Date of Report:

November 20, 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 #___
☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Ice

B. Fire Number: CO-SJF-001214

C. State: Colorado

D. County: San Juan

E. Region: 02

F. Forest: San Juan

G. District: Columbine

H. Fire Incident Job Code: 0213 P2NPD3

I. Date Fire Started: 10/19/2020

J. Date Fire Contained: 10/27/2020

K. Suppression Cost: $1,000,000

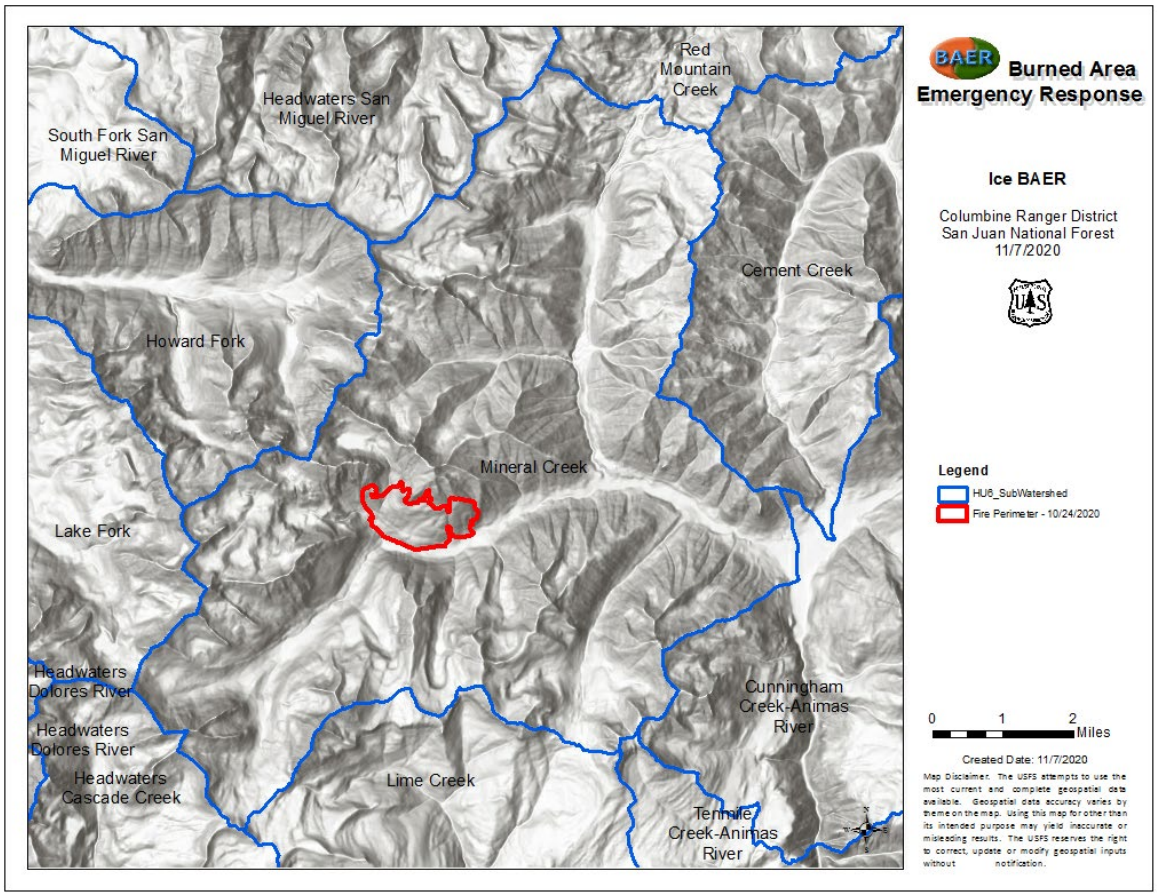
L. Fire Suppression Damages Repaired with Suppression Funds (estimates):

1. Fireline repaired (miles): 1
2. Other (identify): Trails cleared of fallen trees (miles) 6 (2 miles, 3 times). Roads cleared of fallen trees 9 (3 miles, 3 times)

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
140801040103	Mineral Creek	33833	597	1.7%



N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	597
OTHER FEDERAL (LIST AGENCY AND ACRES)	
STATE	
PRIVATE	
TOTAL	

O. Vegetation Types: *The Ice Fire occurred within an area comprised of two general vegetation types: spruce-fir forest and aspen with conifer. Both vegetation types have an understory of whortleberry and elk sedge. The spruce-fir forest vegetation type is the major vegetation type within the fire perimeter and comprises approximately 355 acres. Of these 355 acres, approximately 104 acres are considered moderate soil burn severity and 13 acres are high soil burn severity. Engelmann spruce, blue spruce, and subalpine fir are the dominant tree species in this vegetation type with an elevational range of 6,500 feet to 11,000 feet. The aspen with conifer vegetation type comprises approximately 153 acres of the Ice Fire area with 32 acres experiencing moderate soil burn severity and zero acres in high soil burn severity.*

P. **Dominant Soils:** *Two soil types comprise almost 80% of the soils within the burn perimeter: the Needleton stony loam, 30 to 65% slopes and the Needleton Snowden-Rock outcrop complex, 30 to 80% slopes.*

Q. Geologic Types: *The dominant geologic type is the Cutler Formation (Lower Permian) which is reddish-brown, thin to thick lenticular bed of micaceous shale, siltstone, fine- to coarse-groained sandstone that is locally conglomeratic, and arkosic sandstone and conglomerate; locally calcareous. Its exposed thickness is about 550m.*

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	1.19
INTERMITTENT	0.09
EPHEMERAL	1.10
OTHER (DEFINE)	

S. Transportation System:

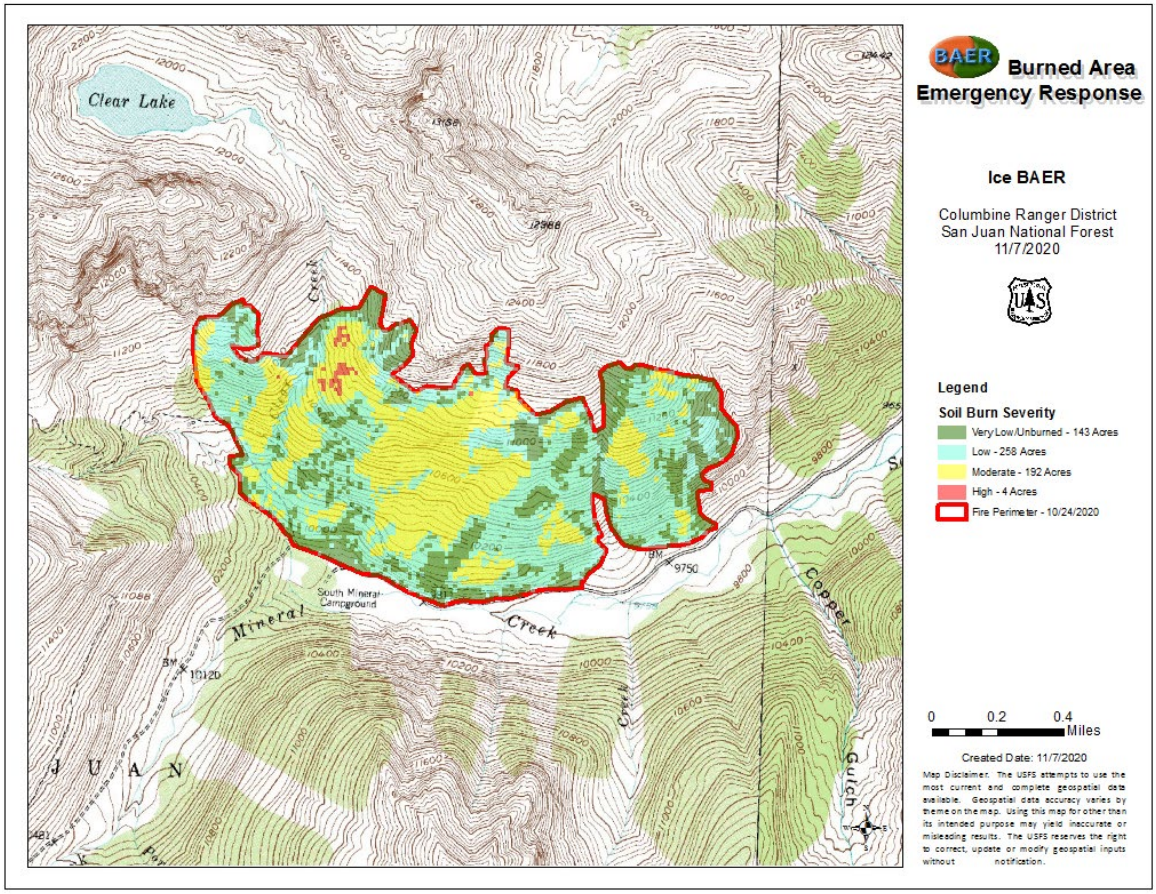
Trails: *National Forest (miles):* 1.13 *Other (miles):* 0.44
Roads: *National Forest (miles):* 3.34 *Other (miles):* 0

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	143					
Low	258					
Moderate	192					
High	4					
Total	597					



B. Water-Repellent Soil (acres): *<10%*

C. Soil Erosion Hazard Rating: *The erosion hazard rating (off-road, off-trail) for the dominant soils within the burn perimeter is moderate.*

D. Erosion Potential: *Moderate.*

E. Sediment Potential: *Moderate.*

F. Estimated Vegetative Recovery Period (years): *2-3 year for low SBS, 3 years for moderate SBS, 3-5 years for high SBS areas*

G. Estimated Hydrologic Response (brief description): *Drainages within and downstream of the burn have naturally high sediment loads and can move boulder-sized substrate under average snowmelt and rainfall events. Post-fire there will be an increase in sediment laden flood flows and debris jams are very likely. Clear Creek and South Mineral Creek drainages are the most at risk. Hydrologic and soil erosion modeling was not done on these watersheds due to their very small size. Hydrologic response in Clear Creek is based on professional knowledge of the area (historic floods and debris flows regularly occur in this drainage).*

PART V - SUMMARY OF ANALYSIS

Introduction/Background

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):** *An increase in post-fire flooding is expected along with an increase in the amount of material resulting in debris jams in Clear Creek and South Mineral Creek. There is also the potential for rock fall and hazard tree fall along routes and trails. These post-fire conditions are a threat to human life and safety at the South Mineral Campground, the four dispersed camping areas near the Mineral Creek Campground, FS Roads 585 and 815, and the Ice Lakes Trail and Trailhead. Damage to the exclosure fence around the water source intake for the South Mineral Campground puts human health at risk.*
2. **Property (P):** *Forest service property that will be adversely affected by the post-fire environment include the South Mineral Campground; the Golden Horn, Sultan, Anvil, and Kendall designated dispersed campgrounds (pit toilets and other infrastructure is present at these campgrounds); FS Roads 585 (including the culvert at the Clear Creek crossing) and 815; and the Ice Lakes Trail.*
3. **Natural Resources (NR):** *Noxious weeds pose threats to biological diversity by compromising the natural plant communities and limiting resources for their survival. This deterioration of native communities through noxious weeds outcompeting and excluding native species has a trickle-down effect on the ecosystem, including wildlife species. Noxious weeds are known to alter ecosystem functions such as nutrient cycles and hydrology as well. Noxious weeds identified near the burn perimeter include toadflax, Canada thistle, musk thistle, and common mullein. All of these weeds are found on Colorado's Noxious Weed Lists A & B.*
4. **Cultural and Heritage Resources:** *Prior to the Ice Fire, cultural resource surveys documented and assessed a total of one historic hard rock mill site located within the burn permiter. The mill site has previously been determined to be eligible for listing on the National Register of Historic Places and was within an area of moderate burn severity. As a consequence, this site was identified as a potential*

value at risk. Field analysis of the site determined that emergency stabilization treatments or fire effects monitoring is not required.

Table 1 Critical Values for which treatments are proposed

Critical Value	Critical Value	Probability of Loss	Magnitude of Consequences	Risk
Life/Safety	Water supply for South Mineral Campground	Very Likely	Major	Very High
Property	FS Roads 585 and 815	Very Likely	Major	Very High
	South Mineral Campground	Very Likely	Major	Very High
	Designated dispersed campgrounds	Possible	Major	High
	Ice Lakes Trail	Very Likely	Major	Very High
Natural Resources	Native or naturalized plant communities	Likely	Moderate	High
Cultural Resources	Ice Lakes mill	Unlikely	Minor	Very Low

B. Emergency Treatment Objectives: *The proposed treatments on National Forest System lands can help to reduce the impacts of the fire from storm events, but treatments cannot fully mitigate the post-fire effects of the fire. Detailed information of the treatments summarized below can be found in the specialist reports prepared in support of this funding request. The treatments listed below are those that are the most effective on National Forest System lands to minimize threats to identified values at risk.*

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: 90%
Channel: NA
Roads/Trails: 80%
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	80	80	85
Channel	NA	NA	NA
Roads/Trails	80	80	90
Protection/Safety	90	90	95

E. Cost of No-Action (Including Loss): $22,500

F. Cost of Selected Alternative (Including Loss): $21,060

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: *Shauna Jensen*
Email: shauna.jensen@usda.gov **Phone(s)**: (970) 882-6815

Forest BAER Coordinator: *Lindsey Hansen*
Email: lindsey.hansen@usda.gov **Phone(s):** (970) 385-1369

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

Skill	Team Member Name
Team Lead(s)	Shauna Jensen
Soils	Shauna Jensen
Hydrology	Eric Herchmer
Engineering	Allen McCaw
GIS	Jessey Ramirez
Archaeology	Liz Francisco
Weeds	Courtney Raukar
Recreation	Jed Botsford
Other	Brad Pietruska (Fire), Britton Quinlan (Fire)

H. Treatment Narrative:

Land Treatments:
L1: Treat weed populations and the areas adjacent to those weed populations where the probability of spread and infestation is high. Nearby known weed populations include Canada thistle, musk thistle, common mullein, and toadflax. The recommended treatment method consists of spot spraying of a tank mix of Milestone and 2, 4-D herbicide, an effective suppressant of noxious weeds. Weeds are most likely to establish along Clear Lake Road, Ice Lake Trail, and the newly constructed handline along the west flank of the fire perimeter where soil burn severities were moderate and high. These linear features were converted to polygon acreages resulting in 14 acres of treatment. The Ice Lakes fire burned within a proposed Special Management Area that should have its unique characteristics maintained through preventative measures. There is a potential seed source for rapid weed establishment along these routes if not treated. This treatment will reduce the potential for establishment of new noxious weed infestations in highly susceptible areas and prevent increase in weed density in existing infestation.

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2021	6/01/2021	9/30/2021	F	Acres	$236	14	**$3,684**
TOTAL							**$3,684**

Channel Treatments: NA

Roads and Trail Treatments:
RT-13: The Ice Lakes Trail NFST #505 will have issues with drainage due to the expected increase in flows from moderate and/or high soil burn severity areas. Proposed treatments include the construction of water bars, switchback reconstruction, and hazard tree removal for crews working in the area. Approximately 1 mile of the Ice Lakes Trail is in or below moderate and/or high soil burn severity areas. Implementation of the treatments protects the trail investments. The potential monetary cost to repair

trails that would be damaged by localized post-fire runoff and erosion if left untreated significantly exceeds the cost of the treatments.

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2021	06/1/2021	10/1/2021	F	Miles	$2,400	1	**$2,400**
						TOTAL	**$2,400**

RT-1: FS Road 815 will have issues with its drainage system due to the expected increase in post-fire flows. The minimal treatments required to remedy these issues are culvert cleaning, ditch cleaning, and water bar installation. Protecting the road infrastructure will minimize sediment delivery into Mineral Creek. The potential monetary cost to repair roads that would be damaged by post fire flows if left untreated significantly exceeds the cost of the treatments. The road will need to be closed to the public for at least 1 year following the fire to prevent the public from using the road.

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2021	06/01/2021	06/14/2021	F	miles	$3,450	2	**$6,900**
						TOTAL	**$6,900**

RT-2: Post-fire increases to runoff, flooding, and associated erosion are likely to wash out roads and in out years to interrupt access along FS Roads 585, 815, and 700 (South Mineral Campground). These routes are within and downstream of moderate and/or high soil burn severities within the Ice fire perimeter. Water flowing over the road prism where it crosses drainages is expected and runoff may include debris and large boulders. This treatment is intended to assess roads for damage after substantial rainfall events and implement actions to clean the road surface and infrastructure to maintain full effective capacity for future storms. Immediately after receiving heavy rain Force Account will inventory the roads for hazardous situations, such as clogged culverts, obstructions, sediment, and washouts. Patrols will identify problems and mobilize an equipment response to correct any deficiencies prior to the next storm event. Removed material will be deposited outside of the floodplain on higher ground to prevent transport of material back into culverts, onto road, etc.

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
	05/01/2021	09/30/2021	F	miles	$1,960	5	$9,800
						TOTAL	**$9,800**

Protection/Safety Treatments:

P-1: This treatment is for the installation of flood warning signs and burned area warning signs. These signs will warn the public of dangers on the road that have changed as a result of the Ice Lake Fire. The area is currently under temporary closure until July 1, 2021. These signs will serve as warnings to members of the public who may enter the area accidentally or who may disregard the closure order. Flood warning signs will alert the public when traveling along South Mineral Creek and crossing Clear Creek drainage about increased risk of floods. Burned area signs consist of a warning to the public

identifying the possible dangers associated with a burned area. The signs shall contain language specifying items to be aware of when entering a burn area such as falling trees and limbs, rolling rocks, and flash floods.

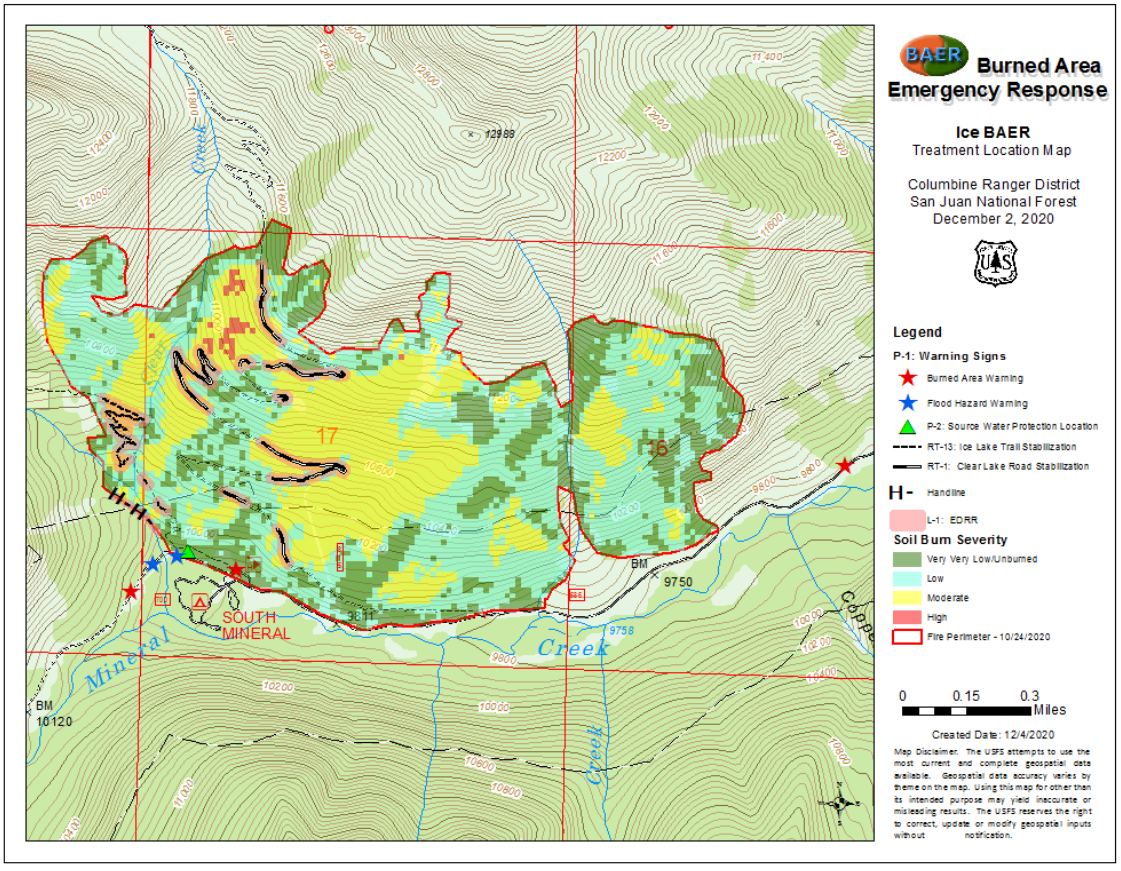
SPECIFICATION COST SUMMARY

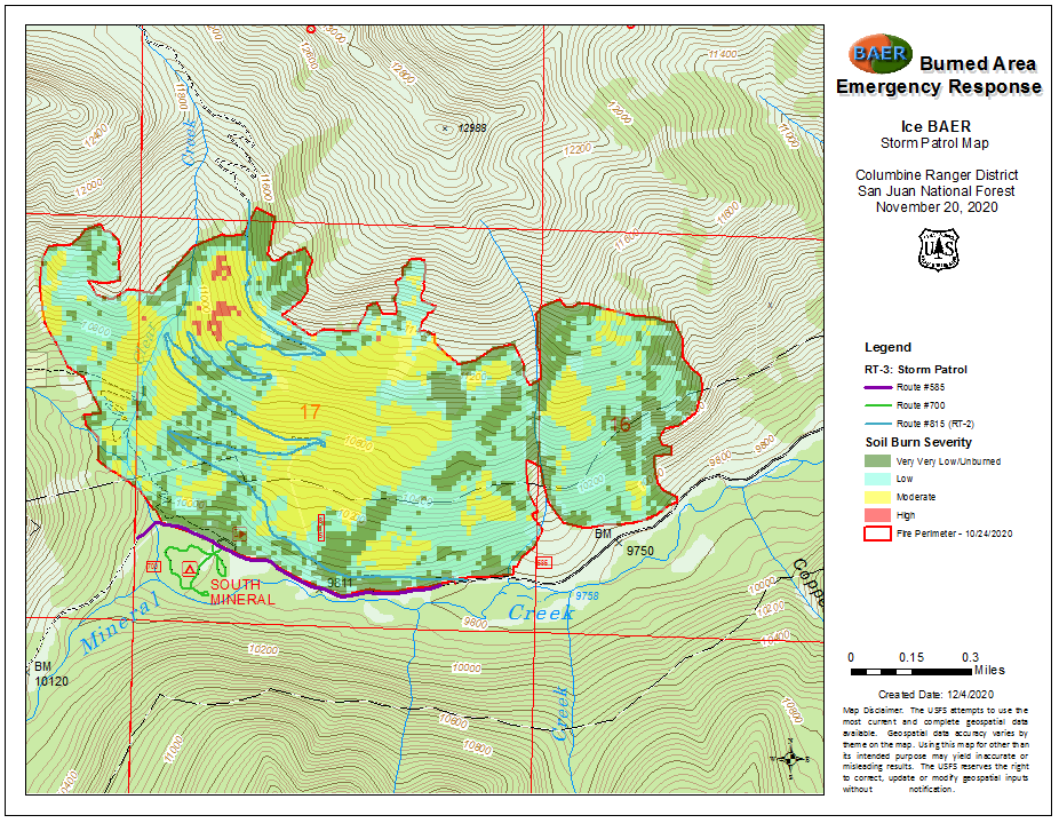
FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2021	05/1/2021	05/01/2021	S	Signs	$620	5	$3,100
						TOTAL	**$3,100**

P-2: Upgradient of the drinking water supply source area for the South Mineral Campground are diversion ditches that keep overland flows from deteriorating the source water intake. These ditches will be adversely impacted by post-fire runoff and erosion. Diversion ditches should be cleaned out to improve their capacity to capture and divert runoff.

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2021	5/15/2021	5/22/2021	F	Each	$438	Assess/clean out diversion ditches	$438
2022	10/1/2021	9/30/2022	F	Each	$438	Assess/clean out diversion ditches	$438
						TOTAL	**$876**





I. Monitoring Narrative:

Land Treatments:

L-1: District rangeland management conservationists will monitor potential infestation areas 2 times in the first year following treatment. Implementation monitoring will be accomplished during spraying. Areas sprayed will be mapped.

Channel Treatments: NA

Roads and Trail Treatments:

RT-13: Monitoring will be done via trail patrol.
RT-1: Monitoring will be done via storm patrol.
RT-2: The locations and condition of road damage and repairs will be recorded.

Protection/Safety Treatments:

P-1: Project administrator will conduct field checks to ensure work quality.
P-2: Diversion ditches will be monitored to make sure that they are operating at capacity.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
EDRR	Acres	236	14	$3,684	$0		$0		$0	$3,684
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$3,684	$0		$0		$0	$3,684
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										
Ice Lakes Trail Stabilization	Miles	2,400	1	$2,400	$0		$0		$0	$2,400
FS Road 815 Stabilization	Miles	3,450	2	$6,900	$0		$0		$0	$6,900
Storm Patrol	Miles	1,960	5	$9,800						$9,800
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$19,100	$0		$0		$0	$19,100
D. Protection/Safety										
Warning Signs	Each	620	5	$3,100	$0		$0		$0	$3,100
Source Water Protection Dtich Maintenance	Each	438	2	$876	$0		$0		$0	$876
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$3,976	$0		$0		$0	$3,976
E. BAER Evaluation										
Initial Assessment	Report			$5,568	$0		$0		$0	
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$5,568	$0		$0		$0	$0
F. Monitoring										
(Included in above subtotal costs)				$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				$32,328	$0		**$0**		**$0**	**$26,760**
Previously approved										
Total for this request				**$32,328**						

PART VII - APPROVALS

1._____

Forest Supervisor Date