

**BURNED-AREA REPORT**  
(Reference FSH 2509.13)



**PART I - TYPE OF REQUEST**

A. Type of Report

- ☒ 1. Funding request for estimated emergency stabilization funds
- ☐ 2. Accomplishment Report
- ☐ 3. No Treatment Recommendation

B. Type of Action

- ☐ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
- ☒ 2. Interim Report # \_\_\_\_\_
  - ☒ Updating the initial funding request based on more accurate site data or design analysis
  - ☐ Status of accomplishments to date
- ☐ 3. Final Report (Following completion of work)

## PART II - BURNED-AREA DESCRIPTION

- A. Fire Name: Charlie Fire
- B. Fire Number: CA-ANF- 3612
- C. State: CA
- D. County: Angeles
- E. Region: 05
- F. Forest: Angeles NF
- G. District: Little Trubuco RD
- H. Fire Incident Job Code: 1502 PNL5A6
- I. Date Fire Started: 09/22/2018
- J. Date Fire Contained: 09/29/2018
- K. Suppression Cost: \$9,580,005.00
- L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 12.95
  2. Fireline seeded (miles): 0.0
  3. Other (identify):
- M. Watershed Number: Lower Castaic Creek HUC # 180701020305 and San Francisquito Canyon HUC # 180701020402.
- N. Total Acres Burned: 3380  
NFS Acres (2778) Other Federal ( ) State (656) Private ( )
- O. Vegetation Types: Chamise-Redshank Chaparral (1858 acs); Coastal Scrub (836 acs); Mixed Chaparral (669 acs); Annual Grassland (27 acs); Barren (23 acs); Coastal Oak Woodland (15) acs; Urban area 6 acs)
- P. Dominant Soils: Stonyford-Millsholm families complex, 30 to 70 percent slopes; Hanford family, 3 to 25 percent; Mollic Haploxeralfs, 2 to 50 percent slopes; Modesto, moderately deep-Trigo families complex, 25 to 75 percent slopes
- Q. Geologic Types: The Charlie Fire area is located in the Transverse Range Geomorphic Province. The Charlie Fire is underlain predominantly with Undivided Miocene marine sedimentary rocks (Mu) and Miocene and Oligocene non-marine sedimentary rocks (Mc & Oc). Mc and Oc consists of moderately to well consolidated sandstone, shale, conglomerate, and fanglomerate. A felsic San Gabriel Mountain pluton is located in the north end of the fire area. There are some stream terrace deposits and a Plio-Pleistocene non-marine sedimentary rock unit located on the south end of the fire area on state land.
- R. Miles of Stream Channels by Order or Class: Intermittent – 15 miles
- S. Transportation System
- Trails: 0 miles Roads: 4.85 miles

## PART III - WATERSHED CONDITION

- A. Burn Severity (acres): unburned – 332 acs (10%); low – 1018 (30%); moderate – 2032 acs (59%); high – 51 acs (1.5%)

- B. Water-Repellent Soil (acres): ~2,080
- C. Soil Erosion Hazard Rating (acres): 1018 (low) 2032 (moderate) 51 (high)
- D. Erosion Potential: 4.71 tons/acre
- E. Sediment Potential: 3014 cubic yards / square mile

#### **PART IV - HYDROLOGIC DESIGN FACTORS**

- A. Estimated Vegetative Recovery Period, (years): 3-5
- B. Design Chance of Success, (percent): 80
- C. Equivalent Design Recurrence Interval, (years): 2
- D. Design Storm Duration, (hours): .5
- E. Design Storm Magnitude, (inches): .57
- F. Design Flow, (cubic feet / second/ square mile): 7.5
- G. Estimated Reduction in Infiltration, (percent): 32
- H. Adjusted Design Flow, (cfs per square mile): 27.85

#### **PART V - SUMMARY OF ANALYSIS**

The need for this interim request to spend \$7,561 in addition to the initial \$72,175 requested in emergency BAER funds is to cover the actual costs for the detection and treatment of noxious weeds, area/road closures during precipitation, and hazard signage to protect public safety, OHV barriers to prevent damage to critical values, Storm patrol to protect the road, hazmat stabilization, and for interagency coordination to address rehabilitation across federal and state administrative boundaries. During the initial assessment some costs used for staff who will implement this work were either omitted or were not calculated using the actual cost to government. Additionally, the original request did not include all of the costs for contract administration, equipment and mobilization, or mileage to implement the BAER treatments.

The Charlie Fire burned 3434 acres of watershed mostly within the Charlie Canyon watershed near Santa Clarita CA (Lower Castaic Creek HUC # 180701020306). The fire burned 2,778 of National Forest System (NFS) lands and 656 of state lands. A small portion of the fire burned in the San Francisquito Canyon and Tapia Canyon watersheds. All of the above watersheds are within the Santa Clara River watershed. The area is characterized by rolling hills, steep slopes, precipitous escarpments, and deep canyons. The elevation range within the burn area ranges from approximately 1500 to 2350 feet. The mean annual precipitation in the burned area is approximately 17 inches within the Charlie Canyon watershed, mostly coming in the form of winter rain between November and April. The climate is characterized by relatively mild, wet winters followed by hot, dry summers. Thunderstorms can occur occasionally in the summer and can be locally intense in the upper elevations, but they normally do not account for any substantial part of the annual rainfall.

Soil burn severity was mostly at the moderate level, with lesser amounts of low severity. High severity burn areas are sporadic and scattered, mostly in areas where vegetation was dense. Water repellency was found with most

soil samples, down to 1 inch below the surface of the mineral soil and below that repellency was much less. Soils in the majority of the fire area are a sandy/silt loam (sedimentary) with small gravel and cobbles, and have cohesion when dry and are moderately drained. When saturated, soils become liquefied and highly erosive and can easily move off-site. The northern and upper elevations of the fire area have granitic soils derived from weathered rock outcrop, and is less cohesive and well drained. The landscape of the fire has many areas of landslide or mass wasting activity, indications of instability. Without vegetative cover and with water repellent soils, storm runoff from burned slopes will be elevated and will likely deliver excessive amounts of fine sediment to channels in the short term.

Hydrologic modeling for the fire shows elevated flows and sediment delivery over normal conditions could occur during a 2 year interval storm event. In Charlie Canyon, post fire increases compared to pre-fire conditions are about 3.7 times for flow, and up to 12 times increase in sediment yields with a 2 year return interval storm. The first year after a fire is when watershed responses and hazards are highest, and exponentially lower during subsequent years (years 2 through 5) as burned watershed vegetation and ground cover recovers. Moderately hydrophobic soils (soil water repellency) were found in the fire. Channels are charged with sediment and ash and this condition will increase. The first large storm post-fire will cause water, ash and sediment to move into stream channels. Soil erosion modeling for the fire shows increased erosion rates for the areas that burned high and moderate burn severity. Erosion rates are predicted to increase an average of 4.47 tons/acre with the highest erosion rates predicted at 14.96 tons/acre (see ERMiT Erosion run CharlieFire\_ERMiT\_Batch\_10082018\_SantaPaula\_Burned). Average erosion rates for unburned conditions are predicted at .14 tons/acre and the maximum erosion rates for unburned conditions are .4 tons/acre (see ERMiT Erosion Run CharlieFire\_ERMiT\_Batch\_10082018\_SantaPaula\_Unburned).

A. Describe Critical Values/Resources and Threats: Several critical values were identified as values at risk (VAR) including Forest Road 5N17, natural vegetation communities soil productivity and wildlife habitat. An unauthorized dump of florescent/mercury light tubes was found in the south end of the fire on National Forest System (NFS) lands and is a threat to water quality and soils. There is a high risk the mercury will contaminate the soil with highly toxic mercury. Another threat to soil productivity and wildlife habitat is damage from OHV incursion into the newly burned area along open ridge tops and along newly constructed dozer lines off the major roads. The threat to natural vegetation communities is from noxious weed infestation along new dozer lines, handlines and riparian areas from known invasive weed species within a five mile radius of the burn and along direct access routes to the burn. The lower end of Charlie Canyon along the drainage within and directly below the fire could experience sudden and large increases of water and sediment in the channel during intense rain events. The section below the fire is narrow, somewhat confined and the trails are close to the channel where the flooding threat is greatest. Several mountain bike and OHV trails originate in and follow the lower canyon, and trail users life and safety could be at risk during storms. This area appears to be a popular and heavily used area for recreation. See Table 1 for a risk assessment of the Values at Risk.

Unauthorized OHV and Mountain Biking Use - Charlie Canyon is the primary drainage within the Charlie Fire. It has numerous ephemeral tributaries that were burned as a result of the fire. The stream channel and adjacent slopes have been highly disturbed by past human activities in this area with unauthorized roads and many off road OHV use trails. Most of the disturbance areas are located in the lower watershed off of Forest Service lands and on state lands. Many of the trails are located on steep slopes and fire conditions will likely contribute to increased soil erosion in the near term. The potential for OHV trail expansion is high because of the missing vegetation and ease of access to open slopes. Several unauthorized OHV trails were found along Forest Road 5N17.

Private properties along the stream channel are located further upslope of flood prone areas and the potential for significant flooding is lower. Low water road crossings could become overburdened with sediment and debris during large storms and could restrict vehicle travel accessibility.

Access roads, stream crossings and trails into and within the fire area (Non-Forest Service) and downstream of the fire area are subject to flooding and sedimentation during storm events and could result in damage to road tread and affect access. This is concerning the area in lower Charlie Canyon. In addition, motorists, trail users

and other visitors may have a threat to life and safety during large storm events, if present in the area when

Value at Risk	Potential Threats	Probability of Damage	Magnitude of Conseq	Risk	Forest Service Treatment Method
Native Plant Recovery/Soil Productivity in suppression areas	Invasives, OHV incursion	Very Likely	Moderate	Very high	L01
Native Plant Recovery/Soil Productivity in riparian areas	Invasive species	Very Likely	Moderate	Very High	L02
Soil Productivity and Wildlife Habitat	OHV Incursion	Likely	Moderate	High	L03, L04, L05, & L06
Forest Road 5N17	Increased and Uncontrolled Runoff (erosion), flooding and sediment	Likely Possible Likely	Moderate Moderate Moderate	High Low Intermediate High	R1, R2, & R3 P5 P5
HazMat	Soil and Water Quality	Likely	Moderate	High	P1 and P2
Public Safety	Increased flooding across roads and downstream	Possible	Major	High	P3, P4, and P5

flooding and increased sedimentation occurs.

Table 1 - Risk Assessment for Values at Risk

B. Emergency Treatment Objectives:

- Treat invasive plants that are a threat to native and naturalized ecosystems by minimizing the expansion of existing populations in the burned area and control of expected invasion of noxious weeds within and adjacent to the area where soils/vegetation was disturbed as a result of fire (L01 & L02).
- Discourage and dissuade the unauthorized use of off-highway vehicles on the existing roads and unauthorized routes in the fire area (L03, L04 and L05).
- Protect or minimize damage to Forest Road 5N17 by installing 2 over side drainage structures capable of draining surface water off the road bed and preventing incision of the road bed from uncontrolled surface water. In addition, ensure water is draining off the road surface and not damaging the road bed (L1, L2, & L3).
- Contain and clean-up hazardous waste dump site of toxic florescent/mercury light tubes and prevent migration of mercury off site of dump site to adjacent soils and stream channel (P1 & P2).
- Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on roads, reinforcing road, improving road drainage, and communicate hazards of flooding. Communicate to county flood agency and community groups of the threat from the fire area of flooding. Implement and enforce temporary closures to protect public users of NFS lands and recreation sites within the fire area (P3).
- Inform cooperators, other local, and State agencies with the interpretation of the assessment findings to identify potential post-fire impacts to communities, other lands and public utilities (including power lines infrastructure) (P4).
- Fire Area Closure is recommended for the fire area for the first winter and growing season to prevent opportunities for unauthorized use of OHV in the fire area and to reduce the risk of flood hazard to people accessing the fire area in the winter during high precipitation events (P5).

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

Land 90 %   Channel N/A %   Roads/Trails 90%   Protection/Safety 100 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	95	90	90
Channel			

Roads/Trails	90	100	100
Protection/Safety	80	100	100

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

- Damage to the road from not implementing the recommended treatments could exceed \$50,000 from loss of control of surface water from the road bed and subsequent damage.
- Damages to natural communities from noxious weed infestation is a non-tangible cost and difficult to measure.
- Damages to soil productivity and wildlife habitat from OHV incursion is non-tangible and difficult to measure.
- If the Hazmat Site is not contained the cost of clean-up could easily exceed \$20,000 if mercury contamination spreads to adjacent soils and downstream in the adjacent channel. Delaying cleanup of the Hazmat Site may result in conditions, where removal of the contaminated soil from mercury may not even be possible.

F. Cost of Selected Alternative (Including Loss): **Total \$72,175.** The road alternative will cost \$21,000. The Hazmat treatment alternative will cost \$1,030.

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input type="checkbox"/> Range	<input checked="" type="checkbox"/> OHV/LE
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/>
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

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Deb Henry	Fisheries Biologist Trainee
Joanna Huckabee	Archaeology
Ray Kidd	OHV Program Manager
Leslie Welch	Wildlife Biology
Thalia Ryder	Archaeology
Evan Applegate	GIS

H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

L01 EDRR – Suppression and L02 EDRR - non-Suppression - Noxious Weed Early Detection and Rapid Response (EDRR)



Weed detection surveys and rapid response eradication treatments are to determine whether ground disturbing activities related to the Charlie Fire Incident and the fire itself have resulted in new or the expansion of existing noxious weed infestations on Forest Service land. With 12.95 miles of dozerline, 0.6 miles of handline, and 14.86 miles of priority riparian corridors in the fire it is expected that new and expanding weed infestations will proliferate in and along these vectors if left unchecked, eventually leading to vegetation type conversion. Surveys and rapid response eradication treatments will begin in 2019 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits will be required during the growing season. If timing is such that all the target species are detectable/treatable in one visit, the actual costs would be lower than displayed below. Completion of surveys in riparian areas, dozer lines, staging areas, safety zones, and known invasive plant populations would be the first priority. The second survey priorities would be along handlines and drop points. Surveys of the general habitats in the burned area would be the lowest priority.

L03 OHV Trespass Prevention - Build and Install Gate on Forest road 5N17 San Fran Motor Way. See treatment map for location of gate. Use standard forest gate specifications.

L04 OHV Trespass Prevention - Rock Barrier - Install boulders at the gate on Forest Service Road 5N17 and 5N30 (Dry Gulch). Install boulders on either side of existing gate and tie into existing features to prevent access onto road 5N17 when gate is closed.

L05 Dozer Line Chunking - The proposed treatment will rough up (Chunking) 200' of three dozer lines along 7N09 for a total of 600' by using an excavator, with a thumb bucket to discourage use of the dozer lines by off-highway vehicles. Soils are to be chunked in a manner that discourages illegal OHV use and promotes soil health and revegetation.

L06 Enforcement Patrol - One Forest Protection Officer (FPO) enforcement patrols will patrol the fire closure area, contacting OHV users who are in the area during the area closure period. They will also inspect gates to see if they are functioning properly to maintain the fire closure integrity. Treatments include maintenance and repair of closure features, as needed during the closure period. They will also notify law enforcement if necessary.

Channel Treatments: N/A

#### Roads and Trail Treatments:

R1 Storm Inspection & Response – 2.85 miles of FR 5N17. Storm inspection and response will ensure culvert and drainage features are functional by removing sediment and debris from in and around features during and prior to the next storm. The inspection work will be accomplished by someone at the district office. The response work will be accomplished through contractor equipment and labor. The storm inspection and response includes six inspections of FR 5N17 and two response actions, where equipment and operators will be ordered under a storm response contract.

R2 Road Stormproofing - 2.85 miles of FR 5N17. Road stormproofing involves cleaning or armoring of existing drainage structures, as well as recently installed treatments, and is intended to help ensure road drainage performs optimally and to improve structure performance under increased runoff and debris. This work will be accomplished using contractor equipment and labor.

R3 Road Drainage Structure Replacement & Improvements - Road drainage structure improvements involves improving existing deficient structures (rolling dips) and installing two road overside drain structures (24 inch McCarthy Drain and 20' Flume) to help ensure road drainage performs optimally and to improve drainage performance under increased runoff conditions. This work will be accomplished using contractor equipment and labor. The proposed treatments are designed to be the minimal treatment necessary to reduce the risk of road failure to an acceptable level.

Protection/Safety Treatments:



P1 Hazardous Materials (hazmat) Stabilization - Installation of a water deflection barricade consisting of stacked sandbags and a covering placed and secured over the waste (anchored waterproof tarp) will stabilize the site and prevent off site migration of hazmat (mercury) until final cleanup activities can take place.

P2 Hazardous Materials (hazmat) Removal - If the waste site is mercury vapor lamps the wild fire has made the dump site worse and also a larger area. The spillage may be a toxic hazard due to mercury from light-tubes. Clean-up requires special care. The waste site meets the notification requirements and may require rapid response to protect public health and the environment (NF Land). Prior to removal of the florescent/mercury light tubes Notification to county Health Officials of spill site of hazardous substances will be required. Verification of mercury at the site will have to be completed by collecting soil samples and having the samples tested at a lab. If mercury is detected at toxic levels the tubes will have removed and if the soil is contaminated soil will be removed. Disposal of hazardous material will be at an approved hazmat disposal site.

P3 - Hazard Signs will inform users of the danger associated with entering and using trails and dispersed recreation areas within the burned area, or to stay on roads and off unauthorized trails and not go into burned areas. The installation of signs include posts and associated hardware. There are a number of portals or access points to these unauthorized trails. Forest staff will provide oversight for sign installations and implementation. Locations are shown on the treatment map. An example of the warning sign has been provided in the project record.

P4 - Coordinate with partners - Begin interagency coordination and communication between the Forest Service and public agencies including Los Angeles County (Public Works and Office of Emergency Management), NOAA National Weather Service and Natural Resources Conservation Service (NRCS) representatives to provide information on emergency determinations of the BAER assessment concerning flooding and sedimentation to roads, infrastructure, private property and human life and safety.

P5 - Fire Area Closure – Establish a Fire Area Closure Order for the upcoming winter to reduce the risk of unauthorized OHV use in the fire area and to reduce the risk of threats to life and property of people accessing the fire area during high precipitation events.

#### **I. Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.

			NFS Lands			Addtl. Funds Requested				All
Line Items	Units	Unit Cost	# of Units	BAER \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	Total \$
A. Land Treatments										
L01 EDRR - Suppression	MI	\$653.28	12.95	\$8,460	\$0		\$0		\$0	\$8,460
L02 EDRR - non-Suppression	EA	\$7,160.00	1	\$7,160	\$0		\$0		\$0	\$7,160
L03 OHV Trespass Prevention - Build/Install Gate	EA	\$10,000.00	1	\$10,000	\$0		\$1,505		\$0	\$11,505
L04 OHV Trespass Prevention - Rock Barrier	EA	\$1,000.00	6	\$6,000			\$4,833		\$0	\$10,833
L05 Dozer Line Chunking	Lum Sum	\$7,750.00	1	\$7,750			\$83		\$0	\$7,833
L06 Enforcement Patrol	Day	\$323.00	25	\$8,075			\$0		\$0	\$8,075
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$47,445	\$0		\$6,421		\$0	\$53,866
B. Channel Treatments										
Insert new items above this line!										
Subtotal Channel Treat				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
R1- Storm Inspection & Response	Lump Sum	\$9,440.00	1	\$9,440			\$330		\$0	\$9,770
R2- Road Stormproofing	Lump Sum	\$1,160	\$1	\$1,160	\$0		\$330		\$0	\$1,490
R3- Road Drainage Structure Replacement & Improvements	Each	\$5,200.00	2	\$10,400	\$0		\$810		\$0	\$11,210
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$21,000	\$0		\$1,470		\$0	\$22,470
D. Protection/Safety										
P1 Hazardous Materials (hazmat) Stabilization	EA	1030	1	\$1,030	\$0		\$0		\$0	\$1,030
P2 Hazardous Materials (hazmat) Removal	EA	9400	1	\$0	\$0		\$0		\$0	\$0
P3 - Hazard Signs	EA	300	3	\$900			\$0		\$0	\$900
P4 - Coordinate with partners	Day	450	3	\$1,350	\$0		\$0		\$0	\$1,350
P5 - Fire Area Closure	Day	450	1	\$450			\$0		\$0	\$450
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$3,730	\$0		\$0		\$0	\$3,730
E. BAER Evaluation										
ANF BAER Team				\$26,246					\$0	
Insert new items above this line!				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				---	\$0		\$0		\$0	\$0
F. Monitoring										
Insert new items above this line!				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals										
Previously approved				\$72,175	\$0		\$7,891		\$0	\$80,066
Total for this request				\$72,175						

PART VII - APPROVALS

1.   
Forest Supervisor (signature)

November 16, 2018  
Date

2.   
for Regional Forester (signature)

11/20/18  
Date

