occur on 10/15/2021. The Trestle fire is located 5.5 mile Northeast of Hope ID in Bonner County. BAER Critical Values were identified from the assessment team and local staff as Human life and Safety, Property, Natural Resources and Cultural resources.

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

Table 5: 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):

Value	Probability	Consequence	Rating	Threat
Roads	Possible	Major	High	USGS Debris Flow Hazard Assessment shows a >60% estimated likelihood of debris flow occurrence across a number of drainages that cross the 275 road within the burned area in Trestle Creek watershed. There is also an estimated 20-60% chance of debris flow occurrence across a number of drainage segments that either cross or come right down into Lightning Creek adjacent to the 419 road in the

				Lightning Creek watershed. It was discussed by specialists as well as documented in some reports that the Fall creek drainage area at its intersection with FS Road 419 has had a recent history of 2 considerable debris flows in the last 16 years. Recommended treatment includes a seasonal closure on the 275 road in order to reduce user exposure during saturated conditions that may initiate a failure.
Trails	Unlikely	Major	Intermediate	Risk of trail failure and Snag Failure to users on trail. Recommended treatment includes Signage.
Dispersed Campgrounds	Unlikely/Likely/Possible	Major	High	There are a lot of dispersed campgrounds just outside the burn area that have some risk due to debris flows. The potential risk depends on campground distance from fire perimeter, the probability of debris flow occurring, and the proximity of the camp site to the floodplain. Recommended treatment is to post signage at affected sites.
Huckleberry Campground	Possible	Moderate	Intermediate	Most sites are on the bench above the bank, but one site is located next to the stream. Rain on snow could cause rapid flow increase. Recommended treatment is to post warning signs at campground.

2. Property (P):

Value	Probability	Consequence	Rating	Threat
Trails	Unlikely/Likely	Moderate/Minor	Very low/Very High	Trail damage probability and consequence vary in the burn area. This depends on trail location on the landscape and soil burn severity around the trail. Prioritize trail stability work in area that has unacceptable risk for trail erosion.
Roads	Possible/Likely	Minor/Moderate	Low/High	Road damage from postfire runoff and debris flow varies with the burn area and depends on SBS and topographic position. FSRD 275 is at greatest risk. Recommend preparatory treatments to ensure proper drainage.
Bridges	Unlikely	Minor	Very low	There's very little evidence for elevated flows that could erode the bridge footing. No treatment is recommended.

3. Natural Resources (NR):

Value	Probability	Consequence	Rating	Threat
Bull Trout	Likely	Moderate	High	Soils and Hydrology modeling indicate erosion, debris flows, and elevated peak stream flows are likely. Impacts likely in spawning and rearing habitat of Trestle Creek, and would not be as impactful in Lightning Creek. Treatments recommended to ensure proper road drainage would assist in mitigating potential impacts to bull trout.

Grizzly BAER Habitat	Likely	Major	Very High	Post-fire increase in human presence resulting in individual displacement of grizzly. Suppression lines and the loss of vegetation due to the fire have increased access points for unauthorized motorized use, negatively impacting grizzly habitat.
Lynx Habitat	Unlikely	Minor	Very low	While lynx habitat was damaged, there is still sufficient remaining lynx habitat and does not surpass Forest Plan thresholds.
Native Plant and Plant Communities	Very Likely	Moderate	Very High	Localized noxious and invasive weed populations exist immediately adjacent to the burned area and area disturbed by suppression. Invasive species such as Ventenata *(Ventenata dubia)* will compete aggressively with native species for space and nutrients. Early detection, rapid response (EDRR) treatments are recommended to address unacceptable risk to native plant communities.
Soil Productivity	Likely	Moderate	High	High erosion potential soil units occupy roughly a third of the burned area. Some high erosion potential soil units yielded sediment delivery rates up to 163 t/ac (> ~1 inch depth per unit area). Soil specialists observed noticable beargrass and some forb regeneration in moderate and high burn severity areas. Land treatments were considered to reduce risk but were determined to be ineffective in this area and not economically justifiable.
Hydrologic Function	Possible	Moderate	Intermediate	Disturbed roads with burned vegetation can lead to desynchronization and alter runoff timing to streams. Channel morphology can become altered due to elevated flows and sedimentation.
Water Quality	Possible/Likely	Moderate	High	Excessive sedimentation and stream temperature increase. Largest impacts are expected in the Trestle Creek drainage due to the extent of mod to high SBS in the watershed.

4. Cultural and Heritage Resources:

Value	Probability	Consequence	Rating	Threat
NRHP Eligible Heritage Sites AND Critical Tribal Concern	Very Likely	Major	Very High	Loss of those features that qualify the sites as eligible for nomination to the NRHP. Loss of site features and subsurface materials of extreme Tribal Concern. Recommended treatment will include clearing the site of burned debris by hand, and directional felling of nearby snags away from the sites.
Sacred Sites / Sacred Landscape	Likely	Major	Very High	Known area of heavy off road and unauthorized motor vehicle usage (ATV, motorbike, snowmobiles, etc.), proximity to city. Recommended treatment is to directionally fell snags in order to use on site material as barriers to unauthorized motorized use.
Trail #526 Trestle Ridge, Cultural Resource Sites 10BR183 and 10BR184, and CTC for Traditional Lifeways	Likely	Major	High	Known area of heavy off road and unauthorized motor vehicle usage (ATV, motorbike, snowmobiles, etc.), proximity to city. Recommended treatment is to directionally fell snags in order to use on site material as barriers to unauthorized motorized use.

B. Emergency Treatment Objectives:
The primary objective of this Burned Area Emergency Response Report is to recommend treatments to manage identified unacceptable risks from "imminent post-wildfire threats to human life and safety, property, and critical natural resources on National Forest System lands" (FSM 2523.02). These treatments are proven effective and are expected to substantially reduce the probability of damage to identified BAER critical values. Below, the proposed treatments are described in terms of treatment objective and cost of implementation.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
D. **Land**: 90%
E. **Channel:** N/A
F. **Roads/Trails:** 85%
G. **Protection/Safety:**90%

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	***3 years after treatment***	***5 years after treatment***
Land	90	85	85
Channel	N/A	N/A	N/A
Roads/Trails	85	90	90
Protection/Safety	95	100	100

E. Cost of No-Action (Including Loss):

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

☒ Soils ☒ Hydrology ☒ Engineering ☒ GIS ☒ Archaeology
☒ Weeds ☒ Recreation ☒ Fisheries ☒ Wildlife
☐ Other:

Team Leader: Andy (Mark) Casillas
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Forest BAER Coordinator: Jori Johnson
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(C) (559)760-3941

Team Members:*Table 7: BAER Team Members by Skill*

Skill	**Team Member Name**
Team Lead(s)	Andy Casillas
Soils	Eric Robertson (Q) Phil Schwartz (T)
Hydrology	Josh Erickson (Q)
Engineering	Hampton Coogle (T)
GIS	Dustin Gates (T)
Archaeology	Elizabeth Bigelow
Weeds	Jennifer Costich-Thompson (Q) Kristen Bednarczyk (T)
Recreation	Lisa Portune (T)
Other	Fisheries - Sean Stash (T) Diana Meza – Wildlife (T) Heather Fuller – Agency Administrator

H. Treatment Narrative:

Land Treatments:

Early Detection and Rapid Response (EDRR) of Non-native Invasive Species: 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.

General Description: Invasive plants and weed assessments will be conducted in FY2022 for Early Detection and Rapid Response (EDRR) on any new infestation located within the fire perimeter. Priority will be to assess areas that have a high potential for weed/invasive species establishment in order to mitigate threats to native vegetation as a critical value. Critical areas include roads, fire lines, 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 hand lines, staging areas and spike camps will also be prioritized for monitoring and treatment.

The areas we are recommending for EDRR monitoring (and potential treatment) include approximately two miles of roadside along FSR275 adjacent to the burned area; approximately 2/3-mile of roadside along FSR232 adjacent to the burn area; two spike camp locations (at 120 trailhead adjacent to FSR275 and near Mud Creek along FSR419); a constructed staging area/safety zone; as well as portions of several rehabilitated dozer lines adjacent to FSR275 and FSR1091. This results in a total of:

Suppression EDRR- 13 acres (including roadside treatments, spike camps, and staging area)

Burned Area EDRR- 5 acres (moderate to high soil burn severity at elevated risk of NNIS infestation)

Cultural Resource Protection: To protect two pre-contact NHPA eligible cultural resource sites, Cultural Resource staff and a felling team will directionally fall damaged burned timber away from the sites and remove fallen burned materials from the site interior to clear burned vegetation and debris at risk of destroying historic sites. The destruction of these sites would alter the eligibility for NHPA, making them non-renewable resources that would not recover if damaged.

General Description: Hand removal of burn fall from site features, directional felling of snags and fire weakened trees. Directional felling and slash piling to prevent unauthorized access.

Directional felling to prevent unauthorized motorized use: Tree felling would utilize on-site material as natural barriers to prevent unauthorized motorized access along the Trestle ridgeline that has been exposed due to the lack of vegetation.

General Description:
Directionally fell trees in strategic locations to prevent unauthorized vehicular access. This treatment would benefit three resource areas/ critical values including Tribal Sacred Sites, TES habitat, and native plant communities. Unauthorized vehicular access could result in the loss of integrity and access to a Sacred site and other Treaty related areas of Critical Tribal Concern. Cultural resources are considered non-renewable, and as such damage or loss to these sites would be irreversible. This unauthorized vehicular access could also impair wildlife habitat recovery as grizzly bear habitat is dependent on connected habitat areas with minimal to no motorized use. Trails in the area are not designed to handle unauthorized vehicular access and could degrade from motorized use. Additionally, motorized vehicles are common vectors or non-native invasive species, and without

effective closures the likelihood increases that NNIS species become established in moderate to high severity burn areas.

Channel Treatments: N/A

Roads and Trail Treatments:

Signage: The purpose of roads and trails treatment is to protect the property value of the road and trail infrastructure from loss due to increased erosion and water runoff.

Complete preparatory work on FSRD 275 (Trestle Creek Road) to ensure all drainage features will be functioning properly prior to heavy rains and snow melt that will occur during the spring. Trail hardening and drainage improvement work will be completed on sections of trail impacted by high and moderate soil burn severity. These treatments are designed to ensure proper drainage in areas that higher levels of runoff are excepted. Thus, prevent damage to road and trail prisms. Hazard tree will be limited in scope, and be completed only to protect the life and safety of treatment implementation staff.

Protection/Safety Treatments:

Signage: The purpose of “Burned Area Warning Signs” is to reduce the risks to human life and safety by alerting hikers and campers of potentially dangerous situations while traveling within the areas susceptible to flooding, debris flows, hazard trees, and all other risks attributable to post fire events on the landscape.

General Description:
Signage will be posted in fire affected areas in order to inform forest users that the risks associated with recreating in these areas has been affected or elevated by the post-fire environment.

Area Closure: The purpose of closing FS RD 275 is limit the exposure of the public to potential risks to human life and safety associated with post-fire elevated peak flows, erosion, and potential debris flows and road failure.

General Description:
Primary treatment is the Seasonal Closure of FSRD 275 during spring runoff to keep users out of the area when failure of the road is most likely to occur. Failure of the road could result from excess water on the road, erosion, debris flow, or mass wasting events. Treatment would include administrative closure order, signage, and barriers.

I. Monitoring Narrative:
Invasive weeds monitoring will focus on roads, trails, trailheads, dozer and hand lines identified for EDRR weed management strategy. Monitor for Eurasian Water Milfoil may be recommended in subsequent interim request. Research on cost and effectiveness of different monitoring methods is still on going. Monitoring the effectiveness of treatment for contour felling to protect cultural, wildlife and recreations values will continue for the next year.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
Invasive Weeds (Supresion)	Acre	348	18	$6,264	$0		$0		$0	$6,264
Invasive Weeds BAER	Lump	894	1	$894						$894
Cullturral resource Protection	Day	580	4	$2,320	$0		$0		$0	$2,320
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$9,478	$0		$0		$0	$9,478
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$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										
Road treatment	mile	2,500	5	$12,500	$0		$0		$0	$12,500
Trail Treatment	Day	550	18	$9,900	$0		$0		$0	$9,900
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$22,400	$0		$0		$0	$22,400
D. Protection/Safety										
Road Signs	each	250	10	$2,500	$0		$0		$0	$2,500
Trail Signs	each	158	10	$1,580	$0		$0		$0	$1,580
Road Barriers	esch	900	6	$5,400						$5,400
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$9,480	$0		$0		$0	$9,480
E. BAER Evaluation										
Initial Assessment	Report			---	$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
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$41,358	$0		**$0**		**$0**	**$41,358**
Previously approved										

PART VII - APPROVALS

1. CARL PETRICK Digitally signed by CARL PETRICK Date: 2021.10.14 07:09:35 -07'00'

Forest Supervisor Date