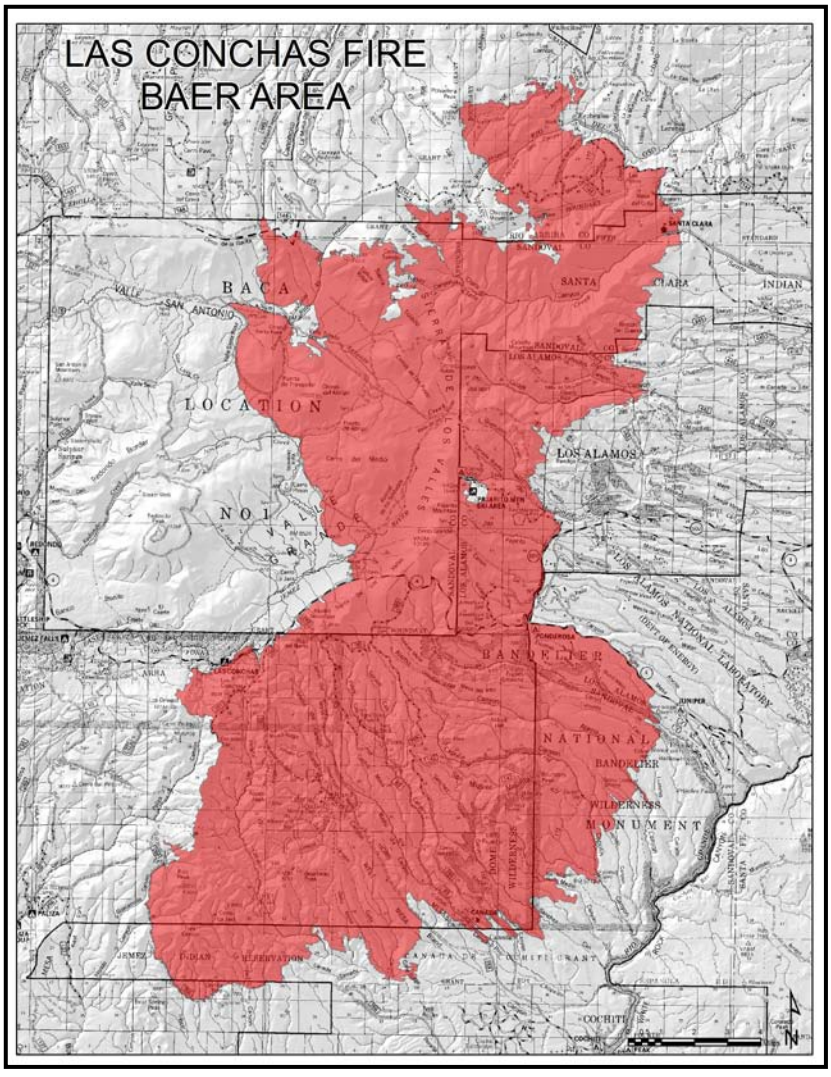
2011 LAS CONCHAS FIRE

BURNED AREA
EMERGENCY STABILIZATION PLAN

SANTA CLARA
JEMEZ
OHKAY OWINGEH

COCHITI
SAN ILDEFONSO
SANTO DOMINGO

BUREAU OF INDIAN AFFAIRS



ESPANOLA, NEW MEXICO

JULY 2011

INTERAGENCY BAER TEAM

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

AGENCY/UNIT: **Bureau of Indian Affairs**

Santa Clara	**Cochiti**
Jemez	**San Ildefonso**
Ohkay Owingeh	**Santo Domingo**

LOCATION: **Espanola, New Mexico**

DATE: **July 25, 2011**

PREPARED BY: **Interagency Burned Area Emergency Response Team (Gasser)**

Submitted By: _____

Erv Gasser, BAER Team Leader, NPS – PWR Seattle,WA

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

REVIEW AND APPROVAL -- BUREAU OF INDIAN AFFAIRS

I. EMERGENCY STABLIZATION PLAN CONCURRANCE

☐ **Concur**

☐ **Concur with Revision**

☐ **Disapproved**

Explanation for Revision or Disapproval:

Raymond Fry, Superintendent, Northern Pueblos Agency, BIA **Date**

I. EMERGENCY STABLIZATION PLAN CONCURRANCE

☐ **Concur**

☐ **Concur with Revision**

☐ **Disapproved**

Explanation for Revision or Disapproval:

William Walker, Regional Director, Southwest Region, BIA **Date**

II. EMERGENCY STABILIZATION PLAN APPROVAL

☐ **Approve**

☐ **Approve with Revision**

☐ **Disapproved**

Explanation for Revision or Disapproval:

Lyle Carlile, Chief, Branch of Fire Management, BIA NIFC **Date**

BURNED AREA EMERGENCY STABILIZATION PLAN
LAS CONCHAS FIRE
EXECUTIVE SUMMARY

Introduction

This Emergency Stabilization Plan addresses effects from the Las Conchas Fire that burned or affected Ohkay Owingeh (OO) and the Pueblos of Santa Clara (SC), San Ildefonso (SI), Tesuque (TE), Nambe (NA), Pojoaque (PO), Cochiti (CO), Santo Domingo (SA), and Jemez (JE). This plan has been prepared in accordance with the *U.S. Department of the Interior, Departmental Manual, Part 620, Chapter 3 (Wildland Fire Management),* and *Interagency Burned Area Emergency Response (BAER) Guidebook (February, 2006).*

The primary objectives of the Las Conchas Fire Burned Area Emergency Stabilization Plan are:

- Human Life and Safety: to prescribe post-fire mitigation measures necessary to protect human life and property.
- Soil/Water Stabilization: To promptly stabilize and prevent further degradation to affected watersheds and soils.
- Threatened & Endangered Species Habitat Stabilization: To prevent permanent impairment of Federal Threatened and Endangered species habitat.
- Critical Heritage Resources: To stabilize and prevent damage to known critical heritage resources.
- Invasive Plants: To deter the establishment and spread of noxious and invasive species.
- Monitoring: To monitor treatment effectiveness to determine if additional or amended treatments are needed.

A wide array of treatment options and/or actions allowable by the Department of the Interior (DOI) has been considered to attain the above objectives. Assessments and prescribed treatments apply solely to tribal trust lands mentioned above.

Background

The Las Conchas Fire was detected on June 26th, 2011 at 1308 hours. During the initial attack phase the fire made an impressive 40,000 acre run, exhibiting extreme fire behavior and long-range spotting. Joe Reinarz's Southwest Incident Management Team (IMT) was assigned to the fire on the 26th and formally assumed command on June 27th at 1800 hours. Due to the incident size, complexity and values at risk, two additional Type 1 incident Management Teams (Hughes and Morcom) and an Area Command Team (Oltrogge) were assigned. The fire was eventually divided into three zones, and Reinarz's IMT was assigned to the north zone.

As of July 13, 2011 the Las Conchas Fire has burned approximately 149,241 acres and of that 18,829 acres are Indian Trust land, 2,238 acres on Jamez Pueblo, 16,587 acres on Santa Clara Pueblo, 4 acres on Santo Domingo Pueblo, 76,634 acres on USFS Santa Fe National Forest, 20,810 acres on NPS Bandelier National Monument, 133 acres on DOE Los Alamos National Laboratory, 1,704 acres on State, 27,781 acres on OFA Valles Caldera National Preserve, and 3,352 on private.

Recognizing the potential for flood impacts on downstream values, tribal representatives contacted the Southwest Tri-Regional BAER Coordinator, and the National Interagency Fire Center (NIFC) to request assistance with Emergency Stabilization planning. The initial assessment was conducted with representatives from tribes and the BIA agency resource managers and Superintendents. After conducting this initial assessment of Emergency Stabilization-related issues and values it was determined that the nature and complexity justified mobilizing the National BAER Team. The BAER Team consisted of individuals representing the

following disciplines: Team Leader, Deputy Team Leader, Forestry/Vegetation, Hydrology, Geology, Soil Science, Cultural Resources, Wildlife Biologist, Environmental Compliance, Information, Documentation and Geographic Information Systems.

The National Interagency BAER Team (BAER) held an initial in-brief on July 6, 2011 with the Regional Director and various staff from the Division of Forestry and Wildland Fire Management; Environment, Safety and Cultural Resources; and National Resources. Information from previous meetings between the affected tribes and Forest Service was relayed to the BAER Team members. An initial meeting was conducted with the Northern Pueblos Agency employees on June 12, and the BAER Team members representing watershed and cultural resources conducting follow-up field assessments.

From July 6th through July 20th BAER Team members conducted aerial and ground reconnaissance of the fire area and downstream values at risk. In the process on completing assessments and developing treatment prescriptions numerous contacts were made with many Federal, State, and County agencies, as well as Tribal officials and employees, and local residents. Various individuals from the Tribes directly assisted the BAER Team throughout the assessment and planning process.

The results of this planning process are documented in Resource Assessments found in Appendix I and detailed treatment specifications located in Part F. A summary of treatment costs can be found in Part E, Cost Summary Table. Appendix II contains the environmental compliance documentation prepared in accordance with the requirements of the National Environmental Policy Act (NEPA). This appendix analyzes reasonably foreseeable individual and cumulative impacts of treatment actions proposed in the BAER Plan and evaluates the consistency of proposed actions with existing programmatic NEPA documents. All proposed actions are either categorically excluded from NEPA or are covered in existing land management plans with approved environmental assessments. Appendix III contains photographic documentation of fire effects and Appendix IV contains BAER Plan Maps produced to assist with resource damage assessments. Appendix V contains supporting documentation for the plan.

Emergency implementation of treatments started almost immediately upon arrival and BAER Team members worked with tribes to prescribe and implement treatments in an effort to protect life and property from potential flooding. As of 7/24/11 the following treatments have been completed:

Santa Clara Pueblo- 3000 feet of K-rails have been placed with associated sand bags, 40,000 sandbags have been filled and placed, three miles of floatable debris removal in Santa Clara drainage has been completed, two major box culverts (Highway 30 and Day School Bridge) have been cleaned and 15 other minor culvers have been cleaned, one well head has been protected with sandbags up Santa Clara Canyon, and ½ mile of fence has been removed in the stream channel.

San Ildefonso- 600 feet of K-rails have been placed with associated sandbags.

Cochiti – 6000 feet of K-rails have been placed and 200 sand bags have been filled and placed. Additionally a historic berm around the pueblo was repaired to divert debris and flood waters toward the natural channel.

Management Direction

The Las Conchas Fire burned predominately in forest land. Management direction relevant to Emergency Stabilization treatments proposed in this plan can be found in:

- Santa Clara Pueblo Forest and Woodlands Resource Management Plan, October 2005

- Pueblo of Santa Clara Wildland Fire Management Plan and associated environmental assessment, 2001
- Pueblo de San Ildefonso Forest Management Plan, December 2008
- Pueblo of San Ildefonso, Alternative Fire Management Plan and associated environmental assessment, December 2004
- Pueblo of Jemez Comprehensive Forest Management Plan, June 2007,
- Pueblo of Jemez Wildland Fire Management Plan and associated environmental assessment, January 2003
- Pueblo Santo Domingo Forest Management Plan, 2008
- Pueblo Santa Domingo Strategic Fire Management Plan and associated environmental assessment, January 2003
- Cochiti Pueblo Forest Management Plan, 2008
- Cochiti Strategic Fire Management Plan and associated environmental assessment, March 2005
- Ohkay Owingeh Forest Management Plan 2008
- U.S. Department of the Interior*, Department Manual, Part 620: Wildland Fire Management, Chapter 3: Burned Area Emergency Stabilization and Rehabilitation (September, 2003).*
- U.S. Department of the Interior, 2006. *Interagency Burned Area Emergency Response Guidebook.*

Emergency Stabilization Issues

The BAER Team delegation of authority, in-briefing and subsequent meetings with BIA and Tribal representatives provided valuable information concerning post-fire conditions and issues to be addressed. Broadly defined, these initial issues included the potential for:

- Flooding and ash flow damage to structures, roads, and other improvements
- Public warning of flooding and tree hazards
- Prevent looting at significant cultural heritage sites
- Impacts of stabilization treatments on threatened and endangered plant and animal species
- Expansion of noxious weed populations
- Conflicts and coordination with any subsequent timber salvage

Resource Assessments

Forest Resources

Team Foresters assessed trees for their immediate and short-term potential as hazard trees on both the Santa Clara and Jemez Reservations. Tree data on species, DBH, condition (structural defect, dead, live crown ratio, cambial scorch), and location (roadway, developed area) was recorded in field notebooks and used to determine the extent of current and short-term mortality and the treatments required to mitigate the situation. Trees targeted for mitigation were marked with blue paint with a number to correspond with the field data recorded. Not all roads were able to be surveyed due to time constraints and the magnitude of the workload. The Foresters worked with the Tribal Foresters to gather information specific to the vegetation and their desires related to the mitigation and disposal of the slash generated during mitigation efforts. Fire burn severity and mortality was greatest in the Santa Clara Canyon on the Santa Clara Reservation where the fire produced many hazard trees requiring immediate removal. All immediate hazard trees targeted were removed by fallers during the suppression effort, as well as additional “C” (>24” DBH) size trees that required special skills. A total of 477 trees were marked for removal in Santa Clara Canyon and 94 trees were felled during the suppression effort, leaving 383 trees to be felled under Emergency Stabilization (ES) funding. Due to time constraints, not all roads were able to be surveyed during the BAER team’s assignment. ES funding is proposed to survey and

mitigate tree hazards along secondary roads that were not surveyed and which may contain trees deemed hazardous to people or property. There are several projects that may be eligible for Burned Area Rehabilitation (BAR) or other funding on the tribal lands of the Santa Clara Reservation. They include reforestation, Continuing Forest Inventory (CFI), and Forest Health.

Vegetation Resources

The purpose of the vegetation assessment was to determine if lands burned directly by the wildfire are likely to recover naturally from severe fire damage, if noxious weeds or non-native invasive species will expand beyond current locations or invade impacted areas of the fire (areas impacted by suppression forces, drainages, and roads), and if emergency stabilization treatments are required to ensure that vegetative recovery will occur. The Vegetation Specialist used aerial and ground surveillance to make determinations of the extent of the vegetation top kill or mortality. Noxious weeds were surveyed for and 3 occurrences were mapped. Coordination was made between BIA, Santa Clara Pueblo Tribal members and Santa Clara Pueblo staff to formulate issues and to gather expert, local information on vegetation resources. The Assessment will also cover culturally significant plants—fire damage, fire effects, and recovery potential. Using GIS technology and ground truthing, vegetation top kill for the three Pueblos was determined to be as follows: Unburned-Low 30%; Moderate Low 14%, Moderate High 27%, and High 29%. The ponderosa pine and piñon –juniper had 71% and 53% Low top kill respectively. The mixed conifer had 77% Moderate High to High top kill and the spruce-fir experienced 61% that was above Moderate High. Aspens stands had 79% top kill. However, aspens will resprout over the majority of the burn area.

Recommendations under Emergency Stabilization include noxious weed assessment and monitoring. The Santa Clara Pueblo will have an additional specification for control of existing weeds in the burn area. A recommendation was made (specification), for closure of the burned portions of three grazing allotments in the Santa Clara Pueblo for two growing seasons to allow for recovery/regeneration of native grasses, riparian plant species, and aspens. Management non-specification recommendations are made to establish long-term monitoring plots to determine range condition and trend/vegetation recovery and to study fire effects of the native species, false tarragon.

Soil and Watershed

The Las Conchas Fire burned a total of 149,241 acres as of July 13, 2011 and was continuing to burn on the southern extent of the fire during the watershed assessment process. The watershed assessment of the burned area was divided between two Burned Area Emergency Response (BAER) Teams, the North Team and the South Team. The North Team is composed of the Department of Interior Interagency BAER Team and the South Team is composed of local and regional Forest Service and National Park Service BAER Team members. The North Team assessed the northern extent of the fire including watersheds on Santa Clara Pueblo, San Ildefonso Pueblo, and the Rio del Oso watershed on the Santa Fe National Forest. In the southern areas of the fire, the North Team assessed watershed response concerns to the Jemez Pueblo, and the Cochiti Pueblo. Of the watersheds above or on Pueblo land, 24 percent burned at high, 30 percent burned at moderate, and 43 percent burned at low soil burn severity. Moderate fire induced soil water repellency was found just below the soil surface but was highly variable and discontinuous.

Of the watersheds assessed by the North Team, the greatest risks were identified on the Santa Clara Pueblo due to the large areas of steep slopes with high soil burn severity in the headwaters of Santa Clara Canyon, the four dams situated below and adjacent to those slopes, and the position of the Santa Clara Pueblo downstream of the canyon. In a worst case scenario, heavy rains in the upper watershed trigger debris flows and flooding which overwhelm and damage the four dams (ponds) causing a torrent of water to flow downstream to the Pueblo, causing extensive flooding. Fortunately, there is an early warning system in place to warn the Pueblo of

dam failure and subsequent flooding. Additionally, there is a lag-time of about 4 hours between dam failure and flooding of the Pueblo, due to the distance between the dams and Pueblo. The lag-time and early warning system will allow for adequate time for evacuation of the Pueblo during a worst case scenario. Watershed treatments to help reduce the risk of catastrophic failure of the dams include, but are not limited to, mulching of slopes above the dams, debris removal from the dams and roads, cleaning, replacement, and removal of culverts, floatable debris removal from the streams, and structural point protection for flooding downstream in the Pueblo including K-rail and sandbag installation.

The second greatest risks occur at various locations on Cochiti Pueblo and state lands within and below Cochiti, Bland, and Peralta Canyons. The Army Corps of Engineers has expressed concern with Cochiti and Bland Canyons due to sediment delivery to Cochiti Lake (reservoir) downstream. Cochiti Canyon also has state lands which include a historic apple orchard (Dixon's Apple Orchard) with several structures which are at an extremely high degree of risk to debris flows and flooding. Recommendations for this area are an early-warning system and public education to evacuate the area during a moderate to strong storm event. The North Team has reviewed the South Team's assessment and completed additional risk modeling to Dixon's Apple Orchard (State land) and Cochiti Lake. This additional analysis re-emphasized the risk to Dixon's Apple Orchard. At a minimum, the State permitted orchard and associated community must develop a comprehensive evacuation plan. The feasibility of a designed treatment that successfully reduces risk to this location is very low. The North Team has also modeled a large watershed response from Bland and Cochiti Canyons delivering water laden with finer sediments to Cochiti Lake. These events are expected to occur even during high frequency rainfall (5-10 year recurrence interval storms). Watershed response in Bland Canyon is expected to inundate 3 to 5 greens, 2 maintenance sheds, equipment, and a fuel tank belonging to the Cochiti Golf Course. Treatments designed to mitigate some of the risk associated with this watershed response have been completed along the golf course and include K-rails, earthen berms, and catchment basins. The watersheds of Cochiti and Bland Canyons must also include early-warning systems, public education, and cleaning of the catchment basin upstream of road crossings and other facilities.

Peralta Canyon drains to a portion of Cochiti Pueblo homes and sewer lagoon. This watershed poses a moderate to high risk to the community facilities. The Pueblo is located on the alluvial fan away from the main channel, however has experienced flows that inundate the entire fan. A constructed berm has been in place for many years to protect against these higher flow events pre-fire. Treatments have been completed to reinforce this pre-existing berm, extend it to the main Peralta channel, and protect the highway and sewer lagoon from damage. Early warning, public education, and excavation of existing catchment basin are also recommended to reduce risk of flooding.

Santo Domingo Pueblo extends across the Rio Grande in the vicinity of the community of Sile. One home on private land is at risk of flooding from increased stream flow associated with post-fire watershed response. A treatment designed to increase the capacity of the stream channel adjacent to this home and K-Rails to protect the property is recommended. The risk to this property is low to moderate based on the low to moderate severity upstream in the watershed.

The Rio del Oso watershed was evaluated for values at risk within Forest Service land and none were identified. On private land near the town of Chili a structure was identified at risk to flooding. A recommendation for structural point protection treatments will be turned over to the NRCS and/county to fund and implement these treatments.

Wildlife

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The effects of the Las Conchas Fire, suppression activities, and proposed emergency stabilization treatments to Threatened, Endangered, Proposed and other significant agency listed species (TEPS) and their habitats were assessed. Based on information provided by the US Fish

and Wildlife Service – New Mexico Ecological Services Field Office, the Santa Fe National Forest, and Bureau of Indian Affairs – Northern Pueblos Agency, it was determined that two federal candidate species, the Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*), and Jemez Mountain salamander (Plethodon neomexicanus) had the potential to occur on tribal trust lands. Emergency consultation with FWS was initiated to ensure compliance with Section 7 of the ESA. BAER Team biologists and local species experts surveyed the fire impacted Pueblos and general vicinity considering habitat requirements for these species. Culturally significant species, identified by tribal representatives were also addressed, including mule deer, elk, turkey, and golden eagle. While the fire impacted these species to varying degrees, both directly and indirectly, the mosaic of habitat that was created by the fire should allow these species to persist and benefit in the long term. It was determined by BAER Team biologists that suppression activities and proposed stabilization treatments will have ***no effect*** to any federally Threatened or Endangered species and formal consultation with the US Fish and Wildlife Service is not warranted.

Information

The Information Group was split between the towns of Espanola and Los Alamos. Briefing notes and a daily update stating activities completed and planned were completed each day. Briefings and updates were first approved by the South Zone Team Lead, then edited and approved by Erv Gasser, North Zone BAER Team Lead. Once final, they were emailed and daily updates posted to InciWeb. The Los Conchas Incident Management Teams posted the BAER updates on the fire information boards set out in various communities. Numerous congressional inquiries were answered along with emails from both internal and external audiences. Media interviews were scheduled and given by BAER team members and the public information officers. A BAER brochure, fact sheet and question and answers sheet were created for the public and handed out. Three community meetings, at the requests of the Santa Fe National Forest, were planned, staffed and executed.

Cultural Resources

The cultural resources assessment done in conjunction with this BAER plan was conducted in response to issues elicited from the Cochiti, Jemez, Ohkay Owingeh, Santa Clara, Santo Domingo, and San Ildefonso pueblos. These issues were brought forth during the Agency in-briefing of July 6, 2011, and subsequent consultations between BAER archaeologists and cultural resources experts from the Pueblos. Issues common to the Pueblos include concerns about the loss of and/or protection or stabilization/regeneration of traditional plant and resource gathering/hunting areas, sites of cultural and religious significance, cultural trails, loss of access on other agency lands, and archaeological sites in and adjacent to the fire perimeter. An additional concern was raised by Cochiti Pueblo about their cemetery. As knowledge of traditional cultural places is maintained through oral tradition by specific individuals, many areas of concern were not able to be identified during the time covered by this assessment. Field observations at four areas of concern were discussed. While those identified values were at risk from post-fire flooding, no feasible mitigation measures could be implemented. Other archaeological sites of concern on tribal lands had minimal fire effects and are not at risk. No known or documented archaeological sites that could benefit from Emergency Stabilization were located downstream on tribal lands. Observations at the cemetery indicated it would not be at risk during a flood event. Because the time needed to discuss concerns held by tradition keepers, six specifications were written to solicit information and assess sites and areas of concern. Four non-specifications management recommendations were made. These are: to insure that the pueblo communities know the appropriate agency contacts responsible for which emergency stabilization treatments and later rehabilitation activities; consultation with the Forest Service regarding areas available for traditional uses; to survey newly exposed arroyo banks for

buried sites; and to insure all subsequent treatments and post-fire management activities have archaeological clearance prior to implementation.

Environmental Compliance

All proposed treatments for the Las Conchas BAER Plan are discretionary decisions by a federal agency and are proposed for federal trust lands triggering the need to comply with federal regulations for environmental protection. The intent of the regulations is to assess the effects of actions in advance of their execution to avoid potential adverse impacts to the environment. In addition, planning and resource management documents of the Pueblos were examined to ensure that BAER treatments conform to planning goals and objectives.

The Las Conchas BAER Plan treatments proposed for tribal lands requiring environmental compliance fall under the following treatment categories:

- Cultural assessments,
- Structural protection,
- Channel clearing of debris & sediment,
- Santa Clara Canyon steam crossing repairs,
- Hazard tree surveillance & mitigation,
- Invasive species monitoring,
- Engineering assessments,
- Aerial straw mulch application,
- Catchment basin maintenance,
- Sediment dredging and removal,
- Sandbag painting,
- Livestock closure,
- Post-storm channel inspection and clearing,
- Hazard safety signs
- Early warning systems,
- Preparation of the BARC Map (Burned Area Reflectance Classification Map)
- BAER Plan preparation, and
- Selection of an implementation leader for BAER.

Treatments were assessed for compliance with the following federal laws, executive orders and plans:

National Environmental Policy Act Endangered Species Act (ESA)
National Historic Preservation Act (NHPA)
Clean Water Act (CWA)
Clean Air Act
Executive Order 11988, Floodplain Management
Executive Order 11990, Wetland Protection
Executive Order 12372, Intergovernmental Review
Executive Order 12892, Environmental Justice
Executive Order 13112, Invasive Species
Forest Management Plans and NEPA documentation from the six Pueblos

The BAER Team assessed all proposed treatments for compliance with federal laws, regulations and orders on behalf of the Bureau of Indian Affairs. The assessments were made using Bureau of Indian Affairs NEPA regulations including the specific categorical exclusions assigned to the Bureau. The BAER Team assessment proposes 42 treatments for the six pueblos. Compliance review determined that all treatments would meet the requirement to be categorically excluded from further NEPA documentation. None of the treatments would affect historic resources protected under the NHPA or species protected by the ESA. Of the 42 treatments proposed, six treatments (four treatments for Santa Clara Pueblo, one treatment for Cochiti Pueblo and one

treatment for San Ildefonso Pueblo) will require a section 404 Clean Water Act permit from the U.S. Army Corps of Engineers, Albuquerque Office.

The compliance record for the Los Conchas BAER Plan is Appendix II to the Plan and becomes effective when signed by the Northern Pueblos Agency and Southern Pueblos Agency Superintendents.

Emergency Stabilization Recommendations

The following Emergency Stabilization treatments are recommended for Tribal trust lands.

Northern Pueblos Agency

- Hazard/Safety Signs
- Short Term Hazard Tree Mitigation
- Invasive Species Assessment/Monitoring/Control
- Livestock Closure and Compliance
- Sediment Removal-Ponds
- Traditional Cultural Assessment
- Canyon Road Stream Crossing Protection- Dip Construction
- Structure Protection
- Floatable Debris Removal
- Storm Patrol
- Early Warning System
- Portable Toilet Removal
- Sandbag UV Protection
- Irrigation Diversion Cleaning
- Short Term Tree Hazard Surveillance
- Floatable Debris Removal- Upper Santa Clara Creek
- Civil Engineering Risk Assessment
- Engineering Assessment of Two Ponds
- Aerial Straw Mulch
- Spur Road Culvert Removal-Low Water Crossing Construction
- Invasive Species Monitoring
- Canyon Road Culvert Replacement
- Install/Maintain Grade Dips –Upper Watershed Roads
- Plan Preperation

Southern Pueblos Agency

- Hazard Safety Signs
- Short Term Tree Hazard Surveillance
- Traditional Cultural Assessment
- Structure Protection
- Storm Patrol
- Early Warning System
- Invasive Species Monitoring
- Prepare and Deliver BARC Map

The Team also recommends designating or hiring an Implementation Leader as soon as possible to ensure treatments are initiated in a timely manner.

Emergency Stabilization Implementation

Because of the urgency and need for the protection of life and property some emergency stabilization treatments were initiated as early as July 7, 2011. These treatments include:

- Project Management
- Point Protection – Santa Clara Village and San Ildefonso
- Channel Clearing & Debris Removal Santa Clara Canyon
- Box Culvert Cleaning – Santa Clara Pueblo
- Fence Removal – Santa Clara Canyon
- Removing Tree Hazards
- Native American Consultation
- Cultural Resource Treatment Clearance

The BAER Team conducted two closeout presentations to the BIA Northern Pueblos Agency and BIA Southern Pueblos Agency and other agency representatives on July 25, 2011, providing issues, observations, findings and recommendations. The BAER Team provided detailed information of the proposed emergency stabilization treatments to the agency administrators and staff. The recommended hiring of a project manager, program analyst, GIS specialist, and safety officer should occur as soon as possible to ensure treatments are initiated as quickly as possible.

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

TABLE OF CONTENTS

BIA - NORTHERN PUEBLOS AGENCY- SPECIFICATIONS

PUEBLO OF SANTA CLARA

PUEBLO OF SAN ILDEFONSO

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

PART A FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	LAS CONCHAS NM-NPA-000257	**Date Controlled**	
Fire Number	F5PS	**Jurisdiction**	**Acres**
Agency Unit	NM-NPA / SPA	**BIA_NPA / SPA**	21,650
Region	Southwest Region		
State	New Mexico		
County	Sandoval Los Alamos Rio Arriba		
Ignition Date/Manner	June 26, 2011 /Human-Caused		
Zone	Santa Fe		
Date Contained		**TOTAL ACRES**	**21,650**

PART B NATURE OF PLAN

I. Type of Plan (check one box below)

√	**Short-term Emergency Stabilization Plan**
	Long-term Rehabilitation
	Both Long and Short-term Rehabilitation

II. Type of Action (Check One box below)

√	**Initial Submission**
	Updating Or Revising The Initial Submission
	Supplying Information For Accomplishment To Date On Work Underway
	Different Phase Of Project Plan
	Final Report (To Comply With The Closure Of The EFR Account

EMERGENCY STABILIZATION OBJECTIVES

- **Determine need for and to prescribe and implement emergency treatments**
- **Minimize Threats to Human Life, Safety, and Property**
- **Identify Threats to Critical Cultural & Natural Resources**
- **Promptly Stabilize and Prevent Unacceptable Degradation to Resources**

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

PART C - TEAM ORGANIZATION

BAER TEAM MEMBERS

POSITION	TEAM MEMBER / AFFILIATION
Team Leader	Erv Gasser, NPS
Deputy Team Leader	Gavin Lovell, BLM; Harold Luedtke, BIA Darryl Martinez, BIA
Vegetation Specialists	Tom Warner, NPS; Mike Dolan, BLM Steve Femmel, NPS; Frederick VonBonin, BIA
Hydrologist	Rich Pyzik, USFS; TJ Clifford, BLM Chuck Jachens, BIA
Geologist	Brian Rasmussen,NPS Becky Biglow, USFS
Soil Scientist	William K. Sims, BIA Tedd Huffman, USFS
Wildlife Biologist	Kenneth Griggs, FWS Luke Montoya, FWS
Archeologist	Chuck James, BIA; Dan Hall, BIA Harding Polk, BIA
Environmental Compliance	Jeff Conner, NPS Wendy Poinsot, NPS
GISS	Carl Hardzinski, BIA; Richard Easterbrook, FWS Anthony Thompson,BIA; Rachel Endfield, WMAT
Documentation	Wayne Waquiu, BIA
IT Specialist	Justin Kirchmeier, NPS
Information Officer(s)	Yvonne Jones, BIA Robyn Broyles, BIA

Resource Advisors: (Note: Resource Advisors are individuals who assisted the BAER Team with the preparation of this plan. See the consultations Section of this plan for a full list of agencies and individuals who were consulted or otherwise contributed to the development of this plan.

Name	Affiliation	Specialty
Tom Gerhart	BIA	Civil Engineer
Danny Gomez	BIA	Forestry
Norman Jojola	BIA	Natural Resource Officer
Joe Jojola	BIA	Biologist
Sue Cannon	USGS	Geologist
Craig Allen	USGS	Ecologist
Walter Dasheno	Pueblo of Santa Clara	Governor
Bruce Bauer	Pueblo of Santa Clara	Forestry
Jusin Baca	Pueblo of Santa Clara	GIS
Florine Guttierez	Pueblo of Santa Clara	Planning
Mike Chavarria	Pueblo of Santa Clara	Tribal Liason
Mel Tafoya	Pueblo of Santa Clara	Fire Department
Matt Tafoya	Pueblo of Santa Clara	GIS
Philip Holmes	Pueblo of Santa Clara	IC
Ben Chavarria	Pueblo of Santa Clara	Land and Cultural Resources
Joseph Chavarria	Pueblo of Santa Clara	Environmental Director
Steve Haglund	Pueblo of Santa Clara	Forester
Dino Chavarria	Pueblo of Santa Clara	Environmental
Richard Martinez	Pueblo of Santa Clara	Operations
Gilbert Tafoya	Pueblo of Santa Clara	IC Commander
Brian Montoya	Pueblo of Santa Clara	Cultural Resources
John Galvin	Pueblo of Jemez	Tribal Liason
Chris Toya	Pueblo of Jemez	Archeology
Regis Pecos	Pueblo of Cochiti	
Phoebe Suina	Pueblo of Cochiti	Consultant
Dr. Henry Suina	Pueblo of Cochiti	Cultural Advisor
Jacob Pecos	Pueblo of Cochiti	
Ray Bird	Pueblo of Cochiti	
Dale Martinez	Pueblo of San Ildefonso	BAER Coordinator
Ben Lujan	Ohkay Owingeh	Liason
Sam Lovato	Pueblo of Santo Domingo	
Lawrence Attencio	USFS_SFNF	Liason
Mary Orr	USFS_SFNF	Biologist_Wildlife
Will Amy	USFS_SFNF	Program Coordinator
Chantel Cook	USFS_SFNF	Biologist_Fisheries
Mike Bremer	USFS_SFNF	
Anne Baldwin	USFS_SFNF	
Jennifer Dyer	USFS_SFNF	
Andy Graves	USFS_R3	Entomologist
Steve Fettig	NPS	Biologist_Wildlife

Brian Jacobs	NPS_Bandelier	Botanist
Eric Hein	USFWS	Consultation Contact
Dr. Bob Preucel	University of Pennsylvania	Archeology
Rayo McCullough	NM Heritage Program	Data Manager
Bobby Love	Southwest Area Incident	Planning
Curtis Heaton	NIMO	Ops
Bernie Archuleta	Santa Fe County	Dozer Operator
Don Scott	NMDOT_Response and Recovery	State Highways
Brain Williams	NMDOT	Supervisor
Ernie Archeletta	NMDOT	Operations
Dave Martinez	NMDOT	Operations

CONSULTATIONS

***** SEE INDIVIDUAL RESOURCE ASSESSMENTS APPENDIX I , SECTION V, CONSULTATIONS**

Part D LAS CONCHAS

AGENCY	TREATMENT	Santa Clara	Cochiti	Jemez	San Ildefonso	Ohkay Owingeh	Santo Domingo	TOTAL
BIA								
1	Hazard /Safety Signs	$11,096	$6,366	$2,370	$4,714			$24,546
2	Short-term Hazard Tree Mitigation	$36,827						$36,827
3	Invasive Species Assessment / Monitoring / Control	$18,000						$18,000
4	Livestock Closure and Compliance	$7,000						$7,000
5	Sediment Removal	$342,720						$342,720
6	Traditional Cultural Assessment	$8,079	$8,079	$8,079	$8,079	$8,079	$8,079	$48,474
7	Canyon Road Stream Crossing Protection	$22,600						$22,600
8	Structure Protection	$105,200	$75,495		$19,600			$200,295
9	Floatable Debris Removal	$26,376						$26,376
10	Storm Patrol	$184,270	$48,380		$57,248			$289,898
11	Early Warning System	$32,500	$32,500		$32,500			$97,500
12	Portable Toliet Removal	$17,725						$17,725
13	Sandbag UV Protection	$5,400			$1,500			$6,900
14	Irrigation Diversion Cleaning	$23,600						$23,600
15	Short Term Tree Hazard Surveillance	$4,422		$1,380				$5,802
SUBTOTAL		$845,815	$170,820	$11,829	$123,641	$8,079	$8,079	$1,168,263

Part D LAS CONCHAS

AGENCY	TREATMENT	Santa Clara	Cochiti	Jemez	San Ildefonso	Ohkay Owingeh	Santo Domingo	TOTAL
BIA								
16	Floatable Debris Removal_Upper SC Creek	$191,920						$191,920
17	Civil Engineering Risk Assessment				$6,350			$6,350
18	Engineering Assessment of Two Retention Ponds	$7,412						$7,412
19	Aerial Straw Mulch	$2,014,400						$2,014,400
20	Spur Road Culvert Removal / Low Water Crossing Construction	$21,000						$21,000
21	Invasive Species Monitoring	$10,000		$10,000			$4,615	$24,615
22	Prepare & Deliver BARC Map		$0					$0
23	Canyon Road Culvert Replacement	$57,570						$57,570
24	Installing / Maintaining Grade Dips_Upper Watershed Roads	$33,045						$33,045
25	Plan Preparation							$422,204
SUBTOTAL		$2,336,247	$0	$10,000	$6,350	$0	$4,615	$2,778,516
GRAND TOTAL		**$3,181,162**	**$170,820**	**$21,829**	**$129,991**	**$8,079**	**$12,694**	**$3,946,779**

2011 LAS CONCHAS FIRE
INTERAGENCY BURNED AREA EMERGENCY STABILIZATION PLAN
PART E – SUMMARY OF ACTIVITIES – COST SUMMARY TABLE – BUREAU OF INDIAN AFFAIRS

TREATMENT SPECIFICATION	NFPORS CAT.	UNIT	UNIT COST	# OF UNITS	Fiscal Year			SPECIFICATION TOTAL
					2011	2012	2013	
Northern Pueblos Agency								
1.Hazard / Safety Signs	Protection & Warning				$15,810			$15,810
2. Short Term Hazard Tree Mitigation	Roads	Trees			$36,827			$36,827
3. Invasive Species Assessment / Monitoring / Control	Invasive Species					$18,000		$18,000
4. Livestock Closure and Compliance	Erosion/Sedimentation	Allotments				$7,000		$7,000
5. Sediment Removal_Ponds	Facility& Infrastructure				$147,520	$195,200		$342,720
6. Traditional Cultural Assessment	Assessment				$24,237			$24,237
7. Canyon Road Stream Crossing Protection: Dip Construction	Erosion Sedimentation / Roads				$22,600			$22,600
8. Structure Protection	Facility and infrastructure				$124,800			$124,800
9. Floatable Debris Removal	Erosion/Sedimentation				$26,376			$26,376
10. Storm Patrol	Roads				$124,089	$117,429		$241,518
11. Early Warning System	Protection & Warning				$45,000	$10,000	$10,000	$65,000
12. Portable Toilet Removal	Protection & Warning		$371	50	$17,725			$17,725
13. Sandbag UV Protection	Facility & Infrastructure				$6,900			$6,900
14. Irrigation Diversion Cleaning	Facility & Infrastructure				$11,800	$11,800		$23,600
15. Short Term Tree Hazard Surveillance	Roads	Miles		28.4	$4,422			$4,422
16. Floatable Debris Removal_Upper Santa Clara Creek	Erosion/Sedimentation			2	$115,152	$76,768		$191,920
17. Civil Engineering Risk Assessment	Assessment				$6,350			$6,350
18. Engineering Assessment of Two Retention Ponds	Planning	Plan		1	$7,424			$7,424
19. Aerial Straw Mulch	Erosion/Sedimentation	Acres		2635	$2,011,900	$2,500		$2,014,400
20. Spur Road Culvert Removal / Low Water Crossing Construction	Erosion Sedimentation / Roads	Crossings		5	$21,000			$21,000
21. Invasive Species Monitoring	Monitoring				$2,000	$8,000		$10,000
22. Canyon Road Culvert Replacement	Roads			4	$57,570			$57,570
23. Install / Maintain Grade Dips_Upper Watershed Roads	Erosion / Sedimentation	Miles of Road		8	$33,045			$33,045
24. Plan Preparation								$422,204
SUBTOTAL					**$2,863,447**	**$446,697**	**$10,000**	**$3,741,448**

2011 LAS CONCHAS FIRE
INTERAGENCY BURNED AREA EMERGENCY STABILIZATION PLAN
PART E – SUMMARY OF ACTIVITIES – COST SUMMARY TABLE – BUREAU OF INDIAN AFFAIRS

TREATMENT SPECIFICATION	NFPORS CAT.	UNIT	UNIT COST	# OF UNITS	Fiscal Year			SPECIFICATION TOTAL
					2011	2012	2013	
Southern Pueblos Agency								
1. Hazard / Safety Signs	Protection & Warning				$8,736			$8,736
2. Short Term Tree Hazard Surveillance	Roads				$1,380			$1,380
3. Traditional Cultural Assessment	Assessment				$24,237			$24,237
4. Structure Protection	Facility and Infrastructure	feet	$11.30	6,700	$75,495			$75,495
5. Storm Patrol	Roads				$25,800	$22,580		$48,380
6. Early Warning System	Protection & Warning				$22,000	$5,000	$5,000	$32,000
7. Invasive Species Monitoring	Monitoring				$3,155	$11,460		$14,615
8. Prepare & Deliver BARC Map	Assessment				$0			$0
SUBTOTAL					**$160,803**	**$39,040**	**$5,000**	**$204,843**
GRAND TOTAL								**$3,946,291**

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

PART F EMERGENCY STABLIZATION SPECIFICATIONS

SECTION I BUREAU OF INDIAN AFFAIRS – NORTHERN PUEBLOS AGENCY

B.I.A.

NORTHERN PUEBLOS AGENCY

SPECIFICATIONS

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Prepare & Deliver BARC Map	**PART E Spec-#**	CO-3
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Fire Damage Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Cochiti Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Acquire pre and post fire Landsat imagery to prepare Burned Area Reflectance Classification (BARC) Map and deliver to Northern and Southern Pueblo Agencies.

B. Location/(Suitable) Sites: Areas burned by the 2011 Las Conchas Fire

C. Design/Construction Specifications: BARC Map will be provided by RSAC or USGS EROS DATA Center. Request image post-fire once the fire is declared controlled.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): While the North & South BAER Teams were evaluating and completing specifications and treatments, the fire continued to expand. A post-fire BARC will provide information covering the newly burned areas that was unavailable while the teams were in place. Previous Landsat imagery had smoke and cloud covering a large portion of the fire area.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment consistent with Public Safety Plans to protect lives and property.

F. Treatment Effectiveness Monitoring Proposed: Image acquired should cover newly burned areas not covered by previous BARC Maps. If newly burned areas are not visible due to cloud cover or smoke, acquire a new BARC Map when there is clear coverage.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
BARC Map at no cost.	$0.00
TOTAL MATERIALS AND SUPPLY COST	**$0.00**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH	PLANNED COST

	DATE (M/D/YYYY)					MENTS	
2011	7/19/11	9/30/11	F	Fire	$0.00	1	**$0.00**
						TOTAL	**$0.00**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Watershed Assessment.

PUEBLO OF SANTA CLARA

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Hazard / Safety Signs	**PART E Spec-#**	SC-1
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Warning Signs	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

This treatment is for the installation of flood warning signs, burned area warning signs, and public safety sign replacement. These signs will warn the public of dangers on the road that have changed as a result of the fire. Flood warning signs will warn the public when crossing drainages such as the Santa Clara Canyon and its tributaries about the 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. Road closure signs are self explanatory.

B. Location/(Suitable) Sites**:**

Access roads into areas where there are road crossings of drainages burned at high and moderate severity (Burned Area Ahead signs – Rd 601 – Puye Road; Rd 602 – Lower Canyon Road; Los Indios/Santa Clara Canyon Road (2); etc.).

Road Closure signs will be at both the bottom end (where there is an existing gate) and the top end (Los Indios) of Santa Clara Canyon Road.

C. Design/Construction Specifications:

1. Road Closed Signs at stream crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read "**ROAD CLOSED**".
2. Flood Warning Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read **"WATER CROSSING HIGH FLOOD HAZARD**" .
3. Burned Area warning signs along the roads shall measure, at a minimum, 4 feet by 4 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The signs shall read "**ENTERING BURNED AREA INCREASED RISK OF FLOODS, FALLING ROCKS, AND FALLING TREES**". Title lettering shall be a minimum of 5 inches in height and all remaining lettering shall be a minimum of 3.5 inches in height.
4. Informational public safety signs were damaged as a result of the Las Conchas Fire and need to be replaced. These signs contained safety directions or information for the public in remote areas. .

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

Provide workers and recreation users with the necessary information to be prepared for being in a post-fire environment.

E. Treatment consistent with Agency Land Management Plan (identify which plan):

This treatment is compatible with the Santa Clara Pueblo Forest and Woodland Resource Management Plan (Oct. 2005) and the Pueblo Santa Clara Wildland Fire Management Plan (2001).

F. Treatment Effectiveness Monitoring Proposed:

Implementation Leader will verify installation and locations. Law enforcement will monitor effectiveness of closure signs to determine if additional measures are needed.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
GS-5 (equivalent): 2 ea. X $250/day X 5 day	$2500
Implementation Team Leader (GS-9 equiv. @ $300/day x 2 days)	$600
TOTAL PERSONNEL SERVICE COST	**$3100**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Post driver, wrenches, misc. tools	$100

TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$100**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
4 "**Road Closed**" signs @ $200.00 each	$800
4 Steel U-channel sign posts @ $30.00 each	$120
8 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$24
10 "**Entering Burn Area…**" signs @ $200.00 each	$2000
20 Steel U-channel sign posts @ $30.00 each	$600
40 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$120
12 "**Water Crossing…**" signs @ $200.00 each	$2400
12 Steel U-channel sign posts @ $30.00 each	$360
24 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$72
5 **Public Safety** signs @ $200.00 each	$1000
5 Steel U-channel sign posts @ $30.00 each	$150
10 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$30
TOTAL MATERIALS AND SUPPLY COST	**$7,676**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
4 X 4 pickup: 400 miles X $0.55/ mile	$220
TOTAL TRAVEL COST	**$220**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	08/20/2011	S	Signs	$358	31	$11,096
						TOTAL	$**11,096**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	T, E, P, M
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Short-Term Tree Hazard Mitigation	**PART E Spec-#**	SC-2
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Hazard Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Canyon	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Fell identified short-term tree hazards for the safety of the public within one tree length of and posing a threat to recreational use of developed sites and roads.

B. Location/(Suitable) Sites: Designated areas along the Santa Clara Canyon Road as identified on the Short-Term Tree Hazard Surveillance/Mitigation Map in Appendix IV.

C. Design/Construction Specifications:

1. Directionally fell remaining identified (with blue paint) tree hazards away from road.
2. Flush cut stumps as low as possible
3. To be performed by Tribal employees who are qualified Fallers --For all trees (including those previously cut during fire suppression activities and those to be cut by contractor), leave trees whole tree length (minimum 4" diameter top) where practicable or buck into merchantable lengths (10' 6" minimum to 25' maximum). Trees will be bucked, as necessary, to merchantable (even 2' lengths >10', with 6" trim to 20', and 12" trim >20') lengths to maximum 24' (with 12" trim). Limb bole and chip slash. Skid trees/logs to road edge for loading/transport to junction of Puye Road (BIA 602) and State Highway 30.
4. To be performed by contractor--For trees (>24" DBH) felled by contractors who are qualified "C" Fallers. Ttrees will be left unlimbed and unbucked. Trees will be limbed and bucked by Tribal employees.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To ensure the safety of workers and the public using Santa Clara Canyon.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Santa Clara Pueblo Forest and Woodland Resource Management Plan, 2005

F. Treatment Effectiveness Monitoring Proposed: Final report of the number of trees felled and associated cost.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Crew Boss Sawyer 2 @ $34.44/Hr.* x 80 Hrs.	$5,510
Hand Crew Sawyer 2 @ $29.29 /Hr.* x 80 Hrs.	$4,686
Crew Boss Laborer 1 @ $29.79/Hr.* x 80 Hrs.	$2,383
Hand Crew Laborer 2 @ $24.64/Hr.* x 80 Hrs.	$3,942
* Adjusted to 2011 rates (1.093 x 2008 rates minus allowance for "associated vehicle costs.") Work to be done by Tribal employees includes: felling (311 "A" & "B" trees); limbing, bucking, skidding, loading, hauling treating slash all 477 identified tree hazards, included those previously felled and those to be felled by contractor. **TOTAL PERSONNEL SERVICE COST**	**$16,521**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Chainsaw-- Wear, Tear, and Replacement	$2,000
Rent Skidder @ $1067.00/Day** x 5 Days	$5,335
Rent Self-Loader Log Truck @ $1,067.00/Day** x 5 Days	$5,335
Rent Chipper @ $220.00/Day x 15 Days	$3,300
** Adjusted to 2011 rates (1.093 x 2008 rates). **TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST**	**$15,970**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Saw Fuel @ $4.00/Gal. x 10 Gals.	$40
2-Cycle Mix @ $31.99/Gal. x 1 Gal.	$32
Bar Oil @ $13.29/Gal. x 10 Gals.	$133
Saw Chain @ $42.00/Ea.. x 4 Ea.	$168
Wedges, Files, Etc.	$100
TOTAL MATERIALS AND SUPPLY COST	**$473**

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
GSA 4WD Pickups 4 @ $28.00/Day x 10 Days	$1,120
TOTAL TRAVEL COST	**$1,120**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
AD-I Faller Class C (FALC) 2 @ $31.16/Hr. x 40 Hrs.	$2,493
Mileage Reimbursement @ $0.50/Mi. x 100 Mi./Day x 5 Days	$250
Felling 72 "C" trees only **TOTAL CONTRACT COST**	**$2,743**

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
2011	8/1/2011	9/30/2011	S	311 Trees	$109.59		**$34,084**
2011	8/1/2011	9/30/11	S	72 Trees	$38.10		$2,743
						TOTAL	**$36,827**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	E, M
2. Documented cost figures from similar project work obtained from local agency sources.	C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation/Forestry Assessment. See Appendix IV, Short-Term Tree Hazard Surveillance/Mitigation Map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Invasive species Assessment/ Monitoring/Control	**PART E Spec-#**	SC-3
NFPORS TREATMENT CATEGORY*	Invasive Species	**FISCAL YEAR(S) (list each year):**	2011-2012
NFPORS TREATMENT TYPE *	Chemical treatment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Assess known locations within the burned area and or adjacent to the Santa Clara Pueblo within 8 weeks after fire containment to determine if noxious weeds will disperse seed onto the burned/disturbed sites. After vegetation green-up in spring of 2012 assess known noxious weeds/non-native invasive plant species on Santa Clara Pueblo lands within the burn. Assess for possible invasions on roads, hand lines, dozer lines, and other disturbed areas within the perimeter of the Las Conchas Fire and access roads leading to the fire. Approximately 16,587 acres of Santa Clara lands were impacted by the fire. Sites for examination should include existing locations and in areas that have a high probability for invasion within the burned area. Prioritize treatments to control the establishment and spread of noxious weeds.

Three occurrences of noxious weeds were located and mapped within the burn area: spotted knapweed (*Centaurea stoebe* ssp. *micranthos*), musk thistle (*Carduus nutans*), and bull thistle (*Cirsium vulgare*). Russian knapweed (*Acroptilon repens*) was located just outside of the Las Conchas Fire perimeter along the Southside Repeater Road (it was located within the perimeter of the 2000 Cerro Grande Fire). There is the potential for salt cedar (*Tamarix ramosissima*) to occur in Santa Clara Creek and whitetop (*Cardaria draba*) to occur along the main road into Santa Clara Canyon.

B. Location/(Suitable) Sites:

Santa Clara Pueblo: Assess areas that have a high potential for weed/invasive species establishment—the burned area and areas disturbed by fire suppression forces. Critical areas include the Santa Clara Canyon road, drainages leading into Santa Clara Creek, access roads leading off the main road system, roads on the Santa Clara Pueblo lands that are accessed via US Forest Service and private lands, dozer lines, hand lines, staging areas, and burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive plant species populations. Disturbed areas within and along the fire perimeter, such as dozer lines, hand lines, and safety zones will also be prioritized for monitoring. Specific assessment areas include the dozer and hand lines in the Rincon del Cuervo area, dozer line above Pond 1, safety zone along road near Rincon del Cuervo, Drop Point 65 and the Puye Spike camp near the Puye Cliff Dwellings Visitor Center.

C. Design/Construction Specifications:

1. Conduct short-term monitoring (late summer/fall of 2011 and growing season of 2012) using early detection and rapid response (EDRR) assessment/monitoring of noxious weed/non-native invasive plant species infestations within the burned area. Monitoring to determine the post-fire presence or spread of invasive species will be conducted first at and near the known occurrences of weeds then in areas disturbed by the fire and fire suppression activities.

2. Natural re-vegetation of the burned area will be assessed in late spring/early summer of 2012 to determine whether there is sufficient recovery to preclude noxious weeds/invasive species**.** Assessment locations will be in areas representative that are not transitional from one ecological site to another or inclusions, using local agency specified methods. Should there be insufficient recovery, re-vegetation of native species should be considered, and a supplemental funding request for further monitoring and treatments should be triggered.

3. Inventory/assess, photograph and map new noxious weed infestations within burned area using Global Positioning System (GPS) technology.

4. Chemical treatments using pickup, ATV and/or backpack spray units will be used on any noxious weeds/non-native invasive species located within the fire perimeter on Santa Clara Pueblo lands. Other Integrated Pest Management (IPM) control methods will be employed as decided by the Santa Clara Pueblo and/or the BIA NPA. Coordination with New Mexico Department of Agriculture, New Mexico State University and/or the local county extension agent for recommended herbicide use rates, suitable herbicides to use for specific weed species, and timing of application is essential for effective control.

5. Prepare annual reports and a final report documenting sampling methodologies, techniques, areas sampled, invasive species treated and success/failure of treatment, and summary of findings. Submit supplemental funding requests for subsequent years monitoring studies.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

This treatment is necessary to prevent the establishment and to control the spread of existing noxious weeds and non-native invasive species into susceptible burned areas. Early Detection and Rapid Response (EDRR) will be used to prevent new noxious weed infestation from becoming established and to ensure the natural recovery of the native perennial grasses, forbs and shrubs. This treatment will also ensure the ecological indicators (Soil Stability, Hydrologic Function, and Biotic Integrity) are functioning properly during the natural recovery period on Santa Clara Pueblo lands. Chemical treatment, as a part of an IPM Program addressing new and

existing noxious weed infestations, will help reduce the likelihood of non-native invasive species spreading to disturbed areas as well as enhancing the re-establishment of high quality wildlife habitat and diverse native plant communities within the burn.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resource Management Plan, 2008; Pueblo of Santa Clara Wildland Fire Management Plan and Environmental Assessment, 2001. This treatment is compatible with the above plans.

F. Treatment Effectiveness Monitoring Proposed:
Treatment sites will be evaluated annually for the next three years to ensure control methods are meeting resource objectives. Weed specialist/technicians will visit chemically treated sites within two weeks of treatment; this is especially important for weed populations that are sprayed to ensure efficacy of herbicide application. Initiate follow-up treatments if additional non-native species or new infestations are discovered. Control will be considered successful upon determination that all noxious weeds have been controlled and non-native invasive plants have not spread beyond their pre-fire locations. Monitoring is required to ascertain whether vegetative recovery of habitat has, as anticipated, occurred. Additional treatments may be proposed if assessment concludes that the criteria for re-vegetation success are not achieved. A supplemental funding request for non-native invasive plant control will also be submitted if monitoring reveals expansion of noxious weeds from existing locations and if new infestations are found in the burn area.

LABOR, MATERIALS AND OTHER COST: (Costs are rounded)

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Santa Clara Pueblo Forester, Weed Crew supervisor @$47.37/hr X 40 hours = $1,900	$1,900
Field Crew laborer @ $25.44/hr X 160 hours X 2 (2 crew members) = $8,100	$8,100
TOTAL PERSONNEL SERVICE COST	**$10,000**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Misc. Supplies and Materials = $4,000/yr. (Herbicide, Surfactants, Dyes)	$4,0000
Heavy pants, splash goggles, unlined Nitrile gloves, eyewash, overboots, misc	$500
Tyvek suits @ $6.50/ea X 200 = $1,300	$1,300
Backpack sprayer @ $300 X 2 = $600	$600
Parts for backpack sprayer (padded belt @ $40 X 2 + 1.5mm nozzle @ $14/ea X 2 + $30 misc)	$140
TOTAL MATERIALS AND SUPPLY COST	**$6,600**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Government (GSA) vehicle @ $14.96/day + (50 miles/day X $0.235/mile) X 28 days = $750/yr.	$750
Government ATV/UTV @ 0.68/mile X 35 miles/day X 20 days = $476/yr.	$476
TOTAL TRAVEL COST	**$1,230**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2012	10/01/2011	09/30/2012	S	Acres	$1.09	16,587	**$18,000**
						TOTAL	**$18,000**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, T
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P. M, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation and Forestry Assessment; See Appendix I, Vegetation and Forestry Treatment map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Livestock Closure and Compliance Monitoring	**PART E Spec-#**	SC-4
NFPORS TREATMENT CATEGORY*	Erosion/Sedimentation	**FISCAL YEAR(S) (list each year):**	2012
NFPORS TREATMENT TYPE *	Erosion Control	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Close the burned portion(s) of grazing allotments in the Santa Clara Pueblo from livestock grazing for at least 2 years, length of closure will depend on the seeding/seedling establishment, and natural re-vegetative recovery of the burned area.

B. Location/(Suitable) Sites:
Three grazing allotments are within the burn area of the Las Conchas Fire—Deer Pond # 16, Upper Canyon # 17, P'opii Khanu #18. It is recommended that these grazing allotments be closed to livestock grazing for 2 growing seasons.

C. Design/Construction Specifications:
Close those portions of the grazing allotments that have been burned. Grazing may resume after 2 years of rest if monitoring data shows the resource objectives for the burned areas have been met.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
It is anticipated with the 2 growing seasons of rest the natural re-vegetative recovery is expected to occur and the Santa Clara Pueblo will meet the resource management objectives for the burned area.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resource Management Plan, 2008; Pueblo of Santa Clara Wildland Fire Management Plan and Environmental Assessment, 2001. One of the issues of the Pueblo of Santa Clara Wildland Fire Management Plan is deteriorating range conditions; the Plan further states that a Tribal resource concern is maintaining rangelands to maximize forage production for livestock. Resting the grazing allotments for a minimum of two growing seasons will meet these objectives.

F. Treatment Effectiveness Monitoring Proposed:
Compliance inspections will be made by the Rangeland Management Specialist/Forester/Natural Resource Officer to ensure compliance with the livestock closure for each allotment/pasture. All compliance inspections will be documented in a written report. Monitoring is required to ascertain whether vegetative recovery of habitat has, as anticipated, occurred. The Grazing Allotments will be re-opened once monitoring has shown sufficient vegetative recovery.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Santa Clara Pueblo Forester/BIA Natural Resource Officer@$47.37/hr X 144 hours = $6,800 (3 allotments/pastures X 8 hours per inspection X 2 inspections/month X 3 months = 144 hours)	$6,800
TOTAL PERSONNEL SERVICE COST	**$6,800**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Government (GSA) vehicle @ $14.96/day + (50 miles/day X $0.235/mile) X 6 days = $160	$200
TOTAL TRAVEL COST	**$200**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2012	10/01/2011	09/30/2012	S	Allotments	$2,333	3	**$7,000**
						TOTAL	**$7,000**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	T
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation and Forestry Assessment

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Sediment Removal - Ponds	**PART E Spec-#**	SC-5
NFPORS TREATMENT CATEGORY*	Facility & Infrastructure	**FISCAL YEAR(S) (list each year):**	2011, 2012
NFPORS TREATMENT TYPE *	Protect Structures	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
The work will be to consolidate and remove the sediment and debris captured in the four ponds in Santa Clara Canyon, and the J and Zero ponds on Sawmill Canyon (unnamed drainage). Sediment will be removed and placed in a location outside the influence of high water events.

B. Location/(Suitable) Sites:
Pond #1 (P'ingdii Pond), N 36.005487, W -106.282948
Pond #2 (Waeng-Povi Pond), N 36.004832, W -106.288994
Pond #3 (Nana-Kaa Pond), N 35.974900, W -106.368288
Pond #4 (Taikumuu Pond), N 35.977403, W -106.387975
J Pond, N 35.988303, W -106.292094
Zero Pond, N 35.987847,W -106.270441

C. Design/Construction Specifications:
All work must be coordinated with the Santa Clara Pueblo. A medium duty long reach excavator (For example Cat 320D L Hydraulic Excavator with long boom with thumb) and front loader will be staged at a safe location near Pond 4 for immediate access to remove floating debris and sediment from emergency spillway and primary pipe outlet (pond outlet works). All sediment and debris will be stored in a safe location outside flood plains and streams until it can be removed from the canyon to a permanent location. Rent or lease excavators and front loaders for approximately 6 months (Aug 1, 2011 to October 31, 2011 and May 1, 2012 to July 30, 2012). Excavator costs include support vehicle. The purpose of staging the equipment at Pond 3 & 4 is because the road to Pond 3 & 4 is at high risk to blockage, whereas the dams need immediate maintenance. Use same types of equipment for Ponds 1 and 2, however the equipment (excavator and front end loader) can be rented and transported to site as needed and does not have to be staged on site.

One time removal of bridges and obstructions in the emergency spillway of each pond will be implemented as soon as possible to reduce the hazard floatable debris, which has the potential to block the emergency spillways. The primary pipe outlet at the base of each dam (if present) will be opened to allow the pond to drain. All ponds should be drained immediately and remain drained for at least through monsoon season 2012 and beyond up five years after the fire. Any other pond bypass pipelines are recommended to be closed to prevent irreversible plugging.

Reoccurring maintenance of the ponds consists of bulldozing the sediment to the edge of the pond and loading the sediment and debris into a dump truck for permanent removal to site(s) outside of the canyon, such as near the irrigation diversion system downstream. Removed sediment must not have potential to be reintroduced into Santa Clara stream.

Inspect ponds after each storm event during the summer monsoon season and after high flows during the spring runoff season. Cleaning should occur when more than 25% of the pond has sediment accumulation. The outlet works will need to be inspected and cleaned as needed to allow for the free drainage of the water from the pond.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Cleaning and debris removal will help prevent the dams from overtopping, which could lead to catastrophic failure of the structures. If dam failure occurs, a torrent of water could be discharged from the dam system, placing the Santa Clara Pueblo at high risk to flooding. Where possible, the ponds will be drained to buffer the peak flows as water moves downstream and will assist in dewatering of the ponds prior to sediment removal.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Santa Clara Pueblo and BIA dam safety .plans and programs.

F. Treatment Effectiveness Monitoring Proposed:
Inspect ponds after storm events and schedule cleaning when sediment reaches 25% capacity of the pond. Also inspect after spring runoff events. Should additional funds be needed, a supplemental funding request will need to be submitted to the BIA National BAER Coordinator for approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**

TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Removal of bridges and obstructions in the emergency spillway; 1 time lump sum cost	$400
2 D-6 Dozer @ $738/day x 10 days x 4 treatments	$59,000
2 D-4 Dozer @ $550/day x 10 days x 4 treatments	$44,000
2 Excavator @ $6,010/month x 6 months (includes transport costs)	$72,120
2 Front End Loader @ $400/day x 10 day x 4 treatments	$32,000
4 T-800 Dump Trucks @ $845/day-each x 10 day x 4 treatments	$135,200
TOTAL CONTRACT COST	$**342,720**

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
2011	07/26/2011	09/30/2011	C	Pond cleaning	Varies	12	$147,520
2012	10/01/2011	09/30/2012	C	Pond cleaning	Varies	12	$195,200
						TOTAL	$**342,720**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, E
3. Estimate supported by cost guides from independent sources or other federal agencies	E
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Soil and Watershed Assessment.

See Appendix IV, Watershed Treatment Map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Traditional Cultural Assessment	**PART E Spec-#**	SC-6
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Numerous localities within the perimeter of the fire have been identified by Santa Clara Pueblo as being associated within traditional cultural and sacred places. These are places of cultural and religious significance associated with ceremonial practices and resource procurement activities. While these places can occur most anywhere, they are frequently located on mountain peaks, at springs, and in drainages. A single geographic feature may be significant to multiple tribes, but locations are closely guarded secrets known only to certain tribal members. While known, many of these places are not formally documented on maps. This may be due to religious proscriptions against doing so, as well as the fact that the holding of this information is within the oral tradition of this tribe. This requires ongoing consultation with tribal resource specialists and tradition keepers (elders). While many tradition keepers do not know how to read modern maps, this information can be acquired through consultation between tradition keepers and Tribal resource managers. The resource managers can help the elders navigate through the maps and use the oral tradition to locate traditional places as well as assess fire effects and post-fire effects, and to consider possible impacts from proposed emergency stabilization treatments. Generationally, many tradition keepers are reluctant to talk with non-tribal members. At the request of the Pueblo community, place names and locations associated with traditional practices will remain confidential as per the National Historic Preservation Act, as amended.

B. Location/(Suitable) Sites: Within Las Conchas Fire perimeter specific to areas of concern to the Pueblo of Santa Clara**.**

C. Design/Construction Specifications: Tribal Resource Specialist, Tribal Council Member, Traditional knowledge holder (appropriate elders representing the clans and secret societies of the pueblo) for 10 days to locate and determine condition of significant known cultural and religious places and activity areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To identify places of traditional cultural and religious significance associated with ceremonial practices and resource procurement, assess fire and post-fire impacts, and propose necessary and appropriate treatments.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment is consistent with the federal government's trust responsibility to federally recognized tribes.

F. Treatment Effectiveness Monitoring Proposed: Monitoring would be addressed for any treatment plan developed as a result of this specification. Any emergency stabilization and protection treatments identified will need to be submitted as an amendment to the BIA National BAER Coordinator for review and approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Resource Advisor (Archaeologist GS-193-11/5) $27 x 16 x 1 to accompany tribal members and conduct assessment.	$432
TOTAL PERSONNEL SERVICE COST	**$432**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	$0

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel for resource specialist (archaeologist) $147 x 1 x 1	$147
TOTAL TRAVEL COST	**$147**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Tribal Resource Specialist (with working knowledge of map reading, familiarity of land) $250/day x 10 days	$2,500
Traditional knowledge holder (specific to the Pueblo) $250/day x 10 days	$2,500
Tribal Council Member $250.00/day x 10 days	$2,500
TOTAL CONTRACT COST	**$7,500**

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
2011	August 15, 2011	August 14, 2012		1	8,079		**$8,079**
						TOTAL	**$8,079**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Cultural Resource Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Canyon Road Stream Crossing Protection: Dip Construction	**PART E Spec-#**	SC - 7
NFPORS TREATMENT CATEGORY*	Erosion Sedimentation / Roads	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Stream Stabilization / Culverts	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Stream crossings of the main Santa Clara Canyon Road will be enhanced to withstand higher flows by constructing overflow critical rolling dips immediately down-road of culverts on crossings 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, and 15. Inlets and outlets of overflow rolling dips will be armored with keyed-in boulders.

B. Location/(Suitable) Sites:
Santa Clara Canyon Road (main road) crossings of Santa Clara Creek upstream of Puye Cliffs Road crossing with Santa Clara Creek: (in order from upstream to downstream)
Crossing 3: N 3982140 E 378185
Crossing 4: N 3981982 E 378297
Crossing 6: N 2982031 E 379182
Crossing 7: N 3982080 E 379418
Crossing 8: N 3982471 E 379933
Crossing 9: N 3982649 E 380505
Crossing 10: N 3982753 E 380495
Crossing 11: N 3983444 E 380956
Crossing 12: N 3983573 E 381038
Crossing 13: N 3983666 E 381099
Crossing 14: N 3984230 E 381099
Crossing 15: N 3984358 E 381986

C. Design/Construction Specifications:
Overflow rolling dips will be constructed on the main Santa Clara Canyon Road stream crossings of Santa Clara Creek 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15. Overflow rolling dips will be constructed down-road of culverts at each of the above crossings, to be passable by passenger cars and log hauling trucks. Inlets and outlets of overflow dips will be armored with boulders. Rock for fillslope inlet and outlet armoring may be collected within Santa Clara Canyon.

Overflow rolling dips should be located where road fillslopes are minimal down-road of culverts.

Excess fill material removed from the fillslope outlet of dips will be graded and compacted into the road surface as the berm component of the rolling dip to prevent diversion of stream flow down the road.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Increased runoff is expected in Santa Clara Creek after the fire, and existing corrugated metal pipe stream crossings of Santa Clara Creek have a higher potential to plug during and after storm events and spring runoff after the fire. By installing overflow critical rolling dips below the above listed crossings will allow for passage of crossings by log hauling trucks and passenger vehicles.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resources Management Plan, 2005

F. Treatment Effectiveness Monitoring Proposed: Regular inspection of crossings after rain storm events and high flows during spring runoff. Should monitoring result in debris removal or repair, then an amendment to the plan will be needed and submitted for review and approval by the BIA National BAER Coordinator.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Equipment operators: $90/hr.	$15,000
TOTAL PERSONNEL SERVICE COST	$15,000
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Excavator, 48,000 lb. 1yd. @ $1900/week for 1 week	$1900
Dump Truck, 6 yd. @ $800/week for 1 week	$800
D-6 Dozer @ $2400/week for 1 week	$2400
Transport @ $4.50/loaded mile	$1000
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$6100
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Fuel and other maintenance	$1500
TOTAL TRAVEL COST	$1500
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	09/12011	9/1/2011		Crossings		12	**$22,600**
2012							
2013							
						TOTAL	**$22,600**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	E
2. Documented cost figures from similar project work obtained from local agency sources.	P, E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix IV for the Watershed Treatment Map and Santa Clara Emergency Treatments Canyon Low Water Crossings and Spur Road Culvert Removal map. See Appendix V for the Stream Crossing Overflow Dip specification drawing detail.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	K Rails and Sandbags to Protect Structures and Infrastructure	**PART E Spec-#**	SC-8
NFPORS TREATMENT CATEGORY*	Facility and Infrastructure	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Stabilize/Secure/Protect Structures	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Place sandbags and k rails around structures to divert flood and debris flows.

B. Location/(Suitable) Sites: See Emergency Implementation Treatments – Santa Clara Map, Appendix IV

C. Design/Construction Specifications:

1. a. Place 22,600 sandbags at prescribed locations to prevent flows into structures.
   b. Store any extra sandbags in locations to easily deploy if needed.
   c. Delivered or stored sandbags will not be placed in stream channels.
   d. Inspect sites after large storm events, clean out sediment; replace damaged bags (estimate 10% (2,300).
2. a. Install 310 k rails at prescribed locations to prevent large flows into structures, utilizing low-boy transport and front end loader.
   b. Level site for k rails with backhoe or suitable equipment
   b. K rails should be placed end to end on level ground.
   c. Sandbags need to be placed in a single row and against the seams on uphill side of k rail and a single row on downhill side.
   d. To maximize flood protection, k rails should be inter-pinned with 30 inch length, 8 gauge rebar.
   e. K rails delivered to site must not be staged in drainages.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To protect structures from flooding, debris and mud flows in the event stream channels overflow their banks.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed: Inspect sandbags and k rail placement and performance after major storm events and make necessary adjustments to improve protection of structures. Inspections will be performed within Specification No. SC-10.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
35 Tribal personnel on Resource Orders x $33/hour x12hours x 6 days	**$83,200**
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Front End Loader @ $930/day x 6 days	$5,600
Transport @ $710/day x 6 days	$4,300
Dump Truck @ $710/day x 6 days	$4,300
Backhoe @ $420/day x 6 days	$2,600
Excavator @ $870/day x 6 days	$5,200
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$22,000**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
FY11 Sandbags and K rails are donated	$0
TOTAL MATERIALS AND SUPPLY COST	**$0**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLI SHMENTS	PLANNED COST
FY11	8/1/2011	8/6/2011	C	site	$105,200		**$105,200**
						TOTAL	**$105,200**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Emergency Implementation Treatments – Santa Clara Map, Appendix IV and Watershed Assessment, Appendix I

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Floatable Debris Removal – Lower Santa Clara Creek	**PART E Spec-#**	SC-9
NFPORS TREATMENT CATEGORY*	Erosion/Sedimentation	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Channel Debris Removal	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Remove floatable debris (down logs, limbs and piled slash) from selected areas of Santa Clara Creek drainage.

B. Location/(Suitable) Sites: Santa Clara Creek drainage from Highway 30 bridge to approximately 3 miles upstream of Pueblo. Treatment area encompasses an estimated 5,000 feet of stream channel totaling approximately 75 acres.

C. Design/Construction Specifications: Remove all down limbs and logs larger than approximately 3 inches small end diameter by 6 feet in length. Removal may be by combination of hand and equipment use. Use chainsaws to buck wood into manageable pieces. Place debris in approved disposal sites well out of potential flooding areas. Avoid ground disturbance in the channel to the extent possible. Avoid cutting or otherwise disturbing live vegetation, including native junipers, willows, or other shrubs.

Majority of work was completed by Santa Fe County bulldozer and operator under direction of Santa Clara Pueblo. This work was apparently donated to Pueblo by the County.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Remove floatable debris that could potentially block and restrict flows in box culverts beneath the Highway 30 and the lower bridge in Santa Clara Pueblo.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in specific approved land management plan, treatment is consistent with federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed: Evaluate box culverts periodically to ensure they are free of debris.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
20 laborers @ $30/hour X 12 hours X 3 days	$21,600
Admin. Assistant @ $25/hour X 8 hours X 3 days	$600
TOTAL PERSONNEL SERVICE COST	**$22,200**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Front-end loader and operator @$116/hour X 12 hours X 3 days	$4,176
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$4,176**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	

TOTAL CONTRACT COST	

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
2011	7/8/2011	7/20/2011	C	Acres	$352	75	**$26,376**
						TOTAL	**$26,376**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, E
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Soil and Watershed Assessment, Appendix I.

See Emergency Implemented Treatments Map, Santa Clara Pueblo, Appendix IV.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Storm Patrol (roads, ponds and associated values at risk)	**PART E Spec-#**	SC-10
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011, 2012
NFPORS TREATMENT TYPE *	Hazard Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

There are many places at risk of inundation, debris deposition, flood damage and other post-fire related impacts from elevated flows and carrying sediment and debris. There are 18 stream crossing by Rd 602 (Santa Clara Canyon Road) and other crossings where the road could be damaged limiting access into the valley. After rainfall events these areas will be assessed for any potential damage to the roads and infrastructure. If the culverts are plugged or damaged then the areas could be cleaned out immediately to avoid further damage during the next rainfall event. During these storm patrols the pond system will also be assessed for the need to clean them out or stabilize the dams. The specifications for clean out of the ponds are included in the Sediment Cleanout Spec. The structure protection treatments (SC-8) will also be assessed to determine if any repairs are needed prior to the next rain event. Additionally, other values at risk (buildings, well heads, diversion structures, etc.) in the floodplain area will be assessed during storm patrol.

Roads downstream of the Las Conchas Fire contain drainage structures that cross streams located in watersheds that have a high to moderate burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging drainage structures or exceeding their maximum flow capacity. If these flows plug drainage structures the result could be massive erosion and debris torrents further down the drainage due to the failure. Also, there is an immediate and future threat to travelers along these roads within the burned area due to the increased potential for rolling and falling rock from burned slopes and increased potential for flash floods and mudflows. With the loss of vegetation normal storm frequencies and magnitudes can more easily initiate rill and gully erosion on the slopes and it is likely that this runoff will cover the roads or cause washouts. These events make for hazardous access along steep slopes and put the safety of users at risk.

The patrols are used to identify those road problems such as plugged culverts and washed out roads and to clear, clean, and/or block those roads that are or have received damage. The storm patrollers shall have access to equipment that can be used when a drainage culvert is plugged or soon to be plugged and to repair any road receiving severe surface erosion.
Work should be performed in the morning and early afternoon. Leave drainages when chance of rain is moderate or higher. Store equipment and materials out of flood plains and where chance of loss is low.

B. Location/(Suitable) Sites: Santa Clara Canyon Road, Ponds 1-4, Zero Pond, Ponds J, G, Well 3, Tribal Buildings, Protection treatments in Santa Clara Pueblo

C. Design/Construction Specifications:

1. Immediately after receiving heavy rain the Pueblo/BIA will send out patrols to the roads and facilities of high importance on Pueblo lands to identify road and other hazard conditions – obstructions such as rocks, sediment, washouts and plugged culverts so the problems can be corrected before they worsen or jeopardize motor vehicle users.
2. The road patrols shall bring in heavy equipment necessary to mechanically remove any obstructions from the roads and culvert inlets and catch basins where necessary.
3. All excess material and debris removed from the drainage system shall be placed outside of the bank-full channel and floodplain where it cannot re-enter stream channels. Preferably the material will be moved off-site.
4. After each storm event, Santa Clara Pueblo will identify the location(s) along roads, ponds and structures where debris material is located and what debris material has been removed. This information will be given to the AOTR.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

The storm patrol is intended to identify and mitigate issues immediately after a rainfall event to avoid further damage during subsequent events. The purpose of the monitoring is to evaluate the condition of roads for motorized access and to identify and implement additional work needed to maintain and/or repair damage to road surfaces and flow conveyance structures across roads in order to provide safe access across Pueblo lands. BIA Engineering and Pueblo personnel will survey the roads within the fire perimeter after high-intensity storms. Survey will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows.

E. Treatment consistent with Agency Land Management Plan (identify which plan): This treatment is compatible with the Santa Clara Pueblo Forest and Woodland Resource Management Plan (Oct. 2005) and the Pueblo Santa Clara Wildland Fire Management Plan (2001)

F. Treatment Effectiveness Monitoring Proposed:

The storm patrol will verify that the work has been completed and the infrastructure is ready for the next rain event. Storm patrollers can also recommend changes to, or additional treatments, in the first year after the fire.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Storm Patrol Assessers (GS-9 equiv. @ $300/day x 2 teams of 2 people x 10 events)	$12,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 10 days) - patrol	$3,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 30 days) - clearing	$9,000
TOTAL PERSONNEL SERVICE COST	**$24,000**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
320C Excavator (incl. operator): $872/day x 5 days/event x 6 events	$26,160
T800 Transport (incl. operator):: $713/day x 5 days/event x 6 events x 3 pieces of equipment	$64,170
140H Motor Grader (incl. operator):: $1074/day x 5 days/event x 6 events	$32,220
D6 Dozer (incl. operator):: $1074/day x 5 days/event x 6 events	$32,220
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$154,770**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Patrols: 4 X 4 pickup: 200 miles X $0.55/ mile x 10 patrols x 2 teams	$2,200
Road Clearing Access: 4 X 4 pickup: 100 miles X $0.55/ mile x 6 events of 5 days each x 2 teams	$3,300
TOTAL TRAVEL COST	**$5,500**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2011	07/26/2011	09/30/2011	F	patrol	$1500	6	$10,320
2012	10/01/2011	07/26/2012	F	patrol	$1500	4	$6,880
2011	07/26/2011	09/30/2011	F	Clean-out	$27,845	3	$83,535
2012	10/01/2011	08/01/2012	F	Clean-out	$27,845	3	$83,535
						TOTAL	**$184,270**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, M, E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

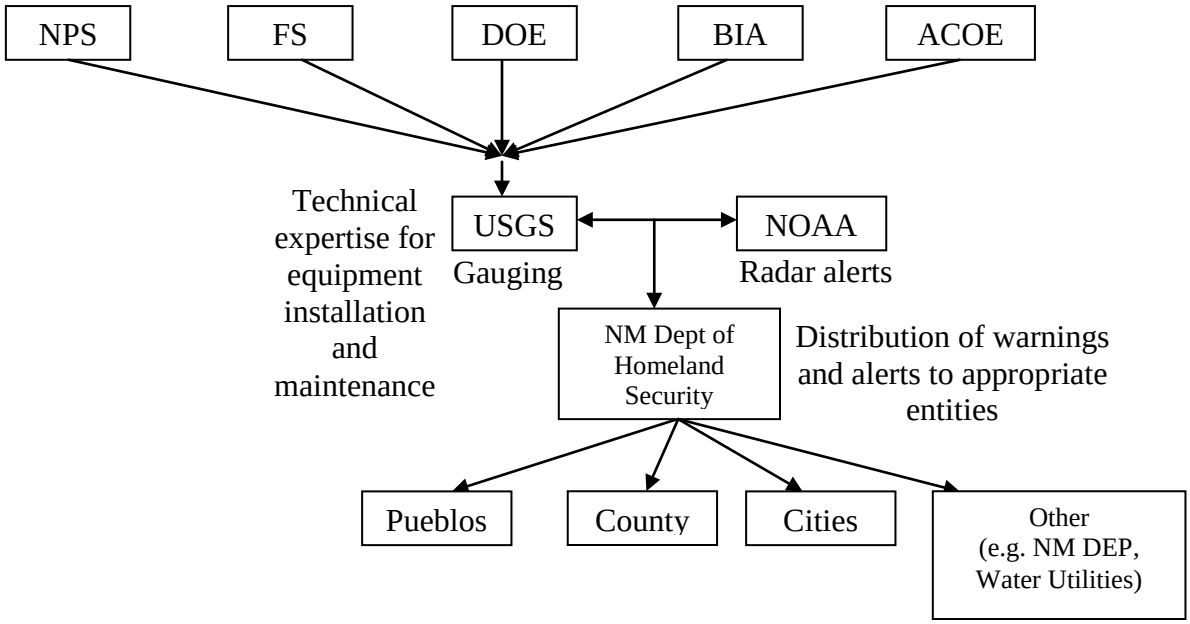
TREATMENT/ACTIVITY NAME	Early alert systems	**PART E Spec-#**	SC-11
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Flood Warning System	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

There are several homes downstream of the burn area that are at risk of increased post-fire stream flow flooding and debris torrents. Early alert systems for precipitation and stream flow can provide residents with some advanced warning of conditions that could result in these elevated flows. After the Las Conchas Fire many agencies and communities wished to install early warning systems to address the risk to life and property downstream of the burn area, especially in watersheds burned at high and moderate soil burn severity. To ensure that the systems are coordinated and appropriate warnings are given at the earliest possible time, the agencies have devised a process diagrammed below.



The main land management agencies will provide funding and land use agreements to allow the USGS, who has expertise in early alert systems, to locate, install and operate the systems. The Implementation Team Leader will work with the USGS to find the appropriate locations for the gauges. The National Weather Service will additionally utilize weather radar to provide early warning to communities. All of the warnings (radar, precipitation and streamflow) will be disseminated to communities by the New Mexico Dept. of Homeland Security. Beyond local communities additional agencies will be notified, especially water quality entities who may wish to avoid taking in water when ash and sediment levels that can damage equipment are predicted to be elevated.

B. Location/(Suitable) Sites:

In the headwaters of the Santa Clara Canyon watersheds

C. Design/Construction Specifications:

A flood warning gage measures the stage in a river and the precipitation amount during a storm event. The flood warning gage consists of a tower about 12 to 15 feet in height. Precipitation will be measured with a rain gage installed on the top of the tower. Stage of the channel will be measured with a pressure transducer installed inside a small metal conduit. If conditions warrant, a non-contact radar stage sensor will be installed to minimize possibility of damage during first flows. A data collection platform (DCP) will be installed in a small gage house. The DCP will store and transmit all of the collected stage and precipitation data. Installation and connectivity of these systems will be coordinated with other jurisdictions (LANL, Los Alamos, Cochiti, San Ildefonso, Forest Service) in and around the Las Conchas Fire. The Verizon Crisis Response Team has offered to help with communications links (800-981-9558; Mark Francis and/or Kari Dean).

The Army Corps of Engineers is funding installation of USGS early alert systems in Santa Clara Canyon (2), Cochiti Canyon (1), and Peralta Canyon (1). The USGS is locating sites as of 19 July 2011. Los Alamos National Laboratory is planning to fund several

similar systems. This specification is to be one of three recommended by the DOI BAER team for the Las Conchas Fires (Santa Clara Canyon, Guaje/Los Alamos/Pueblo Canyon and Bland/Peralta Canyon) to provide additional early alert to downstream Pueblos. A land use agreement may need to be written if the location of the early alert system will be on other that DOI BIA lands.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Provide downstream communities, workers in the watershed and recreation users with the necessary information to be prepared for potential flooding events

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Land Management Plan and Santa Fe NF Land Management Plan (watershed above San Ildefonso)

F. Treatment Effectiveness Monitoring Proposed:
Monitoring of the system will be done by the USGS (or other awarding company) as part of annual operation budget.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Contracting/Agreement Officer (GS-12 @ $400/day x 2.5 days)	$1,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 5 days)	$1,500
TOTAL PERSONNEL SERVICE COST	**$2,500**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
	$
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
	$
TOTAL TRAVEL COST	**$**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
equipment and labor for installation of early warning precipitation/streamflow alert systems x 2 @ $15,000 each	$15,000
Operation of early warning systems x 1 system x 3 years @ $5,000 per year	$15,000
TOTAL CONTRACT COST	**$30,000**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2011	07/26/2011	08/26/2011	S	Early Warning	$17,500	1	$17,500
2011	08/26/2011	08/25/2012	S	Operation	$5,000	1	$5,000
2012	08/26/2012	08/25/2013	S	Operation	$5,000	1	$5,000
2013	08/26/2013	08/25/2014	S	Operation	$5,000	1	$5,000
						TOTAL	$**32,500**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, M, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Toilet Cleaning/Removal	**PART E Spec-#**	SC-12
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Toxic Substance Mitigation	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
There are several dozen portable toilets throughout the Santa Clara Canyon staged adjacent to recreation cabins and camping sites. These portable toilets pose a hazardous waste risk in the watershed.

B. Location/(Suitable) Sites:
At cabins and Recreation sites in Santa Clara Canyon. After recent debris flows some of the toilets were moved down drainage by runoff and need to be removed and disposed.

C. Design/Construction Specifications:
Clean portable and permanent/stationary toilets so that there is no longer any hazardous waste in each toilet and remove each portable toilet from the canyon and store toilets on a site on the pueblo outside of the floodplain. Dispose of toilets that were damaged in the fire and subsequent debris flows. Toilets that are part of the debris flow will be pulled out by the storm patrol crew cleaning off the roads after left by the side of the road for pickup by the contractor who is disposing of the damaged toilets. The contract will specify the need to locate and remove all visible portable toilets even those that have been moved off of their original location by flood/debris flows. Implementation team leader will attempt to locate the toilets prior to contracting to allow for adequate specifications in the statement of work.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Reduce the potential for post-fire hazardous material (human waste) to enter the Santa Clara Canyon

E. Treatment consistent with Agency Land Management Plan (identify which plan):
This treatment is compatible with the Santa Clara Pueblo Forest and Woodland Resource Management Plan (Oct. 2005) and the Pueblo Santa Clara Wildland Fire Management Plan (2001)

F. Treatment Effectiveness Monitoring Proposed:
The Implementation Team Leader will identify each toilet to be removed and assess the implementation effectiveness

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Contracting/Agreement Officer (GS-12 @ $400/day x 3 days)	$1200
Implementation Team Leader (GS-9 equiv. @ $300/day x 8 days)	$2400
TOTAL PERSONNEL SERVICE COST	**$3600**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	**$**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Pump out portable and stationary toilets @ $75/toilet x 50 toilets	$3750
Mileage to Santa Clara Canyon for pumper truck @ $2.00 per mile x 250 miles	$500
Transport portable toilets out of canyon and place on tribal land @ $75 per toilet x 45 toilets	$3375

Mileage to Santa Clara Canyon for transport truck @ $2.00 per mile x 250 miles	$500
Disposal of damaged portable toilets @ $500 per toilet x 12 toilets	$6000
TOTAL CONTRACT COST	**$14,125**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2011	07/26/2011	08/20/2011	S	each	$371	50	$17,725
						TOTAL	**$17,725**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	C
2. Documented cost figures from similar project work obtained from local agency sources.	P, M
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Sandbag UV Protection	**PART E Spec-#**	SC-13
NFPORS TREATMENT CATEGORY*	Facility & Infrastructure	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Protect Structures	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Sandbag treatments can fail due to sun light exposure deterioration of the bags. Spray painting the installed sandbags will extend the useful life of the treatments beyond two years.

B. Location/(Suitable) Sites: See Emergency Implementation Treatments – Santa Clara Map, Appendix IV

C. Design/Construction Specifications:

1. Water base, latex outdoor house paint. Color to be flat, light grey with minimum 10 year label warrantee.
2. Apply with HVLP (high volume, low pressure) sprayer at a minimum rate of 1 gallon per 200 square feet or 50 linear feet of coverage. Apply according to manufactures specifications.
3. Protect infrastructure and personal property from over spray.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Depending on rainfall and watershed recovery, treatments may need to remain in place for 3 years. Painting will reduce the risk of the sandbags failing due to UV exposure during this time.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes

F. Treatment Effectiveness Monitoring Proposed: Inspect semiannually to determine useful life of treatment.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
2 Hand Crew Laborers @ $225/day x 2 days	$900
TOTAL PERSONNEL SERVICE COST	**$900**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Rental: Airless HVLP paint sprayer @$100/day x 2 days	$200
Generator $50/day x 2 days	$100
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$300**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Bulk Paint @ $20/gallon x 1 gallon/50 linear x 10,000 feet	$4,000
Miscellaneous supplies	$200
TOTAL MATERIALS AND SUPPLY COST	**$4,200**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
FY11	1/1/2011	9/30/2011	C	Painting	$5,400	1	**$5,400**
						TOTAL	**$5,400**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	E,M
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Emergency Implemented Treatments – Santa Clara Map, Appendix IV and Watershed Assessment, Appendix I

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Irrigation Diversion Cleaning	**PART E Spec-#**	SC-14
NFPORS TREATMENT CATEGORY*	Facility & Infrastructure	**FISCAL YEAR(S) (list each year):**	2011/2012
NFPORS TREATMENT TYPE *	Debris/Sediment Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: During major flood events floatable material and sediment will collect in the Santa Clara irrigation diversion hindering the ability to delivery water to the Irrigation System. This treatment provides for cleaning of the irrigation diversion.

B. Location/(Suitable) Sites: In Santa Clara Creek, 6 miles upstream from the Santa Clara Village

C. Design/Construction Specifications:

1. Shovel and remove debris/ sediment within the diversion structure
2. Use dump truck, back hoe and excavator to remove debris/sediment
3. Dispose of material in prearranged location out of the channel

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To insure the Santa Clara irrigation system provides irrigation water from Santa Clara Creek.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes

F. Treatment Effectiveness Monitoring Proposed: Visually inspect Santa Clara irrigation diversion after every flood event and remove debris and sediment.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
(All heavy equipment costs include an operator)	
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
FY11 Front end Loader@ $930/day x 4/yr x 2	$7,400
FY11 Dump truck @ $420/day x 4/yr x 2	$3,400
FY11 Excavator @ $870/day x 4/yr x 2	$7,000
FY11 Transport @ $710/day x 4/yr x 2	$5,800
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$23,600**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	8/1/2011	9/31/2011	C	Diversion Cleaning	$2,950	4	**$11,800**
2012	10/1/2012	8/1/2012	C	Diversion Cleaning	$2,950	4	**$11,800**
						TOTAL	**$23,600**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P,T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Santa Clara Watershed Treatments Map, Appendix IV and Watershed Assessment, Appendix I

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Short-Term Tree Hazard Surveillance	**PART E Spec-#**	SC-15
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Hazard Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Reservation	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A.General Description: Identify, using the NPS Tree Hazard Rating System, and mark with blue tree paint, previously unsurveyed (by BAER Foresters) short-term tree hazards within one tree length and posing public/worker safety threat on roads.

B. Location/(Suitable) Sites: Designated roads on Short-Term Tree Hazard Surveillance Map in Appendix IV. Approximately 28.4 miles of secondary road remain unsurveyed. Also included are several miles of culturally significant trails (including Chicoma Mountain and Popii Khanu)

C. Design/Construction Specifications:

1. Using the NPS Tree Hazard Rating System, identify those tree hazards with a rating of 5 or greater within one tree length of secondary roads within fire perimeter. NPS 7 Point Tree Hazard Rating System is attached at the end of this Specification.
2. Paint tree hazards with blue tree-marking paint to designate for removal. Number trees with consecutive numbers to coincide with previously established numbering system.
3. Collect data (location, tree number, species, DBH, and condition) for each tree.
4. Record tree location (e.g., map, mileage or GPS)

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To ensure public and worker safety within Santa Clara Reservation.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Santa Clara Pueblo Forest and Woodland Resource Management Plan, 2005

F. Treatment Effectiveness Monitoring Proposed: Final report of the number of trees identified as tree hazards to be mitigated.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Hand Crew Laborer 2 @ $24.64/Hr.* x 80 Hrs.	$3,942
* Adjusted to 2011 rates (1.093 x 2008 rates minus allowance for "associated vehicle costs.")	
TOTAL PERSONNEL SERVICE COST	**$3,942**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Miscellaneous Supplies (Biltmore Stick, Field Notebooks, Tree Paint, etc.)	$200
TOTAL MATERIALS AND SUPPLY COST	**$200**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
GSA 4WD Pickup 1 @ $28.00/Day x 10 Days	$280

TOTAL TRAVEL COST	**$280**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	8/1/2011	9/30/2011	S	Miles	$155.70	28.4	**$4,422**
						TOTAL	**$4,422.**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, M, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation/Forestry Assessment. See Appendix IV, Short-Term Tree Hazard Surveillance/Mitigation Map.

Appendix IV

NPS 7 Point Rating System

The rating is comprised of two components incorporating the following factors: (1) **tree failure potential**; (2) **target damage potential**; (3) **target impact potential**; and, (4) **target value**.

The **Tree** or **Defect Rating Value** component represents an estimation of the tree's relative potential for imminent failure and its damage potential based upon an evaluation of tree condition (defect), including site factors, plus size and height of the potentially hazardous portion of the tree. There are three possible ratings, 1-3, with three representing the highest failure/damage potential.

An additional point may be added for severe lean, which increases the likelihood of failure. Thus, 4 is the maximum defect rating possible, and represents a very defective (and/or predisposed to failure) tree with a severe lean which has great potential for damage and/or injury/death.

Defect ratings for high, medium, and low ratings are usually assigned and/or modified on a local/regional basis and reflect variations in species and environmental factors. The following is provided as an example and may need to be revised for local conditions.

High (3)--Significant Visible Defect/Damage (Predisposed to failure w/in 3 yrs. or before next scheduled inspection)

--Conifer crown > 70% dead; hardwood crown >50% dead
--Dead limbs 4-6" diameter > 40% of crown
--Dead limbs 6-8" diameter > 20% of crown
--Dead limbs > 8" diameter
--Live limbs with visible signs of rot or splits
--Hangers ≥ 2" diameter
--Heart rot/hollow > 70% diameter
--Multiple conks ≥ 6" wide on bole or limbs, indicating extensive heart rot
--Catface/canker > 50% circumference
--Shallow rooting/soil saturation; obvious signs of uprooting (e.g. mounding, cracking)
--Conks or mushrooms of root decay fungi at root crown, or loose bark at ground level, indicating root rot
--Characteristics (e.g. slabbing bark, extensive decay, etc.) which could result in unsafe deferred removal

Medium (2)--Moderate Visible Defect/Damage (Failure unlikely w/in 3 yrs. or before next scheduled inspection)

--Reduced growth; flattened conifer tops
--Numerous scattered dead/dying limbs
--Conifer crown 30-70% dead; hardwood crown 30-50% dead
--Dead limbs 4-6" diameter 20- 40% of crown
--Dead limbs 6-8" diameter 10- 20% of crown

--Live limbs w/ rot, hollow, or dead areas
--Heart rot/hollow 30-70% diameter
--Single conk < 6” wide on bole or limbs
--Catface/canker 30- 50% circumference
--Proximity to identified root rot center

Low (1)--Limited Visible Defect
--Reduced growth; rounded conifer tops
--Discolored and/or sparse foliage
--Conifer crown < 30% dead; hardwood crown <30% dead
--Dead limbs 2-4” diameter <20% of crown
--Dead limbs 4-6” diameter <10% of crown
--Heart rot/hollow <30% diameter
--Catface/canker <30% circumference
--Proximity to suspected root rot center

The second component is the **Target Rating** and represents impact potential and target value (monetary or possibility of injury/death). The ratings for this element are similarly rated 1-3, with 3 being the highest. A target rated 3 is one which has a high value (property or person) with a high likelihood of being impacted in event of failure. These ratings are usually more standardized with following an example:

High (3)--Overnight Exposure
--Campgrounds
--Lodges, hotels, dormitories
--Residences
--24-hour visitor service facilities

Medium (2)--Daytime Exposure
--Paved trails
--Interpretive sites, such as amphitheaters, kiosks
--"High use" road networks where occupancy is "constant"
--Roadside attractions, such as vista points or historic stops
--Information stations, visitor centers, fee collection portals
--High-use facility designated parking areas; designated trailhead parking areas
--Utilities, infrastructure
--“High-use” areas with “constant” occupancy, such as plazas, staging areas, commercial sites
--Picnic areas

Low (1)--Transitory Exposure
--Highway corridors
--Unimproved roads
--Turnouts
--Bicycle paths
--Structures with sporadic occupancy, such as restrooms associated with parking areas, storage buildings

The **Total Hazard Rating** is the **sum** of the **Defect Rating** and **Target Rating**.

Hazard Rating	Treatment Priority
2-3	Low
4-5	Medium
5 (w/3 defects)-6	High
7	Very High

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Floatable Debris Removal, Upper Santa Clara Creek	**PART E Spec-#**	SC-16
NFPORS TREATMENT CATEGORY*	Erosion/Sedimentation	**FISCAL YEAR(S) (list each year):**	2011, 2012
NFPORS TREATMENT TYPE *	Channel Debris Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
There are many places at risk of inundation, debris deposition, flood damage and other post-fire related impacts from elevated flows and carrying sediment and debris. It is anticipated that high flow events will be larger than normal as a result of the Las Conchas Fire with a concomitant increase in sediment and debris loadings. As a result, it is recommended that the stream channel in the Santa Clara Canyon be cleared of debris such as large floatable wood and brush and other unnecessary flow impediments to facilitate passage of flood flows and to minimize potential damage to downstream values at risk.

B. Location/(Suitable) Sites:
Santa Clara Creek between the irrigation diversion located at River Mile 6.0 upstream to one mile above Pond #4. This is a distance of approximately 13.0 miles. See Watershed Treatment Map, Appendix IV.

C. Design/Construction Specifications:
1. Use 5 person sawyer crew, 5 person hand crew, and 1 Crew boss sawyer to cut and buck woody floatable debris removal from the active stream channel and adjacent floodplain prior to and following any storm/rain event that deposits additional floatable material to the channel and floodplain.
2. Place cut material in bucket of front end loader for transfer to dump truck.
3. Concentrate removal of debris within the riparian corridor of Santa Clara Creek.
4. Deposit removed material out of the floodplain on to higher ground or out of the canyon to prevent any transport of material back to active channels and potential downstream stream roads, culverts or bridges.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Increased runoff and sediment/debris delivery to area transportation and recreation infrastructure which traverses through the Las Conchas Fire in the Santa Clara Creek canyon.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes.

Treatment Effectiveness Monitoring Proposed: Inspect stream channels after flood/high water events to determine if removal of any newly deposited debris may be required. If additional funding is necessary as a result of this inspection there will need to be an amendment and request for additional funding to the National BIA BAER Coordinator.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Implementation Team Leader (GS-9 equiv. @ $300/day x 10 days/removal x 4 removal events)	$12,000
Administrative (GS-5 equiv. @ $135/day x 20 days)	$2,700
Crew Boss Sawyer (1 @ $300/day x 10 days/removal x 4 removal events)	$12,000
Hand Crew Sawyer (5 @ $265/day x 10 days/removal x 4 removal events)	$53,000
Hand Crew Laborer (5 @ $225/day x 10 days/removal x 4 removal events)	$45,000
TOTAL PERSONNEL SERVICE COST	**$124,700**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**

MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
CAT 950G Front end Loader: $935/day x 10/days x 4 Removals	$37,400
T800 Dump truck, 10 yd: $720/day x 10/days x 4 Removals	$28,880
Mobilization of Front-end Loader, $85/hr x 3 hr/Removal x 4 Removals	$1,020
TOTAL CONTRACT COST	**$67,220**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2011	07/26/2011	09/30/2011	F	Debris Removal	$57,756	2	**$115,152**
2012	10/01/2011	07/26/2012	F	Debris Removal	$38,384	2	**$76,768**
						TOTAL	**$191,920**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Soil and Watershed Assessment and Appendix IV, Santa Clara Watershed Treatment Map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Engineering Assessment of Two Retention Ponds	**PART E Spec-#**	SC-17
NFPORS TREATMENT CATEGORY*	Planning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Prescription Design	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Two of three retention ponds above Pond 3 (Nana-Kaa) and Pond 4 (Tsikumuu) potentially threaten the reservoir system in the Santa Clara Canyon area. Recommended is a risk evaluation for potential failure of the two ponds and if needed treatment recommendation implementation with a separate specification.

B. Location/(Suitable) Sites: Two sites within the upper Santa Clara Canyon at and below Pond 4 (Tsikumuu) and above Pond 3 (Nana-Kaa). Appendix IV, Upper Santa Clara Canyon Watershed Treatment Map.

C. Design/Construction Specifications: Registered Engineer or Registered Dam Safety Engineer is required to perform risk assessment and treatment recommendations. The specification is written as a Force Labor account, however if a Registered Engineer or Registered Dam Safety Engineer is not available as Force Labor Account, then contract labor through a qualified private consultant. The risk assessment and potential treatment recommendations need to be complete by mid-August (FY 2011) for implementation of potential treatment by the end of September (FY 2011). Prescription to include installation and material costs of any recommended treatments.

A supplemental funding request will need to be made for any recommended treatments and be submitted to BIA National BAER Coordinator.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Increased stream flows and debris flow potential may threaten the two retention ponds in post-fire watershed conditions, however the effects of these increased flows and debris flows is beyond the knowledge base of the DOI BAER Team.

E. Treatment consistent with Agency Land Management Plan (identify which plan): The treatment is consistent with the dam safety plans and programs currently implemented by the Regional BIA and Santa Clara Pueblo.

F. Treatment Effectiveness Monitoring Proposed: If retention ponds fail due to increased stream flow or debris flows, reevaluate treatment and implement new recommendations.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
GS-13 Engineer @ $80/Hour x 80 Hours x 1 FY	$6,400
GS-9 GIS/CAD Specialist @ $38/Hour x 24 Hours x 1FY	$912
TOTAL PERSONNEL SERVICE COST	**$7,312**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Personnel @ $50 x 2 RT x 1FY	$100
TOTAL TRAVEL COST	**$100**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	

TOTAL CONTRACT COST	

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
FY-2011	8-1-11	8-15-11	F/S	1 plan	$7,412	1	**$7,412**
						TOTAL	**$7,412**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Watershed Assessment and Appendix IV, Water Treatments – Santa Clara

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Aerial Straw Mulch	**PART E Spec-#**	SC-18
NFPORS TREATMENT CATEGORY*	Erosion/Sedimentation	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Hillslope Protection	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Apply agricultural straw mulch to the ground surface by helicopter (and spread with hand crews as necessary) to achieve a continuous cover of uniform thickness, as specified below, to replace ground cover consumed by the fire. Ground cover is needed to maintain soil moisture, accelerate recovery of native vegetation, and to protect any seed remaining onsite. In addition, the organic mulch will protect soil from solar heating and drying, thereby improving the ability of seeds to germinate. The mulch will also protect soil from accelerated erosion and improve infiltration which will in turn reduce runoff.

B. Location/(Suitable) Sites:

The treatment unit totals 2,635 acres. The location of this treatment is in the south side of the Upper Santa Clara Canyon watershed. Refer to "Watershed Treatments – Santa Clara" Map for exact locations.

C. Design/Construction Specifications:

1. Treat areas in designated units with "High" and "Moderate" soil burn severity that are less than 60% slope. Do not treat areas that have needles in trees, exposed rock outcrops, or slopes greater than 60%.
2. Straw application rate: Apply mulch to achieve a continuous cover of uniform thickness over 70% of treatment area at a depth of less than 2.0 inches. Application rate will be approximately 1.0 ton/acre (2,000 pounds). This is about 0.25 inches or 3 straw shafts deep. Aerial application may not achieve desired ground cover, therefore ground crews may be needed to spread straw clumps by hand in select locations in each treatment unit.
3. Straw must conform to North American Weed Free Forage Certification Program as evidenced by the following label. Straw shaft length will not exceed 12 inches. Suitable straw includes wood, barley, rice, and wheat grasses.

4. The straw must be applied dry (less than 12 percent internal moisture content) to ensure proper dispersal during aerial applications. The straw will be tested at random using a moisture probe.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

This treatment is intended to achieve two sequential objectives:

1. Improve conditions to protect soil productivity by replacing ground cover burned in the fire. Replacing ground cover will: a) decrease erosion by interrupting raindrop impact and surface soil detachment; and b) increase hillslope obstructions to decrease slope lengths which mitigate accelerated overland flow, thereby decreasing sediment delivery. Mulching also helps to protect the native seedbed and retain moisture on the burned slopes to facilitate vegetative recovery of the treatment areas.
2. Decrease overland flow and erosion from high soil burn severity areas upslope of trails, which can intercept surface runoff and result in damage and/or loss of downstream infrastructure.

The mulching treatments are predicted to lower the estimated soil erosion and subsequent sediment delivery to the streams by about half. Mulching will also reduce downstream peak flows by absorbing and slowly releasing overland runoff which is likely to be increased due to reduced soil cover and hydrophobic soil conditions. Mulching treatments in the headwaters of the streams can protect a much larger downstream area from cumulative runoff and sedimentation.

The purpose of the mulching treatment is to reduce the delivery of sediment from severely burned hillslopes to avoid sediment bulking of flows entering road culverts and causing failures that would then directly deliver to Santa Clara Canyon.

E. Treatment consistent with Agency Land Management Plan (identify which plan):

This treatment is compatible with the Santa Clara Pueblo Forest and Woodland Resource Management Plan (Oct. 2005) and the Pueblo Santa Clara Wildland Fire Management Plan (2001).

F. Treatment Effectiveness Monitoring Proposed:

Visually inspect randomly selected mulch treatment units for proper application rate and uniform thickness during/immediately after treatment. In each unit, measure percent ground cover using a 100ft pace transect method once after treatment, and again in the spring of 2012.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Implementation Leader: GS-12/5 @ $400/day x 20 days	$8,000
Contracting Officer: GS-11/5 @ $350/day x 10 days	$3,500
Implementation Inspectors: GS7 equiv. @ $250/day x 20 days x 4 inspectors	$20,000
Monitoring: GS7 equiv. @ $250/day x 10 days x 2 crew members	$5,000
TOTAL PERSONNEL SERVICE COST	**$36,500**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
4 X 4 pickup: 1000 miles X $0.55/ mile x 3 vehicles	$1,650
TOTAL TRAVEL COST	**$1,650**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Heli-mulching services all inclusive for 2,635 acres (1 ton/acre straw mulch) x $750/acre[1]	$1,976,250
TOTAL CONTRACT COST	**$1,976,250**

[1]contract cost is based on previous aerial mulching contracts in New Mexico and is referenced in the project documentation

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2011	08/10/2011	09/01/2011	S	Acre	$764	2635	$2,011,900
2012	03/01/2012	07/01/2012	S	Monitoring	$2,500	1	$2,500
						TOTAL	**$2,014,400**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, T, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1. Watershed Assessment; Appendix IV – "Watershed Treatments – Santa Clara" Map

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Stream Crossing Protection: Replacing culverts with low water ford crossings	**PART E Spec-#**	SC - 19
NFPORS TREATMENT CATEGORY*	Erosion Sedimentation / Roads	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Stream Stabilization / Culverts	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

- See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Spur road crossings of Santa Clara Creek (off of the Main Santa Clara Canyon Road), existing as corrugated metal pipe culverts, will be removed and replaced with low water ford crossings.

B. Location/(Suitable) Sites:
Road crossings (off of the main road) of Santa Clara Creek upstream of Puye Cliffs Road crossing with Santa Clara Creek:
(in order from upstream to downstream)
Crossing 1: N 3982035 E 376683
Crossing 2: N 3982040 E 377092
Crossing 5: N 3981977 E 378627
Crossing 16: N 3985000 E 383007
Crossing 17: N 3985073 E 383274

C. Design/Construction Specifications:
All work must be coordinated with the Santa Clara Pueblo. 404 permits should be obtained from the Army Corps of Engineers before stream crossing work is performed.

Spur road stream crossings Santa Clara Creek 1, 2, 5, 16 and 17 will be constructed to be low-water crossings by excavating road fill and removing the culverts, and re-graded and hardened with cobble-sized rock as low-water ford crossings to be passable by passenger vehicles. Excess fill after re-grading the crossing will be hauled out to a location outside of Santa Clara Canyon in a location above a high water mark of the flood plain.

Maintenance of all crossings after the fire is expected to be necessary after storm events that deposit significant sediment and debris in the crossings.

Post-fire recommendation is to inspect crossings after each storm event during the summer monsoon season and after high flows from spring runoff season have dropped off.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Corrugated metal pipe stream crossings of Santa Clara Creek, existing before the fire, have a higher potential to plug and fail during and after storm events after the fire, as a result of increased runoff caused by the fire. These culvert stream crossings in Santa Clara Canyon will likely become impassable by vehicles and will increase the potential for significant debris damming in the stream channel and exacerbate flood events caused by stream flow breaching debris dams.

Replacing culverts with low-water ford crossings will encourage free drainage of the stream crossings and reduce the likelihood of flooding of the Pueblo caused by debris dams and uncontrolled breaching of debris dams.

.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resources Management Plan, 2005

F. Treatment Effectiveness Monitoring Proposed: Regular inspection of crossings after rain storm events and high flows during spring runoff. Should monitoring result in debris removal or repair, then an amendment to the plan will be needed and submitted for review and approval by the BIA National BAER Coordinator.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Equipment operator: $90/hr.	$15,000
TOTAL PERSONNEL SERVICE COST	**$15,000**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Excavator, 48,000 lb. 1yd. @ $1900/week for 1 week	$1,900
2 Dump Trucks, 6 yd. @ $800/week for 1 week	$1,600
Transport @ $4.50/loaded mile	$1,000
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$4,500**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Fuel and other maintenance,	$1,500
TOTAL TRAVEL COST	**$1,500**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	09/12011	9/1/2011	S	Crossings		5	**$21,000**
2012							
2013							
						TOTAL	**$21,000**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	E
2. Documented cost figures from similar project work obtained from local agency sources.	P, E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix IV for the Watershed Treatments Map and Santa Clara Emergency Treatments Canyon Low Water Crossings and Spur Road Culvert Removal map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Invasive Species Monitoring	**PART E Spec-#**	SC-20
NFPORS TREATMENT CATEGORY*	Monitoring	**FISCAL YEAR(S) (list each year):**	2011-2012
NFPORS TREATMENT TYPE *	Treatment Effectiveness Monitoring	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	N/A	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Conduct noxious weed/non-native invasive plant species detection monitoring within 8 weeks after fire containment or after green-up following the monsoon season to determine if noxious weeds/non-native invasive plants will disperse seed onto the burned/disturbed sites. Monitor again after vegetation green-up in spring of 2012. Assess for possible invasions on roads, hand lines, dozer lines, and other disturbed areas within the perimeter of the Los Conchas Fire, access roads leading to the fire, and areas disturbed by suppression activities associated with the Los Conchas Fire. Approximately 16,587 acres of Pueblo lands were impacted by the fire. Sites for examination should include existing locations and in areas that have a high probability for invasion within the burned area. Prioritize treatments to control the establishment and spread of noxious weeds.

Three occurrences of noxious weeds were located and mapped within the burn area: spotted knapweed (*Centaurea stoebe* ssp. *micranthos*), musk thistle (*Carduus nutans*), and bull thistle (*Cirsium vulgare*). Russian knapweed (*Acroptilon repens*) was located just outside of the Los Conchas Fire perimeter along the Southside Repeater Road (it was located within the perimeter of the 2000 Cerro Grande Fire. There is the potential for salt cedar (*Tamarix ramosissima*) to occur in Santa Clara Creek and whitetop (*Cardaria draba*) to occur along the main road into Santa Clara Canyon.

B. Location/(Suitable) Sites:

Assess areas that have a high potential for weed/invasive species establishment—the burned area and areas disturbed by fire suppression forces. Critical areas include the Santa Clara Canyon bottom (creek and road) and drainages leading into Santa Clara Creek within the fire perimeter, roads on the Pueblo lands that are accessed via US Forest Service and private lands, dozer lines, hand lines, staging areas, and burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive plant species populations. Disturbed areas within and along the fire perimeter, such as dozer lines, hand lines, and safety zones will also be prioritized for monitoring. Specific assessment areas include the dozer and hand lines in the Rincon del Cuervo area, dozer line above Pond 1, safety zone (SZ) along road near Rincon del Cuervo, Drop Point (DP) 65 and the Puye Spike Camp near the Puye Cliff Dwellings Visitor Center. There are approximately 2 miles (5 acres) of dozer line, 0.6 miles (0.4 acres) of hand line and approximately 3-5 acres for the SZ, DP, and Spike Camp to be monitored. An additional 390 acres of potentially severely disturbed areas adjacent to roads will be monitored.

C. Design/Construction Specifications:

1. Conduct short-term monitoring (fall of 2011 and growing season of 2012) using early detection and rapid response (EDRR) assessment/monitoring of noxious weed/non-native invasive plant species infestations within the burned area. Monitoring to determine the post-fire presence or spread of invasive species will be conducted first at and near the known occurrences of weeds then in areas disturbed by the fire and fire suppression activities.

2. Natural re-vegetation of the burned area will be assessed in late spring/early summer of 2012 to determine whether there is sufficient recovery to preclude noxious weeds/invasive species**.** Assessment locations will be in areas representative that are not transitional from one ecological site to another or inclusions, using local agency specified methods. Should there be insufficient recovery, re-vegetation of native species should be considered, and supplemental funding request for further monitoring and treatments should be triggered.

3. Inventory/assess, photograph and map new noxious weed infestations within burned area using Global Positioning System (GPS) technology.

4. Sampling should determine species composition and density. Monitoring methodologies will be those approved by the Pueblo or BIA Northern Pueblo Agency. Suggested methods are point intercept and others as described in the Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems found on the Jornada Experimental Range website: http://jornada.nmsu.edu/sites/default/files/Quick_Start.pdf

5. Complete supplemental funding request for BAR funding for noxious weed/non-native species control of new weed occurrences within the burned area.

6. Initiate tribally approved control measures where detection demonstrates the establishment or expansion of noxious weed/invasive species populations. Direct treatment will occur when there is a threat to natural regeneration and recovery of native vegetation, establishment of effective ground cover, or expansion within and outside the burn area from invasive species inside the burned area. Treatment will require submission for supplemental funding

7. Prepare annual reports and a final report documenting sampling methodologies, techniques, areas sampled, and summary of

findings. Submit supplemental funding requests for subsequent years monitoring studies.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
The purpose of this treatment is to determine if noxious weeds and non-native invasive species are invading the burn area and areas disturbed by fire suppression and fireline repair activities. Early Detection and Rapid Response (EDRR) will be used to determine if invasive plant species are impacting short-term recovery of revegetation, to prevent new noxious weed infestations from becoming established and to ensure the natural recovery of the native perennial grasses, forbs and shrubs. This treatment will also ensure the ecological indicators (Soil Stability, Hydrologic Function, and Biotic Integrity) are functioning properly during the natural recovery period on Santa Clara Pueblo lands. Chemical treatment of new and existing noxious weed infestations will reduce the likelihood of their spread to disturbed areas and help to re-establish high quality wildlife habitat within the burn. If recovery has not been met then additional funding requests must be prepared and submitted.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resource Management Plan, 2008; Pueblo of Santa Clara Wildland Fire Management Plan and Environmental Assessment, 2001. Protection of beneficiaries and Indian Trust resources is consistent with the BIA's mission.

F. Treatment Effectiveness Monitoring Proposed:
Treatment sites will be evaluated annually for the next three years to ensure control methods are meeting resource objectives. Weed specialist/technicians will visit chemically treated sites within two weeks of treatment; this is especially important for weed populations that are sprayed to ensure efficacy of herbicide application. Initiate follow-up treatments if additional non-native species or new infestations are discovered. Control will be considered successful upon determination that all noxious weeds have been controlled and non-native invasive plants have not spread beyond their pre-fire locations. Monitoring is required to ascertain whether vegetative recovery of habitat has, as anticipated, occurred. Additional treatments may be proposed if assessment concludes that the criteria for re-vegetation success are not achieved. A supplemental funding request for non-native invasive plant control will also be submitted if monitoring reveals expansion of noxious weeds from existing locations and if new infestations are found in the burn area.

LABOR, MATERIALS AND OTHER COST: (Costs are rounded)

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Santa Clara Pueblo Forester, Weed Crew supervisor @$47.37/hr X 40 hours = $1,900	$1,900
Field Crew/forestry technicians @ $25.44/hr X 120 hours X 2 (2 crew members) = $6,100	$6,100
TOTAL PERSONNEL SERVICE COST	**$8,000**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Fence posts, rebar, 300 foot tape @ $200.00 X 1 year	$200
Flagging, misc office supplies, replaced posts & rebar if vandalized@ $75.00 X 1 years	$75
Digital camera	$200
Garmin-type GPS Unit	$600
TOTAL MATERIALS AND SUPPLY COST	**$1,100**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Government (GSA) vehicle @ $14.96/day + (50 miles/day X $0.235/mile) X 20 days = $530/yr.	$530
Government ATV/UTV @ 0.68/mile X 35 miles/day X 15 days = $476/yr.	$360
TOTAL TRAVEL COST	**$900**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	09/01/2011		S	Acres	$20	100	$2,000
2012		08/31/2012	S	Acres	$20	400	$8,000
						TOTAL	**$10,000**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, T
3. Estimate supported by cost guides from independent sources or other federal agencies	T
4. Estimates based upon government wage rates and material cost.	P, M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation and Forestry Assessment; See Appendix IV, Vegetation and Forestry Treatment map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Canyon Road Culvert Replacement	**PART E Spec-#**	SC - 21
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Culverts	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Replacing existing double round culvert crossings of Santa Clara Creek with larger pipe-arch culverts (corrugated metal) will increase the capacity of road stream crossings 9, 13, 14, 15.

B. Location/(Suitable) Sites:
Road crossings (off of the main road) of Santa Clara Creek upstream of Puye Cliffs Road crossing with Santa Clara Creek: (in order from upstream to downstream):

Crossing 9: N 3982649 E 380505
Crossing 13: N 3983666 E 381099
Crossing 14: N 3984230 E 381099
Crossing 15: N 3984358 E 381986

C. Design/Construction Specifications:
All work must be coordinated with the Santa Clara Pueblo. 404 permits should be obtained from the Army Corps of Engineers before stream crossing work is performed.

Crossing 9 will be reconstructed with a 65-inch x 40-inch pipe-arch ("squash") corrugated metal culvert, removing the existing two 24-inch and one 36-inch culverts.

Crossing 13 will be reconstructed with a 7' 0" x 5'1" pipe-arch corrugated metal pipe, removing the existing two 36-inch culverts.

Crossing 14 will be reconstructed with a 7'0" x 5'1" pipe-arch corrugated metal pipe, removing the existing two 36-inch culverts.

Crossing 15 will be reconstructed with a 65-inch x 40-inch pipe arch corrugated metal pipe, removing the existing three 36-inch culverts.

The inlet and outlet side of all new pipe-arches will be beveled and armored with concrete plate and boulder- sized rip rap. The pipe arch will be laid to match the grade of the channel of Santa Clara Creek.

Excess fill after re-grading the crossing will be hauled out to a location outside of Santa Clara Canyon in a location above a high water mark of the flood plain.

Culvert replacement details should be validated and further specified by a civil engineer.
Overflow dips that may have been constructed prior to culvert replacement will be reconstructed after culverts are installed on crossings 9, 13, 14, and 15.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Increased runoff is expected in Santa Clara Creek after the fire, and existing corrugated metal pipe stream crossings of Santa Clara Creek have a higher potential to plug during and after storm events and spring runoff after the fire. By installing larger culverts, the above listed crossings will have greater capacity for increased stream flows, while allowing for passage of crossings by log hauling trucks and passenger vehicles.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resources Management Plan, 2005

F. Treatment Effectiveness Monitoring Proposed: Regular inspection of crossings after rain storm events and high flows during spring runoff. Should monitoring result in debris removal or repair, then an amendment to the plan will be needed and submitted for review and approval by the BIA National BAER Coordinator.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Equipment operators: $90/hr.	$15,000
Civil engineering services: $40/hr for 1 week	$1,600
Administrative support: GS-9 for 2 days	$370
TOTAL PERSONNEL SERVICE COST	**$16,970**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Excavator, 48,000 lb. 1yd. @ $1900/week for 1 week	$1,900
Dump Truck, 6 yd. @ $200/day for 3 days	$600
D-6 Dozer @ $600/day for 3 days	$1,800
Transport @ $4.50/loaded mile	$2,000
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$7,100**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Two corrugated metal pipe-arch culverts 7'x 5'1" (approx 30 ft. length), beveled	$12,000
Two corrugated metal pipe-arch culverts 65" x 40"(approx. 40 ft. length), beveled	$15,000
TOTAL MATERIALS AND SUPPLY COST	**$27,000**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Fuel and other maintenance	$1,500
TOTAL TRAVEL COST	**$1,500**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Concrete reinforcement of culvert inlets and outlets	$5,000
TOTAL CONTRACT COST	**$5,000**

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
2011	09/1/2011	10/15/2011	F/S	Crossings	$14,143	4	**$57,570**
						TOTAL	**$57,570**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	E
2. Documented cost figures from similar project work obtained from local agency sources.	P, E, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix IV for the Watershed Treatment Map. See Appendix V for the culvert specification drawing detail.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Installing / Maintaining Grade Dips on Upper Watershed Roads	**PART E Spec-#**	SC - 22
NFPORS TREATMENT CATEGORY*	Erosion / Sedimentation	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Erosion Control	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santa Clara Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Eight miles of road in the upper southeast region of the Santa Clara watershed, other than the main Santa Clara Canyon Road, will have grade dips constructed and existing dips and waterbars maintained in areas of high severity burn.

B. Location/(Suitable) Sites:
Roads in the upper southeast Santa Clara watershed to be improved and maintained are identified by name:

East Intersection Road
South Turkey Creek Road
Goat Rock Overlook Road
Saddle Road
3 miles of un-numbered/un-named roads in the vicinity of the above roads

C. Design/Construction Specifications:
Grade dips on the above listed roads will be constructed or maintained to improve road drainage.

Road grades over 5-10% will have drainage relief dips at a maximum interval of every 300 feet. Where road grades exceed 10%, drainage relief dips will be constructed at a maximum interval of 200 feet.

Any existing drainage features on the above roads will be maintained and cleaned to insure effective road drainage.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

Increased runoff is expected in the Santa Clara Creek watershed after the fire, particularly in severely burned areas. Roads with insufficient drainage relief will worsen and can initiate rills. Repairing existing and installing new grade dips on roads that are within severely burned areas will reduce the potential for rills, gullies and debris flows initiated from roads.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Santa Clara Pueblo Forest and Woodlands Resources Management Plan, 2005

F. Treatment Effectiveness Monitoring Proposed:
Inspection of roads in the upper watershed should occur annually. Should further repair of drainage features be required to alleviate issues resulting from increased runoff in severely burned areas, then an amendment to the plan will be needed and submitted for review and approval by the BIA National BAER Coordinator.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
TOTAL PERSONNEL SERVICE COST	
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Motor Grader @ $1067*/ day X 5 days/week X 3 weeks	$16,005
D-6 Dozer with 6-way blade @ $1067*/day X 5 days/week X 3 weeks	

	$16,005
(* - SCP equipment rates include all associated costs including operator, fuel, overhead, administrative costs, etc.)	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$32,010
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Service/Fuel Truck for 15 trips X 60 miles/trip @ $0.55/mile	$495
Equipment Transport 30 miles X 4 trips @ $4.50/loaded mile	$540
TOTAL TRAVEL COST	$1,035
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	08/1/2011	9/15/2011	S	Miles of Roads	$4,131	8	**$33,045**
						TOTAL	**$33,045**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	E, T
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix IV for the Watershed Treatment Map. See Appendix V for the Grade Dip specification drawing detail.

PUEBLO OF SAN ILDEFONSO

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Hazard / Safety Signs	**PART E Spec-#**	SI-1
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Warning Signs	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	San Ildefonso Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

This treatment is for the installation of flood warning signs, burned area warning signs, and public safety sign replacement. These signs will warn the public of dangers on the road that have changed as a result of the fire. Flood warning signs will warn the public when crossing drainages such as Guaje and Pueblo Canyon and its tributaries about the increased risk of floods. Burned area signs consist of a warning to the public identifying of the possible dangers associated with a burned area. It 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. Road closure signs are self explanatory.

B. Location/(Suitable) Sites:

Access roads into areas where there are road crossings of drainages burned at high and moderate severity (Burned Area Ahead signs –Rd 57 – Guaje Canyon Road; 502 near Totavi).

Areas where there is a high potential for debris flows and falling rocks (Debris Flow signs – Rd 57 – Guaje Canyon Road).

C. Design/Construction Specifications:

1. Road Closed Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read "**ROAD CLOSED**".
2. Flood Warning Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read **"WATER CROSSING HIGH FLOOD HAZARD**".
3. Burned Area warning signs along the roads shall measure, at a minimum, 4 feet by 4 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The signs shall read "**ENTERING BURNED AREA INCREASED RISK OF FLOODS, FALLING ROCKS, AND FALLING TREES**". Title lettering shall be a minimum of 5 inches in height and all remaining lettering shall be a minimum of 3.5 inches in height.
4. Informational public safety signs were damaged as a result of the Las Conchas Fire and need to be replaced. These signs contained safety directions or information for the public in remote areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

Provide workers and recreation users with the necessary information to be prepared for being in a post-fire environment.

E. Treatment consistent with Agency Land Management Plan (identify which plan):

This treatment is compatible with the Pueblo de San Ildefonso Forest Management Plan and San Ildefonso Pueblo Alternative Fire Management Plan.

F. Treatment Effectiveness Monitoring Proposed:

Implementation Leader will verify installation and locations. Law enforcement will monitor effectiveness of closure signs to determine if additional measures are needed.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
GS-5 (equivalent): 2 ea. X $250/day X 2 day	$1,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 2 days)	$600
TOTAL PERSONNEL SERVICE COST	**$1,600**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Post driver, wrenches, misc.	$100
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$100**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
2 "**Road Closed**" signs @ $200.00 each	$400
2 Steel U-channel sign posts @ $30.00 each	$60
4 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$12
2 "**Entering Burn Area…**" signs @ $200.00 each	$400

4 Steel U-channel sign posts @ $30.00 each	$120
8 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$24
8 "**Water Crossing…**" signs @ $200.00 each	$1,600
8 Steel U-channel sign posts @ $30.00 each	$240
16 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$48
TOTAL MATERIALS AND SUPPLY COST	**$2,904**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
4 X 4 pickup: 200 miles X $0.55/ mile	$110
TOTAL TRAVEL COST	**$110**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	08/20/2011	S	Signs	$393	12	$4,714
						TOTAL	**$4,714**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	T, E, P, M
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Traditional Cultural Assessment	**PART E Spec-#**	SI-2
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	San Ildefonso Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Numerous localities within the perimeter of the fire have been identified by San Ildefonso Pueblo as being associated within traditional cultural and sacred places. These are places of cultural and religious significance associated with ceremonial practices and resource procurement activities. While these places can occur most anywhere, they are frequently located on mountain peaks, at springs, and in drainages. A single geographic feature may be significant to multiple tribes, but locations are closely guarded secrets known only to certain tribal members. While known, many of these places are not formally documented on maps. This may be due to religious proscriptions against doing so, as well as the fact that the holding of this information is within the oral tradition of this tribe. This requires ongoing consultation with tribal resource specialists and tradition keepers (elders). While many tradition keepers do not know how to read modern maps, this information can be acquired through consultation between tradition keepers and Tribal resource managers. The resource managers can help the elders navigate through the maps and use the oral tradition to locate traditional places, assess fire effects and post-fire effects, and to consider possible impacts from proposed emergency stabilization treatments. Generationally, many tradition keepers are reluctant to talk with non-tribal members. At the request of the Pueblo community, place names and locations associated with traditional practices will remain confidential as per the National Historic Preservation Act, as amended.

B. Location/(Suitable) Sites: Within Las Conchas Fire perimeter specific to areas of concern for the Pueblo of San Ildefonso.

C. Design/Construction Specifications: Tribal Resource Specialist, Tribal Council Member, Traditional knowledge holder (appropriate elders representing the clans and secret societies of the pueblo) for 10 days to locate and determine condition of significant known cultural and religious places and activity areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To identify places of traditional cultural and religious significance associated with ceremonial practices and resource procurement, assess fire and post-fire impacts, and propose necessary and appropriate treatments.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment is consistent with the federal government's trust responsibility to federally recognized tribes.

F. Treatment Effectiveness Monitoring Proposed: Monitoring would be addressed for any treatment plan developed as a result of this specification. Any emergency stabilization and protection treatments identified will need to be submitted as an amendment to the BIA National BAER Coordinator for review and approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Resource Advisor (Archaeologist GS-193-11/5) to accompany tribal members and conduct assessment. $27/hr x 16hrs x 1.	$432
TOTAL PERSONNEL SERVICE COST	**$432**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$0**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$0**

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel for resource advisor (archaeologist) $147 x 1 x 1…	$147
TOTAL TRAVEL COST	**$147**

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Tribal Resource Specialist (with working knowledge of map reading, familiarity of land) $250/day x 10 days	$2,500
Traditional knowledge holder (specific to the Pueblo) $250/day x 10 days	$2,500
Tribal Council Member $250.00/day x 10 days	$2,500
TOTAL CONTRACT COST	**$7,500**

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
2011	July 30, 2011	July 29, 2012		1	8,079		**$8,079**
						TOTAL	**$8,079**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Cultural Resource Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	K Rails and Sandbags to Protect Structures and Infrastructure	**PART E Spec-#**	SI-3
NFPORS TREATMENT CATEGORY*	Facility and Infrastructure	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Stabilize/Secure/Protect Structures	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	San Ildefonso Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Place sandbags and k rails around structures to divert flood and debris flows

B. Location/(Suitable) Sites: See Emergency Implementation Treatments – San Ildefonso Map Appendix IV

C. Design/Construction Specifications:

1. a. Place 2,000 sandbags at prescribed locations on the treatment map to prevent flows into structures.
   b. Store any extra sandbags in locations to easily deploy if needed.
   c. Delivered or stored sandbags will not be placed in stream channels.
   d. Inspect sites after large storm events, clean out sediment; replace damaged bags (estimate 10% (200).
2. a. Install 50 k rails at prescribed locations to prevent large flows into structures, utilizing low-boy transport and front end loader.
   b. Level site for k rails with backhoe or suitable equipment.
   b. K rails should be placed end to end on level ground.
   c. Sandbags need to be placed in a single row and against the seams on uphill side of k rail and a single row on downhill side.
   d. To maximize flood protection, k rails should be inter-pinned with 30 inch length, 8 gauge rebar.
   e. K rails delivered to site must not be staged in drainages.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To protect structures from flooding, debris and mud flows in the event stream channels overflow their banks.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes

F. Treatment Effectiveness Monitoring Proposed: Inspect sandbags and k rail placement and performance after major storm events and make necessary adjustments to improve protection of structures. Inspections will be performed within Specification No. SI-6.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
5 Tribal personnel on Resource Orders x $33/hour x12hours x 5 days	**$9,900**
TOTAL PERSONNEL SERVICE COST	**$9,900**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Front End Loader @ $930/day x 5 days	$4,700
Transport @ $710/day x 2 days	$1,400
Dump Truck @ $710/day x 5 days	$3,600
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$9,700**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
FY11 Sandbags and K rails are donated by COE and NMDOT	$0
TOTAL MATERIALS AND SUPPLY COST	**$0**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
FY11	8/1/2011	8/6/2011	C	sites	$19,600		**$19,600**
						TOTAL	**$19,600**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P,E,M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Emergency Implementation Treatments - San Ildefonso Map, Appendix IV and Watershed Assessment , Appendix 1

PART F - INDIVIDUAL TREATMENT SPECIFICATION

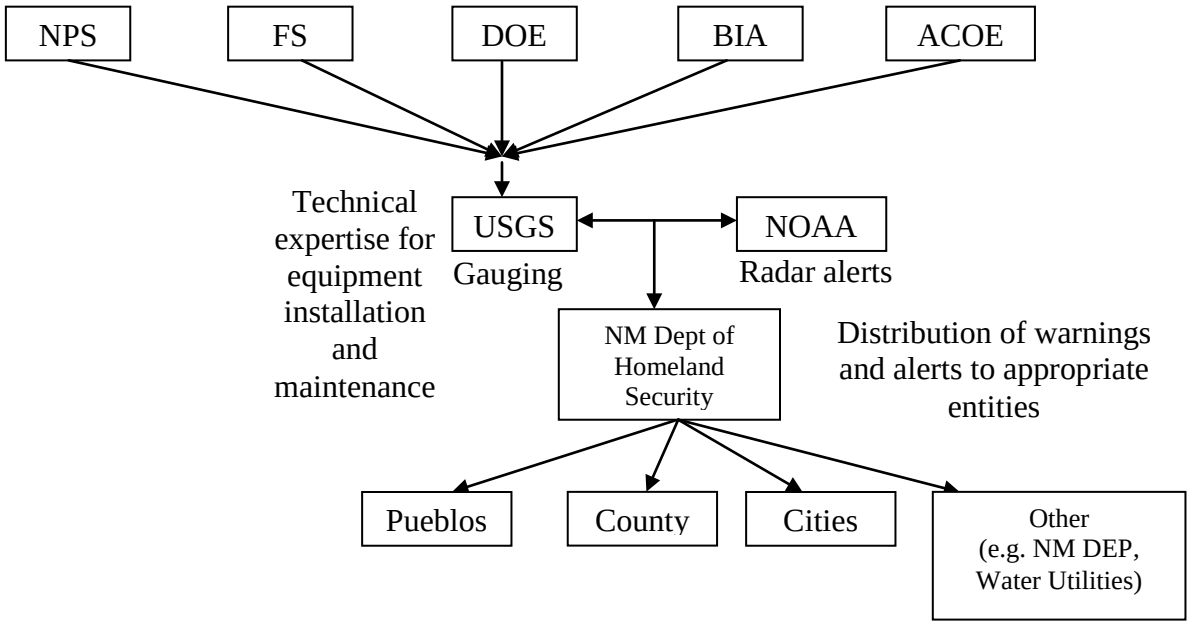
TREATMENT/ACTIVITY NAME	Early alert systems	**PART E Spec-#**	SI-4
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Flood Warning System	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	San Ildefonso Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

There are several homes downstream of the burn area that are at risk of increased post-fire stream flow flooding and debris torrents. Early alert systems for precipitation and stream flow can provide residents with some advanced warning of conditions that could result in these elevated flows. After the Las Conchas Fire many agencies and communities wished to install early warning systems to address the risk to life and property downstream of the burn area, especially in watersheds burned at high and moderate soil burn severity. To ensure that the systems are coordinated and appropriate warnings are given at the earliest possible time, the agencies have devised a process diagrammed below.



The main land management agencies will provide funding and land use agreements to allow the USGS, who has expertise in early alert systems, to locate, install and operate the systems. The Implementation Team Leader will work with the USGS to find the appropriate locations for the gauges. The National Weather Service will additionally utilize weather radar to provide early warning to communities. All of the warnings (radar, precipitation and streamflow) will be disseminated to communities by the New Mexico Dept. of Homeland Security. Beyond local communities additional agencies will be notified, especially water quality entities who may wish to avoid taking in water when ash and sediment levels that can damage equipment are predicted to be elevated.

B. Location/(Suitable) Sites:

In the headwaters of the Guaje Canyon watershed (possibly off Quezamon Trail/Pipeline) between Guaje and Pueblo Canyons. The site location will be coordinated with the Forest Service (Santa Fe National Forest). The Forest Service has committed to an expedited, emergency special uses permit process to allow for the gages to be located and installed quickly.

C. Design/Construction Specifications:

A flood warning gage measures the stage in a river and the precipitation amount during a storm event. The flood warning gage consists of a tower about 12 to 15 feet in height. Precipitation will be measured with a rain gage installed on the top of the tower. Stage of the channel will be measured with a pressure transducer installed inside a small metal conduit. If conditions warrant, a non-contact radar stage sensor will be installed to minimize possibility of damage during first flows. A data collection platform (DCP) will be installed in a small gage house. The DCP will store and transmit all of the collected stage and precipitation data. Installation and connectivity of these systems will be coordinated with other jurisdictions (LANL, Los Alamos, Cochiti, Santa Clara, Forest Service) in and around the Las Conchas Fire. The Verizon Crisis Response Team has offered to help with communications links (800-981-9558; Mark Francis and/or Kari Dean).

The Army Corps of Engineers is funding installation of USGS early alert systems in Santa Clara Canyon (2), Cochiti Canyon (1), and Peralta Canyon (1). The USGS is locating sites as of 19 July 2011. Los Alamos National Laboratory is planning to fund several similar systems. This specification is to be one of three recommended by the DOI BAER team for the Las Conchas Fires (Guaje/Los Alamos/Pueblo Canyon, Santa Clara Canyon and Bland/Peralta Canyon) to provide additional early alert to downstream Pueblos. A land use agreement may need to be written if the location of the early alert system will be on other that DOI BIA lands.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Provide downstream communities, workers in the watershed and recreation users with the necessary information to be prepared for potential flooding events

E. Treatment consistent with Agency Land Management Plan (identify which plan):
This treatment is compatible with the Pueblo de San Ildefonso Forest Management Plan and San Ildefonso Pueblo Alternative Fire Management Plan.

F. Treatment Effectiveness Monitoring Proposed:
Monitoring of the system will be done by awarded company/agency as part of annual operation budget.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Contracting/Agreement Officer (GS-12 @ $400/day x 2.5 days)	$1,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 5 days)	$1,500
TOTAL PERSONNEL SERVICE COST	**$2,500**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
	$
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
	$
TOTAL TRAVEL COST	**$**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
equipment and labor for installation of early warning precipitation/streamflow alert systems x 2 @ $15,000 each	$15,000
Operation of early warning systems x 1 system x 3 years @ $5,000 per year	$15,000
TOTAL CONTRACT COST	**$30,000**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	08/26/2011	S	Early Warning	$18,500	1	$17,500
2011	08/26/2011	08/25/2012	S	Operation	$5,000	1	$5,000
2012	08/26/2012	08/25/2013	S	Operation	$5,000	1	$5,000
2013	08/26/2013	08/25/2014	S	Operation	$5,000	1	$5,000
						TOTAL	**$32,500**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, M, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Civil Engineering Risk Assessment	**PART E Spec-#**	SI-5
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	San Ildefonso	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
A risk assessment is needed in the area of the historic Otowi Bridge and Warner House Crossing in Lower Los Alamos Canyon near its confluence with the Rio Grande. This area is susceptible to high flows and flash flooding. This will be compounded as a result of the Las Conchas Fire which has occurred in the headwaters of this drainage.

B. Location/(Suitable) Sites:
Otowi historic bridge/Warner House Crossing and access road to Rio Grande where stream/water quality monitoring equipment is installed. T9N, R7E, Sec. 13.

C. Design/Construction Specifications:
1. BIA civil/water resource engineer to provide a risk assessment of the site to include surveys, analysis, risk assessment, and treatment/mitigation recommendations that would be developed into a site specification for immediate implementation. Any treatment recommendations would require an amendment to the plan to be sent to the BIA National BAER Coordinator.
2. Assessment to be completed by September 30, 2011. Request for supplemental funding to be completed and submitted by mid-October 2012.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Assess and implement treatment protections because of increased runoff and sediment/debris delivery to area transportation and historic infrastructure as well as access road to stream/water quality monitoring gages.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed: This treatment will provide recommendation for emergency stabilization of the area in question. Assessment to be completed by end of September 2011. Any recommendations installed prior to June 2012.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Administration (GS-5 or equivalent @ $135/day x 10 days)	$1,350
Civil Engineer/Water Resource Engineer (GS-12 or equivalent @ $60/hr x 80 hours)	$4,800
TOTAL PERSONNEL SERVICE COST	**$6,150**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
2 trips from BIA SW Regional Office @ $100/trip	$200
TOTAL TRAVEL COST	**$200**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	09/30/2011	S	Risk Assessment	$6,350	1	**$6,350**
						TOTAL	**$6,350**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Soil and Watershed Assessment

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Storm Patrol (roads and associated values at risk)	**PART E Spec-#**	SI-6
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011, 2012
NFPORS TREATMENT TYPE *	Hazard Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	San Ildefonso Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

There are many places at risk of inundation, debris deposition, flood damage and other post-fire related impacts from elevated flows and carrying sediment and debris. After rainfall events these areas will be assessed for any potential damage to the roads and infrastructure. If the culverts are plugged or damaged then the areas could be cleaned out immediately to avoid further damage during the next rainfall event. The structure protection treatments (SI-3) will also be assessed to determine if any repairs are needed prior to the next rain event. Additionally, other values at risk (buildings, well heads, etc.) in the floodplain area will be assessed during storm patrol.

Roads downstream of the Las Conchas Fire contain drainage structures that cross streams located in watersheds that have a high to moderate burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging drainage structures or exceeding their maximum flow capacity. If these flows plug drainage structures the result could be massive erosion and debris torrents further down the drainage due to the failure.

Also, there is an immediate and future threat to travelers along these roads within the burned area due to the increased potential for rolling and falling rock from burned slopes and increased potential for flash floods and mudflows. With the loss of vegetation normal storm frequencies and magnitudes can more easily initiate rill and gully erosion on the slopes and it is likely that this runoff will cover the roads or cause washouts. These events make for hazardous access along steep slopes and put the safety of users at risk.

The patrols are used to identify those road problems such as plugged culverts and washed out roads and to clear, clean, and/or block those roads that are or have received damage. The storm patrollers shall have access to equipment that can be used when a drainage culvert is plugged or soon to be plugged and to repair any road receiving severe surface erosion.

Work should be performed in the morning and early afternoon. Leave drainages when chance of rain is moderate or higher. Store equipment and materials out of flood plains and where chance of loss is low.

B. Location/(Suitable) Sites: Guaje Canyon Road, Well heads, water storage tanks, structural protection areas on the San Ildefonso Pueblo (SI-3) and other tribal facilities,

C. Design/Construction Specifications:

1. Immediately after receiving heavy rain the Pueblo/BIA will send out patrols to the roads and facilities of high importance on Pueblo lands to identify road and other value-at-risk conditions – obstructions such as rocks, sediment, washouts and plugged culverts so the problems can be corrected before they worsen or jeopardize motor vehicle users.
2. The road patrols shall bring in heavy equipment necessary to mechanically remove any obstructions from the roads and culvert inlets where necessary.
3. All excess material and debris removed from the drainage system shall be placed outside of the bank-full channel and floodplain where it cannot re-enter stream channels. Preferably the material will be moved off-site.
4. After a rain event, and subsequent patrol, the San Ildefonso Pueblo will need to document the location, and describe the kind of material (debris) that is removed, if any. San Ildefonso Pueblo will provide the AOTR with a copy of the documentation of the locations and description of the material removed.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

The storm patrol is intended to identify and mitigate issues immediately after a rainfall event to avoid further damage during subsequent events. The purpose of the monitoring is to evaluate the condition of roads for motorized access and to identify and implement additional work needed to maintain and/or repair damage to road surfaces and flow conveyance structures across roads in order to provide safe access across Pueblo and FS lands. BIA Engineering and Pueblo personnel will survey the roads within the fire perimeter after high-intensity storms. Survey will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows.

E. Treatment consistent with Agency Land Management Plan (identify which plan):

This treatment is compatible with the Pueblo de San Ildefonso Forest Management Plan and San Ildefonso Pueblo Alternative Fire Management Plan

F. Treatment Effectiveness Monitoring Proposed:

The Strom patrol will verify that the work has been completed and the infrastructure are ready for the next rain event. Storm patrollers can also recommend changes to, or additional treatments, in the first year after the fire.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Storm Patrol Assessors (GS-9 equiv. @ $300/day x 1 team of 2 people x 10 events)	$6,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 10 days) - patrol	$3,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 12 days) - clearing	$3,600
TOTAL PERSONNEL SERVICE COST	**$12,600**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting. Rates include adjustments for operator, fringe benefits, workers compensation, overhead for associated office duties, employee leave)	
T800 Transport (incl. operator):: $713/day x 2 days/event x 6 events x 2 pieces of equipment	$17,112
140H Motor Grader (incl. operator):: $1074/day x 2 days/event x 6 events	$12,888
D6 Dozer (incl. operator):: $1074/day x 2 days/event x 6 events	$12,888
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$42,888**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Patrols: 4 X 4 pickup: 100 miles X $0.55/ mile x 10 patrols x 2 teams	$1,100
Road Clearing Access: 4 X 4 pickup: 50 miles X $0.55/ mile x 6 events of 2 days each x 2 teams	$660
TOTAL TRAVEL COST	**$1,760**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	09/30/2011	S	patrol	$1000	6	$6,660
2012	10/01/2011	07/26/2012	S	patrol	$1000	4	$3,440
2011	07/26/2011	09/30/2011	S	Clean-out	$7,858	3	$23,574
2012	10/01/2011	08/01/2012	S	Clean-out	$7,858	3	$23,574
						TOTAL	$57,248

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, M, E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Sandbag UV Protection	**PART E Spec-#**	SI-7
NFPORS TREATMENT CATEGORY*	Facility & Infrastructure	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Protect Structures	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	San Ildefonso Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Sandbag treatments can fail due to sun light exposure deterioration of the bags. Spray painting the installed sandbags will extend the useful life of the treatments beyond two years.

B. Location/(Suitable) Sites: See Emergency Implementation Treatments – San Ildefonso Map, Appendix IV

C. Design/Construction Specifications:

1. Water base, latex outdoor house paint. Color to be flat, light grey with minimum 10 year label warrantee.
2. Apply with HVLP (high volume, low pressure) sprayer at a minimum rate of 1 gallon per 200 square feet or 50 linear feet of coverage. Apply according to manufactures specifications.
3. Protect infrastructure and personal property from over spray.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): Depending on rainfall and watershed recovery, treatments may need to remain in place for 3 years. Painting will reduce the risk of the sandbags failing due to UV exposure during this time.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes

F. Treatment Effectiveness Monitoring Proposed: Inspect semiannually to determine useful life of treatment.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
2 Hand Crew Laborers @ $225/day x 1 days	$500
TOTAL PERSONNEL SERVICE COST	**$500**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/H1our X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Rental: Airless HVLP paint sprayer @$100/day x 1 day	$100
Generator $100/day x 1 days	$100
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$200**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Bulk Paint @ $20/gallon x 1 gallon/50 linear x 1,500feet	$600
Miscellaneous supplies	$200
TOTAL MATERIALS AND SUPPLY COST	**$800**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
TOTAL TRAVEL COST	
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
FY11	7/26/2011	9/30/2011	C	Painting	$1,500	1	**$1,500**
						TOTAL	**$1,500**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	E,M
2. Documented cost figures from similar project work obtained from local agency sources.	
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Emergency Implementation Treatments – San Ildefonso Map, Appendix IV and Watershed Assessment, Appendix I

OHKAY OWINGEH

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Traditional Cultural Assessment	**PART E Spec-#**	OO-1
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Ohkay Owingeh	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Numerous localities within the perimeter of the fire have been identified by the Ohkay Owingeh Pueblo as being associated within traditional cultural and sacred places. These are places of cultural and religious significance associated with ceremonial practices and resource procurement activities. While these places can occur most anywhere, they are frequently located on mountain peaks, at springs, and in drainages. A single geographic feature may be significant to multiple tribes, but locations are closely guarded secrets known only to certain tribal members. While known, many of these places are not formally documented on maps. This may be due to religious proscriptions against doing so, as well as the fact that the holding of this information is within the oral tradition of this tribe. This requires ongoing consultation with tribal resource specialists and tradition keepers (elders). While many tradition keepers do not know how to read modern maps, this information can be acquired through consultation between tradition keepers and Tribal resource managers. The resource managers can help the elders navigate through the maps and use the oral tradition to locate traditional places as well as assess fire effects and post-fire effects, and to consider possible impacts from proposed emergency stabilization treatments. Generationally, many tradition keepers are reluctant to talk with non-tribal members. At the request of the Pueblo community, place names and locations associated with traditional practices will remain confidential as per the National Historic Preservation Act, as amended.

B. Location/(Suitable) Sites: Within Las Conchas Fire perimeter specific to the Pueblo of Ohkay Owingeh.

C. Design/Construction Specifications: Tribal Resource Specialist, Tribal Council Member, Traditional knowledge holder (appropriate elders representing the clans and secret societies) for 10 days to locate and determine condition of significant known cultural and religious places and activity areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To identify places of traditional cultural and religious significance associated with ceremonial practices and resource procurement, assess fire and post-fire impacts, and propose necessary and appropriate treatments.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment is consistent with the federal government's trust responsibility to federally recognized tribes.

F. Treatment Effectiveness Monitoring Proposed: Monitoring would be addressed for any treatment plan developed as a result of this specification. Any emergency stabilization and protection treatments identified will need to be submitted as an amendment to the BIA National BAER Coordinator for review and approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Resource Advisor (Archaeologist GS-193-11/5) to accompany tribal member and conduct assessment $27 x 16 x 1	$432
TOTAL PERSONNEL SERVICE COST	**$432**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$0**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$0**

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel for resource advisor (archaeologist) $147 x 1 x 1	$147
TOTAL TRAVEL COST	**$147**

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Tribal Resource Specialist (with working knowledge of map reading, familiarity of land) $250/day x 10 days	$2,500
Traditional knowledge holder (specific to the Pueblo) $250/day x 10 days	$2,500
Tribal Council Member $250.00/day x 10 days	$2,500
TOTAL CONTRACT COST	**$7,500**

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
2011	August 15, 2011	August 14, 2012		1	8,079		**$8,079**
						TOTAL	**$8,079**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Cultural Resource Assessment.

B.I.A.

SOUTHERN PUEBLOS AGENCY

SPECIFICATIONS

PUEBLO DE COCHITI

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Traditional Cultural Assessment	**PART E Spec-#**	CO-1 Cochiti Traditional Cultural Assessment
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Cochiti Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Numerous localities within the perimeter of the fire have been identified by Cochiti Pueblo as being associated within traditional cultural and sacred places. These are places of cultural and religious significance associated with ceremonial practices and resource procurement activities. While these places can occur most anywhere, they are frequently located on mountain peaks, at springs, and in drainages. A single geographic feature may be significant to multiple tribes, but locations are closely guarded secrets known only to certain tribal members, usually clans and secret societies. While known, many of these places are not formally documented on maps. This may be due to religious proscriptions against doing so, as well as the fact that the holding of this information is within the oral tradition of this tribe. This requires ongoing consultation with tribal resource specialists and tradition keepers (elders). While many tradition keepers do not know how to read modern maps, this information can be acquired through consultation between tradition keepers and Tribal resource managers. The resource managers can help the elders navigate through the maps and use the oral tradition to locate traditional places, assess fire effects and post-fire effects, and to consider possible impacts from proposed emergency stabilization treatments. Generationally, many tradition keepers are reluctant to talk with non-tribal members. At the request of the Pueblo community, place names and locations associated with traditional practices will remain confidential as per the National Historic Preservation Act, as amended.

B. Location/(Suitable) Sites: Within Las Conchas Fire perimeter specific to the area of concern for the Pueblo of Cochiti.

C. Design/Construction Specifications: Tribal Resource Specialist, Tribal Council Member, Traditional knowledge holders (appropriate elders representing the clans and secret societies of the pueblo) for 10 days to locate and determine condition of significant known cultural and religious places and activity areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire) To identify places of traditional cultural and religious significance associated with ceremonial practices and resource procurement, assess fire and post-fire impacts, and propose necessary and appropriate treatments.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment is consistent with the federal government's trust responsibility to federally recognized tribes.

F. Treatment Effectiveness Monitoring Proposed: Monitoring would be addressed for any treatment plan developed as a result of this specification. Any emergency stabilization and protection treatments identified will need to be submitted as an amendment to the BIA National BAER Coordinator for review and approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Resource Specialist (Archaeologist GS-193-11/5) to accompany tribal members and conduct assessment. $27/hr x 16 hrs x 1	$432
TOTAL PERSONNEL SERVICE COST	**$432**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	$0

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel for resource specialist(archaeologist) $147 x 1 x 1	$147
TOTAL TRAVEL COST	**$147**

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Tribal Resource Specialist (with working knowledge of map reading, familiarity of land) $250/day x 10 days	$2,500
Traditional knowledge holders (appropriate elders representing Pueblo clans and secret societies) $250/day x 10 days total	$2,500
Tribal Council Member $250/day x 10 days	$2,500
TOTAL CONTRACT COST	**$7,500**

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
2011	August 15, 2011	August 14, 2012		1	8,079.		**$8,079**
						TOTAL	**$8,079**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Cultural Resource Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Structure Protection and Channel Cleaning	**PART E BIA Spec-#**	CO-2
NFPORS TREATMENT CATEGORY*	Facility and Infrastructure	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Stabilize/Secure/Protect Structures	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	Cochiti Pueblo	**IMPACTED T&E SPECIES**	NA

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
Place sandbags and K rails around structures to divert flood flows and debris flows. When available material is available, the sandbags can be replaced with a constructed earthen berm and combined with the K Rails.

B. Location/(Suitable) Sites:
See Watershed Treatment Map Appendix IV, Watershed Treatment Table Appendix V and Specification Diagram Form Appendix V.

C. Design/Construction Specifications:

1. a. Secure loader, dumptruck, bulldozer, and operators for cleaning channels and moving material and K-Rails to designated locations.
   b. Deepen and widen the sandy, channel bottom while minimizing impacts to deep-rooted vegetation (trees, shrubs). Deepen and widen the catch basin immediately above culvert crossings on major roads.
   c. Place K-Rails as prescribed below.
   d. After the K Rails are placed, push material or pile material on top of the K Rails to cover with a berm of soil material that is about 5 feet deep and sloped at about a 2:1 slope on each side of the berm. Utilizing the material excavated from the channel is acceptable as long as K-Rails are placed on stable, consolidated surfaces.
   e. Seed the berm during the winter preferably after the first rain.
2. a. Purchase and install 600 K-rails around structures on uphill side, utilizing low-boy transport and front end loader.
   b. K-rails should be placed end to end on level ground.
   d. To maximize flood protection, K-rails should be inter-pinned with 30 inch length, 8 gage rebar.
   e. K-rails delivered to site must not be placed or stored in drainages.
3. a. Purchase 200 sandbags for placement on the 266 road at the junction with the above berm.
   b. Purchase a canvas tarp to cover pre-filled sandbags ready for placement. This tarp will help preserve the integrity of the sandbags from decomposing due to exposure to weather.
   c. Fill sandbags and stack neatly on the East side of the berm and south side of the road. Cover with canvas tarp and secure against wind.
   d. Mobilize crew of 10 people when and if the flows from Peralta Canyon reach to within 20 feet of roads edge. Time to place bags is estimated at 20 minutes with 10 people.
4. Inspect sites after large storm events and clean out captured sediments. Replace damaged K-rails, estimated at 5% (33).

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
To protect structures from flooding, debris and mud flows in the event stream channels overflow their banks.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Cochiti Pueblo Forest Management Plan (2008) and the Cochiti Strategic Fire Management Plan (March 2005)

F. Treatment Effectiveness Monitoring Proposed:
Inspect sandbag and K-rail placement and performance after major storm events and make necessary adjustments to improve protection of structures. Inspections will be performed within Specification No. CO-4.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
10 Tribal personnel on Resource Order x $33/hr x 4 hrs. x 10 persons =	$1,320
Implementation oversight 1 GS-11 @ $350/day for 20 days =	$7,000
TOTAL PERSONNEL SERVICE COST	**$8,320**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
FY11 Front end Loader w/ operator @ $185/hr x 150 hrs =	$27,750
FY11 Transport Equipment @ $125/hr x 4 days =	$500
FY11 Bulldozer w/ operator @ $165/hr x 80 hrs =	$13,200
FY11 Transport Equipment @ $125/day x 3 days =	$375
FY11 Dump Truck w/ operator @ $165/hr x 150 hrs =	$24,750
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$66,575**

MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
200 sand bags 14x26" @ $41.00/100 x 2 = {Donated by USACOE)	{$82}
Sand@ $38.75/yd x 4 yds = {Material on-site}	{$155}
K Rails @ $355 each x 600 K Rails (F.O.B. destination) = {Donated by NMDoT}	{$213,000}
TOTAL MATERIALS AND SUPPLY COST	**{$213,237}**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
FY11 GSA Vehicle @ $200/week x 2 weeks =	$400
FY12 GSA Vehicle @ $200/week x 1 week =	$200
TOTAL TRAVEL COST	**$600**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$0**

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
2011	7/10/2011	7/31/2011	S	feet	$11.3	6,700	$75,495
						TOTAL	**$75,495**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Watershed Assessment, Appendix I. See Watershed Treatment Map, Appendix IV. See Specification Diagrams, Appendix V.

{$} = Donated Item and does not calculate into the total cost.

USACOE donated the sand bags

NMDoT donated the K-Rails

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Storm Patrol (roads and associated values at risk)	**PART E Spec-#**	CO-4
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011, 2012
NFPORS TREATMENT TYPE *	Hazard Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Cochiti Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

There are many places at risk of inundation, debris deposition, flood damage and other post-fire related impacts from elevated flows and carrying sediment and debris. After rainfall events these areas will be assessed for any potential damage to the roads and infrastructure. If the culverts are plugged or damaged then the areas could be cleaned out immediately to avoid further damage during the next rainfall event. The structure protection treatments (CO-2) will also be assessed to determine if any repairs are needed prior to the next rain event. Additionally, other values at risk (buildings, well heads, etc.) in the floodplain area will be assessed during storm patrol.

Roads downstream of the Las Conchas Fire contain drainage structures that cross streams located in watersheds that have a high to moderate burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging drainage structures or exceeding their maximum flow capacity. If these flows plug drainage structures the result could be massive erosion and debris torrents further down the drainage due to the failure.

Also, there is an immediate and future threat to travelers along these roads within the burned area due to the increased potential for rolling and falling rock from burned slopes and increased potential for flash floods and mudflows. With the loss of vegetation normal storm frequencies and magnitudes can more easily initiate rill and gully erosion on the slopes and it is likely that this runoff will cover the roads or cause washouts. These events make for hazardous access along steep slopes and put the safety of users at risk.

The patrols are used to identify those road problems such as plugged culverts and washed out roads and to clear, clean, and/or block those roads that are or have received damage. The storm patrollers shall have access to equipment that can be used when a drainage culvert is plugged or soon to be plugged and to repair any road receiving severe surface erosion.

Work should be performed in the morning and early afternoon. Leave drainages when chance of rain is moderate or higher. Store equipment and materials out of flood plains and where chance of loss is low.

B. Location/(Suitable) Sites:

Rd 268 (Cochiti Highway), other unnamed local roads that cross Bland Canyon, possibly Rd 266 (Tent Rocks Access Road), State Route 84, structural protection areas on the Cochiti Pueblo (CO-2) other tribal facilities, and the cut through of the berm above Cochiti.

C. Design/Construction Specifications:

1. Immediately after receiving heavy rain the Pueblo/BIA will send out patrols to the roads and facilities of high importance on Pueblo lands to identify road and other hazard conditions – obstructions such as rocks, sediment, washouts and plugged culverts so the problems can be corrected before they worsen or jeopardize motor vehicle users.
2. The road patrols shall bring in heavy equipment necessary to mechanically remove any obstructions from the roads and culvert inlets and catch basins where necessary.
3. All excess material and debris removed from the drainage system shall be placed outside of the bank-full channel and floodplain where it cannot re-enter stream channels. Preferably the material will be moved off-site.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

The storm patrol is intended to identify and mitigate issues immediately after a rainfall event to avoid further damage during subsequent events. The purpose of the monitoring is to evaluate the condition of roads for motorized access and to identify and implement additional work needed to maintain and/or repair damage to road surfaces and flow conveyance structures across roads in order to provide safe access across Pueblo lands. BIA Engineering and Pueblo personnel will survey the roads within the fire perimeter after high-intensity storms. Survey will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows.

E. Treatment consistent with Agency Land Management Plan (identify which plan): The treatments are consistent with the federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed:

The storm patrol will verify that the work has been completed and the infrastructure is ready for the next rain event. Storm patrollers can also recommend changes to, or additional treatments, in the first year after the fire.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**

Storm Patrol Assessors (GS-9 equiv. @ $300/day x 1 teams of 2 people x 10 events)	$6,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 10 days) - patrol	$3,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 12 days) - clearing	$3,600
TOTAL PERSONNEL SERVICE COST	**$12,600**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
T800 Transport (incl. operator):: $713/day x 2 days/event x 6 events x 2 pieces of equipment	$17,112
140H Motor Grader (incl. operator):: $1074/day x 1 days/event x 6 events	$6,444
320C Excavator (incl. operator): $872/day x 2 days/event x 6 events	$10,464
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$34,020**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Patrols: 4 X 4 pickup: 100 miles X $0.55/ mile x 10 patrols x 2 teams	$1,100
Road Clearing Access: 4 X 4 pickup: 50 miles X $0.55/ mile x 6 events of 2 days each x 2 teams	$660
TOTAL TRAVEL COST	**$1,760**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	09/30/2011	F	patrol	$1000	6	$6,660
2012	10/01/2011	07/26/2012	F	patrol	$1000	4	$3,440
2011	07/26/2011	09/30/2011	F	Clean-out	$6,380	3	$19,140
2012	10/01/2011	08/01/2012	F	Clean-out	$6,380	3	$19,140
						TOTAL	$48,380

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, M, E
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Hazard / Safety Signs	**PART E Spec-#**	CO-5
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Warning Signs	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Cochiti Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

This treatment is for the installation of flood warning signs, burned area warning signs, and public safety sign replacement. These signs will warn the public of dangers on the road that have changed as a result of the fire. Flood warning signs will warn the public when crossing drainages such as Cochiti and Bland Canyons and its tributaries about the increased risk of floods. Burned area signs consist of a warning to the public identifying the possible dangers associated with a burned area. It 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. Road closure signs are self explanatory.

B. Location/(Suitable) Sites:

Access roads into areas where there are road crossings of drainages burned at high and moderate severity.

" Water Crossing…" - Rd 268 (Cochiti Highway), Rd 266 (Tent Rocks Access Road), State Route 84, other tribal facilities and the cut through the berm above Cochiti.

C. Design/Construction Specifications:

1. Road Closed Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read "**ROAD CLOSED**".
2. Flood Warning Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read **"WATER CROSSING HIGH FLOOD HAZARD**"
3. Burned Area warning signs along the roads shall measure, at a minimum, 4 feet by 4 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The signs shall read "**ENTERING BURNED AREA INCREASED RISK OF FLOODS, FALLING ROCKS, AND FALLING TREES**". Title lettering shall be a minimum of 5 inches in height and all remaining lettering shall be a minimum of 3.5 inches in height.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

Provide workers and recreation users with the necessary information to be prepared for being in a post-fire environment.

E. Treatment consistent with Agency Land Management Plan (identify which plan):

Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed:

Implementation Leader will verify installation and locations. Law enforcement will monitor effectiveness of closure signs to determine if additional measures are needed.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
GS-5 (equivalent): 2 ea. X $250/day X 3 day	$1,500
Implementation Team Leader (GS-9 equiv. @ $300/day x 1 days)	$300
TOTAL PERSONNEL SERVICE COST	**$1,800**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Post driver, wrenches, misc.	$100
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$100**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
3 "**Entering Burn Area…**" signs @ $200.00 each	$600
6 Steel U-channel sign posts @ $30.00 each	$180
12 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$36
15 "**Water Crossing…**" signs @ $200.00 each	$3,000

15 Steel U-channel sign posts @ $30.00 each	$450
30 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$90
TOTAL MATERIALS AND SUPPLY COST	**$4,356**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
4 X 4 pickup: 200 miles X $0.55/ mile	$110
TOTAL TRAVEL COST	**$110**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISHMENTS	PLANNED COST
2011	07/26/2011	08/20/2011	S	Signs	$354	18	$6,366
						TOTAL	**$6,366**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	T, E, P, M
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

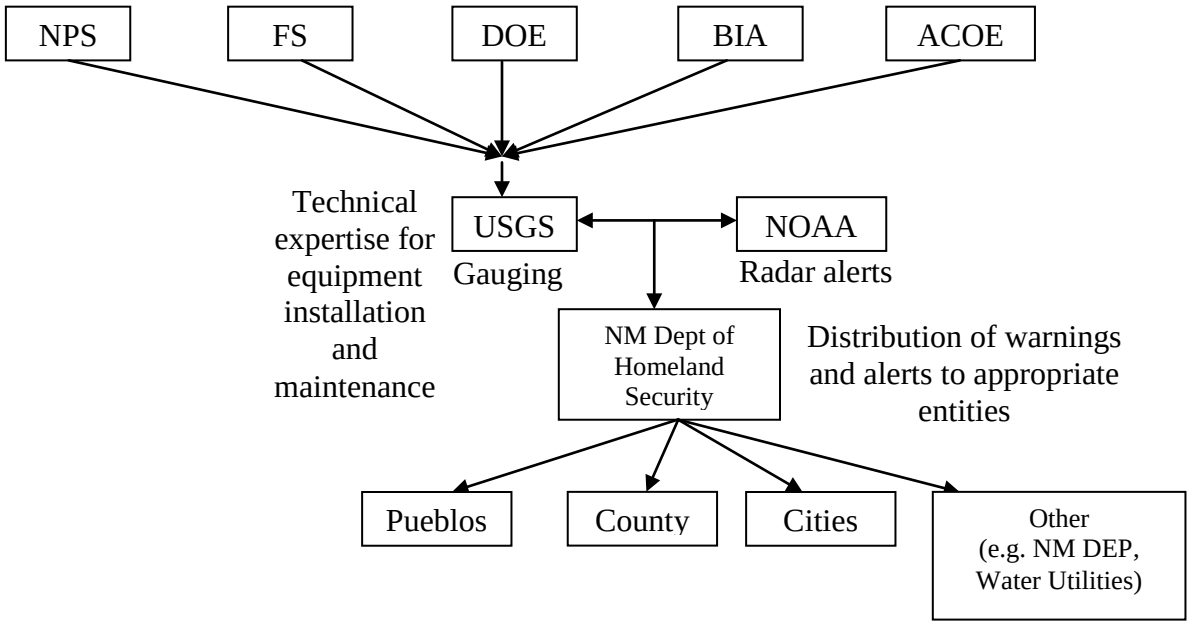
TREATMENT/ACTIVITY NAME	Early alert systems – Bland	**PART E Spec-#**	CO-6
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011, 2012, 2013
NFPORS TREATMENT TYPE *	Flood Warning System	**WUI? Y / N**	Y
IMPACTED COMMUNITIES AT RISK	Cochiti Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

There are several homes downstream of the burn area that are at risk of increased post-fire stream flow flooding and debris torrents. Early alert systems for precipitation and stream flow can provide residents with some advanced warning of conditions that could result in these elevated flows. After the Las Conchas Fire many agencies and communities wished to install early warning systems to address the risk to life and property downstream of the burn area, especially in watersheds burned at high and moderate soil burn severity. To ensure that the systems are coordinated and appropriate warnings are given at the earliest possible time, the agencies have devised a process diagrammed below.



The main land management agencies will provide funding and land use agreements to allow the USGS, who has expertise in early alert systems, to locate, install and operate the systems. The Implementation Team Leader will work with the USGS to find the appropriate locations for the gauges. The National Weather Service will additionally utilize weather radar to provide early warning to communities. All of the warnings (radar, precipitation and streamflow) will be disseminated to communities by the New Mexico Dept. of Homeland Security. Beyond local communities additional agencies will be notified, especially water quality entities who may wish to avoid taking in water when ash and sediment levels that can damage equipment are predicted to be elevated.

B. Location/(Suitable) Sites:

In the headwaters of the Bland Canyon watershed (possibly near Bruce Ridge – on National Forest System land). The site location will be coordinated with the Forest Service (Santa Fe National Forest). The Forest Service has committed to an expedited, emergency special uses permit process to allow for the gages to be located and installed quickly.

C. Design/Construction Specifications:

A flood warning gage measures the stage in a river and the precipitation amount during a storm event. The flood warning gage consists of a tower about 12 to 15 feet in height. Precipitation will be measured with a rain gage installed on the top of the tower. Stage of the channel will be measured with a pressure transducer installed inside a small metal conduit. If conditions warrant, a non-contact radar stage sensor will be installed to minimize possibility of damage during first flows. A data collection platform (DCP) will be installed in a small gage house. The DCP will store and transmit all of the collected stage and precipitation data. Installation and connectivity of these systems will be coordinated with other jurisdictions (LANL, Los Alamos, Cochiti, Santa Clara, Forest Service) in and around the Las Conchas Fire. The Verizon Crisis Response Team has offered to help with communications links (800-981-9558; Mark Francis and/or Kari Dean).

The Army Corps of Engineers is funding installation of USGS early alert systems in Santa Clara Canyon (2), Cochiti Canyon (1), and Peralta Canyon (1). The USGS is locating sites as of 19 July 2011. Los Alamos National Laboratory is planning to fund several similar systems. This specification is to be one of three recommended by the DOI BAER team for the Las Conchas Fires (Bland/Peralta Canyon , Guaje/Alamos/Pueblo Canyon and Santa Clara Canyon) to provide additional early alert to downstream Pueblos. A land use agreement may need to be written if the location of the early alert system will be on other that DOI BIA lands.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Provide downstream communities, workers in the watershed and recreation users with the necessary information to be prepared for potential flooding events

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed:
Monitoring of the system will be done by awarded company/agency as part of annual operation budget.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Contracting/Agreement Officer (GS-12 @ $400/day x 2.5 days)	$1,000
Implementation Team Leader (GS-9 equiv. @ $300/day x 5 days)	$1,500
TOTAL PERSONNEL SERVICE COST	**$2,500**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
	$
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**$**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
	$
TOTAL TRAVEL COST	**$**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
equipment and labor for installation of early warning precipitation/streamflow alert systems x 2 @ $15,000 each	$15,000
Operation of early warning systems x 1 system x 3 years @ $5,000 per year	$15,000
TOTAL CONTRACT COST	**$30,000**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	08/26/2011	S	Early Warning	$18,500	1	$17,500
2011	08/26/2011	08/25/2012	S	Operation	$5,000	1	$5,000
2012	08/26/2012	08/25/2013	S	Operation	$5,000	1	$5,000
2013	08/26/2013	08/25/2014	S	Operation	$5,000	1	$5,000
						TOTAL	**$32,500**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, M, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment.

PUEBLO OF JEMEZ

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Short-Term Tree Hazard Surveillance	**PART E Spec-#**	JE-1
NFPORS TREATMENT CATEGORY*	Roads	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Hazard Removal	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Jemez Reservation	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Identify, using the NPS Tree Hazard Rating System, and mark with blue tree paint, unsurveyed (by BAER Foresters) short-term tree hazards within one tree length and posing public/worker safety threat on roads.

B. Location/(Suitable) Sites: Designated primary (Rd. 266) and seconday roads on Jemez Short-Term Tree Hazard Surveillance Map in Appendix IV. Approximately 4.1 miles of unsurveyed primary and 3.2 miles of unsurveyed secondary roads exist within or adjacent fire perimeter.

C. Design/Construction Specifications:

1. Using the NPS Tree Hazard Rating System, identify those tree hazards with a rating of 5 or greater within one tree length of primary and secondary roads within/adjacent fire perimeter. NPS 7 Point Tree Hazard Rating System is attached at the end of this specification.
2. Paint tree hazards with blue tree-marking paint to designate for removal. Number trees to correspond with field notes---see below.
3. Collect data (location, tree number, species, DBH, and condition) for each tree.
4. Record tree location (e.g., map, mileage or GPS)

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To ensure public and worker safety within Jemez Reservation.

E. Treatment Consistent with Agency Land Management Plan (identify which plan): Jemez Forest Management Plan (2007)

F. Treatment Effectiveness Monitoring Proposed: Final report of the number of trees identified as tree hazards to be mitigated.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Hand Crew Laborer 2 @ $25.00/Hr.* x 24 Hrs.	$1,000
TOTAL PERSONNEL SERVICE COST	**$1,000**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Miscellaneous Supplies (Tree Paint, etc.)	$100
TOTAL MATERIALS AND SUPPLY COST	**$100**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
GSA 4WD Pickup 1 @ $60.00/Day x 3 Days	$280
TOTAL TRAVEL COST	**$280**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	

TOTAL CONTRACT COST	

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
2011	8/1/2011	9/30/2011	S	7.3 Miles	$189.04_		**$1,380**
						TOTAL	**$1,380**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P,M,T
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation/Forestry Assessment. See Appendix IV, Jemez Short-Term Tree Hazard Surveillance/Mitigation Map.

Appendix IV
NPS 7 Point Rating System

The rating is comprised of two components incorporating the following factors: (1) **tree failure potential**; (2) **target damage potential**; (3) **target impact potential**; and, (4) **target value**.

The **Tree** or **Defect Rating Value** component represents an estimation of the tree's relative potential for imminent failure and its damage potential based upon an evaluation of tree condition (defect), including site factors, plus size and height of the potentially hazardous portion of the tree. There are three possible ratings, 1-3, with three representing the highest failure/damage potential.

An additional point may be added for severe lean, which increases the likelihood of failure. Thus, 4 is the maximum defect rating possible, and represents a very defective (and/or predisposed to failure) tree with a severe lean which has great potential for damage and/or injury/death.

Defect ratings for high, medium, and low ratings are usually assigned and/or modified on a local/regional basis and reflect variations in species and environmental factors. The following is provided as an example and may need to be revised for local conditions.

High (3)--Significant Visible Defect/Damage (Predisposed to failure w/in 3 yrs. or before next scheduled inspection)

--Conifer crown > 70% dead; hardwood crown >50% dead
--Dead limbs 4-6" diameter > 40% of crown
--Dead limbs 6-8" diameter > 20% of crown
--Dead limbs > 8" diameter
--Live limbs with visible signs of rot or splits
--Hangers ≥ 2" diameter
--Heart rot/hollow > 70% diameter
--Multiple conks ≥ 6" wide on bole or limbs, indicating extensive heart rot
--Catface/canker > 50% circumference
--Shallow rooting/soil saturation; obvious signs of uprooting (e.g. mounding, cracking)
-Conks or mushrooms of root decay fungi at root crown, or loose bark at ground level, indicating root rot
--Characteristics (e.g. slabbing bark, extensive decay, etc.) which could result in unsafe deferred removal

Medium (2)--Moderate Visible Defect/Damage (Failure unlikely w/in 3 yrs. or before next scheduled inspection)

--Reduced growth; flattened conifer tops
--Numerous scattered dead/dying limbs
--Conifer crown 30-70% dead; hardwood crown 30-50% dead
--Dead limbs 4-6" diameter 20- 40% of crown
--Dead limbs 6-8" diameter 10- 20% of crown
--Live limbs w/ rot, hollow, or dead areas
--Heart rot/hollow 30-70% diameter
--Single conk < 6" wide on bole or limbs
--Catface/canker 30- 50% circumference
--Proximity to identified root rot center

Low (1)--Limited Visible Defect

--Reduced growth; rounded conifer tops
--Discolored and/or sparse foliage
--Conifer crown < 30% dead; hardwood crown <30% dead
--Dead limbs 2-4" diameter <20% of crown
--Dead limbs 4-6" diameter <10% of crown
--Heart rot/hollow <30% diameter

--Catface/canker <30% circumference
--Proximity to suspected root rot center

The second component is the **Target Rating** and represents impact potential and target value (monetary or possibility of injury/death). The ratings for this element are similarly rated 1-3, with 3 being the highest. A target rated 3 is one which has a high value (property or person) with a high likelihood of being impacted in event of failure. These ratings are usually more standardized with following an example:

High (3)--Overnight Exposure
--Campgrounds
--Lodges, hotels, dormitories
--Residences
--24-hour visitor service facilities

Medium (2)--Daytime Exposure
--Paved trails
--Interpretive sites, such as amphitheaters, kiosks
--"High use" road networks where occupancy is "constant"
--Roadside attractions, such as vista points or historic stops
--Information stations, visitor centers, fee collection portals
--High-use facility designated parking areas; designated trailhead parking areas
--Utilities, infrastructure
--"High-use" areas with "constant" occupancy, such as plazas, staging areas, commercial sites
--Picnic areas

Low (1)--Transitory Exposure
--Highway corridors
--Unimproved roads
--Turnouts
--Bicycle paths
--Structures with sporadic occupancy, such as restrooms associated with parking areas, storage buildings

The **Total Hazard Rating** is the **sum** of the **Defect Rating** and **Target Rating**.

Hazard Rating	Treatment Priority
2-3	Low
4-5	Medium
5 (w/3 defects)-6	High
7	Very High

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Invasive Species Monitoring	**PART E Spec-#**	JE-2
NFPORS TREATMENT CATEGORY*	Monitoring	**FISCAL YEAR(S) (list each year):**	2011-2012
NFPORS TREATMENT TYPE *	Treatment Effectiveness Monitoring	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK		**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Conduct noxious weed/non-native invasive plant species detection monitoring within 8 weeks after fire containment or after green-up following the monsoon season to determine if noxious weeds/non-native invasive plants will disperse seed onto the burned/disturbed sites. Monitor again after vegetation green-up in spring of 2012. Assess for possible invasions on roads, hand lines, dozer lines, and other disturbed areas within the perimeter of the Las Conchas Fire, access roads leading to the fire, and areas disturbed by suppression activities associated with the Las Conchas Fire. Approximately 4,751 acres of Jemez Pueblo lands were impacted by the fire. Sites for monitoring should include existing locations of non-native species and in areas that have a high probability for invasion within the burned area. Prioritize treatments to control the establishment and spread of noxious weeds. There is the potential for salt cedar (*Tamarix ramosissima*) and Russian olive (*Elaeagnus angustifolia*) to occur in the drainages.

B. Location/(Suitable) Sites:

Jemez Pueblo: Assess areas that have a high potential for weed/invasive species establishment—known locations within the burned area and areas disturbed by fire suppression forces. Critical areas include the Bear Springs Road (County Road 266 within the Jemez Pueblo) and drainages of La Jara Canyon, Cañon Seguro, Canada Creek and Peralta Canyon, within the fire perimeter. Monitor burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive plant species populations. Disturbed areas within and along the fire perimeter, such as dozer lines, hand lines, and safety zones will also be prioritized for monitoring. There are 4.2 miles (or 10.3 acres) of roads that will be monitored. Fireline preparation was conducted along the Bear Springs Road—brush and tree limb removal 20 feet interior to the fire.

C. Design/Construction Specifications:

1. Conduct short-term monitoring (fall of 2011 and growing season of 2012) using early detection and rapid response (EDRR) assessment/monitoring of noxious weed/non-native invasive plant species infestations within the burned area. Monitoring to determine the post-fire presence or spread of invasive species will be conducted first, at and near the known occurrences of weeds then in areas disturbed by the fire and fire suppression activities.

2. Natural re-vegetation of the burned area will be assessed in late spring/early summer of 2012 to determine whether there is sufficient recovery to preclude noxious weeds/invasive species**.** Assessment locations will be in areas representative that are not transitional from one ecological site to another or inclusions, using local agency specified methods. Should there be insufficient recovery, re-vegetation of native species should be considered, and supplemental funding request for further monitoring and treatments should be triggered.

3. Inventory/assess, photograph and map new noxious weed infestations within burned area using Global Positioning System (GPS) technology.

4. Sampling should determine species composition and density of noxious/non-native invasive species and native plant recovery. Monitoring methodologies will be those approved by the Jemez Pueblo or BIA Southern Pueblos Agency. Suggested methods are point intercept and others as described in the Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems found on the Jornada Experimental Range website: http://jornada.nmsu.edu/sites/default/files/Quick_Start.pdf

5. Complete Burned Area Rehabilitation (BAR) Plan to request funding for noxious weed/non-native species control of new weed occurrences within the burned area. The BAR Plan is due to the BIA National BAER Coordinator by September 15, 2011.

6. Initiate Jemez Pueblo approved control measures where detection demonstrates the establishment or expansion of noxious weed/invasive species populations. Direct treatment will occur when there is a threat to natural regeneration and recovery of native vegetation, establishment of effective ground cover, or expansion within and outside the burn area from invasive species inside the burned area. Treatment will require submission for supplemental funding

7. Prepare annual reports and a final report documenting sampling methodologies, techniques, areas sampled, and summary of findings. Submit supplemental funding requests for subsequent years monitoring studies.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

The purpose of this treatment is to determine if noxious weeds and non-native invasive species are invading the burn area and areas disturbed by fire suppression and fireline repair activities. Early Detection and Rapid Response (EDRR) will be used to determine if invasive plant species are impacting short-term recovery of revegetation, to prevent new noxious weed infestations from becoming established and to ensure the natural recovery of the native perennial grasses, forbs and shrubs. This treatment will also ensure the ecological indicators (Soil Stability, Hydrologic Function, and Biotic Integrity) are functioning properly during the natural recovery period

on Jemez Pueblo lands. Treatment using Integrated Pest Management techniques of new and existing noxious weed infestations will reduce the likelihood of their spread to disturbed areas and help to re-establish high quality wildlife habitat within the burn. If recovery has not been met then additional funding requests must be prepared and submitted.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
This treatment is compatible with the Pueblo of Jemez, Comprehensive Forest Management Plan, 2007.

F. Treatment Effectiveness Monitoring Proposed:
Management decisions that will be based upon the need for non-native species control. Treatment sites will be evaluated annually for the next three years to ensure control methods are meeting resource objectives. Weed specialist/technicians will visit chemically treated sites within two weeks of treatment; this is especially important for weed populations that are sprayed to ensure efficacy of herbicide application. Initiate follow-up treatments if additional non-native species or new infestations are discovered. Control will be considered successful upon determination that all noxious weeds have been controlled and non-native invasive plants have not spread beyond their pre-fire locations. Monitoring is required to ascertain whether vegetative recovery of habitat has, as anticipated, occurred. Additional treatments may be proposed if assessment concludes that the criteria for re-vegetation success are not achieved. A supplemental funding request for non-native invasive plant control will also be submitted if monitoring reveals expansion of noxious weeds from existing locations and if new infestations are found in the burn area.

LABOR, MATERIALS AND OTHER COST: (Costs are rounded)

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Jemez Pueblo Natural Resource Specialist, Weed Crew supervisor @$47.37/hr X 40 hours = $1,900	$1,900
Field Crew/forestry technicians @ $25.44/hr X 120 hours X 2 (2 crew members) = $6,100	$6,100
TOTAL PERSONNEL SERVICE COST	**$8,000**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Fence posts, rebar, 300 foot tape @ $200.00 X 1 year	$200
Flagging, misc office supplies, replaced posts & rebar if vandalized@ $100.00 X 1 years	$100
Digital camera	$200
Garmin-type GPS Unit	$600
TOTAL MATERIALS AND SUPPLY COST	**$1,100**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Government (GSA) vehicle @ $14.96/day + (50 miles/day X$0.235/mile) X 20 days = $530/yr.	$530
Government ATV/UTV @ 0.68/mile X 35 miles/day X 15 days = $357/yr.	$360
TOTAL TRAVEL COST	**$900**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	09/01/2011		S	Acres	$20	100	$2,000
2012		08/31/2012	S	Acres	$20	400	$8,000
						TOTAL	**$10,000**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, T
3. Estimate supported by cost guides from independent sources or other federal agencies	T
4. Estimates based upon government wage rates and material cost.	P, M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation and Forestry Assessment; See Appendix IV, Vegetation Treatment map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Traditional Cultural Assessment	**PART E Spec-#**	JE-3
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Jemez Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Numerous localities within the perimeter of the fire have been identified by Jemez Pueblo as being associated within traditional cultural and sacred places. These are places of cultural and religious significance associated with ceremonial practices and resource procurement activities. While these places can occur most anywhere, they are frequently located on mountain peaks, at springs, and in drainages. A single geographic feature may be significant to multiple tribes, but locations are closely guarded secrets known only to certain tribal members. While known, many of these places are not formally documented on maps. This may be due to religious proscriptions against doing so, as well as the fact that the holding of this information is within the oral tradition of this tribe. This requires ongoing consultation with tribal resource specialists and tradition keepers (elders). While many tradition keepers do not know how to read modern maps, this information can be acquired through consultation between tradition keepers and Tribal resource managers. The resource managers can help the elders navigate through the maps and use the oral tradition to locate traditional places as well as assess fire effects and post-fire effects, and to consider possible impacts from proposed emergency stabilization treatments. Generationally, many tradition keepers are reluctant to talk with non-tribal members. At the request of the Pueblo community, place names and locations associated with traditional practices will remain confidential as per the National Historic Preservation Act, as amended.

B. Location/(Suitable) Sites: Within Las Conchas Fire perimeter specific to the areas of concern for the Pueblo of Jemez.

C. Design/Construction Specifications: Tribal Resource Specialist, Tribal Council Member, Traditional knowledge holder (appropriate elders representing the clans and secret societies of the pueblo) for 10 days to locate and determine condition of significant known cultural and religious places and activity areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire) To identify places of traditional cultural and religious significance associated with ceremonial practices and resource procurement, assess fire and post-fire impacts, and propose necessary and appropriate treatments.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment is consistent with the federal government's trust responsibility to federally recognized tribes.

F. Treatment Effectiveness Monitoring Proposed: Monitoring would be addressed for any treatment plan developed as a result of this specification. Any emergency stabilization and protection treatments identified will need to be submitted as an amendment to the BIA National BAER Coordinator for review and approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Resource advisor (Archaeologist GS-193-11/5) to accompany tribal members and conduct assessment. $27 x 16 x 1	$432.
TOTAL PERSONNEL SERVICE COST	**$432**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**0**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
TOTAL MATERIALS AND SUPPLY COST	**0**

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel for resource specialist (archaeologist) $147 x 1 x 1	$147
TOTAL TRAVEL COST	**$147**

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Tribal Resource Specialist (with working knowledge of map reading, familiarity of land) $250/day x 10 days	$2,500
Traditional knowledge holder (specific to the Pueblo) $250/day x 10 days	$2,500
Tribal Council Member $250.00/day x 10 days	$2,500
TOTAL CONTRACT COST	**$7,500**

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
2011	August 15, 2011	August 14, 2012		1	8,079		**$8,079**
						TOTAL	**$8,079**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Cultural Resource Assessment.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Hazard / Safety Signs	**PART E Spec-#**	JE-4
NFPORS TREATMENT CATEGORY*	Protection & Warning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Warning Signs	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Jemez Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:
This treatment is for the installation of flood warning signs, burned area warning signs, and public safety sign replacement. These signs will warn the public of dangers on the road that have changed as a result of the fire. Flood warning signs will warn the public when crossing drainages with increased risk of floods. Burned area signs consist of a warning to the public identifying the possible dangers associated with a burned area. It 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. Road closure signs are self explanatory.

B. Location/(Suitable) Sites:
Access roads into areas where the fire burned through leaving post-fire hazards including hazard trees, rock fall and debris flow areas and the potential for localized flooding.

C. Design/Construction Specifications:
1. Road Closed Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read "**ROAD CLOSED**".
2. Flood Warning Signs at stream or arroyo crossings shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards. The signs shall read **"WATER CROSSING HIGH FLOOD HAZARD**".
3. Burned Area warning signs along the roads shall measure, at a minimum, 4 feet by 4 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The signs shall read "**ENTERING BURNED AREA INCREASED RISK OF FLOODS, FALLING ROCKS, AND FALLING TREES**". Title lettering shall be a minimum of 5 inches in height and all remaining lettering shall be a minimum of 3.5 inches in height.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):
Provide workers and recreation users with the necessary information to be prepared for being in a post-fire environment.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
Although not referenced in a specific approved land management plan, treatment is consistent with the federal government's trust responsibility to tribes.

F. Treatment Effectiveness Monitoring Proposed:
Implementation Leader will verify installation and locations. Law enforcement will monitor effectiveness of closure signs to determine if additional measures are needed.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
GS-5 (equivalent): 2 ea. X $250/day X 1 day	$500
Implementation Team Leader (GS-9 equiv. @ $300/day x 1 days)	$300
TOTAL PERSONNEL SERVICE COST	**$800**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
Post driver, wrenches, misc. tools	$100
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	**$100**
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
5 "**Entering Burn Area…**" signs @ $200.00 each	$1,000
10 Steel U-channel sign posts @ $30.00 each	$300
20 - 3/8" machine bolts, nuts, washers—hex head @ $3.00 each	$60
TOTAL MATERIALS AND SUPPLY COST	**$1,360**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
4 X 4 pickup: 200 miles X $0.55/ mile	$110
TOTAL TRAVEL COST	**$110**

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	**$**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (MM/DD/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	07/26/2011	08/20/2011	S	Signs	$474	5	$2,370
						TOTAL	**$2,370**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	T, E, P, M
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix 1, Watershed Assessment

PUEBLO OF SANTO DOMINGO

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Invasive Species Monitoring	**PART E Spec-#**	SD-1
NFPORS TREATMENT CATEGORY*	Monitoring	**FISCAL YEAR(S) (list each year):**	2011-2012
NFPORS TREATMENT TYPE *	Treatment Effectiveness Monitoring	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK		**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description:

Conduct noxious weed/non-native invasive plant species detection monitoring within 8 weeks after fire containment or after green-up following the monsoon season to determine if noxious weeds/non-native invasive plants will disperse seed onto the burned/disturbed sites. Monitor again after vegetation green-up in spring of 2012. Assess for possible invasions on roads, hand lines, dozer lines, and other disturbed areas within the perimeter of the Las Conchas Fire, access roads leading to the fire, and areas disturbed by suppression activities associated with the Las Conchas Fire. Approximately 255 acres of Santo Domingo Pueblo lands were impacted by the fire. In addition approximately 1.5 miles (3.6 acres) of dozer line was constructed and 3.3 miles (8 acres) of road was prepared as a firebreak (brush and tree limb removal). Sites for monitoring should include existing locations of non-native species and in areas that have a high probability for invasion within the burned area. Prioritize treatments to control the establishment and spread of noxious weeds. There is the potential for salt cedar (*Tamarix ramosissima*) and Russian olive (*Elaeagnus angustifolia*) to occur in the drainages.

B. Location/(Suitable) Sites:

Santo Domingo Pueblo: Assess areas that have a high potential for weed/invasive species establishment—known locations within the burned area and areas disturbed by fire suppression forces. Critical areas include the Bear Springs Road (County Road 266 within the Santo Domingo Pueblo), the dozer line, and stream drainages within the fire perimeter. Monitor burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive plant species populations. There are 3.3 miles (or 8 acres) of roads that will be monitored. Fireline preparation was conducted along the Bear Springs Road—brush and tree limb removal 20 feet interior to the fire.

C. Design/Construction Specifications:

1. Conduct short-term monitoring (fall of 2011 and growing season of 2012) using early detection and rapid response (EDRR) assessment/monitoring of noxious weed/non-native invasive plant species infestations within the burned area. Monitoring to determine the post-fire presence or spread of invasive species will be conducted first, at and near the known occurrences of weeds then in areas disturbed by the fire and fire suppression activities.

2. Natural re-vegetation of the burned area will be assessed in late spring/early summer of 2012 to determine whether there is sufficient recovery to preclude noxious weeds/invasive species**.** Assessment locations will be in areas representative that are not transitional from one ecological site to another or inclusions, using local agency specified methods. Should there be insufficient recovery, re-vegetation of native species should be considered, and supplemental funding request for further monitoring and treatments should be triggered.

3. Inventory/assess, photograph and map new noxious weed infestations within burned area using Global Positioning System (GPS) technology.

4. Sampling should determine species composition and density of noxious/non-native invasive species and native plant recovery. Monitoring methodologies will be those approved by the Santo Domingo Pueblo or BIA Southern Pueblos Agency. Suggested methods are point intercept and others as described in the Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems found on the Jornada Experimental Range website: http://jornada.nmsu.edu/sites/default/files/Quick_Start.pdf

5. Complete Burned Area Rehabilitation (BAR) Plan to request funding for noxious weed/non-native species control of new weed occurrences within the burned area. The BAR Plan is due to the BIA National BAER Coordinator by September 15, 2011.

6. Initiate Santo Domingo Pueblo approved control measures where detection demonstrates the establishment or expansion of noxious weed/invasive species populations. Direct treatment will occur when there is a threat to natural regeneration and recovery of native vegetation, establishment of effective ground cover, or expansion within and outside the burn area from invasive species inside the burned area. Treatment will require submission for supplemental funding

7. Prepare annual reports and a final report documenting sampling methodologies, techniques, areas sampled, and summary of findings. Submit supplemental funding requests for subsequent years monitoring studies.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire):

The purpose of this treatment is to determine if noxious weeds and non-native invasive species are invading the burn area and areas disturbed by fire suppression and fireline repair activities. Early Detection and Rapid Response (EDRR) will be used to determine if invasive plant species are impacting short-term recovery of revegetation, to prevent new noxious weed infestations from becoming established and to ensure the natural recovery of the native perennial grasses, forbs and shrubs. This treatment will also ensure the ecological indicators (Soil Stability, Hydrologic Function, and Biotic Integrity) are functioning properly during the natural recovery period

on Santo Domingo Pueblo lands. Treatment using Integrated Pest Management techniques of new and existing noxious weed infestations will reduce the likelihood of their spread to disturbed areas and help to re-establish high quality wildlife habitat within the burn. If recovery has not been met then additional funding requests must be prepared and submitted.

E. Treatment consistent with Agency Land Management Plan (identify which plan):
This treatment is compatible with the Fire Management Plan (FMP) for the Santo Domingo Pueblo Indian Reservation, BIA Southern Pueblos Agency, 2008; Environmental Assessment, revised FMP, 2009.

F. Treatment Effectiveness Monitoring Proposed:
Management decisions that will be based upon the need for non-native species control. Treatment sites will be evaluated annually for the next three years to ensure control methods are meeting resource objectives. Weed specialist/technicians will visit chemically treated sites within two weeks of treatment; this is especially important for weed populations that are sprayed to ensure efficacy of herbicide application. Initiate follow-up treatments if additional non-native species or new infestations are discovered. Control will be considered successful upon determination that all noxious weeds have been controlled and non-native invasive plants have not spread beyond their pre-fire locations. Monitoring is required to ascertain whether vegetative recovery of habitat has, as anticipated, occurred. Additional treatments may be proposed if assessment concludes that the criteria for re-vegetation success are not achieved. A supplemental funding request for non-native invasive plant control will also be submitted if monitoring reveals expansion of noxious weeds from existing locations and if new infestations are found in the burn area.

LABOR, MATERIALS AND OTHER COST: (Costs are rounded)

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Santo Domingo Pueblo Natural Resource Specialist, Weed Crew supervisor @$47.37/hr X 24 hours = $1,140	$1,140
Field Crew/forestry technicians @ $25.44/hr X 40 hours X 2 (2 crew members) = $2,040	$2,040
TOTAL PERSONNEL SERVICE COST	**$3,180**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
Fence posts, rebar, 300 foot tape @ $200.00 X 1 year	$200
Flagging, misc office supplies, replaced posts & rebar if vandalized@ $100.00 X 1 years	$100
Digital camera	$200
Garmin-type GPS Unit	$600
TOTAL MATERIALS AND SUPPLY COST	**$1,100**
TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Government (GSA) vehicle @ $14.96/day + (50 miles/day X $0.235/mile) X 8 days = $215/yr.	$215
Government ATV/UTV @ 0.68/mile X 35 miles/day X 5 days = $120yr.	$120
TOTAL TRAVEL COST	**$335**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
TOTAL CONTRACT COST	

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
2011	09/01/2011		S	Acres	$46	25	$1,155
2012		08/31/2012	S	Acres	$46	75	$3,460
						TOTAL	**$4,615**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, T
3. Estimate supported by cost guides from independent sources or other federal agencies	T
4. Estimates based upon government wage rates and material cost.	P, M
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Vegetation and Forestry Assessment; See Appendix IV, Vegetation Treatment map.

PART F - INDIVIDUAL TREATMENT SPECIFICATION

TREATMENT/ACTIVITY NAME	Traditional Cultural Assessment	**PART E Spec-#**	SD-2
NFPORS TREATMENT CATEGORY*	Assessment	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	Risk Assessment	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Santo Domingo Pueblo	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

WORK TO BE DONE (describe or attach exact specifications of work to be done):

A. General Description: Numerous localities within the perimeter of the fire have been identified by Santo Domingo Pueblo as being associated within traditional cultural and sacred places. These are places of cultural and religious significance associated with ceremonial practices and resource procurement activities. While these places can occur most anywhere, they are frequently located on mountain peaks, at springs, and in drainages. A single geographic feature may be significant to multiple tribes, but locations are closely guarded secrets known only to certain tribal members. While known, many of these places are not formally documented on maps. This may be due to religious proscriptions against doing so, as well as the fact that the holding of this information is within the oral tradition of this tribe. This requires ongoing consultation with tribal resource specialists and tradition keepers (elders). While many tradition keepers do not know how to read modern maps, this information can be acquired through consultation between tradition keepers and Tribal resource managers. The resource managers can help the elders navigate through the maps and use the oral tradition to locate traditional places as well as assess fire effects and post-fire effects, and to consider possible impacts from proposed emergency stabilization treatments. Generationally, many tradition keepers are reluctant to talk with non-tribal members. At the request of the Pueblo community, place names and locations associated with traditional practices will remain confidential as per the National Historic Preservation Act, as amended.

B. Location/Suitable) Sites: Within Las Conchas Fire perimeter specific to the Pueblo of Santo Domingo.

C. Design/Construction Specifications: Tribal Resource Specialist, Tribal Council Member, Traditional knowledge holders (appropriate elders representing the clans and secret societies of the pueblo) for 10 days to locate and determine condition of significant known cultural and religious places and activity areas.

D. Purpose of Treatment Specifications (relate to damage/change caused by fire): To identify places of traditional cultural and religious significance associated with ceremonial practices and resource procurement, assess fire and post-fire impacts, and propose necessary and appropriate treatments.

E. Treatment consistent with Agency Land Management Plan (identify which plan): Treatment is consistent with the federal government's trust responsibility to federally recognized tribes.

F. Treatment Effectiveness Monitoring Proposed: Monitoring would be addressed for any treatment plan developed as a result of this specification. Any emergency stabilization and protection treatments identified will need to be submitted as an amendment to the BIA National BAER Coordinator for review and approval.

LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
Resource Specialist (Archaeologist GS193-11/5) to accompany tribal elders and conduct assessment.	$432
TOTAL PERSONNEL SERVICE COST	**$432**
EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	$0
MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	
	$0
TOTAL MATERIALS AND SUPPLY COST	

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	
Travel for resource advisor (archaeologist) $147 x 1 x 1	$147
TOTAL TRAVEL COST	**$147**
CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	
Tribal Resource Specialist (with working knowledge of map reading, familiarity of land) $250/day x 10 days	$2,500
Traditional knowledge holder (specific to the Pueblo) $250/day x 10 days	$2,500
Tribal Council Member $250.00/day x 10 days	$2,500
TOTAL CONTRACT COST	**$7,500**

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATES (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLISH MENTS	PLANNED COST
2011	August 15, 2011	August 14, 2012	S	1	8,079		**$8,079**
						TOTAL	**$8,079**

Work Agent: C=Coop Agreement, F=Force Account, G=Grantee, P=Permittees, S=Service Contract, T=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1. Estimate obtained from 2-3 independent contractual sources.	
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies	
4. Estimates based upon government wage rates and material cost.	P, T
5. No cost estimate required - cost charged to Fire Suppression Account	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

See Appendix I, Cultural Resource Assessment.

DOI – BAER SPECIFICATION

PART F - INDIVIDUAL SPECIFICATION

TREATMENT/ACTIVITY NAME	Plan Preparation	**PART E SPECIFICATION #**	1
NFPORS TREATMENT CATEGORY*	Planning	**FISCAL YEAR(S) (list each year):**	2011
NFPORS TREATMENT TYPE *	ES Plan	**WUI? Y / N**	N
IMPACTED COMMUNITIES AT RISK	Ohkay Owingeh and the following Pueblos – Santa Clara, San Ildefonso, Santa Domingo, Nambe, Jemez, Cochiti	**IMPACTED T&E SPECIES**	N/A

* See NFPORS Restoration & Rehabilitation module - Edit Treatment screen for applicable entries.

I. WORK TO BE DONE (describe or attach exact specifications of work to be done):

Number and Describe Each Task:
A. General Description: To prepare the Burned Area Emergency Response (BAER) Plan for the Las Conchas and Pacheco Fires.
B. Location/(Suitable) Sites: BIA Northern Pueblos Agency and BIA Southern Pueblos Agency
C. Design/Construction Specifications:
1. Conduct a detailed assessment of burn severity and determine fire impacts that need to be managed or mitigated.
2. Write specifications based on assessment recommendations.
3. Submit the plan for approval and secure funding from appropriate sources.
D. Purpose of Treatment Specifications: To prepare a comprehensive BAER plan to manage or mitigate fire impacts in order to protect life and property and critical cultural and natural resources.
E. Treatment Effectiveness Monitoring Proposed: The plan details monitoring for treatment effectiveness as prescribed for each treatment specification. Annual and final reports will be prepared to document the treatment monitoring.

II. LABOR, MATERIALS AND OTHER COST:

PERSONNEL SERVICES: (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item): Do not include contract personnel costs here (see contractor services below).	**COST / ITEM**
ADMINISTRATION -8 PERSONNEL (Team Leader, Deputy T/Ls, NEPA, Documentation) (21 days each)	$104,000
WATERSHED – 6 PERSONNEL (18 days average)	$66,852
WILDLIFE – 2 PERSONNEL(27 days total)	$16,740
GIS/IT – 5 PERSONNEL(3 @ 16 days and 2 @ 21 days)	$55,800
VEGETATION AND FORESTRY – 4 PERSONNEL(21 days each)	$52,000
CULTURAL – 3 PERSONNEL (21 days each)	$39,000
PIO's – 2 PERSONNEL(14 days each)	$17,360
TOTAL PERSONNEL SERVICE COST	$351,752

EQUIPMENT PURCHASE, LEASE AND/OR RENT (Item @ Cost/Hour X # of Hours X #Fiscal Years = Cost/Item): Note: Purchases require written justification that demonstrates cost benefits over leasing or renting.	**COST / ITEM**
Conference room rental ($50/PER ROOM X 2 ROOMS X 25 DAYS)	$2,500
TOTAL EQUIPMENT PURCHASE, LEASE OR RENTAL COST	

MATERIALS AND SUPPLIES (Item @ Cost/Each X Quantity X #Fiscal Years = Cost/Item):	**COST / ITEM**
Printing costs	$2,000
TOTAL MATERIALS AND SUPPLY COST	$2,000

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X #Fiscal Years = Cost/Item):	**COST / ITEM**
Per Diem: 568 (Based on days and personnel listed above) days x $46 = $26,128	$ 26,128
Lodging: 568 days x $77 = $43,736	$ 43,736
Airline: Round-trip flights, variable costs	$ 12,000
Rental Cars: 15 vehicles + fuel	$ 25,000
GSA Vehicles: $6.000	$ 6,000
TOTAL TRAVEL COSTS	$112,864

CONTRACT COST (Labor or Equipment @ Cost/Hour X #Hours X #Fiscal Years = Cost/Item):	COST / ITEM
TOTAL CONTRACT COST	

SPECIFICATION COST SUMMARY

FISCAL YEAR	PLANNED INITIATION DATE (M/D/YYYY)	PLANNED COMPLETION DATE (M/D/YYYY)	WORK AGENT	UNITS	UNIT COST	PLANNED ACCOMPLI SHMENTS	PLANNED COST
FY11	07/10/2011	07/10/2012	FA	Plan	110,485	2	$234,558
						TOTAL	$469,116

Work Agent: CA=Coop Agreement, FA=Force Account, G=Grantee, P=Permittees, SC=Service Contract, TSP=Timber Sales Purchaser, V=Volunteer

SOURCE OF COST ESTIMATE

1.	**Estimate obtained from 2-3 independent contractual sources.**	
2.	**Documented cost figures from similar project work obtained from local agency sources.**	P
3.	**Estimate supported by cost guides from independent sources or other federal agencies**	
4.	**Estimates based upon government wage rates and material cost.**	M,T
5.	**No cost estimate required - cost charged to Fire Suppression Account**	

P = Personnel Services, **E** = Equipment **M** = Materials/Supplies, **T** = Travel, **C** = Contract, **F** = Suppression

III. RELEVANT DETAILS, MAPS AND DOCUMENTATION INCLUDED IN THIS REPORT:

List Relevant Documentation and Cross-Reference Location within the Accomplishment Report. See BAER Plans

TOTAL COST BY JURSIDICTION

TRIBAL JURISDICTION			UNITS TREATED	COST
Las Conchas			1	422,204
Pacheco			1	46,912
TOTAL COST				$469,116

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

APPENDIX I RESOURCE ASSESSMENTS

- **VEGETATION / FORESTRY ASSESSMENT**
- **WATERSHED & SOILS RESOURCE ASSESSMENT**
- **WILDLIFE ASSESSMENT**
- **CULTURAL RESOURCE ASSESSMENT**

BURNED AREA EMERGENCY STABILIZATION PLAN

Las Conchas Fire

VEGETATION & FORESTRY RESOURCES ASSESSMENT

I. OBJECTIVES

- Identify and mitigate short-term tree hazards
- Determine emergency stabilization and monitoring needs supported by specifications to aid in vegetative recovery and soil stabilization efforts
- Evaluate the potential for non-native invasive plant species encroachment into native plant communities and sensitive plant species habitat within the fire area and determine stabilization and monitoring needs to mitigate encroachment
- To provide other management considerations for vegetation and forest resource recovery within the fire area

II. ISSUES

- Soil stability and impacts to vegetation recovery
- Re-establishment of forest cover within timber, woodland, riparian and grasslands
- Tree hazards in areas that cannot be closed
- Noxious weed and non-native invasive species encroachment onto impacted lands
- Livestock impacts to vegetative recovery and economic impacts to ranchers from livestock closure
- Fire impacts to culturally sensitive plant species
- Potential reforestation in plantation areas

III. OBSERVATIONS

This report addresses known and potential effects of the fire, suppression activities and proposed stabilization treatments to vegetation communities and forest resources on lands held in trust by the U.S. Government, Bureau of Indian Affairs, for the Pueblos of Santa Clara, Jemez, and Santo Domingo as a result of the Las Conchas Fire. It specifically addresses issues presented by Tribal and Agency resource staff and provides recommendations for emergency treatment. This plan may be cited as a justification document to seek outside funding from other sources for recommended treatments not covered by Emergency Stabilization (ES) funds. Additional supplemental requests may be made after this document has been reviewed and approved. Burned area emergency stabilization and rehabilitation policy and procedures are discussed on page 107 of the Santa Clara Pueblo Forest and Woodlands Resources Management Plan. A separate BAER assessment is being prepared by the South Las Conchas BAER Team to address fire effects to the U.S. Forest Service and National Park Service lands within the Las Conchas Fire perimeter.

Findings and recommendations contained in this assessment are based upon information obtained from literature reviews, field reconnaissance of the fire area, Geographic Information

System (GIS) analyses, personal interviews and meetings with various Tribal and BIA natural resource managers and other BAER Team members.

A. Background

Detailed discussion of fire cause, start locations and times, behavior, and suppression actions is provided in the Executive Summary, incident action plans, and Incident Command Team Narratives. The fire burned over the majority of the timberlands of Santa Clara Canyon to the west of the area affected by the 2000 Cerro Grande Fire and re-burned parts of the area burned in Cerro Grande. As of the date of this plan preparation, the fire has not been declared contained and continues to burn north of the Santa Clara Pueblo Reservation and to the south onto the Canada de Cochiti tract of the Jemez Pueblo.

As of July 18, 2011, the fire was still uncontrolled (65% contained), therefore acreages may increase. Monsoon season in the southwestern U.S. has begun and heavy rainfall has occurred over portions of the fire resulting in sediment and debris flows in some drainages.

Other Reservations impacted or potentially impacted but were not burned are the Pueblos of San Ildefonso and Ohkay Oweengeh. These reservations are downstream from drainages impacted by the fire. There are no vegetation and forestry issues and they will not be addressed further in this assessment.

Table 1. Burned areas within the Las Conchas Fire by ownership, as of July 13, 2011

Ownership	Acres Burned
Santa Clara	16,587
Jemez	2,238
Santo Domingo	4
USFS	76,634
NPS	20,810
Valles Caldera National Preserve	27,781
DOE, Los Alamos Natl. Lab	133
State	1,704
Private	3,352

1. Vegetation

The vegetation described here is from the GIS base layer of the Southwest regional gap analysis project, SWReGAP (Lowry 2005) program using 2001 Landsat data and a recent paper on the vegetation of north central New Mexico (Reif, et. al. 2009). Descriptions presented in the South Zone BAER Team Vegetation Assessment by Brain Jacobs are also incorporated into this report. The BAER team Vegetation and GIS specialists combined the vegetation types from the SW GAP into the plant communities described in the paper by Reif, et. al. The Las Conchas Fire contains floristic elements from different floristic regions: Northern Chihuahuan Desert, Southern Rocky Mountains, Great Plains, and Colorado Plateau (New Mexico Native Plant Society website, accessed 07/21/2011). A vegetation map can be found in Appendix IV.

Classification is not the same as mapping. Classification is usually based on ground surveys and inventories that can involve data collection and documentation of the vegetation observed by the ground crews. Mapping is usually based on satellite imagery which interprets the reflectance of light that bounces off the earth's surface. Errors are evident such as the resolution or size of pixels that the viewer can see, plant communities ecotonal to another, variations in soils, low plant cover, communities that are small and scattered across the landscape, aspect, relief, one community in a layer above another, and other errors in interpretation. For example the montane shrubland could be mapped with Piñon-Juniper or ponderosa pine or other plant communities. The spatial arrangement of some riparian communities might be masked by the surrounding vegetation or terrain—only 6 acres within the burn area of the Santa Clara Pueblo was mapped

as montane riparian but this community was observed along most of Santa Clara Creek and Turkey Creek. The acreages given for the plant communities, therefore, should not be considered as the exact figures. Pueblo and BIA resource specialists will have expert knowledge of the plant communities described and their extent and placement on the landscape.

Listed below are descriptions of the vegetation strata, with common species located during the assessment, in and adjacent to Santa Clara, Jemez, and Santo Domingo Pueblo lands:

Piñon-Juniper: dominated by a piñon pine (*Pinus edulis*) and one-seed juniper (*Juniperus monosperma*) overstory with a grass/herb/shrub understory. Ponderosa pine (*Pinus ponderosa)* is occasional in this type. This community forms a discontinuous transitional belt and is located at the lowest elevational band within the burn (6,000 to 8,500 feet). Piñon-juniper woodlands represent the lowest elevation forest type. Fire maintains these woodlands between shrublands and desert grasslands (FEIS, 2011). Piñon forms closed woodlands at the upper elevational range, whereas juniper occurs in savanna-like communities at the lower elevational range and interface with grasslands. Alligator juniper (*J. deppaena*) can be found in the P-J communities of the Jemez and Santo Domingo Pueblos. Alligator juniper sprouts after fire. Shrub cover is variable and includes Gambel oak (*Quercus gambelii*, mountain mahogany (*Cercocarpus montanus*), snakeweed (*Gutierrezia sarothrae*), cliff rose (*Fallugia paradoxa*), and currant (*Ribes cereum*). Succulents (cactus) includes cane cholla (*Cylindropuntia imbricata*), and prickly pear (*O. polyacantha*). Common forbs include paintbrush, (*Castilleja integra*), pingue rubberweed (*Hymenoxys richardsonii*) and common grasses include Indian ricegrass (*Achnatherum hymenoides*), blue grama (*Bouteloua gracilis*), junegrass (*Koeleria macrantha*), and muttongrass (*Poa fendleriana*).

Ponderosa Pine: dominated by a ponderosa pine overstory with understories consisting of ponderosa pine or Douglas-fir (*Pseudotsuga menziesii*) and shrubs including Gambel oak and New Mexican locust (*Robinia neomexicana*) depending on stand density, habitat type, and recent fire history. At its upper limit, ponderosa pine and mixed conifer forests intergrade, while at its lower limit it merges into piñon-juniper woodland. However, ponderosa pine typically is the sole dominant conifer. Where trees are large and scattered the forests may be open and park-like, with a predominately grassy understory formed under pre-settlement fire conditions. Ponderosa pine and Douglas-fir are found on gentle slopes with deeper soils, while the steeper slopes and shallow stony soils are usually dominated by shrubs intermixed with sparse ponderosa pine. Early seral stages of this type are dominated by bunch grasses (squirreltail - *Elymus elymoides* var. *brevifolius*, Arizona fescue - *Festuca arizonica*, and junegrass), forbs (yarrow - *Achillea millefolium*, small-leaf pussytoes - *Antennaria parvifolia*, silvery lupine - *Lupinus argenteus*, and American vetch - *Vicia americana*).

Mixed Conifer: dominated by an evergreen, coniferous species overstory including white fir (*Abies concolor*), Douglas-fir and ponderosa pine intermixed with quaking aspen (*Populus tremuloides*). Southwestern white pine (*Pinus strobiformis*) is found on cooler sites and limber pine (*Pinus flexilis*) is found in dry, exposed areas. If aspen clones are present on the site, aspen stands will usually dominate the site for 80-100 years post disturbance. Common understory shrubs and subshrubs include common juniper, (*Juniperus communis*), little mock orange (*Philadelphus microphyllus*), and snowberry (*Symphoricarpos oreophilus*). Forbs include strawberry (*Fragaria vesca*), slender cinquefoil (*Potentilla gracilis*), prairie thermopsis (*Thermopsis rhombifolia*), and MacDougal's vervain (*Verbena macdougalii*). Graminoids include White Mountain sedge (*Carex geophila),* slender wheatgrass (*Elymus trachycaulus),* mountain muhly (*Muhlenbergia montana),* and bluejoint reedgrass (*Calamagrostis canadensis*).

Spruce/Fir: stands dominated by Engelmann spruce (*Picea engelmanii*), corkbark fir *(Abies lasiocarpa* var. *arizonica*), with white fir, Douglas-fir and limber pine at the lower elevations. These forests occur in subalpine habitats above 9,500 feet or on cooler and moister slopes at somewhat lower elevations. The shrub and herb layer can be quite sparse due to the closed canopy. Associated shrubs and subshrubs include kinnikinnick, (*Arctostaphylos uva-ursi*),

common juniper, and whortleberry (*Vaccinium myrtillus*). Early seral stages (including disturbed sites) of this type are usually dominated by bunch grasses, sedges, forbs, aspen, and Douglas-fir.

Aspen: dominated by aspen with an understory of grasses and forbs; considered a fire dependent seral stage which converts to mixed conifer in the absence of fire. Aspen stands can occur as pure stands or as scattered individuals in late succession or near climax stages in mixed conifer forest and lower subalpine spruce-fir forests. Forbs include *Campanula rotundifolia*, *Castilleja miniata, Geranium richardsonii*, and *Pseudostellaria jamesiana*. Grasses include muttongrass, Kentucky bluegrass (*Poa pratensis*), mountain brome (*Bromus carinatus*), and Arizona fescue (*Festuca arizonica*).

Montane Shrubland: distributed as ecotonal or scattered communities in mixed conifer, ponderosa pine and piñon-juniper woodlands. The diverse moisture regimes associated with these shrublands results in shrub species that are found in the above forest types. On the drier, lower elevation sites Gambel oak and Mexican locust dominate as pure stands and where past disturbances have occurred; the Wildlife and Vegetation BAER Specialists found this situation in the Cerro Grande and Oso burn areas. Other shrubs include *Ceanothus fendleri*, *Holodiscus dumosus*, common juniper, *Physocarpus monogynus*, currant, *R. inerme*, *Rubus parviflorus*, *Sambucus racemosa*, and *Symphoricarpos rotundifolius*.

Montane Meadow & Grassland: high elevation grasslands occurring as openings within mixed conifer and spruce-fir forests. his vegetation type occurs from about 8,500 feet to the highest summits. Upper-elevation montane meadows may be extensive and uninterrupted, whereas lower elevation wet meadow sites are often surround by dense coniferous forests. Some of the common grasses located in the Santa Clara Pueblo area include Parry's oatgrass, (*Danthonia parryi*), Idaho fescue (*Festuca idahoensis*), Thurber's fescue (*F. thurberi*), junegrass, mountain muhly, and muttongrass. Common forbs in this type include *Achillea millefolium, Campanula rotundifolia, Carex microptera, Erigeron flagellaris, Erysimum capitatum, Frasera speciosa, Heterotheca villosa, Hymenoxys richardsonii, H. hoopesii, Ipomopsis aggregata, Iris missouriensis, Lupinus argenteus, Orthocarpus luteus, Potentilla gracilis*, and *Thermopsis rhombifolia*. Generally, this vegetation type has experienced a high level of disturbance by grazing. Loss of natural fire disturbance due to grazing effects has promoted forest encroachment in many locations.

Montane Riparian: composed of various riparian species along intermittent and perennial streams in mixed conifer and spruce-fir forests. According to Jacobs (South Zone BAER Vegetation Assessment, 2011), obligate and facultative riparian species of trees and shrubs can be arranged along a descending gradient which include *Picea pungens, Salix bebbiana, Alnus incana, Acer glabrum, Cornus sericea, Populus angustifolia*, and *Acer negundo*. Additional facultative riparian trees and shrubs include *Populus tremuloides, Prunus virginiana, Quercus gambelii*, and *Robinia neomexicana*. Riparian systems in the ponderosa pine and P-J communities have floristic elements of the montane riparian communities, the floodplain-arroyo riparian community and marshlands that are too small to map. Forbs located in the Santa Clara drainage include *Aconitum columbianum, Cardamine cordifolia, Equisetum arvense, Geum macrophyllum, Mertensia fransiscana, Mimulus guttatus, Ranunculus aquatilis, Berula erecta, Veronica americana*, and species of *Epilobium* and *Potamogeton*.

Floodplain-Arroyo Riparian: xeric riparian ecosystems that occur at lower elevations. They have floristic components of the Floodplain-Plans riparian communities and the xeric riparian types. There are species unique to the xeric riparian communities but the condition of these communities is not clearly understood (New Mexico Game & Fish, 2006). Many have been altered by development and agricultural practices. Plants encountered in the floodplain-arroyo riparian community include Fremont cottonwood (*Populus fremontii*), coyote willow (*Salix exigua*), other cottonwoods and willows and the noxious pests' saltcedar (*Tamarix ramosissima*), Siberian elm (*Ulmus pumila*) and Russian olive (*Eleagnus angustifolia*). Intact communities have marshlands containing cattail (*Typha* spp.) and hardstem bulrush (*Scirpus acuta*), as well as other sedges and rushes (C*arex* spp., *Eleocharis* spp., *Juncus* spp., and *Scirpus* spp.) According to the NM Game and Fish report (2006) historically, floods caused multiple channels and

sandbars, washed away stands of trees, and created wetlands resulting in heterogeneous patchworks of vegetation communities and age classes.

Plains Desert Grassland: consists of floristic elements of the Plains grasslands and the Northern Chihuahuan Desert grasslands. Species include Rubber rabbitbrush (*Ericameria* spp), snakeweed, cane cholla, desert mallow (*Sphaeralcea coccinea*), fringed sagewort (*Artemisia frigida*), yucca (*Yucca glauca*), blue grama (*Bouteloua gracilis*), sideots grama (B. curtipendula), little bluestem (*Schizachyrium scoparium*), and alkali sacaton (*Sporobolus airoides*).

Rock Outcrops/cliffs: rock outcrops and other barren areas that are either devoid of vegetation or contain floristic elements of the dominant surrounding plant community. Fuel driven fires do impact some of these communities as fires move up from canyon floors to the top of these cliffs or mesas, impacting vegetation, especially trees.

Recently burned areas: includes the Dome Fire (1996) Oso Complex (1998) and Cerro Grande (2000). The Las Conchas burned into the Cerro Grande Fire area and partly in both the Dome and Oso.

Table 2. Acres of vegetation type by ownership as of July 13, 2011[1]

Veg Type	Santa Clara Pueblo	Jemez Pueblo	Santo Domingo	Santa Fe NF	Bandelier NM	Valles Caldera	LANL
Spruce-Fir	1,703	0	0	1,258	5	904	0
Mixed Conifer	8,851	220	0	24,256	3,486	12,784	0
Ponderosa Pine	2,358	1,672	1	27,957	5,112	4,646	57
Pinyon Juniper Woodlands	136	322	3	5,732	8,222	0	13
Aspen Seral Forest	479	0	0	3,143	285	2,513	0
Montane Shrubland	42	5	0	1,308	675	67	7
Montane Meadow and Grassland	313	0	0	743	537	6,868	2
Montane Riparian	6	0	0	16	1	2	0
Floodplain-Arroyo Riparian	14	6	0	502	132	20	0
Plains Desert Grassland	1	0	0	106	1,370	0	15
Rock Outcrops/cliffs	702	14	0	1,595	244	32	<1
Recently Burned[2]	1,983	0	0	10,009	721	0	2
Other[3]	0	0	0	8	19	0	37

[1] Other acres not recorded here include unclassified or private lands
[2] Areas burned in the Cerro Grande and/or Oso Fires
[3] Includes Desert Shrubland, developed, roadside, and agriculture

2. Noxious Weeds/Non-native Invasive Species

Weeds are opportunistic species that respond well to disturbance. Fires present opportunities for weed dispersal and establishment. Disturbances caused by fire suppression activities can also cause weed seeds to germinate, spreading weeds to newly disturbed areas and increase the area of existing infestations.

Noxious weeds and non-native invasive species are a concern for biodiversity. Weed invasion is a potentially threatening process leading to competition and habitat modification. Plant communities and native species likely to be at greatest risk from weed invasion are those which occupy weed-prone habitats, such as riparian zones, rangelands with naturally low vegetation cover, and disturbed areas adjacent to and near existing weed infestations.

The New Mexico Department of Agriculture (NMDA) is mandated to develop a noxious weed list for the state, identify methods of control for designated species, and educate the public about noxious weeds. The NMDA coordinates weed management among local, state, and federal land managers as well as private land owners (NMDA website, accessed July 2011). The NMDA has developed a noxious weed list, updated in 2009, that lists invasive plants of concern that are targeted for control or eradication pursuant to the Noxious Weed Management Act of 1998.

According to Santa Clara Pueblo and Bandelier NP staff, noxious weeds that have been documented in or near the burn area include the following:
Russian knapweed - *Acroptilon repens*, musk thistle - *Carduus nutans*, Canada thistle - *Cirsium arvense*, bull thistle - *C. vulgare*, Dalmatian toadflax - *Linaria dalmatica*, yellow toadflax - *Linaria vulgaris*, jointed goatgrass - *Aegilops cylindrica*, cheatgrass - *Bromus tectorum*, Japanese brome - *B. japonicus*, smooth brome - *B. inermis*, Russian olive - *Elaeagnus angustifolia*, Siberean elm - *Ulmus pumila*, and saltcedar - *Tamarix spp.*

All the above species are on the NMDA list except smooth and Japanese brome. These are of local concern for the Bandelier National park and Santa Fe National Forest.

3. Threatened and Endangered/Rare Plants

As stated in the Wildlife Assessment the Fish and Wildlife Service (FWS) Albuquerque Field Office has jurisdiction over the listed species within the area of the fires. Identification of known listed species occurrences and critical habitat is crucial to accurately assess fire effects. The Santa Fe National Forest maintains extensive GIS databases on listed species occurrence locations and critical habitat layers for areas included within the fire perimeter. A list was requested from the FWS for occurrences of plant species in the burn area. No listed plants are known to exist within the fire perimeter.

Plants that are on the New Mexico rare plant list include *Abronia bigelovii, Astragalus cyaneus, Astragalus iodopetalus, Astragalus micromerius, Astragalus ripleyi, Cymopterus sessiliflorus, Eriogonum lachnogynum* var. *colobum, Hackelia hirsute, Lilium philadelphicum, Lorandersonia microcephala, Mentzelia conspicua, Mentzelia springeri, Muhlenbergia arsenei, Salix arizonica,* and *Spiranthes romanzoffiana*. Source of the list is the New Mexico Rare Plant Technical Council (2011). Rare plants can be either impacted or benefited from wildfire. Most of the impacts, according to Brian Jacobs (South Zone BAER Team Assessment, 2011), would come from fire suppression activities, flooding (debris flows have already occurred in the Santa Clara Canyon from a storm on July 14, 2011), or consumption of the overstory canopy, and invasion by noxious weeds. Very few surveys for rare plants have been conducted on tribal lands. No known rare plant species occur in the burn area.

4. Tree Damage and Mortality

Post-fire mortality can continue for several years through a variety of influencing factors including the time of year of the fire occurrence, tree health and vigor, site quality, extent of cambium and crown damage, post-fire stand density/competition, post-fire climactic conditions, and incidence of insect/disease infestations. The following guidelines were derived from research by Wagener (1961), and sources found in the Fire Effects Information System (FEIS).

Season: Conifers are most susceptible to fire damage early in the growing season because retention of sufficient green foliage is necessary to carry the tree through the remainder of the growing season and provide some food reserves for the following year. Because the fire occurred just as buds were beginning to elongate, even moderate levels of crown scorch can be expected to have serious effects on tree vigor and mortality levels. Fires that occur after bud set have much less impact on tree survival.

Tree Vigor/Site Quality: Younger, more vigorous trees on good sites have a better chance of survival than over mature trees on poor sites.

Crown Damage: The amount of live crown remaining, as distinguished from green foliage, is the most important single factor in survival of fire-scorched ponderosa pine. Green needle bases indicate that the surrounding parts of the crown are still alive; conversely, darkened needles and needles "frozen" in position in the direction of fire-run are unmistakable indicators the surrounding crown is dead. The minimum green foliage requirement for vigorous ponderosa pine survival of an early season (before July 1) burn is estimated to be 35 percent of the pre-fire crown. In species with slender twigs and small terminal buds, as in Douglas fir, foliage kill and bud and twig kill are approximately the same as that which will be present in succeeding years. The minimum post-fire survival criteria for moderately vigorous trees, those growing on a poor site, or following a mid season (July) fire, is 40-45 percent of the pre-fire crown.

Cambium Damage: Based on preliminary results, Ryan (1990) has reported that, in the absence of significant crown injury, most trees survive up to 25 percent basal girdling, whereas few survive more than 75 percent.

Post-Fire Stand Density and Competing Plants: Potter and Foxx (1979) reported decreased recovery as stand density increased above 130 trees per acre. Another contributing factor cited for poor recovery was competition from seeded grass.

5. Culturally significant plants

The Land and Cultural representative from the Santa Clara Pueblo expressed a concern for culturally significant plants. Tribal members collect a number of plants that are within the perimeter of the Las Conchas Fire. The concern is loss of habitat, damage to collection sites, and direct fire impacts to culturally significant plants. Fire may or may not suppress the regeneration of these plants. A partial list follows:

Douglas fir – *Pseudotsuga menziesii*
Ponderosa pine – *Pinus ponderosa*
Piñon pine – *Pinus edulis*
White fir – *Abies concolor*
Gambel oak - *Q. gambelii*
Wavyleaf oak - *Q. undulata* (*Quercus* ×*pauciloba*)
Yucca – narrow leaf *Yucca glauca*,
Broadleaf yucca - *Y. baccata*
Clematis *Clematis* sp,
White gilia - *Ipomopsis aggregata* (white/albino version of scarlet gilia)
Cliff rose – *Purshia mexicana* var. *stansburiana*
Osha - *Ligusticum porteris*
Bearberry, kinnikinnick - *Arctostaphylos uva-ursi*

Strawberry – *Fragaria* spp
Goose berry - *Ribes* spp., including *R. pinetorum*
Currant – *Ribes cereum, R. wolfii*
Choke Cherry – *Prunus virginiana*
Yarrow – *Achillea millefolium*
Mints*:* *Mentha* spp
Agastache spp
Stachys spp
Horsemint – *Mentha longifolia*
Witch grass – *Panicum capillare*
Broom grass – *Andropogon glomeratus*
Columbine – *Aquilegia coerulea*
Service berry – *S. oreophilus*
Fourwing saltbush – *Atriplex canescens*
Mountain mahogany – *Cercocarpus montanus*
Fendler bush – *Fendlera* spp.

6. Livestock Grazing

There are three grazing allotments directly impacted by the Las Conchas Fire in the Santa Clara Pueblo. They are Puye (Unit #10, Upper Canyon (Unit #17), and P'opii Khanu (Unit #18). The P'opii Khanu allotment is in the upper watershed, above Pond 4; the allotment experienced less burn severity and vegetation top kill than the rest of the allotment, although aspen stands burned quite hot (Moderate-High to High vegetation top kill). Upper Canyon is in the main canyon of Santa Clara Creek. This area burned the hottest, having High burn severity and Moderate-High to High vegetation top kill. Puye Allotment is on the mesa above and to the south of Santa Clara Creek; part of this allotment is in the Cerro Grande Fire area.

The concern by Tribal members who graze livestock is noxious weed invasion, burned fences, and any exclusion of livestock from the burned area.

B. RECONNAISSANCE METHODOLOGY & RESULTS

1. Vegetation

Field reconnaissance consisted of on-site inspection of fire impacted plant communities and forested roadways/corridors on tribal trust lands, and areas downstream of fire perimeters that could potentially be impacted by sediment and debris flows. Field reconnaissance was conducted July 7 through July 18, 2011 and again on July 21. In addition, two aerial reconnaissance flights were conducted from helicopters in order to assess inaccessible areas and gain a landscape level perspective on fire effects. Each plant association type was inspected to determine vegetative losses, requirements for stabilization efforts, recovery potentials, and long-term rehabilitation needs. Reconnaissance included the analysis of plant associations impacted by the Cerro Grande Fire area. Observations were made of fire impacts to duff layers, live crown tissue on grass and shrub species, and on impacts of the fire to existing seed banks.

A literature review was conducted to obtain baselines data on soils, hydrologic processes, plant communities, noxious weeds/non-native invasive species, and the importance of vegetative species. Many well-written documents exist that detail historic and present day vegetation descriptions. Excerpts from these documents have been included to provide the reader with a better understanding of vegetative community structure and provide insight into the fragility and fire ecology of these watersheds. Information used in this assessment was also generated from GIS databases and discussion with species experts and natural resource managers from the local Pueblos, BIA, USFS, NPS, and consulting biologists.

2. Tree Hazards

Santa Clara Reservation

The main Santa Clara Canyon road was identified by the Tribe for tree hazard mitigation due to its importance to be kept open. Short-term tree hazards (likely to fail within one year) were identified using the National Park Service Tree Hazard Rating System (see Appendix V). These are trees that have died in the fire or will die shortly due to the needles or leaves being burned, reducing the live crown ratio (LCR) to an unacceptably low percentage (<20%), the killing of the cambial layer of the tree due to intense heating in the duff and litter layer at the base of the tree or become structurally weakened due to a portion of the bole of the tree or roots having been burned. While not posing an immediate threat to fire crews and the public, they will rot quickly and be likely to fail within a year or two.

The rating system identifies hazard based primarily on lean, root or bole damage, and stem decay. Although trees were not individually rated for this assignment, each tree must have a target (potential to cause property damage or physical injury). In Santa Clara Canyon, there were numerous cabins and recreational sites where people congregate, as well as the main road which receives a high volume of traffic. Those trees with a rating of 5 or greater were designated with blue paint. Imminent hazards were flagged with orange "Danger" flagging and felled by fallers during the suppression effort. The Tribe recommended that identified imminent tree hazards be felled as soon as possible, and this was done by suppression personnel.

Several secondary roads and culturally significant trails were identified as areas that should be evaluated for tree hazard potential. Due to time constraints, these roads and trails were not surveyed for tree hazards on this incident. An Individual Treatment Specification was prepared that will provide funding for the Santa Clara Pueblo tribe to complete the assessment.

Jemez Reservation

The fire burned 4,771 acres on the Jemez Reservation, much of it due to a burn-out that was conducted on July 15, 2011 to assist in containing the fire. The burn was primarily a low-intensity fire that provided a control line for firefighters trying to hold the fire within the containment line that had been established. The primary tree hazards along the main road were felled by a hotshot crew during the suppression effort. The Jemez tribe requested that all the roads through the fire area be surveyed for short-term hazard trees that could rot and fail within the next year. An Individual Treatment Specification was prepared that will provide funding for the Jemez Pueblo tribe to complete the assessment.

3. Vegetation Mortality

The degree of fire-related top kill or mortality was determined by utilizing color infrared digital imagery Burned Area Reflectance Classification (BARC) of the July 5, 2011 SPOT image. The flowing steps were done to develop the draft top kill/mortality map:

(1) Reclass all values less than zero to zero the great majority of these values represented mask areas.
(2) Assign color values for values 1-1395. The initial breakdown was 1-349 (green), 350-698 (blue), 699-1043 (yellow) and 1044-1395 (red). This color ramp was examined comparing it to photography taken on the 7/8/11 helicopter reconnaissance flight.
(3) Colors were adjusted up or down to best represent mortality.
(4) Final values were; 1-549 (green), 550-625 (blue), 626-824 (yellow) and 825-1395 (red).

All areas within the fire perimeter were classified into four categories of severity. These were: Low, where there was between 0 to 25% top kill or mortality; Moderate Low between 26 to 50% top kill or mortality; Moderate High where there was between 51% to 75% top kill or mortality; and High where there was greater than 76% top kill or mortality.

Tribal foresters and BAER vegetation specialists then ground-truthed the data and provided corrections, mainly in the lower, eastern portions of the burned area previously affected by the Cerro Grande Fire. These were incorporated via GIS and a final map produced.

The top kill/mortality map was created solely for the Santa Clara, Jemez, and Santo Domingo Pueblos. The map for the southern Pueblos was created on July 13 so it does not have the total acreage of the fire represented. Resulting values outside the reservation boundary were not ground-truthed.

4. Potential Salvage

The approved Santa Clara Pueblo Forest and Woodland Resources Management Plan (2005) identifies 21,440 acres of commercial timberlands and 11,562 acres of commercial woodlands. There are no inaccessible or reserved timberlands identified in the plan. The potential exists to prepare a salvage sale(s) to utilize the timber killed by the fire, however a detailed assessment of the potential volume, preparation and implementation of the timber sale cannot be funded with ES or BAR funding and therefore is not addressed in this assessment. However a mortality map has been prepared which will help identify potential salvage areas.

5. Reforestation

Reforestation using ES funding is prohibited. Reforestation using BAR funding on Tribal lands is permissible providing: (1) the use of BAR funding for reforestation is addressed in an approved management plan; and (2) a certified silviculturist has determined that the areas to be reforested will not regenerate to adequate stocking within 10 years.

C. FINDINGS

1. Vegetation

For the purposes of this assessment, the classifications of vegetation top kill or mortality do not imply long-term vegetation mortality or recovery potential. Resprouting and releafing from epicormic plant parts or root crowns will occur based on specific plant physiological characteristics, degree of injury, climatic conditions, and the presence of other damaging agents. Vegetation top kill classification parameters include degree of consumption of herbaceous, shrub, and forest/woodland vegetation communities, and effects of the fire on the regeneration potential of the affected vegetation species.

Representative characteristics of the vegetation top kill/mortality classes in the Las Conchas Fire area are described in Table 3.

Table 3. Vegetation Top kill/Mortality Classes for the Las Conchas Fire

Vegetation Mortality	Characteristics
Unburned to Very Low	Unburned areas and areas of very low vegetation mortality. Trees and shrubs are slightly scorched; canopies are intact. Upper leaves of grasses singed to burned.
Low to Moderate	Tree and shrub canopy may be scorched or partially consumed; grasses are consumed above the root crown. Unburned patches between shrubs and trees. Grasses may be burned down to base of leaves/top of root crown.
Moderate to High	Tree and shrub canopy mostly consumed, with branches and shrub

Vegetation Mortality	Characteristics
	staubs or stems left. Leaves of trees and shrubs mostly gone, with branches remaining. Unburned patches between shrubs are smaller but still present. Grass root crowns burned to ground level; still green/living tissue at base and below soil surface.
High	Canopies of trees and shrubs eliminated. Boles and bark of trees heavily scorched. Remains of fully consumed trees on ground. Grass root crowns burned to below surface, most burned through.

On soils that did not experience long residency time from the fire, seeds below the surface should grow providing climatic conditions are favorable through the spring of 2012. During field assessments with the Wildlife Specialists the Vegetation Specialist noted that perennial grass and forb root crowns were still intact even where vegetation top-kill was rated as moderate-high. Vegetation recovery should occur naturally on most of the shrubs, forbs and graminoids throughout Pueblo lands within the Las Conchas Fire.

Most of the shrub species recover from epicormic roots or adventitious buds—sprouting from underground roots or buds, although reproduction from seed also occurs. Shrub species growing at the lower elevations of the burn area (arid regions) are usually not adapted to moderate to high fire intensities or short fire return intervals. However, the vegetation at the lower elevations of ponderosa pine and lower had low to moderate-low vegetation top kill ratings.

Table 4 indicates total acreage of vegetation top kill, by class for each Pueblo and Table 5 indicates acreage of mortality class by vegetation type, as of July 13, 2011.

Table 4. Top Kill/Mortality Class Acreage for Tribal Lands in the Las Conchas Fire

Pueblo	Low (0-25%)	Moderate Low (26-50%)	Moderate High (51-75%	High (>75%)	Totals
Santa Clara Pueblo	3494	2594	5108	5391	16,587
Jemez Pueblo	2226	10	2	0	2,238
Santo Domingo Pueblo	4	0	0	0	4
Totals	5,724	2,604	5,110	5,391	18,829

Table 5. Acres of Vegetation Type by Mortality, on Tribal Lands in the Las Conchas Fire

Veg Type	Low	Moderate Low	Moderate High	High	Total
Spruce-Fir	439	208	526	530	1,703
Mixed Conifer	1,429	662	2,746	4,233	9,070
Ponderosa Pine	2,382	618	834	196	4,030

Veg Type	Low	Moderate Low	Moderate High	High	Total
Pinyon Juniper Woodlands	327	35	93	5	460
Aspen Seral Forest	70	30	142	236	478
Montane Shrubland	11	2	21	12	46
Montane Meadow and Grassland	165	43	67	39	314
Montane Riparian	<1	<1	4	2	6
Floodplain-Arroyo Riparian	9	1	7	2	19
Plains Desert Grassland	<1	1	0	0	1
Rock Outcrops/cliffs	330	119	252	95	796
Recently Burned	562	884	496	41	1,983
Other	NA	NA	NA	NA	37

The ponderosa pine and P-J communities had mostly low to moderate-low vegetation top kill/mortality—field assessments confirmed that islands of burned vegetation were adjacent to moderate-high and high top kill stands. Approximately 59% of ponderosa pine communities had a Low rating; P-J had 71% at Low; 53% of the montane meadow and grassland had Low. The spruce-fir vegetation types had vegetation top kill ratings relatively the same from Low to High. Approximately 16% of the mixed conifer had Low top kill, 8% was at Moderate-Low, 30% has a Moderate-High rating, and 47% was rated as having High top kill. Mapping and ground truthing shows that approximately 79% of the aspen communities were at Moderate-High to High. The Montane shrublands had about 72% Moderate-High to High vegetation top kill.

The vegetation top kill/mortality ratings were generally lower on the Jemez Pueblo than for Santa Clara for the same vegetation type. Recovery on the Jemez Pueblo should take 1 to 5 years. See Table 6 for vegetation top kill by vegetation type by Pueblo.

Table 6. Vegetation top kill/Mortality, by vegetation Type by Pueblo

Veg Type by Pueblo	Low	Moderate Low	Moderate High	High	Total
Spruce-Fir					
Santa Clara	439	208	526	530	1,703
Mixed Conifer					
Jemez	216	3	1	0	220
Santa Clara	1,213	660	2,745	4,233	8,851
Ponderosa Pine					
Jemez	1,665	7	<1	0	1,672
Santa Clara	716	611	834	196	2,357

Veg Type by Pueblo	Low	Moderate Low	Moderate High	High	Total
Santo Domingo	1	0	0	0	1
Pinyon Juniper Woodlands Jemez	321	1	0	0	322
Santa Clara	3	35	93	5	136
Santo Domingo	3	0	0	0	3
Aspen Seral Forest Santa Clara	70	30	142	236	478
Montane Shrubland Jemez	4	0	0	0	4
Santa Clara	6	2	21	12	42
Montane Meadow and Grassland Santa Clara	165	43	67	39	314
Montane Riparian Santa Clara	<1	<1	4	2	6
Floodplain-Arroyo Riparian Jemez	5	0	0	0	5
Santa Clara	4	1	7	2	14
Plains Desert Grassland Santa Clara	<1	1	0	0	1
Rock Outcrops/cliffs Jemez	14	<1	0	0	14
Santa Clara	316	119	252	95	796
Recently Burned Santa Clara	562	884	496	41	1,983

As mentioned above, the acreage of montane riparian probably is more than what was mapped in GIS. This is a very important plant community for wildlife, water quality, and biodiversity. Much of the riparian corridor did not burn but is surrounded by Moderate-High to High top kill mixed conifer and spruce-fir. The understory species—shrubs, forbs, and graminoids—will sprout or regrow within 1-3 years. However, the steep slopes in Santa Clara Canyon that had high soil burn severity are at risk of erosion and releasing debris flows. The vegetation on these sites will be impacted by active erosion and take longer to reestablish.

It is expected that vegetation recovery should take place within 2-3 years with the following exception: Spruce-fir and mixed conifer that did not have aspen or a substantial shrub and graminoid understory that experienced Moderate-High to High vegetation top kill with high soil burn severity. This finding is based on interpreting the GIS layers—vegetation top kill overlayed with plant communities—a literature search of fire effects and fire ecology of the common species within the burn areas of the Santa Clara Pueblo, and the Vegetation Assessment report from Brian Jacobs, Botanist, of the South Zone BAER Team. Jacobs suggests that the natural vegetative/watershed recovery trajectory is about 2-3 years in the area of the Las Conchas Fire. And this is regardless of whether or not the area is seeded. The area in the middle of Santa Clara Canyon that experienced High and Moderate soil burn severity on steep slopes (>40%) will take longer to recover. See Table 7 for fire effects and response to some selected species found in the burn area. Much of the information is from the FEIS website (2011).

Table 7. Fire ecology/Response to Common Species

Species	Fire Ecology/Susceptibility to Damage	Fire Effects/Response
Piñon pine *Pinus edulis*	Killed by fire. Saplings easily killed by fire; heavy fuels around tress results in total kill. High intensity fire kill seeds in soil.	Reproduces/colonization solely by seed. Recovery ensured with low severity burns (15-20 years in NM). Strategy: Secondary colonizer (on-site or off-site seed sources); Low severity burns—1 to 25 years to recover.
Ponderosa pine *Pinus ponderosa*	Resistant to fire. Adaptations to survive surface fires include open crowns; self-pruning branches; thick, insulative, relatively unflammable bark; thick bud scales; tight needle bunches that enclose and protect meristems.	Can survive to 90% scorching with 50% bud survivability. Strategy: Crown residual colonizer (on-site, initial community). Initial off-site colonizer (off-site, initial community). Secondary colonizer - off-site seed.
Douglas fir *Pseudotsuga menziesii*	Saplings susceptible to fire due to thin bark. Fire resistant bark develops in 40 years. Survival from increases with tree size. More fire resistant than spruce or fir.	Fire damaged trees susceptible to insect damage. Initial off-site colonizer (off-site, initial community) Secondary colonizer (on-site or off-site seed sources)
Rocky Mtn maple *Acer glabrum*	Fire dependent, declines with fire exclusion. M-H to H top kill (M to H severity) will delay regeneration.	Sprouts form deep root crowns. Strategy: Tall shrub, adventitious bud/root crown Initial off-site colonizer (off-site, initial community) Secondary colonizer (on-site or off-site seed sources)
Red-osier dogwood *Cornus sericea*	A semi-fire-tolerant, seed-banking species. Regrowth delayed with high top kill.	Sprouts from roots, stolons or base of aerial stems. Strategy: survivor species; on-site surviving roots ground-stored residual colonizer; fire-activated seed on-site in soil.
Kinnikinnick *Arctostaphylos uva-ursi*.	Sprouting species adapted to short fire cycles with low intensities. Considered incapable from regenerating from roots but might be capable of regeneration from the roots under some circumstances. Kinnikinnick may be a seedbanking species with fire resistant seed.	Strategy: adventitious-bud root crown. Ground residual colonizer (on-site, initial community). Initial-offsite colonizer (off-site, initial community). Secondary colonizer - off-site seed

Species	Fire Ecology/Susceptibility to Damage	Fire Effects/Response
Mountain snowberry *Symphoricarpos oreophilus*	Top killed by moderate to high intensity fires.	Initial-offsite colonizer (off-site, initial community) Strategy: sprouts from basal buds at the root crown following fire. Recovers in 15 yrs after severe fire
Cliff rose *Purshia mexicana* var. *stansburiana*	Arid desert environments with long fire intervals (30-70 years) so the plant may not survive fire. In lower elevations of montane shrub and in ponderosa pine type, plant probably survives with low intensity fires. Weak sprouter killed by fire.	Strategy: data lacking; colonizer, it probably establishes from wind- and animal-dispersed seed on fire-disturbed seedbeds.
Narrowleaf yucca *Yucca glauca*	Resistant to fire. Sprouts from caudex and rhizomes; top kill stimulates sprouting	Strategy: Rhizomatous shrub, rhizome in soil Secondary colonizer (on-site or off-site seed sources) Caudex/herbaceous root crown, growing points in soil
False tarragon *Artemisia dracunculus*.	Literature lacking. Top killed by fire. High intensity fire probably kills seeds.	Sprouts from rhizomes. Seeds apparently viable with lower severity fires. Geophyte, growing points deep in soil
Yarrow *Achillea millefolium*	Not highly flammable. Top killed. Roots/rhizomes fire resistant.	Burning stimulates growth from rhizomes. Strategy: Rhizomatous herb, rhizome in soil Initial-offsite colonizer (off-site, initial community).
Idaho fescue *Festuca idahoensis*	Top killed; survives low severity fires, damaged by moderate to high severity, long residence time can kill root crown. Fire effects vary with condition of plant, season & severity of burn, & ecological conditions.	Tussock graminoid-bunchgrass; 2° on site colonizer; seed, tillering. 3-12/ FRI varies with community it is associated with.
Blue grama *Bouteloua gracilis*	Top killed by fire. Variable tolerance but can be damaged if burned during active growth, especially during drought.	On-site rhizomes survive fire. Seed stalk production increased with fire. Production decreased for first few years.

2. Noxious Weeds/Non-native Invasive Species

An issue that was brought out early in the BAER Teams' assessment activities was the increase of a sub-shrub, false tarragon, (*Artemisia dracunculus*). It is found throughout the Cerro Grande Fire area. Santa Clara Pueblo specialists surmised it might be a weed. This native species is widespread throughout western North America from Alaska to northern Mexico. Four years after a prescribed summer burn in western North Dakota, the frequency of tarragon was nearly 3 times

that found in an adjacent unburned area. It was speculated that the increase was due to a reduction in interference of other species following the fire and the species' ability to inhabit disturbed sandy soils and roadsides (Dix, 1960; FEIS, 2011). The mechanism for the increase of false tarragon in the Cerro Grande Fire area on the Santa Clara Pueblo is unknown. Based on the above citations, management activities—contour felling, planting activities, and livestock gazing—could be the cause for its increase.

Coordination was made with the Tribal Forester for information on vegetation resources and noxious weeds for the Santa Clara Pueblo. No known noxious and/or invasive weed species are currently mapped within the fire perimeter on Tribal lands. Noxious weeds were known to exist within the fire perimeter of the Santa Clara Pueblo but the locations were not on the GIS database. A search of the NMDA web database revealed no weed locations have been mapped on any of the Pueblos. The volume of fire traffic on reservation roads would suggest some weeds were transported onto Tribal lands; a wash station was in place at the Espanola Incident Command Post but it is unknown if a similar weed wash station was in place at the Cochiti ICP. These roads will need to be monitored to determine if any noxious weed invasions occur after the fire.

The BAER Team Vegetation Specialist located and mapped the following species: Musk thistle (*Carduus nutans*), spotted knapweed (*Centaurea stoebe* ssp*. micranthos*) and bull thistle (*Cirsium vulgare*). These occur in the burn area in Santa Clara Canyon. Russian thistle (*Acroptilon repens*) was located within the Cerro Grande Fire adjacent to the Las Conchas Fire along the Southside Repeater Road (at about 8,000 feet). Other noxious were located outside of the burn perimeter—tree of heaven (*Ailanthus altissima*) along Santa Clara Creek including an occurrence next to the Pueblo office; whitetop (*Cardaria draba*) located along the Santa Clara Road near the Valero gas station.

Following is Table 8 which shows habitats and response to fire of the weeds located in and near the Las Conchas Fire, Santa Clara area.

Table 8. Noxious Weeds in Burn Area – State Ranking and Fire Response

Species	NMDA ranking	Ecological Occurrence	Fire Response
Spotted knapweed *Centaurea stoebe ssp. micranthos*	A	Disturbed areas—roadsides, heavily grazed sites and streamsides; floodplains above riparian areas, semi-arid sites, moist gravelly soils and dry soils subjects to rain runoff.	Tolerates fire. Resprouts if root crown not killed. Seeds survive fire, except high severity, and persist. Low severity fire promotes germination by creating bare ground suitable for seed dispersal.
Musk thistle *Carduus nutans*	B	Pastures, rangelands, roadsides, disturbed areas. Thrives on sandy soils and adapted to a wide range of climatic conditions.	No specific information found on fire response. Plant is enhanced or suppressed by fire. Open areas created by fire is conducive for establishment.
Russian knapweed *Acroptilon repens*	B	Wide range of habitats; disturbed areas conducive for establishment. Semi-arid ecosystems of riparian areas and rangelands.	Fire effects literature lacking. Deep seated perennial root system thought to survive fire; probably sprouts from root buds. Seeds viable after fire

Species	NMDA ranking	Ecological Occurrence	Fire Response
Bull thistle *Cirsium vulgare*	C	Disturbed areas – roadsides, log landings. Riparian areas subjected to disturbance.	Produces abundant seed which survives up to 5 years in soil. Open soil and canopy promotes establishment.

3. Tree Hazards

Santa Clara Reservation

Approximately 477 short-term tree hazards of various size classes and species were identified and painted in Santa Clara Canyon. Table 4 lists the number of trees identified by diameter Class and potential targets within the fire area (e.g., roads and developed sites). Fallers mitigated a total of 94 trees during the suppression effort (Table 5). There are 383 trees remaining which need to be mitigated.(Table 6).

Due to time constraints, the BAER Foresters did not have time to visit the lower priority secondary road systems within the Santa Clara Pueblo Tribal lands. If hazard trees are identified in the course of the survey, an amendment to this plan must be prepared and submitted by the tribe to the national BIA BAER coordinator for review and approval in order to secure funding to mitigate identified tree hazards.

Table 9. Santa Clara Canyon Developed Sites/Road Tree Hazards Surveyed

Location	≤ 12" dbh	14-24" dbh	26-36" dbh	38-48" dbh	Totals
Developed Sites	40	54	6	1	101
Roads	87	209	71	9	376
Totals	127	263	77	10	477

Table 10. Santa Clara Canyon Developed Sites/Road Tree Hazards Mitigated

Location	≤ 12"	14-24"	26-36"	38-48"	Totals
Developed Sites	8	18	3	1	30
Roads	15	38	8	3	64
Totals	23	56	11	4	94

Table 11. Santa Clara Canyon Developed Sites/Road Surveyed Tree Hazards Remaining

Location	≤ 12" dbh	14-24" dbh	26-36" dbh	38-48" dbh	Totals
Developed Sites	32	36	3	0	71
Roads	72	171	63	6	312
Totals	104	207	66	6	383

Jemez Reservation

The two BAER Foresters visited the Jemez Reservation on July 21, 2011 to survey the roads through the fire area for tree hazard potential but, due to an impending storm, were unable to complete the survey. As previously, discussed, an Individual Treatment Specification was written to allow the tribe to survey the 7.3 miles of roads for hazard trees If hazard trees are identified in the course of the survey, an amendment to this plan must be prepared and submitted by the tribe to the national BIA BAER coordinator for review and approval in order to secure funding to mitigate identified tree hazards.

4. Forest Health

Fire-damaged pines are more susceptible to successful bark beetle attack for two or more years post-fire (Miller and Keen, 1960). Those trees with both heavy foliage scorching and moderate to severe cambium kill are especially vulnerable (Miller,1929; Salman, 1934). Bark beetle infestations are more likely to occur the same season following late spring or early summer fires than late summer or fall fires (Miller and Keen, 1960). Major insect "pests" associated with ponderosa pine in New Mexico are: western pine beetle (Dendroctonus brevicomis); roundheaded pine beetle (D. adjunctus); red turpentine beetle (D. valens); mountain pine beetle (D.ponderosae); and pine engraver beetles (Ips spp.). Of the above, western pine beetle is the most aggressive. Capable of three generations per year, the western pine has three "flights" of emerging adults--spring, summer, and fall.

With the current drought and impacts from the fire, it is likely that there will be a post-fire increase in insect-related tree mortality (primarily in ponderosa pine) due to bark beetles--red turpentine beetle, western pine beetle, and pine engraver beetles--during the first two years following the fire (Graves, pers com). Most at risk are cambial-damaged and/or crown-scorched trees. There is increased concern regarding a bark beetle outbreak (Haglund, pers com) due to high pre-fire stocking levels and experience following the Cerro Grande Fire. There is little expectation of increased tree mortality outside the fire perimeter.(Graves, pers com).

Removing successfully- attacked bark beetle-infested ponderosa pines may result in some reduction of additional tree mortality (Graves, pers com). Trees must be removed while still inhabited by beetles, however, and, care exercised in differentiating between red turpentine beetle and other bark beetle attacks. Red turpentine beetle attacks at the base of the tree, in absence of evidence of other insect species attacking higher up the bole, are not a valid indicator of tree mortality and should not be used as the sole basis for tree removal.

Anti-aggregant pheromones have been demonstrated to be efficient in protecting injured/uninjured trees, especially Douglas-fir. Stapling a pouch containing MCH (Methylcyclohexenone) to standing trees (approximately 30/acre at a cost of approximately $120/acre) has been shown to be efficacious elsewhere (Graves, pers com). Timing is critical in light of the fact that Douglas-fir beetle flights have already occurred, or are occurring, throughout most of New Mexico.

Protection of ponderosa pine is less straightforward, as there are at least two species of Dendroctonus and seven species of Ips which attack ponderosa pine in New Mexico. While there is no proven effective chemical repellent treatment, there is one treatment which may work. Verbenone pouches attached to individual trees (at cost of $9/pouch/tree) have been effective in some situations in various parts of the country (Graves, pers com).

Another alternative would be to apply one of two registered (for forestry use) insecticides--bifenthrin or carbaryl--which have shown efficacy in protecting ponderosa pine from bark beetles (Graves, pers com). These are applied as sprays to tree boles, require application by licensed applicator, and have some restrictions in proximity to water. Bifenthrin is effective for one year and carbaryl for two.

5. Reforestation (Santa Clara)

Included within the burned acreage were 3,405 acres of post-Oso Fire and post-Cerro Grande Fire plantations planted at density of 300 trees per acre which burned at variable intensities resulting in 0-100% mortality. There were approximately 412 acres which burned at Low intensity (estimated 25% mortality), resulting in loss of approximately 30,900 trees. There were approximately 1,266 acres which burned at Moderate intensity (estimated 50%) mortality, resulting in loss of approximately 189,900 trees. And, there were approximately 1,727 acres which burned at High intensity (estimated 100% mortality), resulting in loss of approximately 518,800 trees. Estimated total number of trees lost from plantations is 739,600, which represents approximately 72% of total planted in affected plantations since 2001.

Reforestation of post-Oso and post-Cerro Grande plantations, plus that of approximately 4,959 acres of forested High fire top kill/mortality, much of which requiring reforestation, will require replacement of infrastructure, equipment, and supplies lost in the fire, as well as major seed collection/procurement and seedling propagation efforts. Seedling storage facility (including irrigation system), seedling containers/baskets, protective fencing, and some nursery stock were damaged/destroyed by fire. While some suitable seed exists, it will be necessary to coordinate with Northern Pueblos Agency (BIA), Jicarilla Agency (BIA), Southern Ute (BIA), and possibly others to obtain/collect seed and propagate seedlings in order for planting to commence in spring 2012.

6. Cattle Impacts

There are livestock currently in the burn area. The drought has resulted in less reliable water and less forage production available for livestock. Native range plants were under environmental stress prior to the wildfire and the Las Conchas Fire has further reduced vigor and forage and capacity. Livestock will be drawn to the riparian areas because they are unburned to lightly burned and they will have the only green feed until at least next growing season. The montane grasslands in P'opii Khanu allotment experienced L to M-L vegetation top kill but many of the aspen stands burned hotter (M-H to H top kill). Aspens should resprout in most of the area and livestock will be drawn to the young shoots. There will also be increased grazing/browsing pressure from elk to aspen. The concern is that regenerating vegetation in the montane riparian, wetlands, aspens, and ponderosa pine types will be removed by grazing livestock before they can produce sufficient root mass to withstand trampling damage or resist being pulled out by grazing animals, or in the case of aspen, grow to a height that is unavailable to livestock and elk.
If monitoring shows that native range plants have recovered to the point of improved ecological condition, livestock could be allowed to graze in less than two growing seasons.

7. Suppression Impacts

A full accounting of all suppression activities in the Santa Clara Creek watershed has yet to be completed, as suppression efforts are continuing on the fire. As suppression actions are mapped and assessed, a more detailed description of their impact will be developed. Resource advisors on site should ensure that dozer and hand lines are properly repaired by suppression crews to

decrease erosion, slope instability, and noxious weed establishment. Several Retardant drops were identified on the upper slopes of the watershed. Remaining vegetation between the drops and the creek should buffer any chemical that is washed down resulting in negligible impacts to the creek. Any retardant drops that are identified near streams (within 200 feet) should be treated with cup trenches down slope of the chemical to catch any that runs-off.

8. Impacts of BAER Emergency Stabilization Treatments

Currently, no impact is expected from BAER emergency stabilization treatments that are being prescribed. No seeding is being proposed. Mulching has been proposed by the Watershed BAER Team group and the BAER Team Vegetation Specialist has coordinated with them on the type and source of mulch—the use of rice straw mulch or Certified weed free hay/straw is recommended. Rice straw will only contain aquatic weeds that will not survive in upland/terrestrial ecosystems. If rice straw is not available or not enough can be obtained to mulch the sites designated by the Watershed Specialists, only Certified Weed Free straw/mulch should be used. Any mulch should be tested/inspected prior to application. Impacts should be re-evaluated if new treatments are proposed in the future.

IV. RECOMMENDATIONS

A. Emergency Stabilization

SC-3 Invasive Species Assessment/Monitoring/Control
Within eight weeks of fire containment or after the monsoon season, assess burned areas at and adjacent to known locations of noxious weeds to determine if they have dispersed seed or plant propagules into the burn area. Utilize Integrated Pest Management (IPM) methods to control any new locations of weeds or non-native invasive species. Monitor areas impacted by fire suppression forces for noxious weeds. Monitor all roads used by suppression forces, drainages into Santa Clara Creek and Santa Clara Creek for presence of noxious weeds and non-native invasive species. Monitor the burn area through the 2012 field season for presence of weeds. If Tribal developed protocols for revegetation success is not met due to presence of non-native invasive species, prepare amendments to seek additional funding for control.

SC-25 Invasive Species Monitoring
Monitor those areas of the Las Conchas Fire in the Santa Clara Pueblo directly impacted by fire suppression forces—dozer lines and hand lines, drop points, Puye Spike Camp, safety zones, and all roads impacted by fire suppression vehicles and equipment. A total of 500 acres will be monitored.

SC-4 Livestock Closure and Compliance Monitoring
Close burned portions of grazing allotments for two (2) growing seasons to allow for natural vegetative recovery of burned forage species. Rest will allow native perennial grasses and forbs to develop vigorous roots and above ground leafy matter. Improved vigor of perennial grasses will allow them to compete with any noxious weeds and non-native invasive species. Rest will allow burned riparian plant species and aspens to regenerate from below ground roots and epicormic tissue. Aspens and riparian species, especially shrubs, that experienced high fire intensity and Moderate-High to High vegetation top kill. If monitoring shows that allotment fences have been destroyed and cannot keep livestock out of the burned portions of those allotments, the Santa Clara Pueblo will prepare a Burned Area Rehabilitation (BAR) to seek additional funding to rebuild and repair pasture and allotment fences.

SD-1 Invasive Species Monitoring
Monitor for presence of noxious weeds and non-native invasive species at areas impacted by fire suppression forces in the Santo Domingo Pueblo. Areas to monitor include dozer lines, roads utilized by suppression vehicles and equipment, burn areas impacted by suppression forces, and creeks and drainages that have a high potential to contain salt cedar, Russian olive, and Siberian

elm. If noxious weeds are located, request for additional funding through a Burned Area Rehabilitation (BAR) plan.

JE-2 Invasive Species Monitoring
Monitor for presence of noxious weeds and non-native invasive species at areas impacted by fire suppression forces in the Jemez Pueblo. Monitor area impacted by suppression forces—Bear Springs road and adjoining spur/4-wheel drive roads, and canyons that have a high potential for noxious weeds (salt cedar, Siberian elm, and Russian olive). If noxious weeds are located, request for additional funding through a Burned Area Rehabilitation (BAR) plan.

SC-2 Short-Term Tree Hazard Mitigation – Complete the mitigation of short-term tree hazards in Santa Clara Canyon within the area identified on the Treatment map and copies of survey field notes supplied to the Tribe.

SC-15 Short-Term Tree Hazard Surveillance - Complete the identification and marking of short-term tree hazards along secondary roads and other roads within the fire perimeter as identified on the Short-Term Tree Hazard Surveillance/Mitigation Map in Appendix IV.

JE-1 Short-Term Tree Hazard Surveillance
Complete the identification and marking of short-term tree hazards along secondary roads and other roads within the fire perimeter as identified on the Short-Term Tree Hazard Surveillance/Mitigation Map in Appendix IV.

B. Management Recommendation – Rehabilitation (Non-Specification)

Forest Health
USFS (R-3 Forest Health, Albuquerque) Entomologist Andy Graves (pers com) recommends removal of bark beetle infested trees, especially ponderosa pine, and protection of individual, high-value trees in culturally significant sites by pheromone repellents, unless insecticide treatment is an option. Possible funding sources include BAR, Forest Health Protection (FHP) prevention/suppression, Science Technology Development Program (STDP), and Forest Health Monitoring. The latter three are administered by USFS.

Long-term Tree Hazard
In the spring of 2012 and 2013, identify, mark and mitigate new tree hazards in Santa Clara Canyon. Many of these may have already been mitigated if the Tribe was able to proceed with a salvage timber sale. Funding for additional tree hazard removal is requested through a Burned Area Rehabilitation (BAR) plan.

Potential Salvage
It is recommended that the Santa Clara Tribe work with the Northern Pueblos Agency to assess the potential for a salvage timber sale. Due to the steepness of the terrain, inaccessibility, the necessity to salvage trees quickly to maximize value and to minimize impacts to soils, it is recommended that harvesting be conducted by helicopter. It is also recommended that those trees with less than 20% live crown at the time of salvage also be harvested in order to reduce the potential for bark beetle populations to increase. According to BAER direction, funding for the assessment, layout and implementation of the salvage sale can not be funded through ES or BAR.

CFI Plots
The Continuous Forest Inventory (CFI) is used by forest management to monitor forest volume, growth data, insect and disease problems, tree condition and other data. Trees are tagged and re-measured approximately every ten years. A cursory review of the fire area indicated 135 CFI plots are known to reside inside the Las Conchas Fire boundary. No plots were visited during the field recon, but they should all be evaluated for damage and re-established, if necessary. Plot re-establishment and re-tagging are eligible for BAR funding. Plot remeasurement may be eligible

for other funding, such as Forest Management Inventory and Planning (FMIP), subject to availability.

Reforestation
It is recommended that the Tribe, working with the Northern Pueblos Agency, identify potential reforestation areas, develop prescriptions to meet Tribal needs and to identify funding sources. The current approved Forest and Woodland management plan does not adequately discuss the use of BAR funding for the reforestation of lands deemed by a certified Silviculturist not able to regenerate naturally to adequate stocking levels within 10 years.

It will take multiple years to reforest the new burned areas in the Las Conchas Fire as well as the areas that re-burned from the Cerro Grande Fire. It is recommended that seed collection from the local area begin as soon as this fall and that nurseries be lined up to grow sufficient seedlings to meet these needs.

Santa Clara Forest Management Amendment/IRMP- It is recommended that the Santa Clara Tribe work with the Northern Pueblos Agency or the Regional Office to amend the forest management plan and/or the IRMP already in progress, to improve the discussion of Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR). Currently, the forest management plan only discusses that the Tribe will participate in the planning process and may take the lead in implementing treatments. It does not adequately discuss the use of BAR funding for reforestation needs after a fire. The IRMP is not approved.

It is also recommended that the Santa Clara Tribe's Forest and Woodland Resource Management Plan be revised or updated to address tree hazards in developed areas and along heavily-used roads. There is no discussion of how tree hazards are surveyed and mitigated within the reservation. It should also discuss the criteria of how tree hazards are identified (LCR, scorch, defect, etc.), and disposed of (lopped and scattered, slash treated, piled/burned, chipped) during wildland fire incidents (See NPS Hazard Tree 7 Point Rating System in Appendix IV).

Monitoring for Rangeland Health and Vegetative Recovery
Long-term monitoring transects should be established in the burn area to determine vegetation recovery, rangeland condition and trend, and soil stability. Sampling should determine species cover and density and possibly composition. Monitoring methodologies will be those approved by the Pueblo or BIA Northern Pueblo Agency. Suggested methods are point intercept and others as described in the Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems found on the Jornada Experimental Range website:
http://jornada.nmsu.edu/sites/default/files/Quick_Start.pdf
Monitoring transects could be established in the P-J/lower elevation montane shrubland and ponderosa pine-grassland communities. Transects should be established in homogeneous ecological sites (if they have been described by the Natural Resources Conservation Service), established in 2012 and re-read in 2014 and 2019. Transects could be established in locations of false tarragon (unburned, Cerro Grande Fire, Las Conchas Fire area) to determine fire effects and livestock impacts, and if false tarragon increases from fire, grazing, or other disturbances. A control, including a livestock exclusion area, is recommended to help obtain statistically reliable data.

V. CONSULTATIONS

Bruce Bauer – Santa Clara Tribal Forestry Director
John Galvan – Jemez Tribal Forester
Danny Gomez – BIA Forester (Northern Pueblo Agency)
Andrew Graves – R-5 USFS Forest Entomolgist
Steve Haglund – Santa Clara Forestry Consultant, Forest Stewardship Service, Inc.
Brian Jacobs – NPS Botanist (Bandelier)
Norm Jojola – BIA Natural Resource Officer

Hal Luedke –Regional Prescribed Fire/Fuels Specialist, Southwest Region, BIA
Brian Rasmussen – DOI BAER Geologist/Hydrologist
Rich Pyzik – DOI BAER Hydrologist
Bill Sims – DOI BAER Soil Scientist
Matt Tafoya – Santa Clara Tribe GIS

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Mike Dolan, Botanist, BLM Alturas	(530) 233-7923
Fred von Bonin, Forester, BIA Southwest Regional Office	(505) 563-3381
Steve Femmel, Forester, Whiskeytown National Recreation Area	(530) 242-3440
Tom Warner, Forester, Sequoia Kings Canyon NP	(559) 565-3722

BURNED AREA EMERGENCY STABILIZATION PLAN

Las Conchas Fire

WATERSHED RESOURCE ASSESSMENT

I. OBJECTIVES

- Assess overall soil and watershed changes caused by the fire, particularly those that pose substantial threats to human life and property, and critical natural and cultural resources. This includes evaluating changes to soil conditions, hydrologic function, and watershed response to precipitation events;
- Identify potential flood and erosion source areas and sediment deposition areas;
- Identify potential threats to life, property, and critical natural and cultural resources in relation to flooding, debris flows, erosion, sediment deposition;
- Develop soil burn severity map, watershed response maps, and watershed treatment maps;
- Develop treatment recommendations, if necessary;
- Identify future assessment or analysis needs;
- Identify future monitoring needs, if necessary;
- Coordinate efforts with the Las Conchas Fire South Zone BAER Team regarding issues and concerns of the Pueblos associated with the southern portion of the fire.

II. ISSUES

Issues identified as possible post-fire watershed conditions that threaten life, property, and significant cultural and natural resources include:

- Risk to life and property from flooding in Santa Clara, Guaje, Los Alamos, Cochiti, Peralta, and Bland Canyons;
- Risk to transportation infrastructure, recreational facilities, and cultural sites resulting from flooding in Santa Clara, Guaje, Los Alamos, Cochiti, Peralta, and Bland Canyons;
- Increased risk of debris flows in Santa Clara Canyon;
- Increased erosion and sedimentation;
- Threats to water quality from sedimentation and contaminants, particularly in the lower reaches of watersheds affected by the fire;
- Increased potential for debris flows in Santa Clara Canyon;
- Threat of reducing the management storage capacity of Cochiti Reservoir.

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III. OBSERVATIONS

A. Background –

The purpose of the burned area assessment is to determine if the fire caused emergency watershed conditions and to identify potential values at risk from these conditions. Identification of values at risk occurs through consultation with individuals, state, tribal, federal agencies as well as through field investigations. Not all values initially identified are determined to be at risk. If emergency watershed conditions are found and values at risk are identified and confirmed, then the magnitude and scope of the emergency is mapped and described, values at risk to be protected are analyzed, and treatment prescriptions are developed to protect these values.

The most significant factor leading to emergency watershed conditions is loss of ground cover, which leads to erosion and changes in hydrologic function in the form of decreased infiltration and increased runoff. Such conditions lead to increased flooding, debris flows, sedimentation and deterioration of soil conditions. Values at risk are human life and property and significant cultural and natural resources located within or downstream of the fire that may be subject to damage from flooding, debris flows, and hillslope erosion.

Geology/Physiography

The Las Conchas Fire occurred in the Sierra de los Valles on the eastern flank of the Jemez Mountains and on the western side of the Pajarito Plateau, within the Jemez volcanic field. Elevations of the burn area range from approximately 6400 feet (1950 m)

above mean sea level (amsl) to 10,300 feet (3140 m) amsl. Most of the burned watersheds drain eastward to the Rio Grande upstream of Cochiti Reservoir with the exception of La Jara Canyon and the Jemez River. The Sierra de los Valles contains the headwaters of most burned watersheds, and is dominated by steep rugged terrain underlain by dacitic rocks of the Miocene-Pliocene Tschicoma Formation. The Pajarito Plateau consists of gently sloping mesas and steep-sided canyons underlain by the early Pleistocene Bandelier Tuff, which contains both welded tuff that is resistant to erosion and forms cliffs, and non-welded tuff that is easily eroded. Pumice beds of the early Pleistocene Cerro Toledo Rhyolite locally occur between the upper and lower members of the Bandelier Tuff and are also easily eroded. In the northeastern part of the Las Conchas Fire are exposures of the Pliocene Puye Formation, a thick fanglomerate that includes boulder-rich debris flow deposits, fluvial deposits, and tuffs. Fine-grained sedimentary rocks of the Miocene Santa Fe Group occur in a small part of the burn area along Santa Clara Canyon. Canyon bottoms are underlain by alluvium that ranges in thickness from less than 1 m to greater than 10 m. Pleistocene and Holocene stream terraces occur along some canyons, and colluvial deposits mantle many slopes. Mesa tops are locally overlain by erodible eolian or reworked eolian deposits and by pumice beds. Rock units in the area are shown on the map by Smith, et al. (1970), and Bailey, et al. (1969) and provide brief discussions of these units. Surficial geologic units and soils found in portions of the burn area are discussed by Reneau and McDonald (1996).

Soil

The soils within the Las Conchas burned area that affect Santa Clara Pueblo, San Ildefonso Pueblo, Jemez Pueblo, Santo Domingo Pueblo and Cochiti Pueblo lands were surveyed by Natural Resource Conservation Service (USDA 2004) and Forest Service and are located within Rio Arriba, Los Alamos and Sandoval counties of New Mexico.

The primary soils of concern that are within watersheds affecting tribal lands are:

- **Andeptic Udorthents:** Very steep, very bouldery sandy loam surface texture, parent material is residuum and colluvium with a slope range of 40-120 percent. This soil occurs in mixed conifer on steep mountain and canyon slopes. Erosion hazard is severe and comprises 22 percent of the burned area within watersheds of concern.
- **Andic Dystrochrepts:** Gravelly sandy loam surface texture. Parent material is residuum with a slope range of 0-15 percent. This soil occurs in mixed conifer on elevated plains. Erosion hazard is moderate and comprises 10 percent of the burned area within watersheds of concern.
- **Eutric Glossoboralfs:** Skeletal gravelly loam surface texture. Parent material is residuum with a slope range of 15-40 percent. This soil occurs in mixed conifer on hills. Erosion hazard is severe and comprises 13 percent of the burned area within watersheds of concern.
- **Eutroboralfs (Typic and Mollic):** Loam, sandy loam, and fine sandy loam, surface textures. Parent material is residuum and colluvium with a slope range 0-55 percent. These soils occur in mixed conifer on lowlands, elevated plains and mountains. Soil erosion hazard is moderate to severe and comprises 11 percent of the burned area within watersheds of concern.
- **Dystric Eutrochrepts:** Gravelly sandy loam surface texture. Parent material is colluviums derived from tuff with a slope range 40-80 percent. This soil occurs in mixed conifer on mountain slopes. Erosion hazard is severe and comprises 5 percent of the burned area within watersheds of concern. Note: This soil is 25 percent of the burned area in Santa Clara Canyon.

Watershed Response

The 1977 La Mesa Fire, the 1996 Dome Fire, and the 1998 Oso Fire occurred in areas within the Las Conchas Fire and provide insight into likely hydrologic and geomorphic responses of watersheds to the Las Conchas Fire. The La Mesa Fire burned over 15,000

acres in the vicinity of Frijoles Canyon; the Dome Fire burned over 16,000 acres in the vicinity of Capulin Canyon; and the Oso Fire burned over 5,300 acres in the vicinity of Santa Clara Canyon. The most pronounced effects after the first two fires were dramatic increases in flood discharge relative to pre-burn conditions, with floods in both watersheds being triggered by intense summer thunderstorms. Maximum post-fire peak discharge was estimated at 3030 cfs in Frijoles Canyon and 3630 cfs in Capulin Canyon, compared with maximum pre-fire peak discharges during short gauged periods of 19 and 25 cfs, respectively (Veenhuis, 1999). The largest floods in Capulin Canyon occurred in the summer immediately following the Dome Fire, but the largest floods in Frijoles Canyon occurred over one year after the La Mesa Fire.

The floods in Capulin Canyon after the Dome Fire caused geomorphic changes along the stream channel. Most areas experienced channel-bed incision and channel widening by bank erosion, excavating large volumes of coarse sediment that was previously stored along the channel. The most pronounced areas of sediment deposition were sand and gravel deposits behind log jams, and some of these deposits created during the first flood were eroded in floods later in the summer. No significant deposits of fine sediment were found in Capulin Canyon after these floods; instead most fine sediment was apparently transported downstream to the Rio Grande.

Field observations indicated extensive rilling on hillslopes burned by the La Mesa Fire (White and Wells, 1984) and the Dome Fire (Reneau and McDonald, 1996; Cannon, 1999), associated with an increase in runoff and sediment yield relative to unburned conditions. Although, there was little evidence for the mobilization of coarse gravelly sediment from hillslopes into the main Capulin Canyon channel after the Dome Fire, up to cobble-sized material was mobilized from the hillslopes of a steep tributary to Capulin Canyon.

The potential for sediment deposition in post-fire floods will vary depending on many factors, including flood discharge, stream gradient, floodplain width, and sediment supply. In a single flood, channel incision could occur in relatively steep narrow parts of watersheds, and deposition could occur in gentler, wider reaches downstream. A variety of potential channel changes could therefore occur after the Las Conchas Fire.

In contrast to the occurrence of incision in Capulin Canyon after the Dome Fire, geomorphic evidence on the Pajarito Plateau indicates that under some conditions large floods can cause extensive aggradation along channels. For example, a bouldery stream deposit dated at ca. 1300-1650 A.D. fills the bottom of Los Alamos Canyon and appears to record a single high-magnitude flood event (Reneau and McDonald, 1996). Similar bouldery deposits have been observed in Capulin Canyon and Rendija Canyon. One possible response to the Las Conchas Fire may therefore be aggradation along stream channels if large volumes of coarse sediment are mobilized in headwater areas.

One common geomorphic response of burned slopes is the generation of debris flows or mudflows which can be much more erosive and destructive than floods. Given the severity of the fire, the availability of unconsolidated materials on hillslopes, location in low order basins and the steep, dissected terrain, it is possible that large debris flows could be produced after the Las Conchas Fire given an intense rainfall event. Unfortunately, threshold rainfall conditions for such an event are not documented for this setting. Field observations suggest that under unburned conditions debris flow is not a significant process over most of the burn area with the exception of Santa Clara Canyon. In the southern part of the burn area, no clear debris flow deposits have been observed in fans or along channels. However, following the Dome Fire, an extensive investigation found debris flows were produced from a steep, partially rock-mantled tributary to Capulin Canyon. The topographic configuration and materials of this basin are similar to those burned by the Las Conchas Fire. The largest potential for debris flows after the Las Conchas Fire may be in the Santa Clara Canyon.

Climate

Climatological data have been collected in Los Alamos since 1911. Bowen (1990) described the climate as a semiarid, temperate mountain climate. Annual precipitation is 18 in. Precipitation normally occurs as about 50% thundershowers in the summer and fall and 50% snow during the winter and early spring months. There are 58 thunderstorm days in an average year. Snowstorms with accumulations exceeding 4 inches are common and the average annual snowfall is about 51 inches total.

Within the Las Conchas Fire approximate average annual rainfall of 16 inches per year at lower elevations (Pinyon Juniper vegetation type), low to middle elevations receive approximately 20 inches per year (Ponderosa pine vegetation type), middle elevations receive approximately 28 inches per year (mixed conifer vegetation type), and the highest elevations receive 32 inches per year (Spruce/Fir vegetation type).

Summers are generally sunny, with moderate, warm days and cool nights. Maximum daily temperatures are usually below 90°F. High altitude light winds, clear skies, and the dry atmosphere allow night temperatures to drop to the 50s (°F). Winter temperatures typically range from about 15°F to 25°F during the night and from 30°F to 50°F during the day. Occasionally, temperatures drop to 0°F or below.

B. Reconnaissance Methodology and Results

The scope of this assessment focuses on the Pueblos directly or indirectly affected by the Las Conchas Fire. These Pueblos include: Santa Clara, San Ildefonso, Ohkay Owingeh, Cochiti, Jemez, and Santo Domingo. Santa Clara, Jemez, and Santo Domingo had lands that were burned by the fire. All of the Pueblos are indirectly affected by having lands immediately adjacent or downstream of the fire. The responsibility of the team was to conduct a burned area assessment for the northern half of the fire area which includes the Santa Clara Pueblo and an area of Santa Fe National Forest located on the northern most boundary of the fire in the Rio Del Oso watershed. In addition, treatment recommendations were made for all Pueblos directly or indirectly affected.

The purpose of a burned area assessment is to determine if the fire caused emergency watershed conditions and if there are potential values at risk from these conditions. Identification of values at risk occurs through consultation with the individuals, tribes, State and federal agencies and through field investigation. Not all values initially identified are determined to be at risk. (Refer to Supporting Documents Appendix V.) If emergency watershed conditions are found, and values at risk are identified and confirmed, then the magnitude and scope of the emergency is mapped and described, values at risk and resources to be protected are analyzed, and treatment prescriptions are developed to protect values at risk. The most significant factor leading to emergency watershed conditions is loss of ground cover, which leads to erosion and changes in hillslope hydrologic function in the form of decreased infiltration and increased runoff. Such conditions lead to increased flooding, sedimentation and deterioration of soil condition.

Burned area evaluations included:

- Identifying fire-caused changes in soil properties and hydrologic function;
- Determining spatial extent and strength of hydrophobic soil conditions;
- Determining post-fire infiltration rates;
- Verifying and modifying the Burned Area Reflectance Classification (BARC) image to create a soil burn severity map, and if appropriate a runoff potential map;
- Identifying sediment source areas and erosion potential;
- Determining current channel and culvert capacities;
- Identifying potential flood zones; and
- Identifying potential threats to human life, property, and critical natural and cultural resources (values at risk).

The Interagency BAER Team hydrologists and soil scientists conducted aerial

reconnaissance flights and field visits to review resource conditions after the fires. The main objectives of the field visits were to 1) evaluate soil burn severity and watershed response in order to identify potential flood and erosion source areas as well as debris flow hazards; 2) identify and inventory values at risk, 3) identify the physical and biological mechanisms that are creating risks; 4) review channel morphology and riparian conditions; 5) inspect hillslope conditions; and 6) determine needs for emergency stabilization. Values at risk are human life and property, and critical natural and cultural resources located within or downstream of the fire that may be subject to damage from flooding, ash, mud and debris deposition, and hillslope erosion.

Soil Burn Severity

Soil burn severity mapping is intended to reflect the degree of effects caused by the fire to soil characteristics that affect soil health and hydrologic function, hence erosion rate, and runoff potential. It is not a map of vegetation consumption. In mapping soil burn severity, the team evaluated field-observable parameters such as the amount and condition of surface litter and duff remaining, soil aggregate stability, amount and condition of fine and very fine roots remaining, and surface infiltration rate (water repellency) (Table 1). Water repellency was evaluated by observing the length of time a water drop remained beaded on the soil. If water repellency was present, the depth and thickness of this water repellant layer was also measured. Ash and soil color may also indicate how intense the heat was and how long it remained at a given place (residence time). These parameters are compared to similar soils under unburned conditions to estimate the degree of change caused by the fire.

Table 1. General characteristics of the soil burn severity classes.

Soil Burn Severity	Characteristics
Unburned to Very Low	Unburned islands within the fire perimeter, and areas where very low severity ground fire occurred. Vegetation canopy, ground cover, and soil characteristics are not altered significantly from pre-fire conditions. A thin water repellant layer occurs throughout these areas.
Low	Shrub canopy and grasses may be scorched or consumed. Unburned and charred, but recognizable, grasses and shrub litter are present at the surface. A moderate, thin water repellent layer may be present at the ash-soil interface, under or near vegetation clumps. The water repellent layer is discontinuous and may not be fire-induced. Little to no water repellency observed between vegetation clumps. There were unburned patches of bare ground between shrubs. In forested areas, light ground fire may have occurred but litter and duff remain largely intact and forest canopy is generally unaffected.
Moderate	In chaparral areas, shrub canopy is consumed, with stobs and stems remaining. Unburned and recognizable charred leaf litter and twigs remain beneath the ash in shrub areas; a moderate, thin water repellent layer may be present but discontinuous under trees and shrubs. In forest areas, leaf litter and fine surface fuels may be consumed, but conifer or hardwood canopy is scorched but not consumed and will soon become soil cover/mulch. Unburned patches between shrubs and trees are smaller but still present.
High	Generally areas where conifer or hardwood canopy cover was dense (greater than 60-80%) and pre-fire litter layer was deeper and more continuous. Some charred, but recognizable organic material may be present in or beneath a thick ash layer. Water repellency may be present, but is also present under unburned hardwood litter and may not be fire-exacerbated.

While soil burn severity is not based primarily on fire effects to vegetation, the team used post-fire vegetative condition as one of the visual indicators in assessing soil burn severity. In some cases there may be complete consumption of vegetation by fire, with little effect on soil properties, such as in a shrub ecosystem. Denser vegetation, with a

deeper litter and duff layer, results in longer heat residence time, hence more severe effects on soil properties. For example, deep ash after a fire usually indicates a deeper litter and duff layer prior to the fire, which generally supports longer residence times. This promotes loss of soil organic cover and organic matter which are important for erosion resistance, and the formation or exacerbation of water repellent layers at or near the soil surface. The results are increased potential for runoff and soil particle detachment and transport by water, wind, and gravity. This would be mapped as high soil burn severity.

Conversely, sparse or light pre-fire vegetation such as grasses or sparse shrubs usually have negligible litter layer and surface fuels and experience extremely rapid consumption and spread rates, with very little heat residence time at the soil surface. The result is very little alteration of soil organic matter and little or no change in soil structural stability. Water repellency, usually present under shrubs before the fire, may or may not be exacerbated by the fire. Areas between shrubs or grass crowns usually had very little fuel to burn, thus only experienced brief radiant heat as the flashy grasses and sparse shrubs burned. In these cases, soil burn severity would be low.

In between these extremes, the moderate class of soil burn severity is far more diverse in observed soil conditions and can include various vegetation types, ranging from forests to shrub communities. In the case of a forest, the litter layer may be largely consumed, but scorched needles and leaves remain in the canopy and will rapidly become mulch. This is important in re-establishing protective ground cover and soil organic matter. This factor can result in the classification of the area as moderate, rather than high. Generally, however, there will also be less destruction of soil organic matter, roots, and structure in an area mapped as moderate. In a shrub ecosystem, even where pre-fire canopy density was high, litter layer is generally thin, and while the shrub canopy may have been completely consumed by the fire, the soil structure, roots, and litter layer may remain intact beneath a thin ash layer. Above ground indicators such as size of unconsumed twigs remaining to help the team determine how long the heat may have persisted on the site. If only root stobs and large diameter twigs remain, it was likely a more intense fire with longer heat residence time, and combined with other observations of soil conditions may result in a call of high soil burn severity.

Satellite image-derived maps called Burned Area Reflectance Classification (BARC) helps to map soil burn severity classes throughout the burned landscape. A BARC is a map of degree of post-fire changes in spectral reflectance. The BARC is created by comparing near infrared and shortwave infrared reflectance values and measuring the difference between pre-fire and post-fire satellite images (see http://www.fs.fed.us/eng/rsac/baer/barc.html for more information). Since vegetation condition is the primary factor affecting post-fire spectral response in remotely sensed images, the BARC must be adjusted to fit ground observations before it can accurately be referred to as a soil burn severity map. Field and aerial observations provided the data necessary to make adjustments to the BARC to create the map of soil burn severity classes. The pre-fire image was a 30m Landsat 5 scene acquired June 24, 2011, and the post-fire image was a SPOT image on July 5, 2011.

Due to poor atmospheric conditions (clouds and smoke) updated Landsat images were unreadable to determine a new BARC image, in addition 18,000 acres of burn severity was determined through field and aerial observations. This was done primarily in the southern end of the fire within drainages affecting Cochiti Pueblo, Jemez Pueblo, Santo Domingo Pueblo and San Ildefonso Pueblo.

Soil Erosion

Soil erosion potential following a fire is generally increased over pre-fire potential. This is largely due to loss of soil cover (forb, grass, leaf, and needle litter), surface horizon soil organic matter responsible for structural stability, and in some cases, increased water repellency at or near the soil surface. The amount of increase over pre-fire condition is related to the degree of soil changes.

Important factors in any erosion model that are most affected by fire are the same; the amount of effective soil cover, the inherent susceptibility to soil particle detachment by wind, water, or gravity (a function of soil texture and structural stability), and the surface infiltration rate. As discussed above, these characteristics vary by degree of soil burn severity, and an area of high soil burn severity can be expected to show a larger increase in sediment production than an area of low soil burn severity. It is important to understand pre-fire erosion behavior when assessing post-fire erosion, since some areas have water repellant surfaces and inherently high erosion potential even before the fire.

For the Las Conchas fire, the Erosion Risk Management Tool (ERMiT, 2006) was used to estimate erosion under both pre-fire and post-fire conditions. The ERMiT tool is an interface developed specifically for post-fire rapid assessments, and uses the Water Erosion Prediction Project (WEPP, 2006) erosion model, which considers soil burn severity.

The South Team combined the soils information from the NRCS and US Forest Service and added interpretation and some geospatial analysis to develop the input parameters for the ERMiT erosion modeling. These parameters for the dominant soil types in the watershed of concern were utilized to compare pre-fire (unburned) and post-fire (burned at various severities) erosion rates. This information was also utilized to compare the effectiveness of treatments on reducing potential erosion rates after the fire.

Watershed Response

The primary watershed responses from the effects of the Las Conchas Fire are expected to include: 1) initial flush of ash with normal precipitation; 2) gully and rill erosion on steep slopes in drainages with moderate and high burn severity with normal precipitation; 3) debris flows initiated by high intensity precipitation with sediment deposition where stream gradients flatten and/or at tributary mouths; 4) increase in average winter/spring storm runoff, and 5) increased runoff from typical monsoon rain events. Elevated soil erosion, sedimentation, runoff, and stream flows are expected to decrease rapidly after the first year and return to the natural hydrological watershed function in five to seven years after the fire after vegetative ground cover has sufficiently recovered to restore the surface soil-hydrologic function and processes within the watersheds that burned at moderate and high severity. It should also be noted that there may be an increase in landslide activity due to the decay of roots of the fire killed trees as long as 8 to 12 years after the wildfire. This root decay (peaks from 8 to 12 years following tree fatality) and leads to a loss of soil strength and an increase in shallow subsurface translational landslides and the potential for debris torrents during periods of soil saturation

Overland flow occurs as a result of rainfall that exceeds soil infiltration capacity and the storage capacity of depressions. On the unburned forest floor, overland flow often doesn't occur at all and when it does it follows a myriad of interlinking flow paths that constantly change as organic material (litter and duff layers) and inorganic material (rock) are encountered (Huggins and Burney, 1982). Consumption of the forest floor by fire alters the path of overland flow by reducing the overall length of the flow path, resulting in the concentration of flow into a shorter flow path. This concentration of overland flow increases the hydraulic energy of the flow and can result in rill erosion. At the watershed scale, the reduction of hillslope flow path lengths and the formation of rills that have a high water conveyance capacity reduce the times of concentration or the amount of time for overland flow to reach a defined point within the watershed.

Overland flow is also increased if there is an increase in water repellency (hydrophobicity) of the soils because of the fire. This can reduce infiltration and increase overland flow (runoff) (DeBano et al., 1967). Infiltration curves for water repellent soils reflect increasing wettability over time once the soil is placed in contact with water. Water repellency decreases (hence infiltration increases) with time as the substances responsible for hydrophobicity begin to break down, thereby increasing wettability. In general, fire-induced hydrophobicity is broken up or is sufficiently washed away within one to two years after a fire (Robichaud, 2000). The thicker and deeper the water repellant layer, the longer it will take to dissipate. Also, as noted above, many of the soils in these vegetation communities are water repellant prior to the fire (i.e.: not fire-induced), and in these cases the water repellency will likely persist. However, once soil cover and vegetative canopy begin to recover, this persistent water repellency becomes less significant to the runoff response since the litter and canopy quickly restore protection of soil and obstruction of overland flow, thus enhancing infiltration and reducing energy for runoff and erosion.

Raindrops striking exposed mineral soil with sufficient force can dislodge soil particles. This is known as splash erosion. These dislodged particles can fill in and seal pores in the soil thereby reducing infiltration. Further, once soil particles are detached by splash erosion they are more easily transported in overland flow. Surface erosion is defined as the movement of individual soil particles by a force (wind, water, or gravity), and is initiated by the planar removal of material from the soil surface (sheet erosion) or by concentrated removal of material in a downslope direction (rill erosion). Surface erosion is

a function of four factors: 1) susceptibility of the soil to detachment, 2) magnitude of external forces (raindrop impact or overland flow), 3) the amount of protection available by material that reduces the magnitude of the external force (soil cover), and 4) management practices that can reduce erosion (Foster, 1982; Megahan, 1986).

On-the-ground field observations and aerial reconnaissance within and downstream of the burned area were conducted to determine potential watershed response. Channel morphology related to transport and deposition processes were noted, along with channel crossings and stream outlets. Observations included condition of riparian vegetation and the volume of sediment stored in channels and on slopes that could be mobilized. In addition, the team used Wildcat 5 peak flow model and the Automated Geospatial Watershed Assessment (AGWA) model to characterize watershed response.

Peak Flow Modeling

The Wildcat 5 storm runoff model was used to predict peak flow runoff generated in key watersheds under pre- and post-burn conditions. This model utilizes runoff curve numbers and triangular unit hydrographs to route excess rainfall to the mouth of stream channels or identified critical pore points within a watershed. The model does not attempt to route runoff along channels.

USGS Paper "Analysis of the magnitude and frequency of peak discharge and maximum observed peak discharge in New Mexico and surrounding areas" (Waltemeyer 2008) was used to estimate pre-fire peak flows for the watersheds shown in Appendix IV, Evaluated Watersheds Map. New Mexico is divided into nine hydrologic regions with regression equations for estimating peak discharges having recurrence intervals that range from 2 to 500 years. The Las Conchas Fire is located within the northern mountain flood region (5) which is represented by the regression equations in Table 2.

Table 2. USGS Regression Equations for Northern Mountain Flood Region.

Q_2	=	0.301	x	10^1	$A^{0.805}$	$E/1{,}000^{-1.61}$	$I24{,}100^{3.41}$
Q_5	=	3.760	x	10^1	$A^{0.761}$	$E/1{,}000^{-2.58}$	$I24{,}100^{3.76}$
Q_{10}	=	1.624	x	10^2	$A^{0.736}$	$E/1{,}000^{-3.14}$	$I24{,}100^{3.93}$
Q_{25}	=	8.304	x	10^2	$A^{0.709}$	$E/1{,}000^{-3.76}$	$I24{,}100^{4.10}$
Q_{50}	=	2.449	x	10^3	$A^{0.691}$	$E/1{,}000^{-4.17}$	$I24{,}100^{4.21}$
Q_{100}	=	6.592	x	10^3	$A^{0.675}$	$E/1{,}000^{-4.55}$	$I24{,}100^{4.32}$
Q_{500}	=	5.211	x	10^4	$A^{0.642}$	$E/1{,}000^{-5.36}$	$I24{,}100^{4.55}$

The basin variables used in the equations are drainage area (A), in square miles; average basin elevation (E), in feet; maximum precipitation intensity of a storm of 24 hours duration with a recurrence interval of 100 years (I24, 100), in inches determined from the NOAA Atlas 14 Point Precipitation Frequency Estimates website (http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nm). An example of the output for this website is found in Table 2. The centroid of a watershed, as determine in GIS, was used to as the point location to determine the maximum precipitation intensity table for each individual watershed.

The regression equations were developed using stream peak-discharge records of 10 years or longer, available as of 2004, at 293 gaging stations throughout New Mexico and surrounding areas. The standard errors of estimate for the regression equations range from 38 to 93%. The results using the USGS regression equations from the evaluated watersheds are found in Appendix V, Support Document – Wildcat 5 Model. The absolute numbers may not be close to actual observed results, due to assumptions made in the

model, and on the actual storm events. However, the regression equation method is useful in making general comparisons of expected magnitude of flows for pre-fire levels. A comparison of pre-fire peak flows between the USGS Regression Equation and Wildcat 5 for the Santa Clara Watershed show that the results are similar up to a10yr–24 hr storm event. The results for 25 to 100 year events separate but are within the standard errors of estimate for the regression equation. Additionally, the Wildcat 5 results are assumed to be more representative of the watershed because of the use of site specific data (soils, vegetation, and watershed slope) used in the model

Runoff curve numbers for pre-burn conditions were obtained primarily from the Soil Conservation Service TR-55 model documentation. Runoff curve numbers for post-burn conditions were calculated using the rule of thumb which adds 5, 10, and 15 points to the curve number for low, moderate, and high burn severities, respectively. The hydrologic soil group was moved from A to B, B to C, and C to D to also account for the effect of ash and hydrophobicity on the soil during the first few post-fire storm events. Curve numbers are a critical data need for pre- and post-fire flow modeling.

Automated Geospatial Watershed Assessment Modeling

Post-fire watershed response was calculated using a variety of different methods in order to average the expected response to match professional judgment and field observations. The Automated Geospatial Watershed Assessment (AGWA) uses a Digital Elevation Model (DEM) to discretize the watershed and then intersects the delineated watersheds with soil, land-use/cover, and precipitation (uniform or distributed) to derive the requisite model input parameters (Goodrich, 2005). AGWA is designed to provide qualitative estimates of runoff and erosion relative to landscape change. It cannot provide reliable quantitative estimates of runoff and erosion without careful calibration. It is also subject to the assumptions and limitations of its component models (Goodrich, 2005). Modeling efforts using AGWA were accomplished through assistance by the Agricultural Research Service and the University of Arizona. All model results are included in Appendix V, Supporting Documentation, AGWA Model Outputs.

C. Findings –

Soil Burn Severity

The watersheds of concern within the Las Conchas fire have a soil burn severity consisting of 43 percent low, 30 percent moderate and 24 percent high. Very low and unburned areas account for remaining percentage. The general characteristics of the soil burn severity classes are described in Table 1. Soil burn severity varied widely by watershed (Table 3).

Table 3. Acres of Soil Burn Severity Class by Fire Name

Pueblo	Watershed	Soil Burn Severity	Area (acres)	Percent of Watershed
Santa Clara	Santa Clara Canyon	Unburned/very low	649	5%
		Low	2368	17%
		Moderate	6838	48%
		High	4291	30%
Ohkay Owingeh	Rio del Oso	Unburned/very low	636	9%
		Low	1872	28%
		Moderate	3470	52%
		High	727	11%
San Ildefonso	Los Alamos Canyon	Unburned/very low	647	6%
		Low	5413	49%
		Moderate	3484	31%

		High	1590	14%
	Los Alamos Canyon - Rio Grande	Unburned/very low	24	2%
		Low	708	64%
		Moderate	369	33%
		High	7	1%
Cochiti	Rio Chiquito	Unburned/very low	745	4%
		Low	4888	24%
		Moderate	5247	26%
		High	9582	47%
	Peralta Canyon	Unburned/very low	307	2%
		Low	12000	68%
		Moderate	3017	17%
		High	2268	13%
Jemez, Santa Domingo	Canon Santo Domingo, Outlet Borrego Canyon, Headwaters Borrego Canon	Unburned/very low	0	0%
		Low	6192	91%
		Moderate	642	9%
		High	0	0%

During field work to validate and correct the BARC image it was noted that much of the area was in the high end of the moderate soil burn severity class. As such much of the area mapped as moderate soil burn severity may appear on the surface to have been burned at high severity and the vegetation mortality may be higher in these areas than many are accustomed to seeing in a moderate soil burn severity area. It is also important to note that fire-induced water repellency, also known as hydrophobicity, was highly variable even in areas burned at high soil burn severity. Water repellency was found at about ½ to 1 inch below the soil surface and not below. Approximately a third of the areas burned at high soil burn severity had moderate water repellency, a quarter had strong water repellency and the remainder only had slight water repellency. Of the area burned at moderate soil burn severity approximately half had moderate water repellency and the remainder had slight to no water repellency. This is in contrast to many fires in mixed conifer in the southwest where strong water repellency dominates high and moderate soil burn severity areas.

Soil Erosion

Potential erosion has increased in the burned areas as a result of the fire. The most significant increases occurred in areas where soil burn severity was moderate or high and where slopes are steep (greater than 35 percent). For example in Table 3, 78% of the fire in Santa Clara Canyon experienced moderate and high soil burn severity. A high percentage of the burned areas are underlain by coarse-textured soils derived from residuum and colluviums. These soils have low cohesion and high inherent erodibility, especially on slopes over about 35 percent, and after removal of litter and canopy by fire.

In the Santa Clara Pueblo area this is especially significant on the steep slopes of Santa Clara Canyon. The steep slopes and channels in several of small watersheds contain large amounts of loose soil and stored sediment with high potential for mobilization of surface erosion and debris flows if significant precipitation occurs over a short period of time.

A comparison of overall pre-fire surface erosion rates with post-fire surface rates was made using the ERMiT erosion modeling tool by watershed (Table 4). The fire is a complex mix of various combinations of soil type, burn severity, slope, and pre-fire

vegetation type. The fire-caused changes in the dominant combinations were modeled, and the results are displayed in Appendix V, Support Documentation. The absolute numbers may not be close to actual observed results, due to assumptions made in the model, and on the actual storm events that occur in the first year or two following the fire. However, it is useful in making general comparisons of expected magnitude of change following the fire.

Table 4. Comparison of pre- and post-fire modeled erosion rates by watershed.

Pueblo	Watershed	Pre-fire erosion (ton/ac/yr)	Post-fire erosion (ton/ac/yr)	Change pre to post-fire
Santa Clara	Santa Clara Canyon	1.9	12.6	563%
Ohkay Owingeh	Rio del Oso	0.6	5.3	783%
San Ildefonso	Los Alamos Canyon	1.5	10.5	600%
	Los Alamos Canyon - Rio Grande	1.9	8.6	353%
Cochiti	Rio Chiquito	1.5	11.7	680%
	Peralta Canyon	1.7	9.9	482%
Jemez, Santa Domingo	Canon Santo Domingo, Outlet Borrego Canyon, Headwaters Borrego Canon	1.3	6.4	392%

Prior to the fire, the predicted erosion rates were from 0.3 to 2.3 tons per acre in a given year with a weighted average of 1.6 tons per acre. After the fire, the predicted erosion rates ranged from 1.0 to 10.6 tons per acre for low; 2.1 to 14.7 tons per acre for moderate; and 2.5 to 17.9 tons per acre for high soil burn severity. Overall, the areas in the watersheds of concern had a weighted-average predicted erosion of 10.4 tons per acre, an increase of more than 500 percent above pre-fire erosion rates (Table 5).

Table 5. Comparison of pre-fire and post-fire modeled erosion rates including changes predicted with and without recommended mulching in Santa Clara Canyon.

Watersheds of concern	Mulch area - Santa Clara Canyon

Pre-fire erosion (ton/ac/yr)	Post-fire erosion (ton/ac/yr)	Post-fire NO mulch (ton/ac/yr)	Post-fire with mulch (ton/ac/yr)
1.6	10.4	13.5	3.9
Change from pre-fire rates	550%	744%	144%

Debris Flow Potential in Santa Clara Canyon

Geomorphic evidence in Santa Clara Canyon shows an extended history of debris flow events from the Pond 2 (Waeng-Povi Dam) area west and upstream to the Pond 3 (Nana-Kaa Dam) area as evidenced by Holocene to recent debris flow events. Debris flows originate from both the north and south sides of the canyon within this area. A least two events within the canyon appear to be recent as evidence by damage to trees in their paths and morphology of the deposits. The recent debris flow positions correlate well with past fires such as the Oso in 1998 and the Cerro Grande in 2000. Given the correlation between recent fires and recent debris flows, it should be expected that areas of moderate to high soil burn severity within the watershed should produce the same results as the Oso and Cerro Grande fires with moderate to intense storm events.

Debris flow potential was demonstrated on July 14, 2011, at approximately 2 PM, when localized thunderstorms (monsoon) precipitated an estimated 1-inch of rain in ½-hour at the canyon floor and produced at least 10 debris flows and 1 mudflow originating from the north slopes of Santa Clara Canyon. On July 15, 2011 the debris flows were assessed by a BAER geologist and hydrologist, however the full extent of debris flows was not completed due to time and safety concerns. Potentially, several mud or debris flows were undocumented upstream of Pond 2. The mud and debris flow event area of July 14th has a western extent at Pond 3 and continue east, downstream for about 1.7 miles (Appendix IV Maps, July 14, 2011 Debris Flow Event). Volume of the debris ranged from an estimated 50,000 cubic meters of material (watershed 1105) to several hundred cubic meters of material (Appendix III, Photo Documentation). Delivery volumes from each watershed are considered relative to the size, shape, and relief of the watershed, extent and intensity of soil burn severity, and amount of water delivered to each sub-watershed, however the intensity and duration at the mid-slope and top of these northern sub-watersheds is unknown. Surprisingly, several small, lower elevation watersheds with moderate to high soil burn severity produced debris flows, indicating that possibly some of the most intense rainfall occurred at the mid-slope region triggering these small debris flows. The material delivered was mostly sand to cobble size tuff, possibly the Bandelier Rhyolite Tuff, with large boulders (up to 5' in diameter) of rhyolite (post-caldera). The pulse of debris and water crossed and covered roads with rock and woody debris, aggraded and flooded Santa Clara Creek, plugged culverts, and flooded Pond 1 (P'ingdii Dam) to within 6 inches or overtopping (Appendix III, Photo Documentation).

The July 14, 2011 event underscores the vulnerability of the system of dams within the upper Santa Clara Canyon (Ponds 1 through 4) to debris flows, mudflows, and flooding. A worst-case scenario for the community of Santa Clara Pueblo would be cascading and catastrophic failure of all four dams from debris flows and flooding, potentially generating and directing a torrent of water and debris towards the community. Several buildings within the community are built in close proximity to Santa Clara Creek and are considered within the 100-year to 500 year floodplain. Point Precipitation Frequency Estimates indicate that the estimated 1-inch in ½-hour event is equivalent to a 2 to 5-year storm event for this area as indicated by the NOAA Atlas 14 estimates. Modeling for the Santa Clara watershed in post-fire conditions indicates that the pre-fire 2 to 5-year event is equivalent to a 50 to 100-year event, suggesting that flood frequency within the canyon is

20 to 25 times greater than pre-fire frequency. Draft results for debris flow modeling of the Santa Clara Canyon (Sue Cannon, Personal Conversations, July 18, 2011) indicate that four watershed have a high debris flow hazard rating. This rating system is based on combination of estimated debris flow potential and estimated debris flow volume. Two of the four watersheds with high hazard rating discharge above Pond 3. Elk Canyon (watershed 1109), has a large retention pond that may be at risk to failure during a large debris flow event. The culvert draining this retention pond is plugged. Additionally, six watersheds have a moderately high debris flow-rating hazard and three of which are at or above Ponds 3 and 4.

Given the extreme watershed response (mudflows, debris flows, and flooding) with the 2 to 5-year storm event, large areas of moderate and high soil burn severity, modeled debris flow hazard, and vulnerable tiered dam system, post-fire watershed conditions poses a very high risk to the community of Santa Clara Pueblo. Two factors attenuate this risk: the lag-time from Pond 1 failure to the community of Santa Clara Pueblo and the existing and tested early warning system installed at and below the dams. The lag-time between Pond 1 and the community of Santa Clara Pueblo is modeled (USDI, 2009) to be about 4 to 4.5 hours. This was confirmed on July 14, 2011 by personal observation by BAER team members when the floodwaters of the flood event occurred at approximately 2 PM and the flood event reached the bridge on Highway 30 at about 6:20 PM. Additionally, when the flood event occurred, raising water levels quickly at Pond 1, sensors alerted the Santa Clara Pueblo of the flood situation and sounded alarm sirens within the canyon proving the system is functional as an early warning system and predictive of hazardous conditions upstream of the community.

Watershed Response

Peak Flow

The DOI National Interagency BAER Team (North Team) used three models to evaluate watersheds and sub-watersheds where values at risk were located. The models used were Wildcat 5 (Pre and post fire conditions), the USGS Regression Equation (pre fire conditions), and the Automated Geospatial Watershed Assessment tool. A more detailed discussion of the models and the results is found in Appendix V, Supporting Documentation: Watershed Modeling and Response. The Forest Service BAER Team (South Team) also provided modeling (only the change in peak flow between pre and post fire conditions) for 8 watersheds in the Southern Watersheds of the Las Conchas Fire. The South Team report is found in Appendix V, Supporting Documentation: Watershed Resource Assessment, Las Conchas Fire, July 2011.

Wildcat 5

The Santa Clara Watershed results using Wildcat 5 generally show the sub-watersheds in the burned area have a very strong response to typical monsoon events (1 hour or less duration storms). For example, at Tsichumuu Pond (#4), a 2 yr-1hr storm event post-fire yields a peak flow of 510 cfs which is equivalent to a 50yr-1hr storm event pre-fire flow. A relatively small storm may trigger flash floods and possible debris flows in this watershed. The risk of a large event occurring goes from a 2% chance pre-fire to a 50% chance post-fire (Table 6).

Table 6. Storm events and risk of occurrence.

Storm Event	Risk
1 hour, 2 year	50% chance in any one year
1 hour, 10 year	10% chance in any one year
1 hour, 25 year	4% chance in any one year
1 hour, 50 year	2% chance in any one year
1 hour, 100 year	1% chance in any one year

The absolute numbers from the model may not be very close to actual observed results, due to assumptions made in the model, and on the actual storm events that occur in the first year or two following the fire. However, they are within reason and the overall magnitude of change between the pre-fire and post-fire peak flow is useful in making general comparisons of expected magnitude of change following the fire (Figures 1,2,3). The results using Wildcat 5 for Guaje Canyon and Rio Del Oso Watersheds are not as dramatic but may trigger flash flood events along the drainages and water channels. Both watersheds in the burned area result in 2 yr-1hr storm event post-fire yielding less than an equivalent 25yr-1hr storm event pre-fire peak flow.

Figure 1. Modeled Peak Flow Comparions, Santa Clara Watershed.

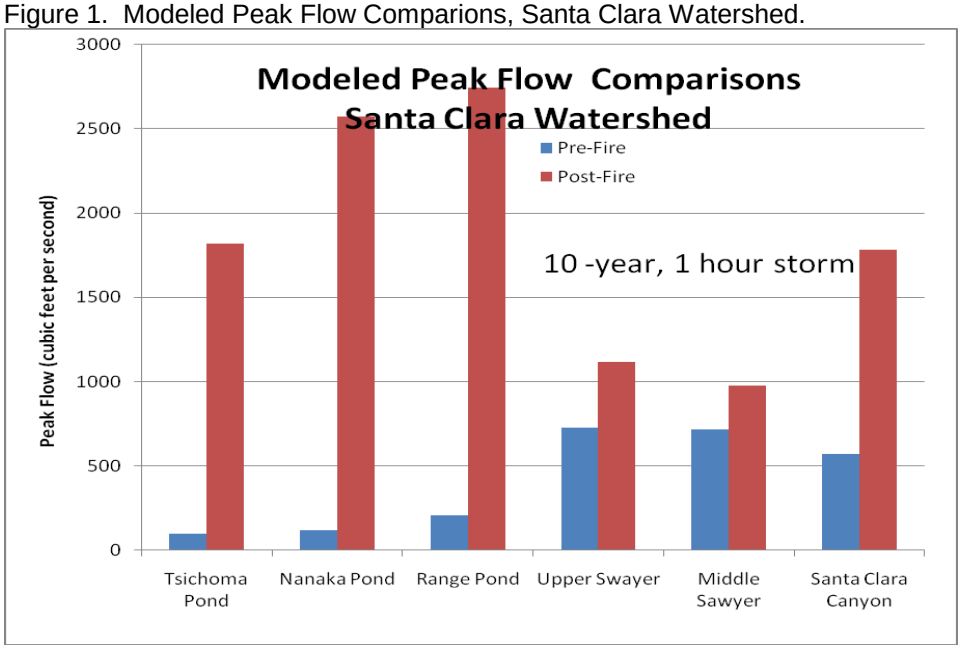


Figure 2. Modeled Peak Flow Comparisons, Rio Del Oso

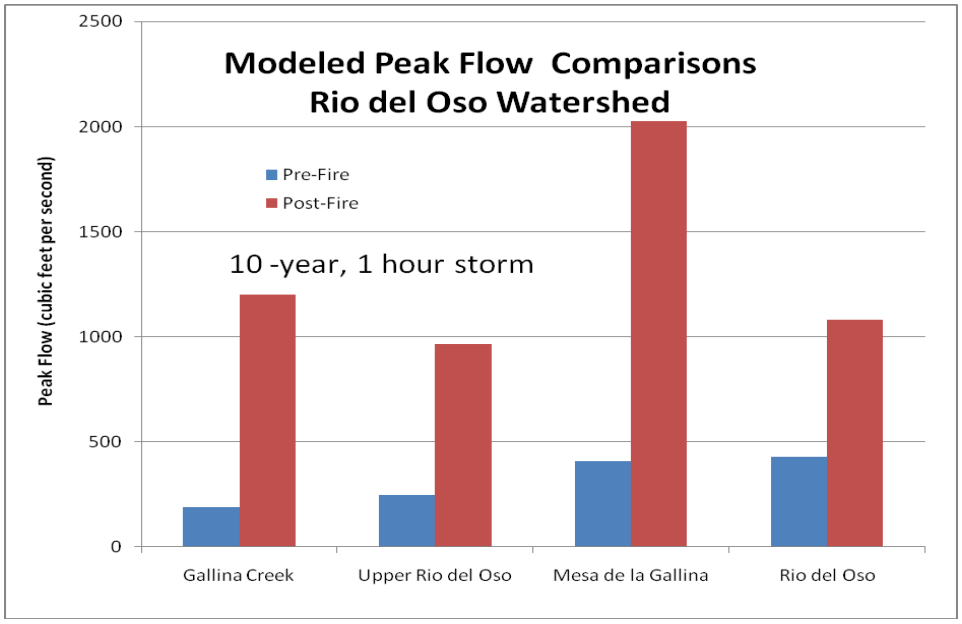
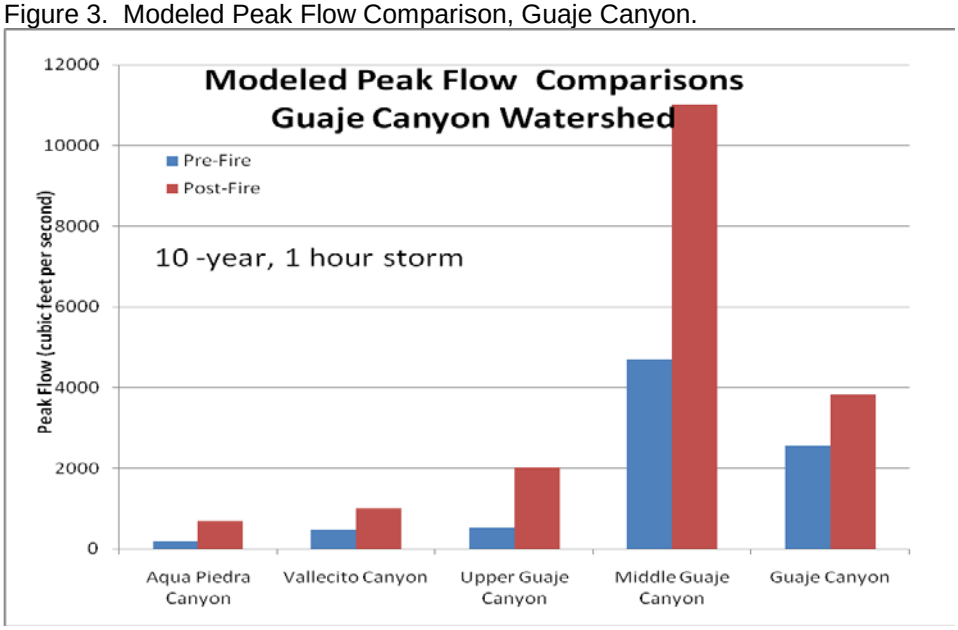


Figure 3. Modeled Peak Flow Comparison, Guaje Canyon.



Throughout the fire area, vegetation recovery is largely dependant on climatic cycles. If wet winters occur, vegetation recovery could be rapid, with forbs and grasses providing ground cover similar to that observed in unburned areas throughout the fire. By the second winter season, forbs, grasses, and re-established shrubs should provide sufficient cover to reduce any increase in watershed response to near pre-fire levels. Once sprouting vegetation begins to produce brushy crowns and a duff/litter layer, watershed response will be reduced further. However, if winters are dry, vegetation recovery will be slow, and thus the establishment of ground cover and shrub communities will be slow, and watershed response will remain slightly elevated over pre-fire conditions. The recovery of some areas may be slowed than what past experience suggests, due to the extended drought and extensive wildfires in recent years. In particular, those areas of the current fire that overlap with areas that burned in 2002 may experience delay in reestablishment of the native plant communities.

The effect of wildfires on storm runoff is well documented. Wildfires typically cause an increase in watershed responsiveness to precipitation events as shown in Figures 1, 2, and 3. Burned watersheds can quickly yield runoff due to the removal of protective tree and shrub canopies and litter and duff layers, thus producing flash floods. Burned areas often respond to the local storm events in a much flashier way. The amount of water yield increase is variable and it is often orders of magnitude larger than pre-fire events. These negative impacts are predominantly true in watersheds that experienced significant consumption of the shrub community and moderate to high soil burn severity effects. Fire may increase the number of runoff events as well since it generally takes a smaller storm to trigger runoff until vegetation begins to recover. Peak flow increases from the fire may also be augmented by debris flows of floatable and transportable material within the active channel areas and steep, incised drainages.

A consequence of significant runoff, erosion, sediment and debris delivery is a short-term degradation of water quality as ash, sediment, and burned organic debris are delivered to streams and reservoirs within and downstream of burned areas. The impacts of this effect depend largely on the vegetative recovery times in combination with storm characteristics in the same time period.

AGWA

The watershed team was able to utilize quick, rough draft model outputs from AGWA to focus our field work on the sub-watersheds or stream reaches that were modeled to have the highest response within the burned area. This was accomplished by applying a 6 hour, 25-year recurrence interval storm uniformly over the entire burned area. This field work verified and corrected the map of soil burn severity to improve the model outputs for the final report. The final model outputs used storms of different intensity, duration, and recurrence interval. The team chose a 1 hour, 10-year recurrence interval storm distributed approximately over the upper two-thirds of each watershed that drained to or included identified values-at-risk. This storm was chosen for two reasons: First, summer thunderstorms are usually limited to localized events not exceeding about 5 square miles; second, hillslope treatments are usually overwhelmed by storms with a recurrence interval in excess of 10 years. The team also chose to model watershed response using a 6 hour, 25-year recurrence interval storm uniformly distributed across the entire watershed. This storm event was also chosen for two reasons: First, water repellency provides lesser influence in storms much longer than 6 hours; second, winter storms or storms over the area in late September have been identified by local experts to produce the most stream volume. A summary of the results are provided in Table 7. Note that the model was not calibrated, there the AGWA results presented in this report represent the relative change from pre-fire to post-fire, and are not to be interpreted as absolute results.

Table 7. Summary of AGWA Watershed Response for a 10 year, 1 hour event, Las Conchas Fire.

Summary of Watershed Response

Model results produced using AGWA
Cooperation with USDA, Agriculture Research Service and the University of Arizona
July 21,2011
Modeling performed by Shea Burns & Lainie Levick, ARS
Narrative and summary of results by TJ Clifford, DOI National Interagency BAER Team

Storm Event: 10-Year Recurrence Interval, 1 Hour Duration
Represents Absolute change in peak flows associated with post-fire conditions.

Watershed	Parameter	Rainfall (in)	Pre-fire	Post-fire	Percent Change
Rio Del Oso	Peak Flow (cfs)	1.51	143	1,014	608
Rio Del Oso	Peak Sediment (T/s)	1.51	0	3	2,176
Rio Del Oso	Sediment Yield (T/ac)	1.51	0	0	1,564
Rio Del Oso	Total Sediment (T)	1.51	405	6,731	1,564
Santa Clara	Peak Flow (cfs)	1.56	51	992	1,851
Santa Clara	Peak Sediment (T/s)	1.56	0	4	6,729
Santa Clara	Sediment Yield (T/ac)	1.56	0	2	4,145
Santa Clara	Total Sediment (T)	1.56	278	11,785	4,145
Los Alamos	Peak Flow (cfs)	1.52	1,508	4,660	209
Los Alamos	Peak Sediment (T/s)	1.52	15	79	417
Los Alamos	Sediment Yield (T/ac)	1.52	1	5	258
Los Alamos	Total Sediment (T)	1.52	54,733	195,918	258

Rio Del Oso

The Rio Del Oso responds with a 608 percent increase in peak flow to its mouth that corresponds to a delivery of about 6,731 tons of sediment. The watershed response in the Rio Del Oso watershed is most affected by a thunderstorm event in the upper 1/3 of the watershed and resembling at least a 10-year recurrence interval and 1 hour storm. The estimated streamflow response is estimated to be about 1,014 cubic feet per second (cfs). Note the double peak associated with the 25-year, 6 hour storm applied uniformly over the entire watershed. The first peak is due to a high rock content/bedrock near the bottom of the watershed and is the same pre- and post-fire. The second peak is from the fire, but is slightly lower than the first peak, so the percent change between peak flows is 0 (personal communication, Shea Burns 07/21/2011). Even though the peak flows within this larger event do not change, there is still a 65 percent increase in sediment delivered to the outlet. Refer to Appendix V, Supporting Documentation – AGWA Model Outputs.

Figure 4. AGWA Illustration of a 10 year, 1 hour event in Rio Del Oso, Las Conchas Fire.

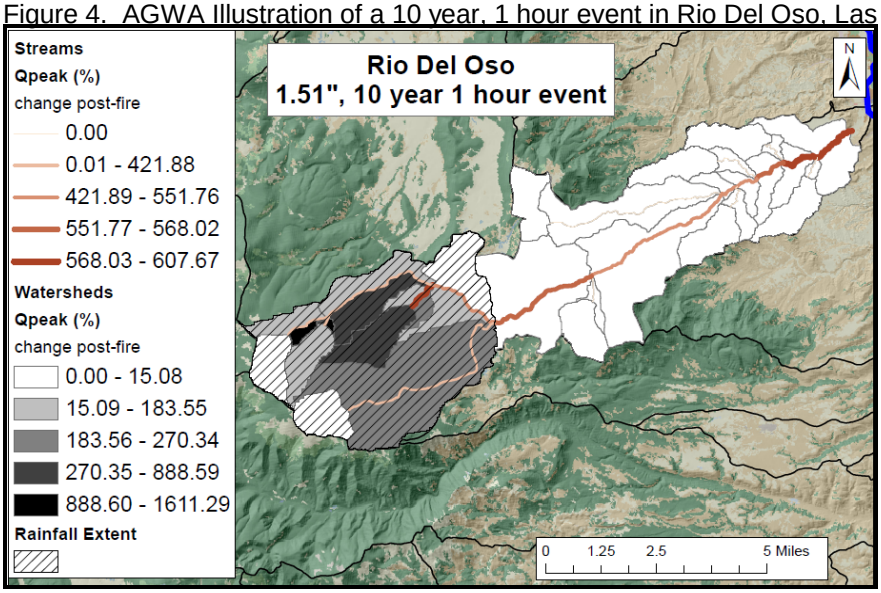
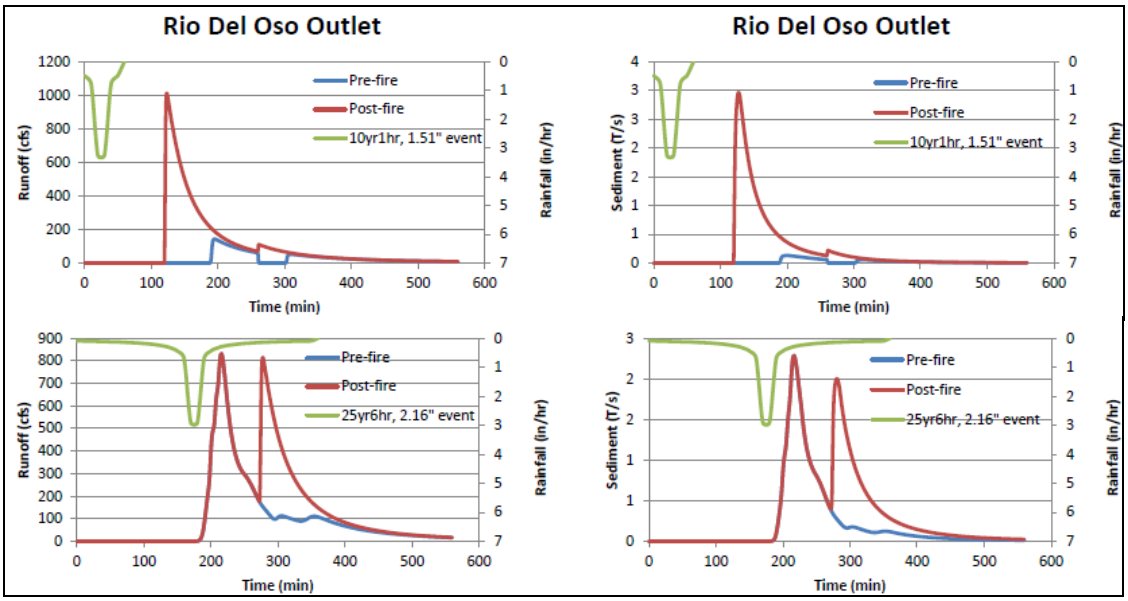


Figure 5. AGWA Hydrographs for both a 10 Year, 1 Hour event and a 25 Year, 6 Hour event for Rio Del Oso, Las Conchas Fire.



Santa Clara

The Santa Clara Canyon watershed response is not as straight forward as the previous watershed due to the 4 ponds (small reservoirs) constructed to attenuate flooding to the Santa Clara Pueblo. For consistency, the watershed must be described without the ponds (modeled using full ponds). Santa Clara Canyon has a post-fire increase of 1,851

percent to streamflow and an increase of 4,145 percent to total sediment delivery to the mouth. These increases are associated with a 10-year, 1 hour event distributed in the upper 1/3 of the watershed or above the Tsikumuu Pond (uppermost pond).

Figure 6. AGWA Hydrographs for a 10 yr. 1 hr. event for Santa Clara Creek, Las Conchas Fire.

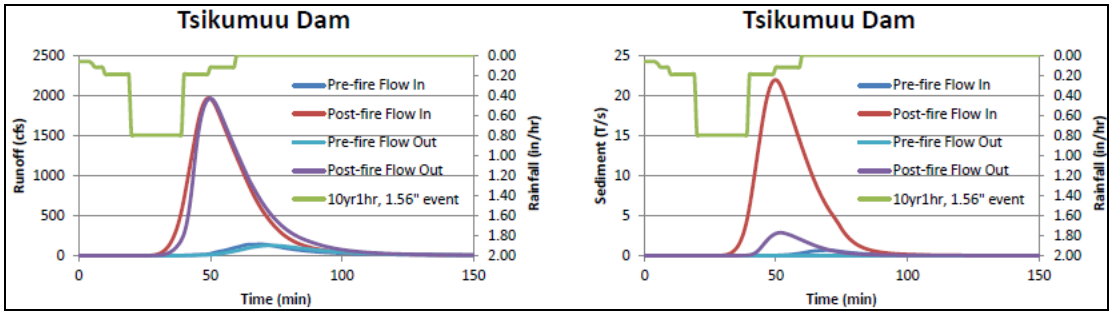
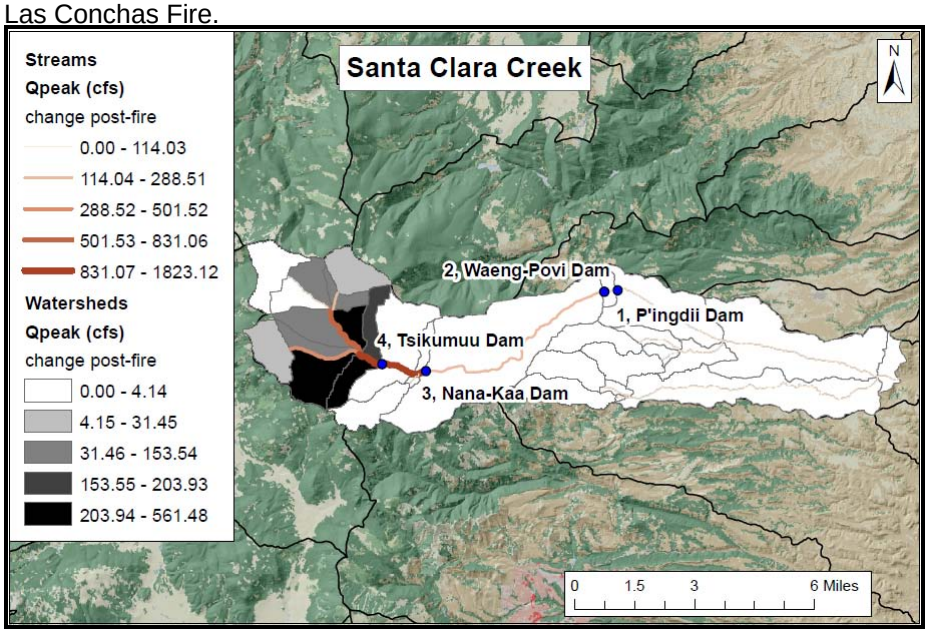


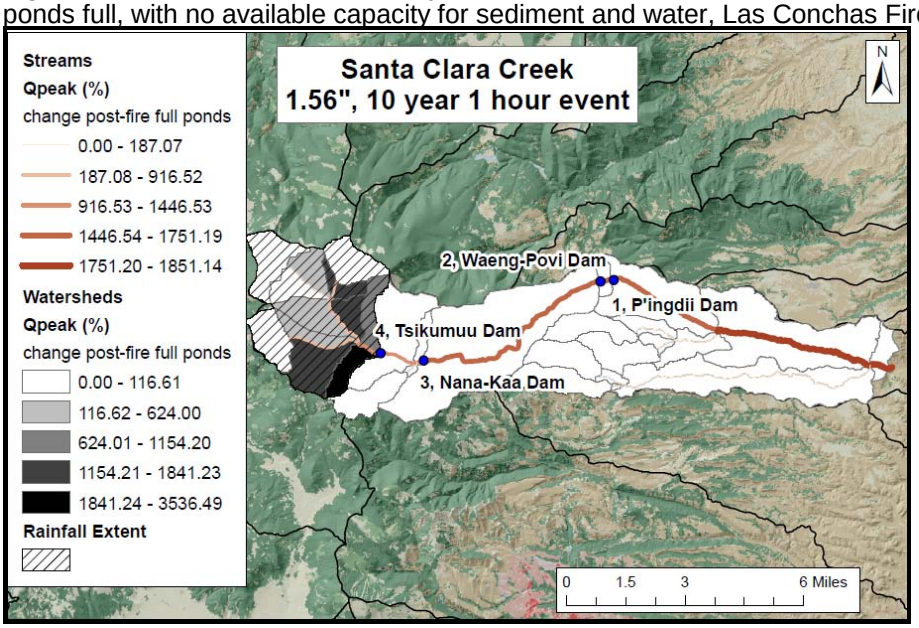
Figure 7. AGWA Illustration of a 10 year, 1 hour event in Santa Clara Creek with the ponds modeled as empty with entire available storage capacity for water and sediment, Las Conchas Fire.



Obviously, the 4 ponds in Santa Clara Canyon significantly change the watershed response rainfall events (Figures 5 & 6). If the ponds are empty, a 10-year, 1 hour event is successfully and fully captured by the pond system within the Canyon and is reduced to pre-fire streamflow before it leaves pond #2 (Waeng-Povi). This event would fill pond #4 (Tsikumuu) with sediment and overtop the dam up to 15 inches in depth. This filling and overtopping is estimated to take about 7 minutes from time of concentration to the ponds inlet. Exceeding the capacity of the spillway at the Tsikumuu Dam poses a very real risk of failure due to the earthen dam construction. There is also potential that a second

rainfall event happens (of the same magnitude and frequency) prior to emptying and excavating material from the ponds. This second event would result in streamflow increases to the mouth of Santa Clara in the amount of an estimated 1,851 percent increase (as described above).

Figure 8. AGWA Illustration of a 10 year, 1 hour event in Santa Clara Creek with the ponds full, with no available capacity for sediment and water, Las Conchas Fire.



Los Alamos Canyon (Guaje Canyon)

The Los Alamos Canyon responds with a 209 percent increase in peak flow to its mouth that corresponds to a delivery of almost 196,000 tons of sediment. The watershed response in the Los Alamos Canyon watershed is most affected by an event in the upper 1/3 of the watershed and resembling at least a 10-year recurrence interval and 1 hour storm. The estimated streamflow response is estimated to be about 4,660 cubic feet per second (cfs). Guaje Canyon produces the majority of this watershed response, but does not deliver the full response all the way to the mouth. Although the mouth of Guaje Canyon would experience about a 209 percent increase in streamflow, the upper 2/3rds of the canyon would experience up to about a 642 percent increase in streamflow and significantly larger volumes of sediment. Refer to Appendix V, Supporting Documentation – AGWA Model Outputs.

Figure 9. AGWA Illustration of a 10 year, 1 hour event in Los Alamos Canyon, Las Conchas Fire.

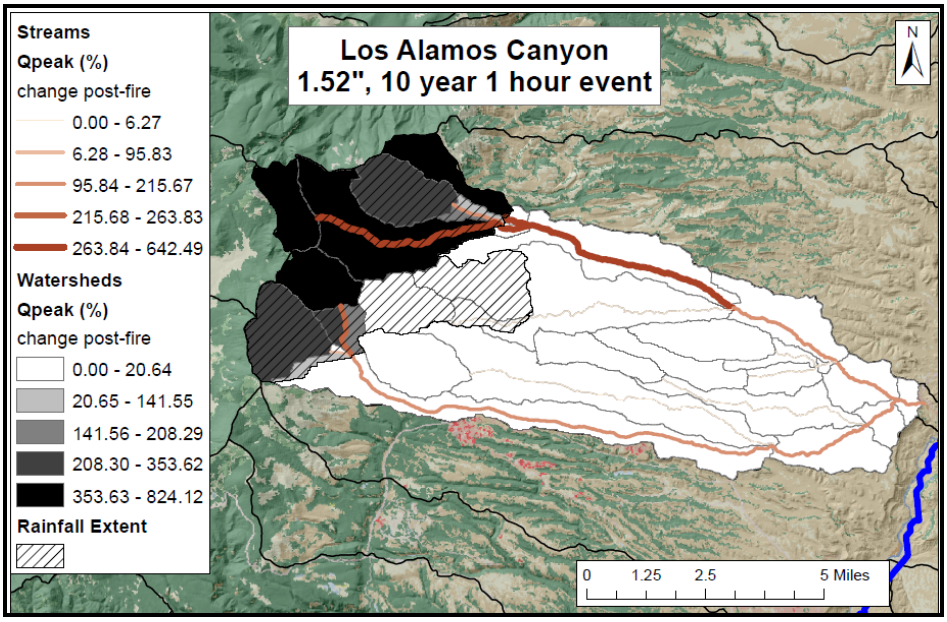
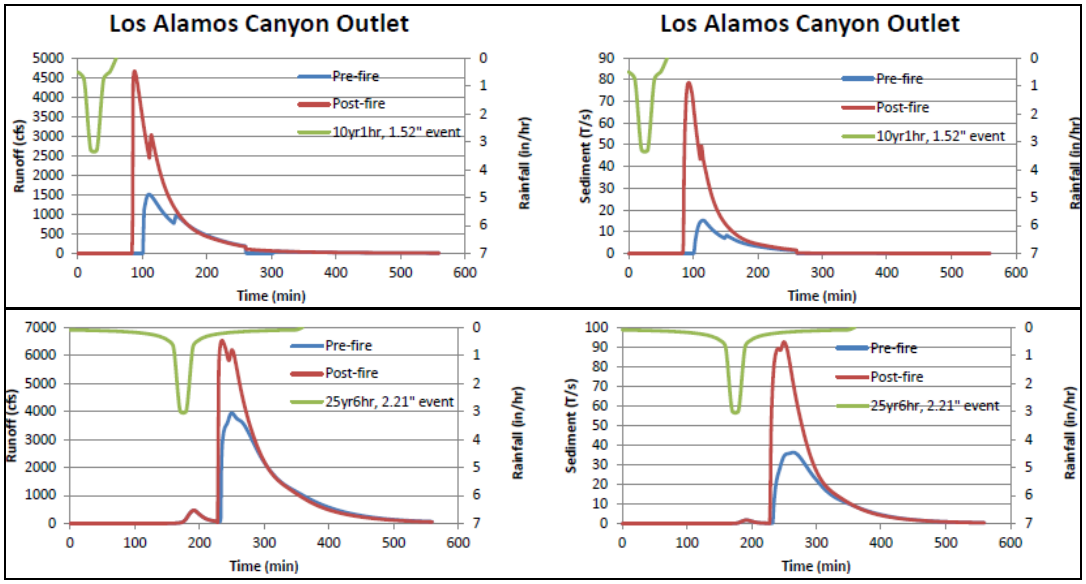


Figure 10. AGWA Hydrographs for a 10 yr. 1 hr. event for Los Alamos Canyon (Guaje Canyon), Las Conchas Fire.



Values at Risk

BAER assessments evaluate the effect of 10 to 25-year storm events. The ability for BAER to prescribe temporary treatments that withstand storm events greater than a 25-year magnitude becomes problematic. The nature of BAER activities allows for rapid assessment and rapid implementation of treatments to protect human lives, property, and critical natural and cultural resources. Design of treatments and implementation beyond 25-year storm events usually requires complex engineering and implementation that exceeds the rapid implementation of such treatments.

Aerial reconnaissance and field evaluations were conducted throughout the fire area to determine if threats to life, property, or critical cultural or natural resources were present on Pueblo lands and in a few instances private lands in close proximity or downstream of the fire area. Numerous residential, out-buildings structures, and some commercial buildings; campgrounds; water conveyance and impoundment facilities; roads; and cultural sites were evaluated for risk from increased erosion, flooding or debris flows. The following table summarizes the identified values at risk.

Table 8. Values at Risk Las Conchas Fire North BAER Team Assessment.

Pueblo	Value at Risk	Potential Threat	Level of Risk	Treatment	Specification Number
Santa Clara	Pueblo/Village	Flooding	Very High	Structure Protection, Early Warning System, Hazard Signs	SC-1, SC-8,SC-9, SC-11
Santa Clara	Irrigation Diversion	Flooding/Sediment	Very High	Sediment/Debris Removal	SC-14
Santa Clara	Road/Culverts/Rec.Facilities	Flooding/Debris	Very High	Debris Removal, Storm Patrol, Hazard Signs	SC-1, SC-16, SC-10, SC-12, SC-18
Santa Clara	Ponds 1-4	Debris/Sediment	Very High	Sediment Removal, Pond Draining	SC-5, SC-18,
Santa Clara	Well House	Flooding/Sediment	Very High	Structure Protection	SC-8
Santa Clara	Upper Canyon Retention Ponds	Debris Flows	Very High	Engineering Assessment	SC-17
San Ildefonso	Residential Area	Flooding	Low	Structure Protection	SI-3
San Ildefonso	Commercial Building	Flooding	Very High	Structure Protecction	SI-3
San Ildefonso	Roads	Flooding/Sediment	Very High	Storm Patrol, Early Warning System, Hazard Signs	SI-1, SI-6, SI-4
San Ildefonso	Historic Bridge/Access Road	Flooding/Sediment	High	Civil Engineering Risk Assessment	SI-5
San Ildefonso	Guaje Canyon Well Pumps	Flooding/Sediment	Low	Storm Patrol	SI-6
San Ildefonso	Highway 502 Bridge	Flooding/Sediment	Low	Storm Patrol	SI-6
Cochiti	Golf Course	Flooding/Sediment	High	Early Warning System, Hazard Signs	CO-2, CO-5, CO-6
Cochiti	Pueblo/Village	Flooding/Sediment	Moderate	Structure Protection, Early Warning System	CO-2, CO-6
Cochiti	Mine Tailings	Flooding/Hazardous Material Transport	Very High	Structure Protection	CO-2
Cochiti	Cochiti Lake	Flood Generated Wave Action/Sediment	Very High	Early Warning System	CO-6
Cochiti	Sewer Lagoons	Flooding/Sediment	Moderate	Structure Protection	CO-2
Cochiti	Hwy. Bridge @ Peralta Cyn	Flooding/Debris	Moderate	Storm Patrol, Hazard Signs, Channel Cleaning	CO-2, CO-4, CO-5
Cochiti	Hwy. Bridges @ Bland Cyn	Flooding/Debris	High	Storm Patrol, Hazard Signs, Channel Cleaning	CO-2, CO-4, CO-5
Cochiti	Apple Orchard	Flooding/Debris/Sediment	Extreme	Early Warning System,	CO-6
Cochiti	Secondary Roads	Flooding/Sediment	High	Storm Patrol, Hazard Signs	CO-4, CO-5
Private	Residential house in Rio Del Oso	Flooding/Sediment	Very High	Structure Protection	CO-2

IV. RECOMMENDATIONS

Based on the results of the above observations:

A. Emergency Stabilization – Fire Suppression Rehabilitation

No recommendation under this category.

B. Emergency Stabilization

Hazard/Safety Signs (SC-1, SI-1, CO-5, JE-4)
Installation of flood warning signs, burned area warning signs, and public safety signs. These signs will warn the public of dangers on the road that have changed as a result of the fire. This will provide the public with the necessary information to be prepared for being in a post-fire environment.

Structure Protection (SC-8, SI-3, CO-2)
Placement of K-rails and sandbags around structures within the pueblos to minimize the effects of flooding and debris during high flow events. The purpose is to protect life and property from high stream flow events.

Sediment Removal – Ponds (SC-5)
This will entail capture and removal of sediment in the four ponds located on Santa Clara Creek and the Zero and J ponds in the Sawmill drainage. Removal will include existing material to increase capacity and following high flow events that deposit sediment in the ponds to maintain capacity. This specification will lessen the potential for dam failure and catastrophic flow heading down Santa Clara Creek.

Canyon Road Stream Crossing Protection/Dip Construction (SC-7)
Eleven stream crossings along the Santa Clara Canyon Road will be enhanced to handle expected higher stream flows by construction overflow rolling dips immediate downstream of identified stream crossings. Inlets and outlets will be armored.

Floatable Debris Removal, Lower Santa Clara Canyon (SC-9)
This will involve removal of floatable woody material and brush in Santa Clara Creek from Santa Clara Pueblo upstream to the irrigation diversion immediately and following high flow events. The purpose of the specification is to decrease the amount of transportable material that has the potential to cause debris jams at road/stream crossings.

Floatable Debris Removal, Upper Santa Clara Canyon (SC-16)
This will involve removal of floatable woody material and brush in Santa Clara Canyon from the irrigation diversion upstream to Pond #4 immediately and following high flow events. The purpose of the specification is to decrease the amount of transportable material that has the potential to cause debris jams at road/stream crossings.

Storm Patrol (SC-10, SI-6, CO-4)
There are many places at risk of inundation, debris deposition, flood damage and other post-fire related impacts from elevated stream flows carrying sediment and debris. This specification will identify areas needing debris removal or that have sustained damage from post-fire watershed effects.

Early Warning System (SC-11, SI-4, CO-6)
Several homes and Pueblos are located downstream of the burn area that are at risk of increased post-fire stream flooding and debris flows. An early alert system for precipitation and stream flows can provide advance warning of conditions that can put life and property at risk.

Portable Toilet Removal (SC-12)
There are several portable toilets throughout the Santa Clara Canyon staged adjacent to recreation sites. These pose a hazardous waste threat in the watershed. Removal of the portable toilets will reduce the potential for hazardous human waste to enter Santa Clara Creek during high flow events.

Sandbag Painting (SC-13, SI-7)
Spray painting of sandbags will reduce the risk of sandbags to failure as a result of exposure to UV radiation. Depending on rainfall and watershed recovery, treatments may need to be in place for up to 3 years, painting of the sandbags

will extend the life of the sandbags.

Irrigation Diversion Cleaning (SC-14)
During high flow events floatable debris and sediment will collect at the irrigation diversion for the Santa Clara Pueblo hindering the ability of the system to deliver water. Implementation will allow for the system to operate properly.

Civil Engineering Risk Assessment (SI-5)
A risk assessment is needed in the area of the historic Otowi Bridge and Warner House Crossing in Lower Los Alamos Canyon near the confluence with the Rio Grande. The area is susceptible to high flows and flash flooding. This will be compounded as a result of the Las Conchas Fire which has occurred in the headwaters of this drainage.

Engineering Assessment of Retention Ponds (SC-17)
An engineering assessment of two retention ponds in the Upper Santa Clara Canyon near Pond #3.

Aerial Straw Mulch (SC-18)
Apply agricultural straw mulch to the ground surface by helicopter and spread with hand crews as necessary to achieve a continuous cover of uniform thickness to replace ground cover consumed by the fire. The purpose of this treatment is to reduce the delivery of sediment from severely burned hillslopes to avoid sediment bulking of stream flows. The area that is recommended for straw mulching had a weighted-average predicted erosion rate of 13.5 tons per acre after the fire. This rate is predicted to be reduced by 71 percent to 3.9 tons per acre with the recommended application of a 1 ton per acre of straw. To explain the effect of mulching another way, the post-fire increase in erosion with mulch applied is only 150 percent above pre-fire erosion rates, compared to > 500 percent increase if no treatment is implemented.

Spur Road Culvert Removal/Low Water Crossings (SC-19)
Replace five existing spur road culverts that access recreation sites with low water crossings to minimize the potential of debris jams and failure during high flow events.

Canyon Road Culvert Replacements (SC-21)
Replace culverts at four stream crossings where more than one culvert exists with larger single pipe-arch culverts to increase flow capacities. Replacing with multiple culverts with a single pipe will decrease the potential for debris accumulation, culvert failure, and road damage.

Prepare and Deliver Final BARC Map (CO-7)
The mapping that is done from the air and using vantage points has limited spatial accuracy, so it is recommended that an additional BARC image be procured from the Remote Sensing Application Center in Salt Lake City, Utah. This additional soil burn severity information may help with future planning to address post-fire rehabilitation needs on all of the effected Pueblos and adjacent federal land.

B. Management Recommendation – Rehabilitation – (Non Specification)

Private residence on Rio Del Oso needs coordination with NRCS and a State sponsor for treatment implementation.

Inclusion of City of Santa Fe on the responder list for the Early Warning System. This is for protection of the cities domestic water delivery system.

Santa Clara Pueblo irrigation system should be closed off during high flow events to prevent sediment from entering and damaging the system.

Installation of public education/warning signs at recreation sites on Cochiti Lake.

New Mexico Department of Transportation should inspect bridges/crossings draining the fire area following high flow events for damage. Flash flood warning signs should also be posted along the highways near these crossings.

An evacuation plan for the Dixon Apple Orchard should be prepared as soon as feasibly possible. This area is at an extreme level of risk.

Continue coordination of federal agencies regarding the early warning system following the threat of higher than normal flow events.

Provide briefing package to Santa Clara Pueblo regarding debris flow potential in Upper Santa Clara Canyon.

Consider low water fords or portable bridges for all road crossings of Santa Clara Creek.

Construct rock check dams in gullys along Santo Domingo Road to prevent further headcutting.

V. CONSULTATIONS

Shea Burns, USDA Agricultural Resource Service, Tucson, AZ
Lainie Lavick, USDA Agricultural Resource Service, Tucson, AZ
Dr. Phil Guertin, University of Arizona, Tucson, AZ
Dr. Dave Goodrich, USDA Agricultural Resource Service, Portland, OR
Sue Cannon, USGS, Denver, CO
Thomas Gonzalez, USDA Natural Resource Conservation Service, Espanola, NM

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Rich Pyzik, US Forest Service	541-943-4440
Brian Rasmussen, National Park Service	530-242-3444
Bill Sims, Bureau of Indian Affairs	505-563-3478
TJ Clifford, Bureau of Land Management	208-384-3459
Tedd Huffman, US Forest Service	304-636-1800
Becky Biglow, US Forest Service	760-873-2446
Chuck Jachens, Bureau of Indian Affairs	916-261-6756

BURNED AREA EMERGENCY STABILIZATION PLAN

LAS CONCHAS FIRE

WILDLIFE RESOURCE ASSESSMENT

I. OBJECTIVES

- Assess the effects of fire, suppression actions, and prescribed emergency stabilization measures to Federally Listed Threatened and Endangered Species and Designated Critical Habitats on tribal trust lands.
- Conduct Section 7 Emergency Consultation with the U.S. Fish and Wildlife Service (if necessary).
- Prescribe emergency stabilization measures, recommendations, and monitoring if warranted to benefit federally listed species.
- Assess fire impacts to culturally sensitive species as requested by individual tribes.

II. ISSUES

A. T&E Habitat Stabilization/Recovery-

While several federally listed threatened or endangered species have been documented on lands within the Las Conchas Fire perimeter, none have been documented on tribal trust lands. Two federal Candidate Species, Rio Grande cutthroat trout (RGCT) and Jemez Mountain Salamander (JMS), occur on Santa Clara Pueblo and are addressed.

The Santa Clara Pueblo was preparing to re-stock RGCT in Santa Clara Creek prior to the fire. The Jemez Mountain Salamander is a candidate species with a high listing priority. The JMS was assigned an LPN of 2 (the highest category available for a species) during a 12-month finding by the U.S. Fish and Wildlife Service (FWS) (75 FR 54822).

B. Culturally Significant Species

Though beyond the scope of emergency stabilization funding, and the emergency consultation process, several culturally significant species are addressed at the request of the tribes impacted by the fire. Assessment of the fire, suppression actions, and emergency stabilization measures to mule deer, elk, wild turkey, and golden eagles was conducted.

III. OBSERVATIONS

The purpose of this Burned Area Emergency Response (BAER) Wildlife Assessment is to document the effects of the fire, suppression activities, proposed stabilization treatments, and potential post fire flooding and sediment delivery to all federally listed threatened and endangered species and designated critical habitats within the fire area. Secondarily, fire effects to culturally significant species are also described. This assessment includes fire and downstream effects to species that occur on lands held in trust by the U.S. Government, Bureau of Indian Affairs, for the Pueblos of Santa Clara, San Ildefonso, Ohkay Owingeh, Jemez, Cochiti, and Santo Domingo. A separate BAER assessment is being prepared by the South Las Conchas BAER Team to address fire effects to the U.S. Forest Service and National Parks Service lands within the Las Conchas Fire perimeter.

This assessment also includes information on the Emergency Section 7 Consultation for this incident. Emergency Consultation was initiated with the U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office (NMESFO) on July 8, 2011 (Cons # 22420-2011-FE0070). Contact with the appropriate FWS office is initiated at the beginning of the BAER process to verify T & E species lists, and assess impacts to these species. While BAER policy only allows for treatments designed to benefit federally listed species and designated critical habitats (BAER ES Handbook Section 4.2.9), non-specification, general recommendations are made for culturally significant species.

A. Background

Detailed discussion of fire causes, start locations and times, behavior, and suppression actions is provided in the BAER Plan Executive Summary, Operations Assessment section, incident action plans, and Incident Command Team Narratives. As of July 13, 2011, approximately 149,241 acres burned across Rio Arriba, Santa Fe, Sandoval, and Los Alamos counties during the Las Conchas Fire (Table 1). As of July 18, 2011, the fire was still uncontrolled (65% contained), therefore acreages may increase. Monsoon season in the southwestern U.S. has begun and heavy rainfall has occurred over portions of the fire resulting in sediment and debris flows in some drainages.

Table 1. Burned areas within the Las Conchas Fire by ownership, as of July 13, 2011.

Ownership	**Acres Burned**
Santa Clara	16,587
Jemez	2,238
Santo Domingo	4
USFS	76,634
NPS	20,810
Valles Caldera National Preserve	27,781
DOE, Los Alamos Natl. Lab	133
State	1,704
Private	3,352

Vegetation

The Las Conchas Fire burned through a variety of habitat types (Table 2). Dominant vegetation types include mixed conifer, ponderosa pine, pinyon-juniper woodland, montane meadow/grassland, aspen, and spruce-fir forest. These vegetation communities were impacted to varying degrees due to differential vegetation mortality and burn severity. Degrees of vegetation mortality and soil burn severity (fire effects to soils) for each impacted Pueblo are presented in tables 3 and 4, respectively. Detailed descriptions of vegetation communities, fire effects to plant species, and watershed impacts are provided in the BAER Vegetation and Watershed assessments and associated maps.

Table 2. Acres of major vegetation communities burned within the Las Conchas Fire by ownership.

	Santa Clara Pueblo	Jemez Pueblo	Santo Domingo Pueblo	USFS	NPS	Valles Caldera
Mixed conifer	8,851	220		24,256	3,486	12,784
Ponderosa pine	2,358	1,672	1	27,957	5,112	4,646
Pinyon-juniper woodland	136	322	3	5732	8,222	0
Recently Burned*	1,983	0	0	10,009	721	
Montane meadow/grassland	313	0	0	743	537	6,868
Aspen	479	0	0	3,143	285	2,513
Spruce-fir forest	1,703	0	0	1,258	5	904
Rock outcrops	702	14	0	1,595	244	32

* Areas burned in the Cerro Grande and/or Oso Fires

Table 3. Acres of vegetation mortality (top-kill) categories by ownership in the Las Conchas Fire.

	Low	Low-Mod	Mod-High	High
Santa Clara Pueblo	3,494	2,594	5,108	5,391
Jemez Pueblo	2,226	10	2	0
Santo Domingo Pueblo	4	0	0	0
USFS	37,843	8,139	20,809	9,842
NPS	16,827	1,192	2,271	519

Valles Caldera	12,665	2,894	7,277	4,944

Table 4. Acres of burned severity categories by ownership in the Las Conchas Fire.					
	Unburned	Low	Moderate	High	No data
Santa Clara Pueblo	905	3,423	7,741	4,187	300
Jemez Pueblo	0	2123	113	0	1
Santo Domingo Pueblo	0	1	0	0	2
USFS	3,656	29,695	25,933	15,818	1,502
NPS	3,539	10,178	2,984	2,144	1,962
Valles Caldera	6,049	7,887	6,564	5,380	1,897

B. Reconnaissance Methodology and Results

Information used in this assessment was generated from review of relevant literature, recovery and management plans, GIS databases, and discussion with species experts and natural resource managers from the local Pueblos, USFWS, BIA, USFS, NPS, and consulting biologists. Field reconnaissance consisted of on-site inspection of fire impacted habitats on tribal trust lands, known occurrence sites, and areas downstream of fire perimeters that could potentially be impacted by sediment and debris flows. Field reconnaissance was conducted July 7 through July 18, 2011. In addition, two aerial reconnaissance flights were conducted from helicopters in order to assess inaccessible areas and gain a landscape level perspective on fire effects. Flights of fire areas were conducted on July 8 (Santa Clara Pueblo) and July 16 (Jemez and Santa Clara Pueblos). Resource advisors that took part in field reconnaissance, meetings, and discussions of species included Luke Montoya (USFWS-Albuquerque), Will Amy (USFS-Santa Fe NF), Chantel Cook (USFS-Santa Fe NF), Mary Orr (USFS-Santa Fe NF), Steve Fettig (NPS-Bandelier NM), Eric Hein (USFWS-Albuquerque), Bruce Bauer (Santa Clara Pueblo), Norman Jojola (BIA-Northern Pueblos Agency), Brian Jacobs (NPS-Bandelier NM), Michelle Christman (USFWS-Albuquerque), Mike Dolan (BAER Vegetation Specialist), and the DOI BAER Team Watershed Group.

The NMESFO has jurisdiction over the listed species within the area of the fires. Identification of known listed species occurrences and critical habitat is crucial to accurately assessing fire affects. The Santa Fe National Forest maintains extensive GIS databases on listed species occurrence locations and critical habitat layers for areas included within the fire perimeter. This data was supplemented with information provided by the Pueblos, Bandelier National Monument, Univ. of New Mexico, and USFWS Albuquerque Field office (E. Hein, pers. comm.).

This Wildlife Assessment is a summary of fire effects to wildlife and their habitats. While the effects of the fires to the vegetation that makes up their habitats is discussed, a more thorough coverage of impacts to vegetation communities and watersheds can be found in the BAER Vegetation and BAER Soil and Watershed Assessments. These reports contain more detailed description of pre and post fire vegetation, post fire vegetation recovery estimates, run-off and debris flow estimates, and results of hydrologic modeling.

As stated above, the purpose of this assessment is to discuss the potential effects of the fire, suppression activities, and proposed emergency stabilization actions to federally listed threatened and endangered species and designated critical habitat that occur within, immediately adjacent to, or downstream from the Las Conchas Fire. Secondarily, impacts to other culturally significant species are also discussed. This assessment is not intended to definitively answer the many questions of effects to specific species that arise during an incident such as the Las Conchas Fire. The purpose of this assessment is to determine the need for immediate, emergency actions that may be necessary to prevent further negative effects to listed species. Because the species discussed in this assessment have ranges that extend beyond the fire perimeters, it is important to include information at a larger scale and across land ownership boundaries when discussing potential impacts to species as a whole and the need for long-term rehabilitation.

C. Findings

Analysis of GIS databases, species occurrence maps, and consultation with species experts indicates that no federally listed species or designated critical habitat have been documented on tribal trust lands. On a landscape level, multiple T & E species have been documented on adjacent USFS and NPS lands, however these areas of the fire are covered under a separate, USFS, BAER Team assessment and consultation.

The Las Conchas Fire perimeter only intersected the Pueblos of Santa Clara, Jemez, and Santo Domingo (Table 1). The potential for downstream impacts to San Ildefonso, Ohkay Oweengeh, and Cochiti was assessed through GIS analysis, consultation with the BAER watershed group, and discussions with species experts. No listed species occur in or adjacent to water courses on these Pueblos that could be impacted by potential run-off. Therefore, the primary focus of this assessment was on those Pueblos directly impacted by the fire.

1. Las Conchas Fire Species List

A species list was generated on July 7, 2011. The U.S. Fish and Wildlife Service (USFWS) maintains the current Proposed/Listed Threatened-Endangered/Candidate species list and publishes the information in the Federal Register. The NMESFO provides an updated Threatened/Endangered/Proposed/Candidate species list for each county in New Mexico at http://www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm. The species list used for this Biological Assessment was generated July 7, 2011. Species documented within Rio Arriba, Santa Fe, Sandoval, and Los Alamos Counties were included in the list. Below is the comprehensive list of threatened, endangered, proposed, and candidate species (TEPC) evaluated for the Tribal lands within the Las Conchas Fire.

Common Name	Scientific Name	Listing Status	Biological Assessment Status
Rio Grande Cutthroat Trout	*Oncorhynchus clarki virginalis*	Candidate	Addressed in B.A.
Jemez Mountain Salamander	*Plethodon neomexicanus*	Candidate	Addressed in B.A.

The following species were identified as occurring inside the fire perimeter(s) but are not found on tribal trust lands, therefore they were not addressed in this assessment. This determination was made in consultation with the Albuquerque Field Office, USFS, BIA and tribal biologists.

Common Name	Scientific Name	Listing Status	Biological Assessment Status
Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened	**No effect**; Found within fire perimeter, but no occurrence data or designated critical habitat on tribal trust lands.

The following species were identified, using county species lists provided by the FWS Albuquerque Field Office, as federally listed species potentially existing within, adjacent to, or downstream from the fire areas. Through post fire reconnaissance, review of GIS data layers, and consultation with local experts, it was determined that these species were not affected by fire assessed in this report (no habitat within or adjacent to the fire areas and/or inventories prior to the fires determined absence), or expected to be affected by potential post-fire flooding or run-off.

Common Name	Scientific Name	Listing Status	Biological Assessment Status

Rio Grande Silvery Minnow	*Hybognathus amarus*	Endangered	**No effect**; no occurrence data, downstream effects or designated critical habitat on tribal trust land or within the fire perimeter.
Southwest Willow Flycatcher	*Empidonax traillii*	Endangered	**No effect**; no occurrence data or designated critical habitat on tribal trust land or within the fire perimeter
Black-footed Ferret	*Mustela nigripes*	Endangered	**No effect**; no occurrence data or designated critical habitat on tribal trust land or within the fire perimeter
Yellow-billed Cuckoo	*Coccyzus americanus*	Candidate	**No effect**; no occurrence data or designated critical habitat on tribal trust land or within the fire perimeter
Least Tern	*Sterna antillarum*	Endangered	**No effect**; no occurrence data or designated critical habitat on tribal trust land or within the fire perimeter
Mountain Plover	*Charadrius montanus*	Proposed Threatened	**No effect**; no occurrence data or designated critical habitat on tribal trust land or within the fire perimeter

The determinations of no effect to species in the table above that do not occur on tribal trust lands were based on data provided by USFS, FWS, and species experts during the BAER wildlife assessment. If additional data becomes available that indicates the potential for additional effects to these species, the agency responsible for the lands those species occur on should assess effects, document concerns, and resume Section 7 consultation if warranted. The biologists may need to document species presence or absence by season and develop accurate habitat maps for each species for future use.

2. Biological Assessment for Federally Listed Species

Though Section 7 of the ESA does not require assessment of affects to Candidate species, DOI BAER policy dictates that assessment of impacts to these species will be included in the wildlife assessment.

Direct effects refer to mortality or disturbance that result in flushing, displacement, or harassment of the animal. Indirect effects refers to delayed effects, such as modification of habitat and effects to prey species.

RIO GRANDE CUTTHROAT TROUT: The Rio Grande cutthroat trout (RGCT) is a subspecies of cutthroat trout, endemic to the Rio Grande, Pecos, and possibly the Canadian River Basins in New Mexico and Colorado (Federal Register 72 FR 28664 28665). The historical distribution of Rio Grande cutthroat trout is not known with certainty. It is assumed that Rio Grande cutthroat trout occupied all streams capable of supporting trout in the Rio Grande, Pecos River, and Canadian River basins (Alves *et al.* 2007). Reasons for their decline have been attributed to the introduction of non-native fishes (e.g. rainbow and brown trout) and habitat alterations (Sublette et al. 1990, Pritchard et al. 2007). In Colorado and New Mexico, streams currently capable of supporting trout are at elevations of 6,000 feet ft and above; on north-facing slopes they are found in streams at elevations of 5,500 ft and above. Conservation populations (those populations with 10 percent or less introgression (hybridization) from nonnative trout genes) are concentrated in elevations from 9,000–10,000 ft (Alves *et al.* 2007). Conservation populations of Rio Grande cutthroat trout occupy approximately 5-10 percent of their historical habitat (Calamusso and Rinne 2004, Alves *et al.* 2007). Because Rio Grande cutthroat trout are now restricted to headwater, first, and second order streams that are narrow and small compared to the larger third, and fourth order streams they once occupied, the absolute loss of habitat is much greater than stream miles might indicate.

The RGCT has been documented within Santa Clara Creek on Santa Clara Pueblo through multiple surveys by biologists over the past decade. Within the Las Conchas Fire,

Santa Clara Creek is the only location on tribal trust lands that has RGCT. Hybridization has occurred with non-native rainbow trout that have been stocked in ponds along Santa Clara Creek. The RGCT is a culturally significant species to the Santa Clara Pueblo, as its usage can be traced back to when they resided at their ancestral home of Puye Cliff (Santa Clara Creek RGCT Management Plan, Santa Clara Pueblo, OEA). Taking a proactive conservation approach, they initiated a program to establish protected waters, remove non-native fishes, construct fish barriers, conduct genetic analysis, and re-introduce genetically pure RGCT to Santa Clara Creek. Much of this work was completed prior to the Las Conchas Fire. As a result of the fire, these efforts have been put on hold due to uncertainty of fire impacts to the Santa Clara watershed. The potential for debris, sediment, and ash flows into Santa Clara Creek could significantly impact stream flow, water quality, and in-stream habitat structure.

Field reconnaissance and GIS analysis of the Santa Clara Creek watershed revealed high burn severity and vegetation mortality on the slopes above the stream. Approximately 70% of the watershed experienced high or moderate-high vegetation mortality, while approximately 77% experienced high or moderate burn severity within the fire perimeter. Areas of high burn severity can exhibit increased soil hydrophobicity, which results in decreased water absorption and increased run-off, erosion, and debris flows. Within the riparian corridor, there are areas of unburned vegetation and low vegetation mortality that may buffer some of the sediment, ash, and debris flows. Run-off from recent rainfall, brought ash, sediment and debris into the creek and began to degrade water quality. This degradation will likely increase as summer monsoons continue to bring rain. These issues are exacerbated by the low flow volume of the creek at this time of the year due to drought conditions in the region.

Direct Effects: The intense heat coupled with the narrow, shallow shape of the stream may have lead to direct mortality of RGCT from the fire. However, if fish were able to find deeper pools, remain under cover, or remained in pockets of unburned habitat, they may have been able to survive the burn period. It is unlikely that water temperatures stayed above lethal thresholds for long enough to kill fish directly.

Indirect Effects: As mentioned above, increased run-off, erosion, and debris flow have the potential to significantly alter Santa Clara Creek, its tributaries and RGCT that inhabit the creek. Portions of the stream could be completely buried under rock, logs, and sediment, though the stream would eventually cut a new channel through this. Recent rain events resulted in debris flows that brought ash, sediment, and wood into the creek, plugged culverts, and covered roads. In the short term, this alters hydrology, water quality, and the suitability of the creek to support RGCT. In the long term this could lead to increased stream complexity and creation of pools, which would benefit the RGCT. Conversely, the loss of vegetation within the riparian zone, which shaded the stream, will lead to increased water temperatures. Increased sediment will cover clean gravel (6-40mm, NMDFG 2002) used as spawning habitat. Ash inputs to the stream will alter water chemistry, pH, and dissolved oxygen, decreasing the suitability for RGCT. Inputs to stocked trout ponds on the creek from recent rains resulted in mortality of stocked rainbow trout. Also, changes in water quality parameters and vegetative cover could impact invertebrate species that RGCT rely on as prey. If these watershed events occur, the mortality to remaining RGCT could be high.

Suppression Impacts: A full accounting of all suppression activities in the Santa Clara Creek watershed has yet to be completed, as suppression efforts are continuing on the fire. As suppression actions are mapped and assessed, a more detailed description of their impact will be developed. Resource advisors on site should ensure that dozer and hand lines are properly rehabilitated by suppression crews to decrease erosion, slope instability, and noxious weed establishment. The ponds along Santa Clara Creek were used as dip sites by helicopters. These ponds are stocked with rainbow trout and any RGCT found there would be fully hybridized. Several Retardant drops were identified on the upper slopes of the watershed. Remaining vegetation between the drops and the creek will buffer any chemical that is washed down resulting in negligible impacts to the creek. Any retardant drops that are identified near streams (within 200 feet) should be treated with cup trenches down slope of the chemical to catch any that runs-off.

Impacts of BAER Emergency Stabilization Treatments: Currently, no impact is expected from BAER emergency stabilization treatments that are being prescribed. No seeding, mulching, or infrastructure work are being proposed. Impacts should be re-evaluated if new treatments are proposed in the future.

Effects to RGCT from suppression action and emergency stabilization treatments are expected to be negligible

Non-specification, management recommendations for RGCT and its habitat are made in section IV.

JEMEZ MOUNTAIN SALAMANDER: In September 2010, the FWS announced a 12-month finding on a petition to list the JMS as a threatened or endangered species and to designate critical habitat under the Endangered Species Act. The FWS found that the listing was warranted but precluded by higher priority actions (75 FR 54822), therefore it remains a Candidate Species.

The JMS is endemic (native and restricted to a particular region) to the Jemez Mountains of New Mexico and geographically isolated from all other species of Plethodon. It predominantly occurs at elevations between 7,200ft and 9,500ft (Degenhardt et al. 1996). It is a terrestrial salamander that inhabits mixed conifer forests, consisting primarily of Douglas fir, spruce spp., white fir, Ponderosa pine, and aspen. They are found in association with decaying coniferous logs, and does not use standing surface water for any life stage. It spends much of its life underground, but can be found on the surface from July through September, when environmental conditions are warm and wet. When on the surface the JMS uses decaying logs, rocks, bark, and moss mats for cover. They forage on a diversity of prey items with ants, mites, and beetles being important species (Cummers 2005).

The JMS has been documented through limited monitoring as present on Santa Clara Pueblo, though surveys were not designed to estimate abundance, habitat use, or distribution. More intensive surveys have been conducted on the Santa Fe National Forest and Bandelier National Monument that have documented JMS presence over the larger landscape. Because this species is endemic to the region, the affects of the fire, suppression activities, and emergency stabilization measures have the potential to impact this species. The affects are outlined below.

Direct Effects: Any JMS on or near (1-4 inches) the surface when the fire front swept through would have been killed. JMS deeper than 4 inches may have suffered high mortality in areas with heavy ground fuels that burned for longer durations. The resonant heat would have reached deeper into the soil as logs, branches and slash were consumed. While JMS are typically on or near the surface during this time of the year, the drought that the region is experiencing may have kept them deeper within the soil where some moisture remained. This could have lessened direct mortality.

Indirect Effects: The lack of cover as a result of the fire could negatively impact the JMS. Decaying logs, moss mats, and bark that provide cover and trap moisture for JMS have been burned up in many areas of the fire. Obviously these impacts are more intense in areas of high burn severity and vegetation mortality. The loss of cover not only results in a loss of soil surface moisture, but an increase in temperature at the surface. There is evidence that temperature plays a key role in habitat suitability (Williams 1972). Soil chemistry and structure can also be altered by the ash layer and heat caused by the fire. Though a large portion of Santa Clara Canyon was moderately or severely burned, the mosaic of unburned and low burn severity patches may still support JMS. Trees killed by the fire have already begun to fall down which will provide long term cover as decay begins. Subterranean effects and loss of cover in unburned and low burn severity areas will likely be minimal and these areas should still support JMS and their prey. These sites will serve as source populations for invertebrates to recolonize more severely burned areas as vegetation re-establishes. Following the Cerro Grande Fire, surveys of known JMS sites were conducted and showed that JMS were still found in those sites 10 years

later. This species evolved with low intensity surface fires, and patchy high intensity fires in the Jemez Mountains. It is reasonable to believe that JMS would continue to persist in areas where this type of fire behavior was observed.

Suppression Impacts: A full accounting of all suppression activities in the Santa Clara Creek watershed has yet to be completed, as suppression efforts are continuing on the fire. As suppression actions are mapped and assessed, a more detailed description of their impact will be developed. Resource advisors on site should ensure that dozer and hand lines are properly rehabilitated by suppression crews to decrease erosion, slope instability, and noxious weed establishment. Few dozer or hand lines were observed in Santa Clara Canyon. Several Retardant drops were identified on the upper slopes of the watershed. Remaining vegetation between the drops and the creek will buffer any chemical that is washed down resulting in negligible impacts to the creek. Any retardant drops that are identified near streams (within 200 feet) should be treated with cup trenches down slope of the chemical to catch any that runs-off. Hazard tree falling will benefit JMS in the long term as logs begin to decay.

Impacts of BAER Emergency Stabilization Treatments: Currently, no impact is expected from BAER emergency stabilization treatments that are being prescribed. Seeding, which can result in dense roots, making sites unsuitable for JMS, is not being proposed on tribal trust lands. A limited amount of mulching is being proposed on appropriate slopes and soil types. Specification are written to ensure the mulch is weed free and applied at the appropriate thickness to prevent matting. This will prevent slope erosion and could secondarily provide cover and retain moisture at the soil surface. Impacts to JMS should be re-evaluated if new treatments are proposed in the future. Refer to the memo provided by FWS-Albuquerque entitled, **Recommendations for Minimizing the Effects to Jemez Mountain Salamander Post Wildfire** (July 20, 2011) in the documentation section for further information on mitigation measures.

Effects to JMS from suppression action and emergency stabilization treatments will be negligible

Non-specification, management recommendations for JMS and its habitat are made in section IV.

3. **Culturally Significant Species**

Due to the expressed concerns of representatives from fire impacted tribes, fire effects to culturally significant species and their habitats are discussed below.

Golden eagles occur throughout the fire area on tribal trust land during various phases of their life history. On Jemez and Santa Clara pueblos, they make use of steep, rocky cliff faces for breeding and roosting and feed in adjacent canyon bottoms, riparian habitats and water bodies. They are opportunistic feeders that focus primarily on small mammals, and to a lesser extent birds and fish

Direct effects: Because golden eagles are highly mobile, any individuals would likely be able avoid the flame front and associated smoke. Therefore, direct mortality as a result of the fire would likely be minimal.

Indirect effects: Impacts to canyon bottoms and riparian areas could decrease the availability of prey species utilized by the eagles. However, numerous drainages within the fire perimeter contained unburned areas. The mosaic pattern of the burn will provide more diverse habitat which could increase prey diversity as well. The nutrient rich re-growth of grass and forbs may attract prey, while the open aspects created by the fire may allow for easier hunting. Also, eagles roosting within the burn area can easily move to areas outside of the fire area in order to forage. While this will increase energetic demands during foraging, their ability to feed on a variety of prey will help buffer the negative indirect effects of the fire. In short, the indirect effects of the fire may decrease foraging opportunities in the short term, but could enhance prey diversity and eagle fitness in the longer term.

Both the Jemez and Santa Clara Pueblos expressed concern of fire impacts to culturally significant game species. These species have been hunted for centuries by their ancestors and continue to be today. Mule deer (*Odocoileus hemionus*) and Rocky Mountain elk (*Cervus canadensis nelsoni)* are widespread throughout Jemez and Santa Clara Pueblos. Both Pueblos have wintering and calving habitats which mule deer and elk utilize throughout the year. The majority of the burned acreage on Jemez Pueblo was the result of burn out operations. This was very low intensity and acted like a prescribed fire in many areas, though pockets of intensive burning were observed. In areas of low intensity, elk and mule deer will likely benefit from removal of dense under brush, and stimulation of fresh, nutrient rich growth from grasses, forbs, and shrubs. Though Santa Clara experienced more intensive burning conditions, Santa Clara Creek is one of the few perennial water sources in the area and will continue to attract ungulates and speed habitat recovery.

Both species may be temporarily displaced from intensively burned areas. However, cover and foraging areas are still present within the fire perimeter in unburned and low vegetation mortality areas. Review of the vegetation mortality map will help managers identify suitable areas. Both species have been observed during field reconnaissance of the fire within the last week. Grasses and forbs in low to moderate burn severity areas have already begun to re-sprout. Within 1-2 years many of the Aspen impacted by the fire will re-sprout and provide quality forage for these species. This coupled with the more open characteristics of the recently burned habitat may result in increased use of the fire area by these species. Open characteristics of the habitat may also increase hunter success by allowing more unobstructed views. The mosaic habitat created by the fire may allow these species to more easily meet their individual life history requirements in the long term.

Wild turkey (*Meleagris gallopavo merriami)* are another important game species that has been potentially impacted by the fire. This species uses the dense brush for cover and nesting, and more open meadows and Aspen stands for foraging. The mosaic of habitat created by the fire will likely benefit this species in the long-term as vegetation re-sprouts. Riparian areas that remained unburned will provide short term cover and foraging areas for turkey as vegetation resprouts over the coming 1-2 years. Their varied diet and mobility will provide this species the flexibility to overcome the initial habitat loss caused by the fire. Numerous individuals, some with young, were observed within the fire perimeter during field reconnaissance making use of a variety of burned and unburned habitat types.

IV. RECOMMENDATIONS

Based on the results of the above observations:

A. Emergency Stabilization

There are no stabilization activities proposed for the sole benefit of wildlife. All of the emergency stabilization activities proposed by other disciplines in the vicinity of tribal trust lands will have a beneficial effect to the landscape and indirectly benefit wildlife and fisheries species.

B. Management Recommendation – Rehabilitation – (Non Specification)

BAER Team involvement in the Emergency Section 7 Consultations was concluded on July 20, 2011. The determinations documented in this assessment should be reassessed, and section 7 consultation reinitiated as needed, if additional emergency stabilization measures, or vegetation management activities are proposed after July 20, 2011. If non-emergency vegetation management activities are proposed for long-term rehabilitation and restoration of the fire area, another biological assessment should be prepared.

Santa Clara Pueblo should closely monitor stream conditions in Santa Clara Canyon to determine when debris, sediment and ash flows have subsided to a point where translocation of conservation populations of RGCT can resume. Though funding of monitoring and translocation

activities is outside of the scope of BAER, the Pueblo should continue to work with partners to generate funding and continue their proactive approach to RGCT conservation. Monitoring should include: Water quality sampling, fish surveys of ponds and stream above pond 3, measurement of riparian vegetation re-growth, and further genetic testing of any RGCT found in the watershed. Installation of fish barriers, consultation with NMGF, and translocation of RGCT when habitat conditions are suitable are recommended.

Seeding of any areas were JMS is detected or potentially could be detected should be completely avoided. The dense root structure of forbs and grass renders seeded areas unsuitable for JMS. Monitoring to document presence/absence, abundance, distribution, fire effects and habitat characteristics of JMS should be conducted. Ground disturbance and salvage logging should also be avoided due to the loss of cover, changes in soil moisture, and direct mortality that these activities can cause.

Observations of golden eagle nesting in canyons should be recorded and documented within tribal databases to provide information on their response to the fire, seasonal use, and breeding success.

Research/monitoring of ungulate species should be conducted to better understand their response to the fire and habitat recovery. Radio telemetry studies could be initiated to describe mule deer and elk habitat use in response to the fire and suppression activities. Track plates, remote cameras, and direct observation can also be used to assess abundance and distribution of ungulate species. Information gained from these types of studies can be used in an adaptive management framework to better manage herds.

Though the habitat is thought to be marginal for Mexican Spotted Owl, surveys to document presence/absence should be conducted. This species is known to occur on adjacent lands, and the habitat changes resulting from the fire could increase use of tribal trust lands.

Cattle should be excluded from burned areas for a minimum of two years to allow vegetation to recover and begin to re-sprout. The young tender re-sprouts of grasses, forbs, shrubs, and aspen may be selected by cattle and suppress recovery. If grazing restrictions for the watershed are infeasible, a restricted buffer along the stream itself of 100 feet on each side is recommended. This will allow riparian vegetation to come back quicker providing shade, stabilization, and buffer to filter sediments and debris.

The Pueblos should use the information provided within this, and the other BAER disciplines' assessments, in requests for funding from other sources.

The Las Conchas Fire provides a unique opportunity for biologists and the scientific community to determine species and habitat responses to wildfire. Given the high level of interest regarding the effects of the fires to the many species impacted by the fire, it seems prudent for biologist to collaborate on a list of questions to address identified concerns. The limited focus of the DOI BAER Team to address immediate treatments for federally threatened and endangered species occurring on DOI lands allowed only a cursory assessment of fire effects to the many other important species that contribute to the biodiversity of the area. As assessment and study continues, if additional new information becomes available on the effects to federally listed species, agency biologists may re-assess the potential need for rehabilitation treatments, with subsequent requests for burned area rehabilitation funding.

V. CONSULTATIONS

Will Amy- Wildlife Program Coordinator, Santa Fe National Forest
Bruce Bauer- Head of Forestry, Santa Clara Pueblo
Joe Chavarria- Environmental Director, Santa Clara Pueblo
Michelle Christman- Fish and Wildlife Biologist, USFWS Albuquerque Field Office
Chantel Cook- Fisheries Biologist, Santa Fe National Forest
Mike Dolan- Botanist, DOI BAER Team
Steve Fettig- Wildlife Biologist, Bandelier National Monument
John Galvan- Biologist, Jemez Pueblo

Eric Hein- Branch Chief, USFWS Albuquerque Field Office
Brian Jacobs- Botanist, Bandelier National Monument
Norman Jojola- BIA, Northern Pueblos Agency
Rayo McCullough- Data Manger, Univ. of New Mexico, Heritage Program
Luke Montoya- Senior Contaminants Specialist, USFWS Albuquerque Field Office
Mary Orr- Wildlife Biologist, Santa Fe National Forest

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Kenneth Griggs, DOI BAER Team Biologist, Humboldt Bay National Wildlife Refuge, Loleta, CA 95551, kenneth_griggs@fws.gov, 707-498-5548

BURNED AREA EMERGENCY STABILIZATION PLAN

Las Conchas Fire

CULTURAL RESOURCE ASSESSMENT

I. OBJECTIVES

- Assess potential damage to cultural resources for the purpose of recommending treatments to stabilize archaeological sites, traditional cultural properties, and historic structures from adverse effects of wildland fire, suppression activities, post fire erosion, and emergency stabilization and rehabilitation actions.

- Conduct assessments necessary to meet Federal legal mandates.

- Consult with appropriate Native American tribes as necessary to meet Federal legal requirements, agency policies, and agreements.

- Prescribe possible measures to avoid or mitigate adverse effects to cultural resources that may result from emergency stabilization treatments.

- Assess effects to known historic and prehistoric cultural resources as the result of fire

II. ISSUES

- How did the fire affect Traditional Resource Procurement Areas?

- What effects has the fire had on Traditional Cultural Properties (TCPs), what potential exists for post-fire effects to these resources, and are there proposed emergency stabilization treatments that could impact TCPs?

- How have known archaeological sites been impacted by the fire, are there expected to be post-fire effects to these resources, and are there proposed emergency stabilization treatments that could impact the integrity of archaeological sites?

- Have trail systems or individual trails been impacted by the fire, are there expected to be post-fire effects to trails, and are there proposed emergency stabilization treatments that could adversely affect trails?

- Is the cemetery at Cochiti Pueblo at risk from post-fire watershed flow events?

III. OBSERVATIONS

A. Background - This report addresses potential and actual effects to cultural resources within the Las Conchas Fire. The fire resulted from a downed power line on June 26, 2011. The fire spread rapidly north and east, beyond Los Alamos. Subsequent runs pushed north across Santa Clara Canyon. As of July 13, 2011 - prior to containment- it had burned 149,241 acres. The fire involved the following lands: Jemez Pueblo (2,238 acres); Santa Clara Pueblo (16, 587 acres); Santa Domingo Pueblo (4 acres); Santa Fe National Forest (76,634 acres; Bandelier National Monument (20,810 acres); Los Alamos National Laboratory (133 acres); Valles Caldera National Preserve (27,781 acres); State lands (1,704 acres); and private lands (3,352 acres). This acreage is what our field assessment was based on.

By July 19, 2011, the fire had expanded to 156,593 acres. This increase is as follows: Jemez Pueblo (4,711 acres); Santa Clara Pueblo (16, 611 acres); Santa Domingo Pueblo (268 acres); Santa Fe National Forest (78,094 acres); Bandelier National Monument (20,809 acres); Los Alamos National Laboratory (133 acres); Valles Caldera National Preserve (30,003 acres); State

lands (1,719 acres); and private lands (3,375 acres). This expansion is not covered under this assessment.

Culturally, the Las Conchas fire is located within the Upper Rio Grande culture area, as defined by Stuart and Gauthier (1981). As the Las Conchas Fire was located near four recent fires – the Dome Fire (BAER Team 1996), the Oso Fire (BAER Team 1998), the Cerro Grande Fire (BAER Team 2000), and the Molina Complex (BAER Team 2003), a large part of the cultural history is drawn from those reports and the July 15, 2011 BAER Survey Heritage Specialist Report.

A number of competing explanations for the origin and development of Pueblo Society in the Upper Rio Grande Valley have been advanced (Wendorf 1953; Peckham (1974; Hunter-Anderson 1979). The recognized prehistoric sequence of major archaeological periods for the area include: PaleoIndian (ca. 12,000 to 6,000 B.C.); Archaic (6,000 B.C. to A.D. 400 or 600); Early Developmental (A.D. 600 – 900); Late developmental (A.D. 900-1175); Coalation Period (A.D. 1175- 1325); Classic (A.D. 1325-1540); and Historic (A.D. 1540 – Present).

Cultural Chronology for the Northern Rio Grande

Period	Phase	Date
Paleoindian	Clovis	10500–9000 BC
	Folsom	9000–8000 BC
	Plano	8000–5500 BC
Archaic	Jay	5500–4800 BC
	Bajada	4800–3200 BC
	San Jose	3200–1800 BC
	Armijo	1800–800 BC
	En Medio	800 BC–AD 400
	Trujillo	AD 400–600
Ancestral Pueblo	Early Developmental	AD 600–900
	Late Developmental	AD 900–1200
	Coalition	AD 1200–1325
	Classic	AD 1325–1600
Native American, Hispanic, and Euro-American Colonial and Post-Colonial	Spanish Colonial	AD 1600–1821
	Mexican	AD 1821–1846
	U.S. Territorial	AD 1846–1912
	Statehood through World War II	AD 1912–1945
	Recent	AD 1945–present

Prehistory

The Paleoindian Period: This period represents the earliest well-defined occupation in North America. It is defined by lancolate projectile points occasionally found in association with the remains of extinct Pleistocene megafauna (Irwin and Wormington 1970).

The Archaic Period: This second sequence is distinguished from the Paleoindian Period by the presence of a wide variety of smaller, more crudely manufactured projectile points and an increase in the occurrence of stone tools (Jennings 1974). The tool technology reflects a shift in subsistence patterns towards smaller game and increased use of plant resources. Lithic scatters are the most common site type. Irwin-Williams (1973) defined the Archaic Tradition in the Upper Rio Grande Valley as the Oshara Tradition, although other adaptations are in the archaeological

literature (Sayles 1983).

Ancestral Pueblo
The Developmental Period: Equitable to the Basketmaker III – Pueblo II, this period is problematic because the Archaic style-site types and subsistence – settlement strategies persist alongside evidence for contemporary use of ceramics, maize horticulture, food storage and pit house dwellings. In the Upper Rio Grande Valley, sites of this period are generally found near low elevation drainages. A shift to riverine pit house villages located between 6,000 and 7,000 feet elevation occurs around A.D. 750 (Stuart and Gauthier 1981:410). Associated with this shift is an increase in ground stone tools, a decrease in projectile points, and the appearance of pottery (Wendorf and Reed 1955; Stuart and Gauthier 1981:41). Judge (1982) postulates these changes were in response to an increase in precipitation. Around A.D. 900, there is a precipitation and population increase and a shift from pit houses to small, above ground, pueblos with 7 to 10 coursed-adobe rooms with one or more kivas. The main centers of occupation are along the Rio Grande River, as well as the Canadian River and Taos (Stuart and Gauthier 1981:49; and Wendorf and Reed 1955:141).

The Coalition Period: Equivalent to the Pueblo III Period in other areas of the Southwest, this period is distinguished from the earlier settlement by new ceramic and architectural styles. There is an increase in the size and density of sites, which aggregate into masonry or adobe pueblos (Cordell 1979:51). While most sites are from 13-30 rooms arranged in linear or L-shaped room blocks, some sites contain up to 300 rooms. In the larger, generally later sites, the room blocks may enclose a plaza with multiple kivas. Masonry construction is common in the wetter highlands of the Pajarito Plateau, while thin-walled adobe construction prevails in the drier areas around Santa Fe. Garden areas, field houses, shrines and rock art may be associated with sites dating to this period.

Rio Grande Classic Period: Akin to Pueblo IV, this period in the Upper Rio Grande Valley is marked by a decrease in room size and an increase in the number of rooms per pueblo. Settlement patterns cluster into sites of one to four rooms, more than 50 rooms, and 300 to 500 rooms. Sites with 13-50 rooms are nearly absent in the record after A.D. 1325. Use of forest settings persist despite a shift in preference for locations in the lower riverine environments (Beal 1987). Extensive agricultural features, such as grid and mulch gardens and terraces, indicative of a labor intensive economy, are constructed on mesa tops and river terraces adjacent to the Rio Chama and other main drainages that flow into the Rio Grande. After A.D. 1400, new site development decreases and by A.D. 1500-1525, some areas along the lower reaches of the Rio Chama and other drainages are abandoned (Mera 1934; Ellis 1975).

The Historic Period: Equitable to Pueblo V, this period is defined by an increase of site and room size, with preference for lower elevation settlement along the major drainages (Stuart and Gauthier 1981:54). According to Hammond and Rey (1953) and the journals of Benavides (in Schaafsma 1979), Athabascan groups occupied the mountains surrounding the pueblos, periodically raiding the villages along the Rio Grande. Specific to the Las Conchas Fire, the Pueblos of Ohkay Owingeh, San Ildefonso and Santa Clara are Tewan speakers while the Pueblos of Cochiti, and Santo Domingo speak Eastern Keres, while Jemez speak Towa.

Colonial and Post-Colonial Period
Spanish contact in the Upper Rio Grande Valley began in July, 1541, with the Coronado Expedition. At this time Spanish soldiers visited the pueblos of Yunque yunque and San Juan in search of winter supplies. Both pueblos were then abandoned by their occupants (Hammond and Rey *in* Schaffsma 1979). The Athabascan groups in the area also retreated at this time. Later, in 1598, Onate and a group of soldier-colonists visited San Juan Pueblo, and then established a capitol at Yunque yunquey. In 1610 they moved the capitol to Santa Fe. During this time, haciendas and settlements were established along the Rio Grande and its tributaries, from Socorro to Taos.

The Pueblo Revolt in August, 1680, forced the Spanish citizens and government into Mexico. The

area was then under the control of the pueblos until DeVargas reentered the territory in 1692. Vargas mounted a campaign in 1694 against the pueblos who were then living in fortified mesa villages. One of these was Old Cochiti (Hanat Kotyiti). Beginning in 1790, grants were awarded for rangelands in the region. The Baca Ranch (now the Valle Caldera National Preserve) was one such grant and portions of its lands were involved in the fire.

In 1821, Mexico gained its independence from Spain. The area was then under Mexican control until 1846 (Emmett 1965:36; Gillio 1979:15). One result of this change in governmental control was a decrease in attention paid to the area from the Capitol in Mexico City.

During the Spanish and Mexican periods, from A.D. 1692 to 1846, the puebloan communities were consolidated into land grants first awarded by the Spanish government and then affirmed by the Mexico. Since these grants included a portion of their original territory and settlements, they have maintained a strong relationship with their ancestral lands and continue to use resources and maintain knowledge of sacred areas in the larger territory.

In 1848 the Mexican – American War resulted in the acquisition and control of the area by the United States of America. In the 1860's, President Abraham Lincoln recognized the land grants of the Pueblos. Since that time the Federal Government has maintained a government to government relationship with the Pueblos.

Late Land Tenure

In the 1930's, as part of the Pueblo Land Board Settlement, the Pueblo of San Ildefonso acquired additional lands that are held in Tribal Trust. In the 1950's, the Pueblo of Santa Clara acquired lands along the Santa Clara River that are also held in Tribal Trust. Since that time, other puebloan lands have come into trust. These land acquisitions are in the various pueblos' aboriginal territory. Portions of Jemez, Santa Clara, and Santa Domingo lands were burned over during the Las Conchas Fire.

The Santa Fe and San Juan National Forests were created as Forest Reserves in the early 1900's. The San Juan National Forest was later consolidated into the Santa Fe National Forest. The largest amount of acreage burned in the Las Conchas Fire was on the forest.

In 1916, Bandelier National Monument was established by Presidential Proclamation 1322 (39 Stat. 1764). It was created to protect the unique open-air ruins and cavates (small caves dug into the tufa below the mesa tops) that are found within the park. A large number of these ruins were involved in this fire.

Due to the remoteness of Bandelier and the ability to control access, a portion of the National Monument and Santa Fe National Forest was alienated, along with acquisition of private lands (homesteads) for development of the atomic bomb as part of the Manhattan Project. The town of Los Alamos developed to house the Manhattan workers in the vicinity of an older school site and homestead. Later, the community of White Rock was developed from Forest Service lands. Nuclear research has continued to be conducted on Los Alamos National Laboratory lands. The Forest Service also began acquiring homesteads in this area around the same time.

The Valles Caldera National Preserve was created from the Baca Ranch land grant by an act of Congress in 2000 (Valles Caldera Preservation Act of 2000). At present it is run by a Board of Trustees with the Superintendent of Bandelier National Monument and Forest Supervisor of the Santa Fe National Forest on the Board. The eastern side of the preserve was involved in the fire.

Homesteads were common in the area from the late 1800's to the late 1930's. Many of these were located near washes because of their agricultural orientation. Some of these private lands were within the fire perimeter. New Mexico also has holdings within the fire perimeter and some of their lands were burned as well.

Affected Pueblos - Six pueblos were affected by the fire. These are Ohkay Owingeh, Santa

Clara and San Ildefonso to the north and Santa Domingo, Cochiti and Jemez to the south.

Cochiti – The Pueblo de Cochiti, (Cochiti), has in excess of 1,200 tribal members. Cochiti, the northernmost Eastern Keresan speaking Pueblo in New Mexico, is located in Sandoval and Santa Fe Counties, 35 miles southwest of Santa Fe. The Pueblo is characterized by broad cienegas to the east which gradually drop into the Rio Grande Valley, while to the west the land rises, and is cut by deeply incised drainages that originate from the flanks of the Valles Caldera.

Jemez - Jemez Pueblo (Jemez) is one of the 19 pueblos located in New Mexico. The only Towan speaking pueblo, Jemez is a federally recognized tribe with 3,400 tribal members. The majority of Jemez tribal members reside in the village of Walatowa, a Towa word meaning "this is the place". Walatowa is located in North-Central New Mexico, within the southern end of Canon de Don Diego and to the south of the Valle Grande Caldera. It is located approximately one hour northwest of Albuquerque.

Ohkay Owingeh - Ohkay Owingeh Pueblo (Ohkay Owingeh), formerly Pueblo San Juan is one of the six Tewa speaking northern Pueblos. Ohkay Owingeh is situated along the Rio Grande in Rio Arriba County just outside of Espanola. Founded around A.D. 1200, Ohkay Owingeh is one of the largest Tewa language-speaking pueblos. T

Santa Clara - Pueblo Santa Clara (Santa Clara) is one of the six Tewa speaking of the eight northern pueblos. Established around A.D. 1550, Santa Clara has a population in excess of 1000 individuals. Santa Clara is located in Rio Arriba County, New Mexico just south of the city of Espanola, along the Rio Grande.

Santo Domingo - Pueblo Santo Domingo (Santo Domingo) is one of the Eastern Keresan speaking southern pueblos. With a population in excess of 3000 tribal members, Santo Domingo is located in the Rio Grande Valley, in Sandoval County, approximately 25 miles southwest of Santa Fe. Santo Domingo is fifth in population of the nineteen New Mexico Pueblos.

San Ildefonso - Pueblo San Ildefonso (San Ildefonso) is one of the six Tewa speaking northern pueblos. San Ildefonso is located at the base of the Pajarito Plateau in Santa Fe County, New Mexico, approximately 8 miles to the east of Los Alamos, and is bisected by the Rio Grande. The Census 2000 tallied a population of about 1,524.

Site Types

The density of archaeological and cultural resources in this area is among the highest in the United States (BAER Team 1996). While many of these sites are administered by the U.S. Forest Service and National Park Service, there are ancestral homes on those lands that are of extreme importance to the contemporary pueblos.

Traditional Cultural Properties – This category includes ceremonial places and gathering/resource procurement areas of concern to the Pueblos of Cochiti, Jemez, Okay Owingeh, Santa Clara, Santo Domingo, and San Ildefonso. These places are sensitive, irreplaceable resources essential to the sustenance of traditional lifeways.

Archaeological Sites – This category includes structural ruins, rock art and lithic landscapes. These resources are protected under historic preservation laws, regulations and executive orders. They are irreplaceable resources of tremendous scientific and cultural importance.

Historic Sites – This category includes administrative sites, mining structures, homesteads and outbuildings, and features associated with livestock production. Construction materials can be metal, masonry, wood or any combination of those and other materials.

Cemeteries - Crosscutting all time periods and cultures, cemeteries and other burial locations are places of extreme significance to cultures and their descendents. These are protected under state and federal law.

B. Reconnaissance Methodology and Results - The presence of critical archaeological and historic sites, as well as significant cultural concerns and sacred sites of the Pueblos, have been identified during previous fires (BAER Team 1996; 1998; 2000; and 2003). As such, cultural resources were identified as an area of concern in the earliest phase of the Las Conchas Fire. Due to the size and complexity of the fire it was split into the North and South zones. A joint Forest Service/National Park Service BAER Team was assigned to the South Zone. At the request of the Northern Pueblo Agency, the DOI BAER Team was called in and assigned to the North Zone. BAER Team archaeologists then arrived at the fire on July 6 (Chuck James), July 8 (Dan Hall), and July 9 (Harding Polk).

Contact was then made with the State Historic Preservation Officer on July 7, 2011. Consultations with the six affected pueblos began on July 11, 2011. A records search was made at the BIA Southwest Region's archaeological records and library at Albuquerque, and the Archaeological Research Management System in Santa Fe.

Contact was then made with the Pueblos. Several meetings were held with the Ohkay Owingeh and San Ildefonso Tribal councils where cultural resources were addressed. Other concerns were relayed to the BAER team at formal council meetings or through the various Pueblos' resource representatives. Finally, concerns were brought back by members of the BAER Team if they located a site as they were assessing other resources

Another mechanism for relaying cultural concerns and observations was through early morning meetings between North and South BAER Team archaeologists. Originally designed to resolve confusion about resources on various lands, these informal daily meetings allowed information about resources on Forest Service and trust lands so that identified concerns could be assessed during the field phase of work, and allowed tribal contact information to be shared.

The archaeologists and Pueblo members who helped at various stages in this assessment include:

LAS CONCHAS FIRE CULTURAL RESOURCE ADVISORS

NAME	AFFILIATION	CONTACT #/EMAIL
Anne Baldwin	USFS Santa Fe National Forest, NM	505-753-7331
Ray Bird	Cochiti Pueblo	brd_rndll@yahoo.com
Mike Bremer	USFS Santa Fe National Forest, NM	505-929-1579
Ben Chavarria	Santa Clara Pueblo	505-753-7326
Jennifer Dyer	USFS Santa Fe National Forest, NM	505-842-3212
Sam Lovato	Santo Domingo Pueblo	505-250-7455
Dr. Bob Preucel	University of Pennsylvania	610-608-3717
Dr. Joseph H. Suina	Professor Emeritus, University of New Mexico	505-465-2582
Phoebe Suina	Cochiti Pueblo (Representative of the Governor)	505-350-7731
Chris Toya	Jemez Pueblo	505-834-7696

A review of gathered information indicated that most known or documented sites were outside the fire perimeter or had not burned. Those sites that could be affected by proximity to potential downstream flooding were also reviewed. These were found to be above expected water levels and would not be affected, or were in locations where there was no feasible way to protect a specific location from flooding. During this field time inspection of significant sites on Forest Lands were made. This information was then passed on to the Santa Fe National Forest archaeological staff for inclusion into their assessment. Conversely, the Forest Service archaeologists have passed on concerns that involve puebloan lands and communities.

At the time of the records search it was determined that few archaeological sites have been recorded on trust lands in the Las Conchas Fire. At first this appeared to be in contradiction to the high density of sites noted for the larger area. During field assessment it became clear that this was due to where the fire burned in relationship to areas of settlement preference versus resource collection areas. As such, few archaeological sites were subject to fire on trust lands

During consultations though, numerous concerns regarding cultural and sacred places, trails, and practices were expressed by the Pueblo communities as areas of concern within the Las Conchas Fire perimeter, as well as downstream in areas that may be flooded. The pueblo communities identified their concerns as places of traditional cultural and religious significance associated with ceremonial practices and resource procurement activities. They were identified at both landscape and site specific scales. These areas are frequently located on mountain tops, near springs, on mesa tops, and in drainages but can occur almost anywhere. A single geographic feature can be significant to more than one tribe, and locations are often closely guarded secrets known to only certain tribal members. Since knowledge of traditional cultural place location tends to be oral among the Pueblos and is not something generally included on maps, the solicitation of this information within the oral tradition of these communities requires ongoing consultation with tribal resource specialists and tradition keepers (elders).Tribal resource managers, in consultation with the elders, can then use the oral tradition to locate traditional places and assess fire effects and potential post-fire effects, as well as proposed treatments.

Release of information about traditional places is of concern to the various tradition keepers. As such, at the request of the Pueblo communities, place names and locations associated with traditional practices will remain confidential as directed by the National Historic Preservation Act.

The Las Conchas Fire has areas of high, moderate and low burn severity, as well as unburned islands within the fire perimeter. Areas of high and moderate burn severity have the ability to affect ancestral pueblo ruins. Depending on the resident time of the fire, masonry can spall and adobe can become de-stabilized. Fire-killed trees located on walls, room blocks or in plazas can also damage ruins if their roots are uplifted due to high winds (this is a usual occurrence several years after a fire). Directional falling, lop and scatter, erosion control, mulching and seeding are some of the methods used in emergency stabilization at these types of sites.

The first 2-5 centimeters below present ground surface can have thermal effects on localized obsidian and cherts. Basalt and other non-silica lithic sites are usually not as severely affected by wildfire in this soil zone. If there is a long resident time on lithic sites, fire effects can thermally modify lithics in deeper levels. Depending on the nature of lithic sites, mulching, seeding, and erosion control are emergency stabilization methods that have been applied to lithic scatters and quarry sites.

Wood in prehistoric, ancestral puebloan or historic sites can be damaged by fire regardless of burn severity because of spark ignition as well as direct exposure to fire. Where wood components have been noted, sites should be assessed to determine if emergency stabilization needs exist. Since emergency stabilization treatment at sites with wood components vary so greatly in what could be damaged, emergency treatments are tailored to individual situations.

Depending on the fire intensity, cemeteries can be impacted through loss of wooden elements, spalling, erosion and tree fall. Directional falling, erosion control, stabilization of headstones, seeding, and marking the location of features for later rehabilitation where those wooden elements been consumed (such as headboards or wooden plot fences) are some of the emergency stabilization methods that have been used. Emergency stabilization at this kind of site also helps insure that burials are not exposed.

C. **Findings** - The BAER cultural assessment took place between July 6 and 19, 2011. This was while suppression activities were being conducted at the Las Conchas Fire. As such, the assessment efforts were greatly constrained by hazards created by access restrictions into specific areas of on-going fire suppression, unstable slopes, the potential for flooding, and landslides due to a rain event blocking a major access road.

Much of the fire on trust lands burned in areas that have not inventoried for archaeological sites. Many of these areas are also steep, forested uplands above 7,500 ft. elevation. As such, a low number of known or documented sites would be expected even though the broader area has a high density of archaeological sites.

A field review of sites close to the south rim of Santa Clara Canyon revealed that they were unburned. The same condition was also found on Tribal land on the north side of the canyon. A series of culturally used trails that link a number of communities to cultural and sacred areas, however, were partially to completely burned over. Many of these extend onto Forest Service and National Park Service lands.

A helicopter survey of the fire was conducted to identify archaeological sites that were affected by the fire. Several important ancestral pueblos were identified form the air. All are located within Bandelier National Monument or the Santa Fe National Forest. One of these sites, Old Cochiti, located on Forest Service lands, was visited by BAER team archeologists, a forest archeologist and representatives from the Cochiti Pueblo. It was found that while this site was burned over approximately 70% of its extent, effects sustained were minimal. The trail leading up to the ruins is, however, in an area of high burn severity, and sustained significant impacts.

During consultation meetings with the Pueblos and their Resource Advisors it was determined that a large number of concerns about trails, places of cultural gathering and practices (areas of medicine plants and vegetation that are essential to the maintenance of traditional lifeways), religious shrines, springs and natural features, and specific archaeological sites, were expressed. Most of these places were, upon further inquiry, located on Forest Service and National Park Service lands and those concerns were forwarded to them. No treatments were recommended.

A number of sacred places and shrines on tribal lands are located near the bottom of canyons and may be affected by flooding. Other locations that could be affected by flooding are downstream of the Las Conchas Fire. Of those locations visited, it was determined that they were in locations that were not amenable to treatment that would protect them in place. No treatments were recommended.

Areas of medicine plants and vegetation essential to maintenance of traditional lifeways may or may not have been impacted by the fire. Impacts to these resources cannot be determined until the next season of growth or tree replanting. Any actions specific to these concerns will need to be addressed under habitat rehabilitation. No treatments were recommended under Emergency Stabilization.

A traditional trail network links pueblos to specific places. Only two trails were identified during this assessment. Two specifications will address this finding.

A concern was expressed about post-fire flooding at the Cochiti cemetery if water overtopped the paved road. A field review of this location found that any water flowing over the road would be shed into a small drainage north of the cemetery and be routed down the wash to its east. That wash is large enough to keep flood water away from the cemetery. No treatment was recommended.

IV. RECOMMENDATIONS

A. Emergency Stabilization

Traditional Cultural Assessment. Specification #s CO-1, JE-3, OO-1, SC-6, SD-2, and SI-2. These specifications are to provide for identification and assessment of specific locations of cultural and religious importance that are within the fire perimeter or located downstream and may be affected by post-fire flooding. Information elicited from tradition keepers is sensitive and may not be subject to release outside the Pueblo. In addition, see Specification SC-2, Hazard Removal, which addresses hazard trees along the two identified trails.

B. Management Recommendations – Non-Specification Related

Describe the recommendation and reasons.

1. Insure Pueblo resource specialists know who the point of contact is on FS and NPS lands. This recommendation is based on the confusion noted as to which agency is responsible for addressing concerns that cross on and off trust lands.
2. Conduct archaeological inspection of arroyo walls following flood events. Buried

cultural deposits were observed in newly exposed arroyo banks and significant and/or early cultural deposits may be exposed through erosional events.

3. Conduct cultural resource surveys prior to any rehabilitation treatments, salvage logging or other ground disturbing actions. This is in accordance with Section106 of the National Historic Preservation Act.
4. The Pueblos in consultation with the Forest Service should identify alternative cultural resource procurement locations outside of the burn area suitable for their ceremonial, subsistence and other needs.

V. CONSULTATIONS

State Historic Preservation Office, Jan Biella, Acting State Historic Preservation Officer

BIA, Regional Office.	Dr. Bruce Harrill, Harding Polk
Northern Pueblo Agency	Superintendent Ray Fry
-Ohkay Owingeh Pueblo.	Tribal Council members.
-Santa Clara Pueblo.	Resource Representative, Tribal Council members
-Santa Ildefonso Pueblo.	Tribal Council
Southern Pueblo Agency	Superintendent Angela Arvizo
-Cochiti Pueblo.	Through tribal resource representative
-Jemez Pueblo.	Through tribal resource representative
-Santa Domingo Pueblo.	Through tribal council members
USFS Region 4	Will Reed
USFS Region 3 Santa Fe National Forest	Mike Bremer, Anne Baldwin, Jennifer Dyer
Bandelier Nat. Monument	Rory Gauthier
Valle Caldera Nat. Preserve	Dr. Anatasia Steffen

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Dan Hall, Bureau of Indian Affairs – Western Region (916) 978-6041
Chuck James, Bureau of Indian Affairs – Northwest Region (503) 231-6229
Hastings Polk, Bureau of Indian Affairs – Southwest Region (505) 563-3416

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

APPENDIX II COMPLIANCE

APPENDIX II – ENVIRONMENTAL COMPLIANCE

FEDERAL ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

All projects prescribed, funded or proposed for implementation on tribal lands in the Burned Area Emergency Response (BAER) Plan for the 2011 Las Conchas Fire are subject to compliance with the *National Environmental Policy Act of 1969* (NEPA, 42 U.S.C. 4321-4347), in accordance with the guidelines provided in the *Council on Environmental Quality Regulations* (40 CFR 1500-1508) and other relevant federal environmental regulations such as the Endangered Species Act (ESA, 7 USC §136,16 USC.§1531 et seq.) and the Clean Water Act (33 USC §1251 et seq.). Specifically, Appendix II documents the record of the Department of the Interior (DOI) BAER Team in complying with the requirements of federal environmental laws, during development and implementation of the emergency stabilization and monitoring actions prescribed in the BAER Plan for the Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Ohkay Owingeh, Pueblo of San Ildefonso, Pueblo of Santa Clara and Pueblo of Santo Domingo, all tribal areas affected by the Las Conchas Fire.

The Plan has been developed by the DOI BAER Team, with assistance from the staffs of the affected Pueblos, the Bureau of Indian Affairs Northern Pueblos Agency, the Southern Pueblos Agency, the National Park Service, the U.S. Forest Service and the U.S. Army Corps of Engineers. The Plan objectives are to analyze post-fire conditions and develop specific emergency stabilization and monitoring actions to mitigate direct and indirect resource damage to DOI administered lands and tribal lands from the Las Conchas Fire, including fire suppression actions. The Bureau of Indian Affairs (BIA) will complete separate NEPA analyses and compliance for fire response activities not addressed in this Plan.

This plan was developed by an Interagency BAER Planning Team comprised of representatives from the Department of the Interior (DOI) agencies: the Bureau of Indian Affairs (BIA), the National Park Service (NPS), the U.S. Fish and Wildlife Service (USFWS) and the Bureau of Land Management and from the U.S. Department of Agriculture (DOA), the U.S. Forest Service in conjunction with the staffs and Tribal members from the Pueblo of Santa Clara, Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Santa Domingo, Ohkay Owingeh and Pueblo of San Ildefonso.

RELATED PLANS

The 2011 Las Conchas BAER Plan was reviewed for consistency with relevant plans and policies of Tribal lands impacted by the Las Conchas fire.

Pueblo de Cochiti Forest Management Plan, 2008

The Cochiti Forest Management Plan (CFMP) provides a description of the current status of the Pueblo's forest and woodlands presents short-term and long-term goals for resource use and management and suggests strategies for achieving stated desired future conditions. The Forest Management Plan is prepared in conformance with 25 CFR 163 which requires, "An appropriate forest management plan shall be prepared and revised as needed for all Indian forest lands". The CFMP describes the BAER process in detail and cites the references used for policy guidance and treatment selection and development. In reference to NEPA compliance for BAER Plans, the CFMP advises that:

"Site specific Environmental Assessments (EA) or Categorical Exclusions (CX) will be completed for each BAER Plan and will reference this plan as appropriate. Any BAER Plan will be consistent with the terms, conditions and decisions of this plan and approved EAs. Planning documents will be developed in compliance with the National Environmental Policy Act (NEPA) in order to satisfy the scoping and public input requirements and therefore qualify as an EA. As appropriate, BAER Plans will be tiered off of this document and CX can be applied. Rehabilitation Plans will need to comply with standard NEPA policies" (CFMP, p. 30).

The CFMP supplements the Pueblo de Cochiti Fire Management Plan, EA and FONSI approved by the BIA and adopted by the Cochiti Council and Governor in 2005 and the Rio Grande Bosque Management Plan, September 2004.

Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI, 2009

The Jemez Comprehensive Forest Management Plan (JCFMP) provides direction and describes a long-term, ecosystem-based approach to managing the Pueblo of Jemez forest resource. Mitigation measures listed in the July 2009 Finding of No Significant Impact (FONSI) has two restrictions prior to implementing projects under the JCFMP: 1) to complete a biological determination to establish whether there could be impacts to the species listed under the Endangered Species Act and, 2) to conduct a cultural resources survey to determine compliance with the National Historic Preservation Act. The surveys conducted in support of the BAER Plan treatments meet these requirements. The JCFMP briefly discusses BAER but references its 2001 Fire Management Plan for more information.

Ohkay Owingeh Forest Management Plan, EA and FONSI, 2009

The Forest Management Plan (OFMP) provides guidance and direction on resource management activities on Ohkay Owingeh lands. The OFMP includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, timber and woodland management and strategic hazardous fuel reduction. An EA was circulated with the OFMP and a Finding of No Significant Impact (FONSI) was signed by the Northern Pueblos Superintendent in June 2009. The conditions of the FONSI require that each subsequent project under the OFMP undergo project-specific NEPA assessment and meet compliance requirements for the Endangered Species Act and the National Historic Preservation Act. The records and field investigations undertaken for the Las Conchas BAER Plan meet the requirements of the OFMP FONSI.

The Plan conforms to the requirements of 25 CFR 163 which outlines the objectives for forest management planning on tribal lands. The Plan replaces the 2004 Ohkay Owingeh Fire Management Plan and the 2005 Hazard Mitigation Plan. Environmental compliance requirements for BAER treatments call for site specific EAs or CEs for each BAER Plan and state that the Plans will demonstrate conformance to OFMP as appropriate.

Pueblo de San Ildefonso Forest Management Plan, EA and FONSI, 2009

The Pueblo of San Ildefonso Forest Management Plan (SIFMP) is prepared in conformance of 25 CFR 163 which focuses resource management and silviculture and programs for future action. The SIFMP includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, and timber and woodland management. The SIFMP addresses the BAER program in Chapter 8 along with the Burned Area Rehabilitation (BAR) program (SIFMP pp. 41-45). The SIFMP lists representative range of BAER treatments that could be employed in an environment like San Ildefonso to protect resources following a wildfire. The 2004 San Ildefonso Fire Management Plan is attached as an appendix to the SIFMP.

The SIFMP planning process was completed in 2009 with the signing of a FONSI by Superintendent of the Northern Pueblos Agency. The FONSI is predicated on the requirement that all projects under the SIFMP “will undergo independent National Environmental Policy Act (NEPA) review”, “full Endangered Species Act (ESA) Section 7 compliance, including formal determination of effects and necessary field surveys” and “full National Historic Preservation Act (NHPA) Section 106 compliance, including consultation with the State Historic Preservation Office and Bureau of Indian Affairs Regional Archaeologist.”

Santa Clara Pueblo Forest and Woodlands Resource Management Plan, EA and FONSI, 2010

The Forest Management Plan provides guidance and direction on resource management activities on the Santa Clara Pueblo starting in 2006. The Forest Management Plan includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, and timber and woodland management. The Santa Clara Pueblo Wildland Fire Management Plan is incorporated by reference into the Forest and Woodlands Resource Management Plan. An EA was prepared by the Northern Pueblos Agency and the FONSI adopted in 2010. The selected alternative for the Forest and Woodlands Management Plan included the use of prescribed burning, use of herbicides, replanting and seeding, tree harvesting, road construction and BAER actions and an extensive list of best

management practices (BIA 2010). For project -specific NEPA compliance required by the Forest and Woodlands Resource Management Plan FONSI, the BIA uses CE 516 DM 10.5 H(10) which limits the size of native plant rehabilitation projects, including site preparation, to 2000 acres per project.

Pueblo of Santa Clara Wildland Fire Management Plan, EA and FONSI, 2001

The Pueblo of Santa Clara Fire Management Plan (SCFMP) was reviewed by the BAER Team prior to the development of the BAER Plan to ensure that proposals developed for the Plan would be consistent with the Pueblo's policies related to resource management. The Environmental Assessment (EA) was prepared for the SCFMP in conformance with BIA NEPA requirements; the SCFMP was adopted by the BIA through the signing of a Finding of No Significant Impact (FONSI) by the Superintendent of the Northern Pueblos Agency. The Council and Governor of the Pueblo of Santa Clara had approved the SCFMP by Tribal Resolution 01-10 in March 2001.

BAER Plans and BAER treatments are addressed in Chapters 8 and 12 of the SCFMP. The FONSI states that "the general proposed actions [of the SCFMP] will not constitute a significant impact on the quality of the human environment." The FONSI calls for "Detailed site specific inventory and surveying, pertaining especially to NEPA compliance aspects of the Endangered Species Act and the National Historic Preservation Act, will take place at [t]he proposed project location before any activity occurs." The SCFMP provides guidance for future actions assuring that plan implementation will be "…monitored during the duration of this Plan by Bureau and Tribal officials empowered to take whatever action necessary to keep environmental effects below significance thresholds (refer to FONSI, following page)" (SCFMP 2001, Section 13). The direction provided by these statements is that the potential impacts of the general actions described in the SCFMP are less than significant but that each requires a site specific environmental assessment, particularly to address ESA and NHPA issues. For the purposes of the Las Conchas BAER Plan, the site specific assessments are documented in conformance with DOI and BIA NEPA regulations (516 DM 2, appendix 1 and 516 DM 10) and the BIA NEPA Manual (59 IAM 3-H).

The SCFMP provides strategic management direction to the Santa Clara Pueblo for wildland fire suppression, fire use fuels management. The SCFMP also lists Tribal Resource Goals, BIA Management Objectives and recommends Fire Management Strategies.

The Pueblo of Santa Clara approved a Forest and Woodlands Resource Management Plan in 2006 that is intended to be one of twelve sections of an Integrated Resources Management Plan which would be subject to NEPA review once as twelve sections are in place.

Pueblo Santo Domingo Forest Management Plan, EA and FONSI, 2009

The Forest Management Plan provides guidance and direction on resource management activities on the Santo Domingo Pueblo. The Forest Management Plan includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, and timber and woodland management. The SDFMP states that site-specific NEPA assessment will be completed for each BAER Plan referencing the SDFMP "as appropriate". BAER Plans must "be consistent with the terms, conditions and decisions of this plan [SDFMP] and approved EAs." NEPA compliance for BAER Plans could be CEs provided the treatments tier off of the SDFMP.

For subsequent actions, including BAER treatments, under the SDFMP EA states, "NEPA documentation, including appropriate biological documentation, will be completed on a project by project basis….If the project does not qualify as a categorical exclusion, either an additional EA tiered to this document [SDFMP EA] or an amendment to this document will be required to comply with NEPA requirements" (SDFMP EA p.7). The NEPA assessment completed for the Las Conchas BAER Plan meets the requirements of the SDFMP EA and FONSI.

CUMULATIVE IMPACT ANALYSIS

The emergency stabilization and monitoring treatments for the Las Conchas Fire, as proposed in this plan, do not result in an intensity of impact (i.e., major ground disturbance, etc) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above agency and tribal management plans and associated environmental compliance documents, and categorical exclusions presented below.

No direct or indirect unavoidable adverse impacts to the biological or physical environment would result from the implementation of the Las Conchas Fire BAER Plan.

APPLICABLE AND RELEVANT CATEGORICAL EXCLUSIONS

The individual actions proposed in this plan are categorically excluded from further environmental analysis as provided for in the Department of Interior Manual Part 516. All applicable and relevant BIA categorical exclusions (CEs) are listed below. CE decisions were made with consideration given to the results of required emergency consultations completed by the BAER Team and documented below.

Applicable Bureau of Indian Affairs Categorical Exclusions

516 DM 10.5 A. Operation, Maintenance and Replacement of Existing Facilities. Examples are normal renovation of buildings, road maintenance and limited rehabilitation of irrigation structures

516 DM 10.5 H(6). Forestry. Approval of emergency forest and range rehabilitation plans when limited to environmental stabilization on less than 10,000 acres and not including approval of salvage sales of damaged timber.

516 DM 10.5 H(10). Forestry. Approval of forestation projects with native species and associated protection and site preparation activities on less than 2000 acres when consistent with policies and guidelines established by a current management plan addressed in earlier NEPA analysis.

516 DM 10.5 L(4). Roads and Transportation. Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur.

516 DM 10.5 L(5). Roads and Transportation. Emergency repairs under 23 U.S.C. 125.

516 DM 10.5 L(9). Roads and Transportation. Rehabilitation, reconstruction or replacement of an existing bridge structure on essentially the same alignment or location (e.g., widening, adding shoulders or safety lanes, walkways, bikeways or guardrails).

516 DM 10.5 M(1). Other. Data gathering activities such as inventories, soil and range surveys, timber cruising, geological, geophysical, archeological, paleontological and cadastral surveys.

STATEMENT OF COMPLIANCE FOR THE 2011 LOS CONCHAS FIRE BAER PLAN

This section documents how the Los Conchas Fire DOI BAER Team conformed to the requirements of federal environmental laws in the development of the Los Conchas Fire BAER Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Los Conchas Fire BAER Plan.

National Historic Preservation Act (NHPA) - Certain emergency stabilization treatments may have the potential to affect significant tribal cultural resources and thereby require that the BAER Team comply with the implementing regulations of the National Historic Protection Act (NHPA), as amended and as promulgated under 36 CFR Part 800. Cultural resource specialists from the DOI BAER Team conducted a record search at the BIA Albuquerque Office and the New Mexico online records database for recorded sites from the Tribal areas. BAER Team cultural resource specialists consulted with Tribal members of the Pueblos on potential direct and indirect effects of the fire on the tribe's cultural resources. Field surveys were conducted by BAER archaeologists, who assessed the potential for the specific stabilization actions proposed by the Team to impact cultural resources. No impacts to cultural resources were identified. The BAER Team recommended continued consultation with the Tribes as a BAER Plan action in the case that potential post-fire risks to important cultural resources not included in the scope of the BAER Plan are indentified in the future.

Executive Order 11988, Floodplain Management - No proposed treatments would occupy or modify floodplains and all proposed treatments are in compliance with this order.

Executive Order 11990, Protection of Wetlands - No proposed treatments would result in long-term impacts to or loss of wetlands and all proposed treatments are in compliance with this order.

Executive Order 12372, Intergovernmental Review - Coordination and consultation is ongoing with affected Tribes, Federal and local agencies. A copy of the BAER plan will be disseminated to all affected parties.

Executive Order 12892, Federal actions to address Environmental Justice in Minority and Low-Income Populations. All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States, The BAER Team has determined that the actions proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.

Executive Order 13112 directs federal agencies "not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species." Proposed treatments in the Las Conchas BAER Plan incorporate best management practices, such as vehicle undercarriage washing, tool cleaning, use of weed free seeds, etc, that address the concerns of this order.

Endangered Species Act (ESA). Section 7 Consultation: The treatment areas were assessed for potential to support listed species by BAER Team wildlife biologist who consulted with local U.S. Fish and Wildlife Service staff and local species experts and determined that there is no potential for the project to impact listed species as there are no known listed species from the treatment areas. If any potential post-fire risks to ESA species are indentified in the future outside the scope of the BAER Plan that may trigger Section 7 consultation, the regional BIA biologist will be responsible for initiating the Section 7 consultation process.

Clean Water Act (CWA). Members of the DOI BAER Team met with Tribal members and consulted with the U.S. Army Corps of Engineers (USACE) permitting branch to ensure compliance with the requirements of the Clean Water Act, specifically sections 404 and 401 addressing stream channel disturbance and fill discharge to waters of the U.S. Treatments in three of the six Tribes affected by the Las Conchas Fire have the potential to disturb a drainage channel or potential release fill to waters of the U.S. The BAER Team will submit §404 permit applications to the USACE, Albuquerque Office, for BAER treatments in each of these three pueblos. Is it anticipated that all proposed treatments will be found in compliance with the CWA with the incorporation of mitigation measures recommended by the USACE. The NEPA documentation from the BAER Plan will be submitted with the §404 application.

Clean Air Act. Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). The BAER Team has determined that treatments prescribed for the Los Conchas Fire may have short-term negligible to minor impacts to air quality due to equipment emissions and/or increases in particulates during ground-based activities, but they would not differ significantly from routine land use practices for the area. As such, all proposed treatments are in compliance with this Act.

CONSULTATIONS

BAER Team members attended an agency in-briefing in Albuquerque, NM on July 6, 2011 to obtain information on issues of concern for the Pueblo of Santa Clara, Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Santa Domingo and Pueblo of San Ildefonso. Most attendees were resource staff and Regional Director Staff from the Southwest Regional BIA Office. The Pueblo of Santa Clara was represented by Joseph Chavarria, the Pueblo of San Ildefonso was represented by Neil Weber, Pueblo of Jemez by Chris Toya, Ohkay Owingeh by Ron Lovato, Pueblo of Santa Domingo by Sam Lovato, and Pueblo of Cochiti by Jacob Pecos. Subsequent meetings were attended by staff from the Bureau of Indian Affairs, Northern Pueblos Agency and Southern Pueblos Agency.

Internal scoping continued daily by the BAER Team at each evening briefing that also included various members from the pueblos, BIA, representatives from Senator Jeff Bingaman's office, and USACE as new issues found in the field were recorded into the record of issues and concerns. Issues and concerns were brought up by agency and tribal employees throughout the BAER process.

Others consulted:

Jan V. Biella, Interim SHPO, NM Department of Cultural Affairs, Santa Fe, NM 87501
Bruce Bauer, Director of Forestry, Pueblo of Santa Clara
Marsha Carra, Bureau of Reclamation, Environmental Protection Specialist, Albuquerque Area Office
Bernardino Chavarria, Assistant Environmental Director, Pueblo of Santa Clara
Danny Gomez, Supervisory Forester, Northern Pueblos Agency
Eric Hein, US Fish and Wildlife Service Section 7 Emergency Consultation, Albuquerque, NM
Kenneth Jaramillo, Fire Management Officer, Southern Pueblos Agency, Albuquerque, NM
Janelle Jersey, NEPA Coordinator, BIA-Southern Pueblos Agency, Albuquerque, NM
Norman Jojola, Environmental Protection Specialist, BIA-Northern Pueblo Agency, Espanola, NM
Ron Kneebone, Regulatory Division, Albuquerque District, Corps of Engineers, NM
Benny Lujan, Tribal Sheriff, Ohkay Owingeh
William Oberlin, Regulatory Division, Albuquerque District, Corps of Engineers, NM
Carlos Salazar, Soil Conservationist, BIA-Northern Pueblo Agency, Espanola, NM
Allan Steinle, Regulatory Division, Albuquerque District, Corps of Engineers, NM
Neil Weber, Environmental Director, Pueblo of San Ildefonso

SUMMARY OF COMPLIANCE DOCUMENTATION RELEVANT TO THE LOS CONCHAS BURNED AREA EMERGENCY RESPONSE PLAN

The following tables summarize the existing NEPA or NHPA compliance in place for the BAER treatments proposed for the Las Conchas Fire for the Pueblo of Cochiti, Pueblo of Jemez, Ohkay Owingeh, Pueblo of Santa Clara, Pueblo of Santo Domingo and the Pueblo of San Ildefonso.

Pueblo of Cochiti **Compliance Summary for 2011 Las Conchas Fire Team BAER Plan**		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
CO-1	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-2	Structure protection & channel clearing	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Action proposes to deepen and widen the channel bottom of Bland Creek.
CO-3	Prepare & deliver BARC map	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-4	Storm Patrol	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Cochiti Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
CO-5	Hazard safety signs	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-6	Early warning system	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Jemez Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
JE-1	Short-term tree hazard surveillance	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
JE-2	Invasive species monitoring	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
JE-3	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
JE-4	Hazard safety signs	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Ohkay Owingeh

Compliance Summary for 2011 Las Conchas Fire Team BAER Plan

Treatment Code	Treatment	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
OO-1	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the 2005 Ohkay Owingeh Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of San Ildefonso Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SI-1	Hazard safety signs	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-2	Traditional cultural assessment	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-3	Structure protection & channel clearing	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Action proposes to deepen and widen the channel bottom of Bland Creek.
SI-4	Early warning system	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-5	Civil engineering risk assessment	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of San Ildefonso Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SI-6	Storm Patrol	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-7	Sandbag painting	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE is 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-1	Hazard Safety Signs	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(4) NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-2	Short-term tree hazard mitigation	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6) NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-3	Noxious weed control & monitoring	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE are: 516 DM 10.5 H(10). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-4	Livestock Closure and Compliance	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-5	Sediment removal in four ponds	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Equipment will be working in ponds.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-6	Traditional cultural assessment	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-7	Canyon Rd stream crossing protection	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. The proposed actions are confined to the road surface and correct road drainage problems by creating a bypass channel to substitute for a failed culvert and creating a medium dip for channel drainage that will permit vehicle passage.
SC-8	K Rails and Sandbags to Protect Structures & Infrastructure	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-9	Floatable debris removal	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6). NHPA Determination: No Historic Properties Affected. CWA § 404 Permit: Not required. No fill emplacement involved. Work is completed. Equipment was in the floodplain but not in the channel.
SC-10	Storm patrol	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved and heavy equipment would not be working in the Santa Clara Creek channel.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-11	Early warning system	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-12	Portable toilet removal	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Three toilets and a crushed dumpster are in the Santa Clara Creek channel and will need to be hauled out with heavy equipment.
SC-13	Sandbag painting	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-14	Irrigation diversion cleaning	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. Routine sediment clearing of sediment basin located outside of the creek channel. No fill emplacement involved.
SC-15	Short term tree hazard surveillance	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-16	Floatable debris removal from upper creek	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved. Project has started implementation. Heavy equipment will not be needed in the stream channel.
SC-17	Engineering assessment of retention ponds	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-18	Aerial straw mulch	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-19	Spur road culvert removal & low water crossing construction	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(9). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Excavator will need to harden the low water crossing and slope the channel banks to allow vehicles to pass.
SC-20	Invasive species monitoring	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-21	Canyon road culvert replacement	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(9). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Existing failed culverts will be replaced by larger culverts.
SC-22	Installing & maintaining grade dips on watershed roads	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. The proposed actions would correct road drainage without requiring culvert removal and would not result in any disturbance of the creek channel.

Pueblo of Santo Domingo Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SD-1	Invasive species monitoring	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Santo Domingo Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santo Domingo Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SD-2	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Santo Domingo Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

DOI EXCEPTIONS TO CATEGORICAL EXCLUSIONS

CEQ Regulations (40 CFR 1508.4) require agencies to consider whether fairly routine actions involve extraordinary circumstances that require an agency to prepare further assessment and consideration. If it is determined that any of the exceptions listed in the table below apply to the proposed actions listed above, that action may not be categorically excluded, and an EA or an EIS must be prepared. The list below is from the DOI and applies to all DOI agencies (516 DM 2, Appendix 2); agencies may have additional items on their own list of Departmental exceptions.

EXCEPTION CHECKLIST FOR BIA CATEGORICAL EXCLUSIONS
Project: Las Conchas Fire BAER Plan **Date:** 7/22/2011
Nature of Proposed Action: Implement prescribed treatments and monitoring included in the Las Conchas Fire Burned Area Emergency Response Plan

Evaluation of Exception to use of BIA Categorical Exclusions

1.	This action would have significant adverse effects on public health or safety.	No ☒	Yes ☐
2.	This action would have an adverse effect on unique geographical features, such as wetland, wild or scenic rivers, refuges, floodplains, rivers placed on nationwide river inventory, or prime or unique farmlands.	No ☒	Yes ☐
3.	The action will have highly controversial environmental effects.	No ☒	Yes ☐
4.	The action will have highly uncertain environmental effects or involve unique or unknown environmental risks.	No ☒	Yes ☐
5.	This action will establish a precedent for future actions.	No ☒	Yes ☐
6.	This action is related to other actions with individually insignificant, but cumulatively significant environmental effects.	No ☒	Yes ☐
7.	This action will affect properties listed or eligible for listing in the National Register of Historic Places.	No ☒	Yes ☐
8.	This action will affect a species listed, or proposed to be listed as endangered or threatened.	No ☒	Yes ☐
9.	This action threatens to violate federal, state, local, or tribal law or requirements imposed for protection of the environment.	No ☒	Yes ☐
10.	This action will have a disproportionately high and adverse effect on low income or minority populations.	No ☒	Yes ☐
11.	This action will limit access to, and ceremonial use of Indian sacred sites on federal lands by Indian religious practitioners, or significantly adversely affect the physical integrity of such sacred sites.	No ☒	Yes ☐
12.	This action will contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area, or may promote the introduction growth, or expansion of the range of such species.	No ☒	Yes ☐

A “yes” to any of the above exceptions will require that additional documentation must be prepared.
NEPA Action - - -

Selection of NEPA Documentation Type:

CE ☒ **EA** ☐

Preparers' Name and Title:

Wendy Poinsot, Environmental Planner,
DOI Interagency BAER Team,
National Park Service,
Point Reyes National Seashore
wendy_poinsot@nps.gov

Jeff Connor, Environmental Protection Specialist
DOI Interagency BAER Team
National Park Service
Rocky Mountain National Park
Jeff_connor@nps.gov

CONCLUSION

I have reviewed the treatments in the 2011 Las Conchas Fire Burned Area Emergency Response Plan in accordance with the criteria above. All proposed treatments qualify as Categorical Exclusions. All treatments are approved for initiation, with the exception of the following six treatments which will require submittal to the U.S. Army Corps of Engineers, Permitting Branch, Albuquerque, NM for Clean Water Act §404 permitting: CO-2, SI-3, SC-5, SC-12, SC-19 and SC-21.

_____ Date_____
BIA SW Regional Archeologist Concurrence with Item 7

Concur: _____ Date: _____
Superintendent, Northern Pueblos Agency

Concur: _____ Date: _____
Superintendent, Southern Pueblos Agency

APPENDIX II – ENVIRONMENTAL COMPLIANCE

FEDERAL ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

All projects prescribed, funded or proposed for implementation on tribal lands in the Burned Area Emergency Response (BAER) Plan for the 2011 Las Conchas Fire are subject to compliance with the *National Environmental Policy Act of 1969* (NEPA, 42 U.S.C. 4321-4347), in accordance with the guidelines provided in the *Council on Environmental Quality Regulations* (40 CFR 1500-1508) and other relevant federal environmental regulations such as the Endangered Species Act (ESA, 7 USC §136,16 USC.§1531 et seq.) and the Clean Water Act (33 USC §1251 et seq.). Specifically, Appendix II documents the record of the Department of the Interior (DOI) BAER Team in complying with the requirements of federal environmental laws, during development and implementation of the emergency stabilization and monitoring actions prescribed in the BAER Plan for the Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Ohkay Owingeh, Pueblo of San Ildefonso, Pueblo of Santa Clara and Pueblo of Santo Domingo, all tribal areas affected by the Las Conchas Fire.

The Plan has been developed by the DOI BAER Team, with assistance from the staffs of the affected Pueblos, the Bureau of Indian Affairs Northern Pueblos Agency, the Southern Pueblos Agency, the National Park Service, the U.S. Forest Service and the U.S. Army Corps of Engineers. The Plan objectives are to analyze post-fire conditions and develop specific emergency stabilization and monitoring actions to mitigate direct and indirect resource damage to DOI administered lands and tribal lands from the Las Conchas Fire, including fire suppression actions. The Bureau of Indian Affairs (BIA) will complete separate NEPA analyses and compliance for fire response activities not addressed in this Plan.

This plan was developed by an Interagency BAER Planning Team comprised of representatives from the Department of the Interior (DOI) agencies: the Bureau of Indian Affairs (BIA), the National Park Service (NPS), the U.S. Fish and Wildlife Service (USFWS) and the Bureau of Land Management and from the U.S. Department of Agriculture (DOA), the U.S. Forest Service in conjunction with the staffs and Tribal members from the Pueblo of Santa Clara, Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Santa Domingo, Ohkay Owingeh and Pueblo of San Ildefonso.

RELATED PLANS

The 2011 Las Conchas BAER Plan was reviewed for consistency with relevant plans and policies of Tribal lands impacted by the Las Conchas fire.

Pueblo de Cochiti Forest Management Plan, 2008

The Cochiti Forest Management Plan (CFMP) provides a description of the current status of the Pueblo's forest and woodlands presents short-term and long-term goals for resource use and management and suggests strategies for achieving stated desired future conditions. The Forest Management Plan is prepared in conformance with 25 CFR 163 which requires, "An appropriate forest management plan shall be prepared and revised as needed for all Indian forest lands". The CFMP describes the BAER process in detail and cites the references used for policy guidance and treatment selection and development. In reference to NEPA compliance for BAER Plans, the CFMP advises that:

"Site specific Environmental Assessments (EA) or Categorical Exclusions (CX) will be completed for each BAER Plan and will reference this plan as appropriate. Any BAER Plan will be consistent with the terms, conditions and decisions of this plan and approved EAs. Planning documents will be developed in compliance with the National Environmental Policy Act (NEPA) in order to satisfy the scoping and public input requirements and therefore qualify as an EA. As appropriate, BAER Plans will be tiered off of this document and CX can be applied. Rehabilitation Plans will need to comply with standard NEPA policies" (CFMP, p. 30).

The CFMP supplements the Pueblo de Cochiti Fire Management Plan, EA and FONSI approved by the BIA and adopted by the Cochiti Council and Governor in 2005 and the Rio Grande Bosque Management Plan, September 2004.

Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI, 2009

The Jemez Comprehensive Forest Management Plan (JCFMP) provides direction and describes a long-term, ecosystem-based approach to managing the Pueblo of Jemez forest resource. Mitigation measures listed in the July 2009 Finding of No Significant Impact (FONSI) has two restrictions prior to implementing projects under the JCFMP: 1) to complete a biological determination to establish whether there could be impacts to the species listed under the Endangered Species Act and, 2) to conduct a cultural resources survey to determine compliance with the National Historic Preservation Act. The surveys conducted in support of the BAER Plan treatments meet these requirements. The JCFMP briefly discusses BAER but references its 2001 Fire Management Plan for more information.

Ohkay Owingeh Forest Management Plan, EA and FONSI, 2009

The Forest Management Plan (OFMP) provides guidance and direction on resource management activities on Ohkay Owingeh lands. The OFMP includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, timber and woodland management and strategic hazardous fuel reduction. An EA was circulated with the OFMP and a Finding of No Significant Impact (FONSI) was signed by the Northern Pueblos Superintendent in June 2009. The conditions of the FONSI require that each subsequent project under the OFMP undergo project-specific NEPA assessment and meet compliance requirements for the Endangered Species Act and the National Historic Preservation Act. The records and field investigations undertaken for the Las Conchas BAER Plan meet the requirements of the OFMP FONSI.

The Plan conforms to the requirements of 25 CFR 163 which outlines the objectives for forest management planning on tribal lands. The Plan replaces the 2004 Ohkay Owingeh Fire Management Plan and the 2005 Hazard Mitigation Plan. Environmental compliance requirements for BAER treatments call for site specific EAs or CEs for each BAER Plan and state that the Plans will demonstrate conformance to OFMP as appropriate.

Pueblo de San Ildefonso Forest Management Plan, EA and FONSI, 2009

The Pueblo of San Ildefonso Forest Management Plan (SIFMP) is prepared in conformance of 25 CFR 163 which focuses resource management and silviculture and programs for future action. The SIFMP includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, and timber and woodland management. The SIFMP addresses the BAER program in Chapter 8 along with the Burned Area Rehabilitation (BAR) program (SIFMP pp. 41-45). The SIFMP lists representative range of BAER treatments that could be employed in an environment like San Ildefonso to protect resources following a wildfire. The 2004 San Ildefonso Fire Management Plan is attached as an appendix to the SIFMP.

The SIFMP planning process was completed in 2009 with the signing of a FONSI by Superintendent of the Northern Pueblos Agency. The FONSI is predicated on the requirement that all projects under the SIFMP “will undergo independent National Environmental Policy Act (NEPA) review”, “full Endangered Species Act (ESA) Section 7 compliance, including formal determination of effects and necessary field surveys” and “full National Historic Preservation Act (NHPA) Section 106 compliance, including consultation with the State Historic Preservation Office and Bureau of Indian Affairs Regional Archaeologist.”

Santa Clara Pueblo Forest and Woodlands Resource Management Plan, EA and FONSI, 2010

The Forest Management Plan provides guidance and direction on resource management activities on the Santa Clara Pueblo starting in 2006. The Forest Management Plan includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, and timber and woodland management. The Santa Clara Pueblo Wildland Fire Management Plan is incorporated by reference into the Forest and Woodlands Resource Management Plan. An EA was prepared by the Northern Pueblos Agency and the FONSI adopted in 2010. The selected alternative for the Forest and Woodlands Management Plan included the use of prescribed burning, use of herbicides, replanting and seeding, tree harvesting, road construction and BAER actions and an extensive list of best management practices (BIA 2010). For project -specific NEPA compliance required by the Forest and

Woodlands Resource Management Plan FONSI, the BIA uses CE 516 DM 10.5 H(10) which limits the size of native plant rehabilitation projects, including site preparation, to 2000 acres per project.

Pueblo of Santa Clara Wildland Fire Management Plan, EA and FONSI, 2001

The Pueblo of Santa Clara Fire Management Plan (SCFMP) was reviewed by the BAER Team prior to the development of the BAER Plan to ensure that proposals developed for the Plan would be consistent with the Pueblo's policies related to resource management. The Environmental Assessment (EA) was prepared for the SCFMP in conformance with BIA NEPA requirements; the SCFMP was adopted by the BIA through the signing of a Finding of No Significant Impact (FONSI) by the Superintendent of the Northern Pueblos Agency. The Council and Governor of the Pueblo of Santa Clara had approved the SCFMP by Tribal Resolution 01-10 in March 2001.

BAER Plans and BAER treatments are addressed in Chapters 8 and 12 of the SCFMP. The FONSI states that "the general proposed actions [of the SCFMP] will not constitute a significant impact on the quality of the human environment." The FONSI calls for "Detailed site specific inventory and surveying, pertaining especially to NEPA compliance aspects of the Endangered Species Act and the National Historic Preservation Act, will take place at [t]he proposed project location before any activity occurs." The SCFMP provides guidance for future actions assuring that plan implementation will be "…monitored during the duration of this Plan by Bureau and Tribal officials empowered to take whatever action necessary to keep environmental effects below significance thresholds (refer to FONSI, following page)" (SCFMP 2001, Section 13). The direction provided by these statements is that the potential impacts of the general actions described in the SCFMP are less than significant but that each requires a site specific environmental assessment, particularly to address ESA and NHPA issues. For the purposes of the Las Conchas BAER Plan, the site specific assessments are documented in conformance with DOI and BIA NEPA regulations (516 DM 2, appendix 1 and 516 DM 10) and the BIA NEPA Manual (59 IAM 3-H).

The SCFMP provides strategic management direction to the Santa Clara Pueblo for wildland fire suppression, fire use fuels management. The SCFMP also lists Tribal Resource Goals, BIA Management Objectives and recommends Fire Management Strategies.

The Pueblo of Santa Clara approved a Forest and Woodlands Resource Management Plan in 2006 that is intended to be one of twelve sections of an Integrated Resources Management Plan which would be subject to NEPA review once as twelve sections are in place.

Pueblo Santo Domingo Forest Management Plan, EA and FONSI, 2009

The Forest Management Plan provides guidance and direction on resource management activities on the Santo Domingo Pueblo. The Forest Management Plan includes action plans for conducting resource protection, forest inventory and planning, forest development, project planning and preparation, and timber and woodland management. The SDFMP states that site-specific NEPA assessment will be completed for each BAER Plan referencing the SDFMP "as appropriate". BAER Plans must "be consistent with the terms, conditions and decisions of this plan [SDFMP] and approved EAs." NEPA compliance for BAER Plans could be CEs provided the treatments tier off of the SDFMP.

For subsequent actions, including BAER treatments, under the SDFMP EA states, "NEPA documentation, including appropriate biological documentation, will be completed on a project by project basis….If the project does not qualify as a categorical exclusion, either an additional EA tiered to this document [SDFMP EA] or an amendment to this document will be required to comply with NEPA requirements" (SDFMP EA p.7). The NEPA assessment completed for the Las Conchas BAER Plan meets the requirements of the SDFMP EA and FONSI.

CUMULATIVE IMPACT ANALYSIS

The emergency stabilization and monitoring treatments for the Las Conchas Fire, as proposed in this plan, do not result in an intensity of impact (i.e., major ground disturbance, etc) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above agency and tribal management plans and associated environmental compliance documents, and categorical exclusions presented below.

No direct or indirect unavoidable adverse impacts to the biological or physical environment would result from the implementation of the Las Conchas Fire BAER Plan.

APPLICABLE AND RELEVANT CATEGORICAL EXCLUSIONS

The individual actions proposed in this plan are categorically excluded from further environmental analysis as provided for in the Department of Interior Manual Part 516. All applicable and relevant BIA categorical exclusions (CEs) are listed below. CE decisions were made with consideration given to the results of required emergency consultations completed by the BAER Team and documented below.

Applicable Bureau of Indian Affairs Categorical Exclusions

516 DM 10.5 A. Operation, Maintenance and Replacement of Existing Facilities. Examples are normal renovation of buildings, road maintenance and limited rehabilitation of irrigation structures

516 DM 10.5 H(6). Forestry. Approval of emergency forest and range rehabilitation plans when limited to environmental stabilization on less than 10,000 acres and not including approval of salvage sales of damaged timber.

516 DM 10.5 H(10). Forestry. Approval of forestation projects with native species and associated protection and site preparation activities on less than 2000 acres when consistent with policies and guidelines established by a current management plan addressed in earlier NEPA analysis.

516 DM 10.5 L(4). Roads and Transportation. Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur.

516 DM 10.5 L(5). Roads and Transportation. Emergency repairs under 23 U.S.C. 125.

516 DM 10.5 L(9). Roads and Transportation. Rehabilitation, reconstruction or replacement of an existing bridge structure on essentially the same alignment or location (e.g., widening, adding shoulders or safety lanes, walkways, bikeways or guardrails).

516 DM 10.5 M(1). Other. Data gathering activities such as inventories, soil and range surveys, timber cruising, geological, geophysical, archeological, paleontological and cadastral surveys.

STATEMENT OF COMPLIANCE FOR THE 2011 LOS CONCHAS FIRE BAER PLAN

This section documents how the Los Conchas Fire DOI BAER Team conformed to the requirements of federal environmental laws in the development of the Los Conchas Fire BAER Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Los Conchas Fire BAER Plan.

National Historic Preservation Act (NHPA) - Certain emergency stabilization treatments may have the potential to affect significant tribal cultural resources and thereby require that the BAER Team comply with the implementing regulations of the National Historic Protection Act (NHPA), as amended and as promulgated under 36 CFR Part 800. Cultural resource specialists from the DOI BAER Team conducted a record search at the BIA Albuquerque Office and the New Mexico online records database for recorded sites from the Tribal areas. BAER Team cultural resource specialists consulted with Tribal members of the Pueblos on potential direct and indirect effects of the fire on the tribe's cultural resources. Field surveys were conducted by BAER archaeologists, who assessed the potential for the specific stabilization actions proposed by the Team to impact cultural resources. No impacts to cultural resources were identified. The BAER Team recommended continued consultation with the Tribes as a BAER Plan action in the case that potential post-fire risks to important cultural resources not included in the scope of the BAER Plan are indentified in the future.

Executive Order 11988, Floodplain Management - No proposed treatments would occupy or modify floodplains and all proposed treatments are in compliance with this order.

Executive Order 11990, Protection of Wetlands - No proposed treatments would result in long-term impacts to or loss of wetlands and all proposed treatments are in compliance with this order.

Executive Order 12372, Intergovernmental Review - Coordination and consultation is ongoing with affected Tribes, Federal and local agencies. A copy of the BAER plan will be disseminated to all affected parties.

Executive Order 12892, Federal actions to address Environmental Justice in Minority and Low-Income Populations. All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States, The BAER Team has determined that the actions proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.

Executive Order 13112 directs federal agencies "not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species." Proposed treatments in the Las Conchas BAER Plan incorporate best management practices, such as vehicle undercarriage washing, tool cleaning, use of weed free seeds, etc, that address the concerns of this order.

Endangered Species Act (ESA). Section 7 Consultation: The treatment areas were assessed for potential to support listed species by BAER Team wildlife biologist who consulted with local U.S. Fish and Wildlife Service staff and local species experts and determined that there is no potential for the project to impact listed species as there are no known listed species from the treatment areas. If any potential post-fire risks to ESA species are indentified in the future outside the scope of the BAER Plan that may trigger Section 7 consultation, the regional BIA biologist will be responsible for initiating the Section 7 consultation process.

Clean Water Act (CWA). Members of the DOI BAER Team met with Tribal members and consulted with the U.S. Army Corps of Engineers (USACE) permitting branch to ensure compliance with the requirements of the Clean Water Act, specifically sections 404 and 401 addressing stream channel disturbance and fill discharge to waters of the U.S. Treatments in three of the six Tribes affected by the Las Conchas Fire have the potential to disturb a drainage channel or potential release fill to waters of the U.S. The BAER Team will submit §404 permit applications to the USACE, Albuquerque Office, for BAER treatments in each of these three pueblos. Is it anticipated that all proposed treatments will be found in compliance with the CWA with the incorporation of mitigation measures recommended by the USACE. The NEPA documentation from the BAER Plan will be submitted with the §404 application.

Clean Air Act. Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). The BAER Team has determined that treatments prescribed for the Los Conchas Fire may have short-term negligible to minor impacts to air quality due to equipment emissions and/or increases in particulates during ground-based activities, but they would not differ significantly from routine land use practices for the area. As such, all proposed treatments are in compliance with this Act.

CONSULTATIONS

BAER Team members attended an agency in-briefing in Albuquerque, NM on July 6, 2011 to obtain information on issues of concern for the Pueblo of Santa Clara, Pueblo of Cochiti, Pueblo of Jemez, Pueblo of Santa Domingo and Pueblo of San Ildefonso. Most attendees were resource staff and Regional Director Staff from the Southwest Regional BIA Office. The Pueblo of Santa Clara was represented by Joseph Chavarria, the Pueblo of San Ildefonso was represented by Neil Weber, Pueblo of Jemez by Chris Toya, Ohkay Owingeh by Ron Lovato, Pueblo of Santa Domingo by Sam Lovato, and Pueblo of Cochiti by Jacob Pecos. Subsequent meetings were attended by staff from the Bureau of Indian Affairs, Northern Pueblos Agency and Southern Pueblos Agency.

Internal scoping continued daily by the BAER Team at each evening briefing that also included various members from the pueblos, BIA, representatives from Senator Jeff Bingaman's office, and USACE as new issues found in the field were recorded into the record of issues and concerns. Issues and concerns were brought up by agency and tribal employees throughout the BAER process.

Others consulted:

Jan V. Biella, Interim SHPO, NM Department of Cultural Affairs, Santa Fe, NM 87501
Bruce Bauer, Director of Forestry, Pueblo of Santa Clara
Marsha Carra, Bureau of Reclamation, Environmental Protection Specialist, Albuquerque Area Office
Bernardino Chavarria, Assistant Environmental Director, Pueblo of Santa Clara
Danny Gomez, Supervisory Forester, Northern Pueblos Agency
Eric Hein, US Fish and Wildlife Service Section 7 Emergency Consultation, Albuquerque, NM
Kenneth Jaramillo, Fire Management Officer, Southern Pueblos Agency, Albuquerque, NM
Janelle Jersey, NEPA Coordinator, BIA-Southern Pueblos Agency, Albuquerque, NM
Norman Jojola, Environmental Protection Specialist, BIA-Northern Pueblo Agency, Espanola, NM
Ron Kneebone, Regulatory Division, Albuquerque District, Corps of Engineers, NM
Benny Lujan, Tribal Sheriff, Ohkay Owingeh
William Oberlin, Regulatory Division, Albuquerque District, Corps of Engineers, NM
Carlos Salazar, Soil Conservationist, BIA-Northern Pueblo Agency, Espanola, NM
Allan Steinle, Regulatory Division, Albuquerque District, Corps of Engineers, NM
Neil Weber, Environmental Director, Pueblo of San Ildefonso

SUMMARY OF COMPLIANCE DOCUMENTATION RELEVANT TO THE LOS CONCHAS BURNED AREA EMERGENCY RESPONSE PLAN

The following tables summarize the existing NEPA or NHPA compliance in place for the BAER treatments proposed for the Las Conchas Fire for the Pueblo of Cochiti, Pueblo of Jemez, Ohkay Owingeh, Pueblo of Santa Clara, Pueblo of Santo Domingo and the Pueblo of San Ildefonso.

Pueblo of Cochiti **Compliance Summary for 2011 Las Conchas Fire Team BAER Plan**		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
CO-1	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-2	Structure protection & channel clearing	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Action proposes to deepen and widen the channel bottom of Bland Creek.
CO-3	Prepare & deliver BARC map	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-4	Storm Patrol	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-5	Hazard safety signs	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
CO-6	Early warning system	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Cochiti Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Jemez Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
JE-1	Short-term tree hazard surveillance	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
JE-2	Invasive species monitoring	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
JE-3	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
JE-4	Hazard safety signs	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Jemez Comprehensive Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Ohkay Owingeh Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
OO-1	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the 2005 Ohkay Owingeh Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of San Ildefonso Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SI-1	Hazard safety signs	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-2	Traditional cultural assessment	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-3	Structure protection & channel clearing	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Action proposes to deepen and widen the channel bottom of Bland Creek.
SI-4	Early warning system	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-5	Civil engineering risk assessment	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-6	Storm Patrol	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SI-7	Sandbag painting	NEPA compliance by the BAER Team on behalf of the BIA tiers from the San Ildefonso Forest Management Plan, EA and FONSI. The project meets the requirements for BIA CE is 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-1	Hazard Safety Signs	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(4) NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-2	Short-term tree hazard mitigation	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6) NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-3	Noxious weed control & monitoring	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE are: 516 DM 10.5 H(10). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-4	Livestock Closure and Compliance	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-5	Sediment removal in four ponds	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Equipment will be working in ponds.
SC-6	Traditional cultural assessment	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-7	Canyon Rd stream crossing protection	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. The proposed actions are confined to the road surface and correct road drainage problems by creating a bypass channel to substitute for a failed culvert and creating a medium dip for channel drainage that will permit vehicle passage.
SC-8	K Rails and Sandbags to Protect Structures & Infrastructure	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-9	Floatable debris removal	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6). NHPA Determination: No Historic Properties Affected. CWA § 404 Permit: Not required. No fill emplacement involved. Work is completed. Equipment was in the floodplain but not in the channel.
SC-10	Storm patrol	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved and heavy equipment would not be working in the Santa Clara Creek channel.
SC-11	Early warning system	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-12	Portable toilet removal	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Three toilets and a crushed dumpster are in the Santa Clara Creek channel and will need to be hauled out with heavy equipment.
SC-13	Sandbag painting	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-14	Irrigation diversion cleaning	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 A. NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. Routine sediment clearing of sediment basin located outside of the creek channel. No fill emplacement involved.
SC-15	Short term tree hazard surveillance	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

Pueblo of Santa Clara Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SC-16	Floatable debris removal from upper creek	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(4). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved. Project has started implementation. Heavy equipment will not be needed in the stream channel.
SC-17	Engineering assessment of retention ponds	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-18	Aerial straw mulch	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 H(6). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-19	Spur road culvert removal & low water crossing construction	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(9). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Excavator will need to harden the low water crossing and slope the channel banks to allow vehicles to pass.
SC-20	Invasive species monitoring	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SC-21	Canyon road culvert replacement	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(9). NHPA Determination: No historic properties affected. CWA § 404 Permit: Yes. Existing failed culverts will be replaced by larger culverts.
SC-22	Installing & maintaining grade dips on watershed roads	NEPA compliance by the BAER Team on behalf of the BIA tiers from the Santa Clara Forest and Woodlands Plan, EA and FONSI. Site specific CE is: 516 DM 10.5 L(5). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. The proposed actions would correct road drainage without requiring culvert removal and would not result in any disturbance of the creek channel.

Pueblo of Santo Domingo Compliance Summary for 2011 Las Conchas Fire Team BAER Plan		
Treatment Code	**Treatment**	**Compliance Record for:** **NEPA** **NHPA** **CWA, §404**
SD-1	Invasive species monitoring	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Santo Domingo Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.
SD-2	Traditional cultural assessment	NEPA compliance the BAER Team on behalf of the BIA tiers from the Pueblo of Santo Domingo Forest Management Plan, EA and FONSI. The site specific CE for this action is BIA CE 516 10.5 M(1). NHPA Determination: No historic properties affected. CWA § 404 Permit: Not required. No fill emplacement involved.

DOI EXCEPTIONS TO CATEGORICAL EXCLUSIONS

CEQ Regulations (40 CFR 1508.4) require agencies to consider whether fairly routine actions involve extraordinary circumstances that require an agency to prepare further assessment and consideration. If it is determined that any of the exceptions listed in the table below apply to the proposed actions listed above, that action may not be categorically excluded, and an EA or an EIS must be prepared. The list below is from the DOI and applies to all DOI agencies (516 DM 2, Appendix 2); agencies may have additional items on their own list of Departmental exceptions.

EXCEPTION CHECKLIST FOR BIA CATEGORICAL EXCLUSIONS
Project: Las Conchas Fire BAER Plan **Date:** 7/22/2011
Nature of Proposed Action: Implement prescribed treatments and monitoring included in the Las Conchas Fire Burned Area Emergency Response Plan

Evaluation of Exception to use of BIA Categorical Exclusions

1.	This action would have significant adverse effects on public health or safety.	No ☒	Yes ☐
2.	This action would have an adverse effect on unique geographical features, such as wetland, wild or scenic rivers, refuges, floodplains, rivers placed on nationwide river inventory, or prime or unique farmlands.	No ☒	Yes ☐
3.	The action will have highly controversial environmental effects.	No ☒	Yes ☐
4.	The action will have highly uncertain environmental effects or involve unique or unknown environmental risks.	No ☒	Yes ☐
5.	This action will establish a precedent for future actions.	No ☒	Yes ☐
6.	This action is related to other actions with individually insignificant, but cumulatively significant environmental effects.	No ☒	Yes ☐
7.	This action will affect properties listed or eligible for listing in the National Register of Historic Places.	No ☒	Yes ☐
8.	This action will affect a species listed, or proposed to be listed as endangered or threatened.	No ☒	Yes ☐
9.	This action threatens to violate federal, state, local, or tribal law or requirements imposed for protection of the environment.	No ☒	Yes ☐
10.	This action will have a disproportionately high and adverse effect on low income or minority populations.	No ☒	Yes ☐
11.	This action will limit access to, and ceremonial use of Indian sacred sites on federal lands by Indian religious practitioners, or significantly adversely affect the physical integrity of such sacred sites.	No ☒	Yes ☐
12.	This action will contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area, or may promote the introduction growth, or expansion of the range of such species.	No ☒	Yes ☐

A “yes” to any of the above exceptions will require that additional documentation must be prepared.
NEPA Action - - -

Selection of NEPA Documentation Type:

CE ☒ **EA** ☐

Preparers' Name and Title:

Wendy Poinsot, Environmental Planner,
DOI Interagency BAER Team,
National Park Service,
Point Reyes National Seashore
wendy_poinsot@nps.gov

Jeff Connor, Environmental Protection Specialist
DOI Interagency BAER Team
National Park Service
Rocky Mountain National Park
Jeff_connor@nps.gov

CONCLUSION

I have reviewed the treatments in the 2011 Las Conchas Fire Burned Area Emergency Response Plan in accordance with the criteria above. All proposed treatments qualify as Categorical Exclusions. All treatments are approved for initiation, with the exception of the following six treatments which will require submittal to the U.S. Army Corps of Engineers, Permitting Branch, Albuquerque, NM for Clean Water Act §404 permitting: CO-2, SI-3, SC-5, SC-12, SC-19 and SC-21.

/s/ for Bruce Harrill
BIA SW Regional Archeologist Concurrence with Item 7
as per phone conversation of 7/22/11

Date July 24, 2011

Concur: _____
Superintendent, Northern Pueblos Agency

Date: _____

Concur: _____
Superintendent, Southern Pueblos Agency

Date: _____

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

APPENDIX III PHOTO DOCUMENTATION

- **WATERSHED / SOIL ISSUES**
- **FORESTRY / VEGETATION ISSUES**
- **CULTURAL RESOURCE ISSUES**
- **WILDLIFE ISSUES**
- **OPERATIONS**

Debris Flows and Flooding, Santa Clara Canyon, July 15, 2011

Flood Debris Plugging Culvert

Flood Debris Plugging Culvert

Debris Flow Damage

Debris Flow Damage Across Road

Debris Flow Damage

Debris Flow Damage Across Road

Watershed Issues and Concerns

Debris Flow Entering 3rd Pond From North

Aqua Piedra_Downvalley Reburn Cerro Grande

BIA 602_7_12_2011 Crossing Before Debris Flow

BIA 602_7_14_2011 Crossing After Debris Flow

Ash Flow Overtopping Bridge at Pond

High/Moderate Severity above Dixon Apple Orchard

Watershed Issues and Concerns

Garcia Canyon_High Burn Severity Data Point

Water Repellency Test_Moderate Soil Burn Severity

Peralta Ash Flow From Storm_7/23/2011

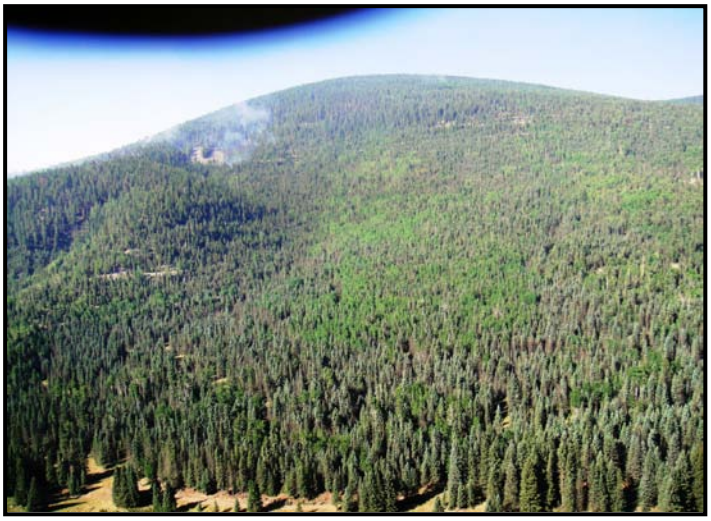
Moderate Burn Severity_Steep Slopes

Low Burn Severity

Field Work_Moderate Soil Burn Severity

Forest / Vegetation Resources

High Top Kill Mortality



Low Top Kill _Mortality

Moderate to Low Top Kill_Mortality

Must Thistle_Noxious Weed

Unburned Riparian Area with High Top Kill_Mortality

Mitigated Imminent Tree Hazard

Cultural Resource Issues

Buried Cultural Deposit Above Drainage

Burned Pueblo

Burned Traditional Use Area

Consulting with Tribal Cultural Specialist

High Severity Burned Trail

Low Severity Burned Trail

Wildlife Resource Issues

Long-Tailed Weasel

Beaver Pond in Santa Clara Canyon

High mortality in riparian area_Santa Clara Creek

High Mortality _Top Kill upper Slopes_Santa Clara

28 Elk grazing in Valle de Caldera

Burned Trees and Debris in Rio del Oso

Operation

Structure Protection_Santa Clara

Emergency K-rail Placement at Totavi Store

Floatable Debris Removal_Santa Clara Canyon

K-rail Placement_Santa Clara Pueblo

Fire Damage Safety Sign

K-rail Placement_Santa Clara

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

APPENDIX IV MAPS

Disclaimer: National Interagency BAER Team. The BAER Team chose to lock-in the fire perimeter on July 13, 2011 in order to expedite full and accurate analysis for all of the team's disciplines. The soil burn severity within this perimeter was recognized as final for the purpose of consistent analysis on July 18, 2011. All areas that have a value of unburned, low, moderate, or high soil burn severity were delineated using a variety of methods including satellite imagery, on-the-ground mapping, and aerial mapping by BAER Team members. There are a few areas with an undetermined soil burn severity due to cloud coverage during the satellite image capture. The Team determined that these areas resulted in a minimal overall contribution to the assessment of risk. The Team also recognizes the burn severity outside of the July 13 perimeter and will evaluate this area at a later date.

Burned Area Emergency Response

Las Conchas Fire - Ownership

Fire Perimeter (7-13-2011)

Fire Perimeter (7-19-2011)

Ownership

- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

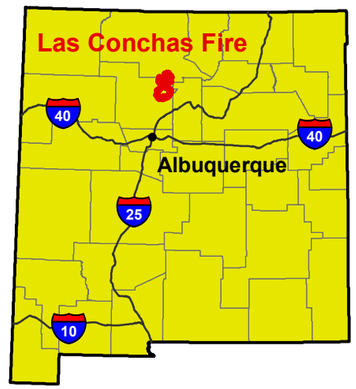
1:200,000

0 1 2 3 4 5

Miles

Locator Map

State of New Mexico



The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

Las Conchas Fire - Ownership

Las Conchas Fire - Suppression Impacts

Burned Area Emergency Response

Santa Clara Pueblo · Walatowa Pueblo of Jemez · Pueblo de Cochiti New Mexico · Pueblo de San Ildefonso Tewa · Santo Domingo Pueblo

Las Conchas Fire Suppression Impacts

- Drop Point
- Helispot
- Completed Dozer Line
- Completed Line
- Hand Line
- Fire Perimeter (7-19-2011)

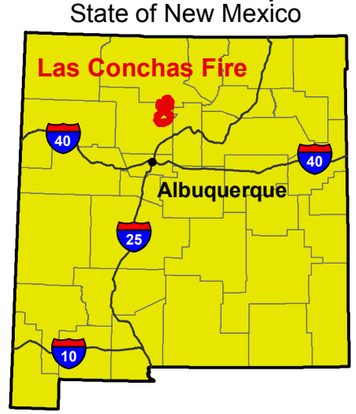
1:200,000

0 1 2 3 4 5

Miles

Locator Map

State of New Mexico



The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

BAER

DP-47
DP-50
DP-45
DP-55
Delta Spike
DP-57
DP-60
DP-40
Jct Rd 99/Rd 144
DP-65
DP-67
DP-68
DP-70
DP 79
DP-73
DP-78
DP-80
DP-85
DP-225
DP-227
DP-223
DP-226
DP-228
DP-224
DP-229
DP-230
DP-191
Mesa
DP-103
DP-104
DP-106
Bear Springs
DP-134

Burned Area Emergency Response

Rio del Oso at Chili
Rito de Abiquiu
Upper Rio del Oso
Plaza
Gallina Creek
Rito de los Indios
Upper Santa Clara
Santa Clara at Lower Pueblo Bridge
Upper San Antoni at Road VC02
Guaje at 416
Upper Los Alamos Canyon at Omega Bridge
Rendija
Guaje at Hwy 502
East Fork Below Las Conchas
Los Alamos at Rio
Pajarito
Water
Frijoles at VC
Alamo
Cochiti at Dixon's Orchard
Bland at Cochiti Pueblo Boundary
Lummis
Sanchez
Capulin
Peralta All at Tent Rocks
Colle at Tent Rocks
Upper Peralta above Colle Jct
Medio
Peralta at Cochiti Pueblo

Las Conchas Fire Evaluated Watersheds

- Fire Perimeter (7-13-2011)
- Watershed

Ownership

- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

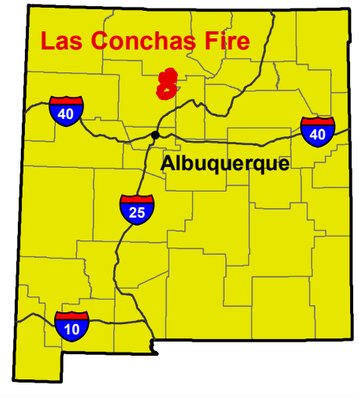
1:220,000

0 1 2 3 4 5 6

Miles

Locator Map

State of New Mexico



The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

BAER

Las Conchas Fire - Evaluated Watersheds

Las Conchas Fire - Santa Clara Sub-Watersheds

Burned Area Emergency Response

Las Conchas Fire
Santa Clara Sub-Watersheds

Tsichoma Pond
Side Drainage
Ranger Pond
Zero North
Zero South
Lower Zero
Upper Sawyer
Middle Sawyer
Nanaka Pond

Area of Interest

1:480,000
0 3 6 9 12
Miles

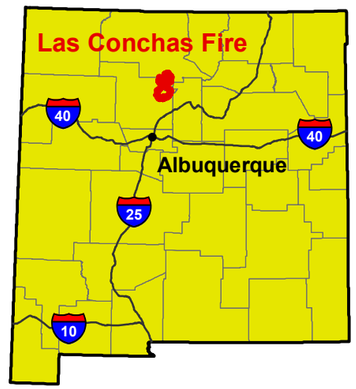
- Santa Clara Watershed
- Sub-Watershed
- Fire Perimeter (7-13-2011)

Ownership

- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

1:120,000
0 1 2 3
Miles

Locator Map
State of New Mexico



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Burned Area Emergency Response

Las Conchas Fire
Soil Burn Severity

Fire Perimeter (7-13-2011)

Fire Perimeter (7-19-2011)

Soil Burn Severity (7-19-2011)

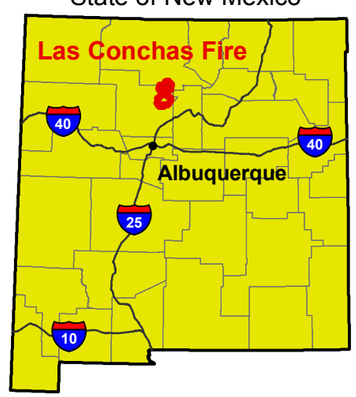
- High
- Moderate
- Low
- Unchanged

1:200,000

0 1 2 3 4 5

Miles

Locator Map
State of New Mexico

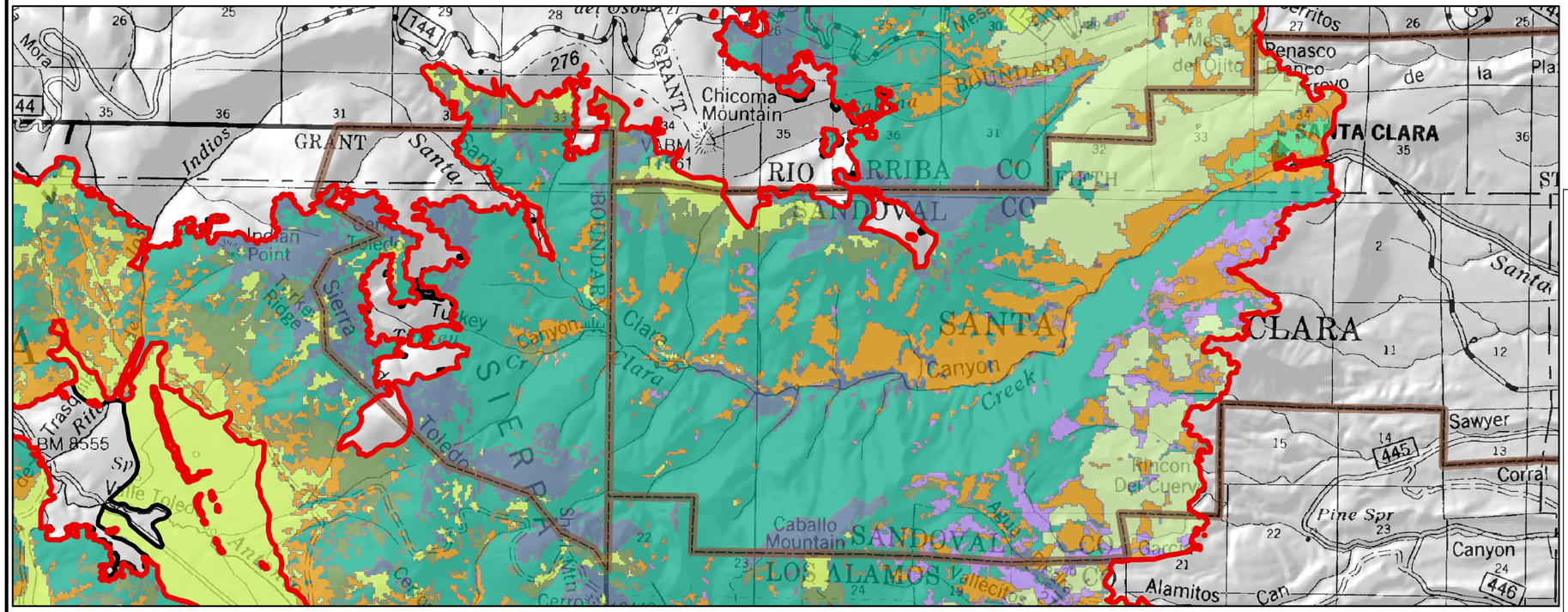


The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

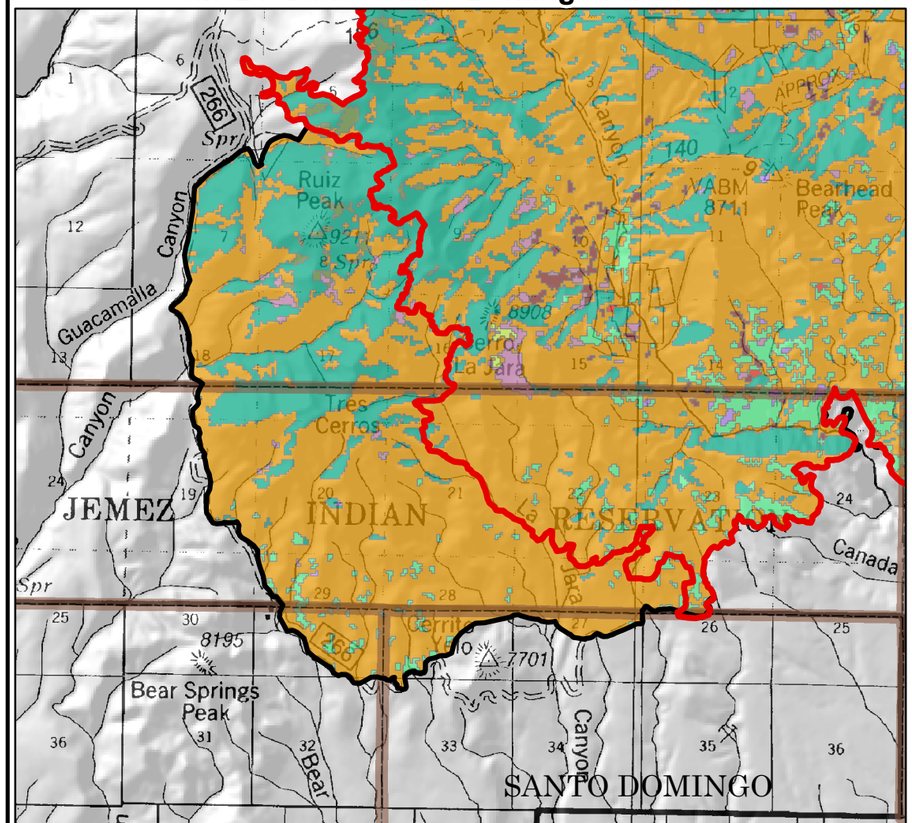
Las Conchas Fire - Soil Burn Severity

Las Conchas Fire - Pre-Fire Vegetation

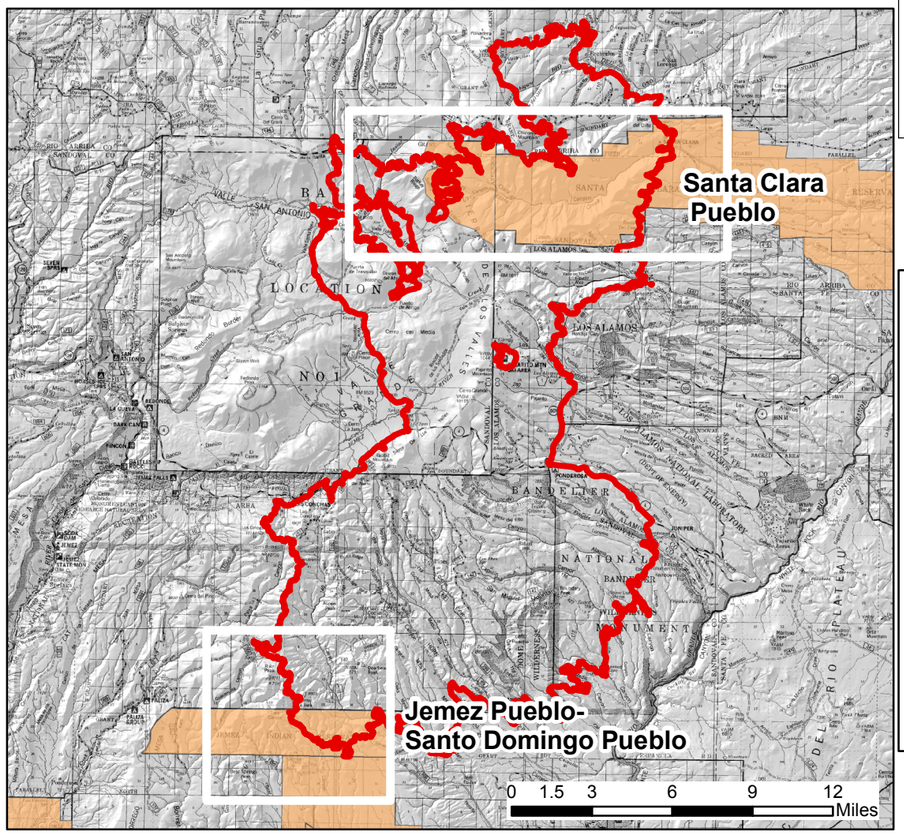
Santa Clara Pueblo



Jemez Pueblo- Santo Domingo Pueblo



Overview: Las Conchas Fire



Burned Area Emergency Response

SANTA CLARA PUEBLO · ZIA/TOWA PUEBLO OF JEMEZ · PUEBLO DE COCHITI NEW MEXICO · PUEBLO DE SAN ILDEFONSO TEWA · PUEBLO OF SANTO DOMINGO

Las Conchas Fire Pre-Fire Vegetation

- Fire Perimeter (7-13-2011)
- Fire Perimeter (7-19-2011)
- Pueblo Lands
- Aspen
- Desert Shrubland
- Floodplain-Arroyo Riparian
- Mixed Conifer
- Montane Meadow & Grassland
- Montane Riparian Wetland
- Montane Shrubland
- Pinyon-Juniper Woodland
- Ponderosa Pine
- Recently Burned
- Rock Outcrops
- Spruce-Fir Forest
- Water

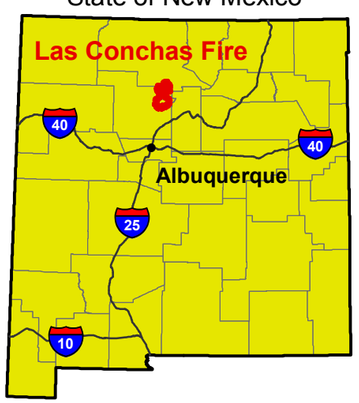
1:75,000

0 0.5 1 1.5 2 Miles

N W E S

Locator Map

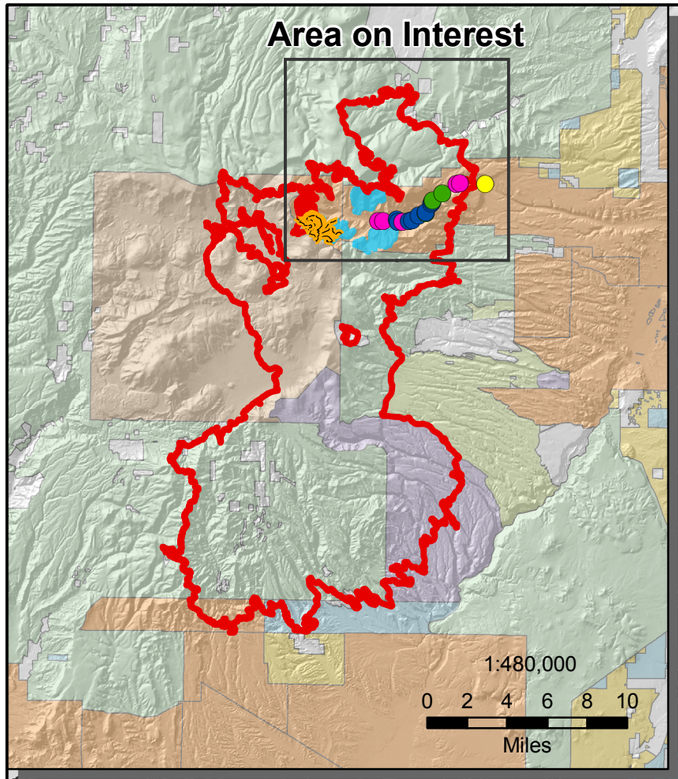
State of New Mexico

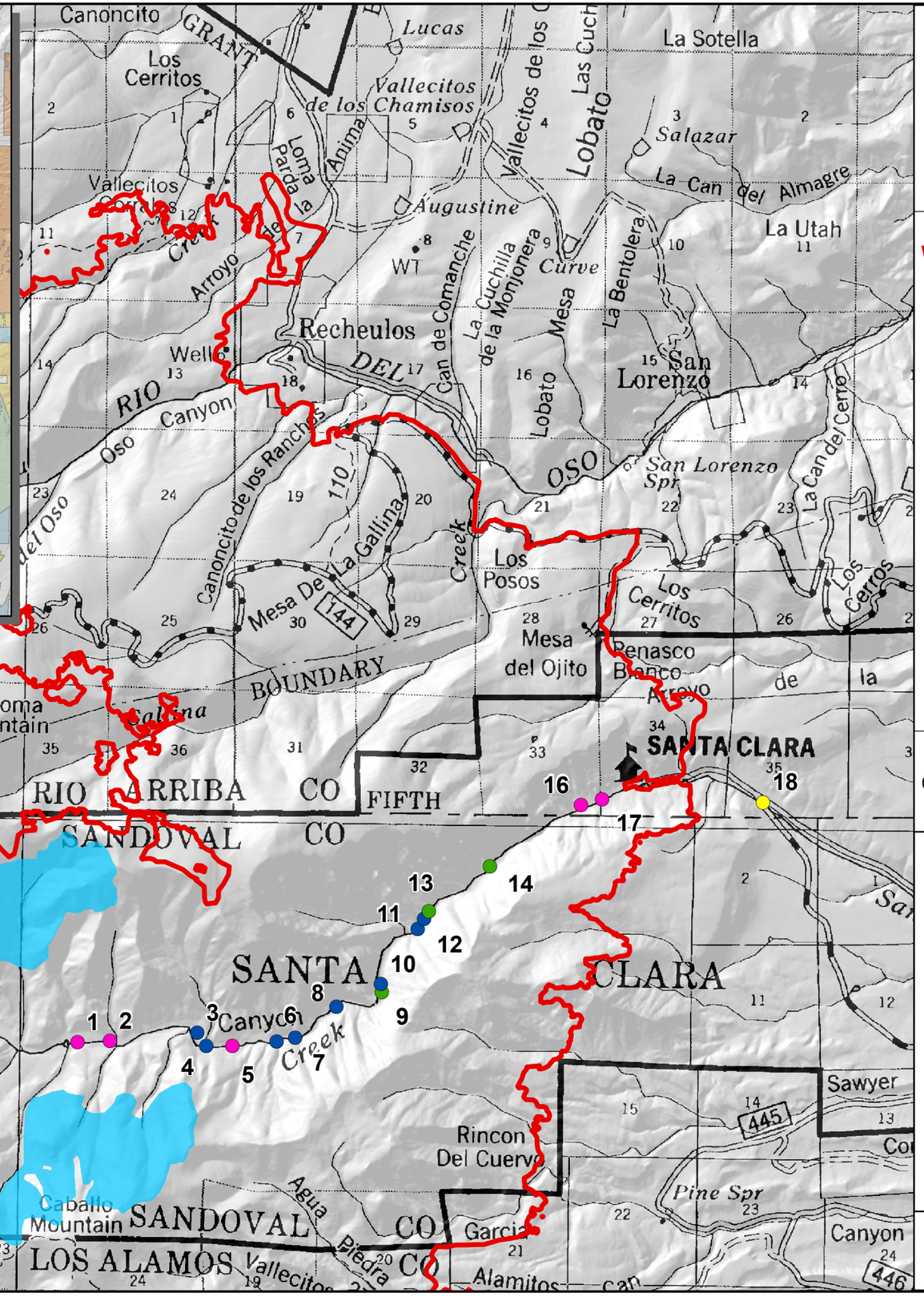


The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

BAER

Las Conchas Fire - Watershed Treatments - Santa Clara





Burned Area Emergency Response

Las Conchas Fire
Watershed Treatments - Santa Clara

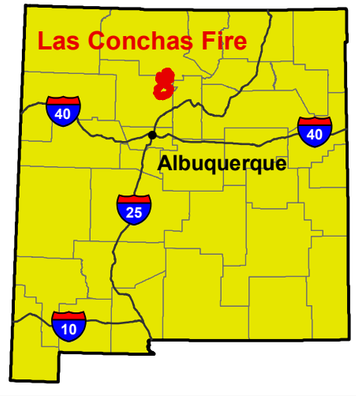
- Culvert Clean-Out
- Emergency Dips & Culvert Replacement
- Main Road Overflow Dips
- Spur Road Low Water Crossing
- Other Roads of Concern
- Mulching Area
- Fire Perimeter (7-13-2011)

Ownership

- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

1:60,000
0 1 2
Miles

Locator Map
State of New Mexico



The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

Las Conchas Fire - Treatments - Santa Clara

Burned Area Emergency Response

Las Conchas Fire Treatments - Santa Clara

Pond 1
Pond 2
Pond 3
Pond 4
Old Ranger Station
Well Switch
Well House
See Inset

Inset

Culvert Cleanout
Drain & Clean Pond
Sandbags
Floatable Debris Removal
Santa Clara Watershed
Fire Perimeter (7-13-2011)

Ownership

- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

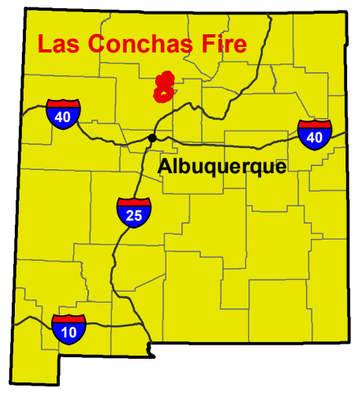
1:128,000

0 1 2 3

Miles

Locator Map

State of New Mexico



Culvert Cleanout
K-Rails
Sand Bags
Floatable Debris Removal
Santa Clara Watershed

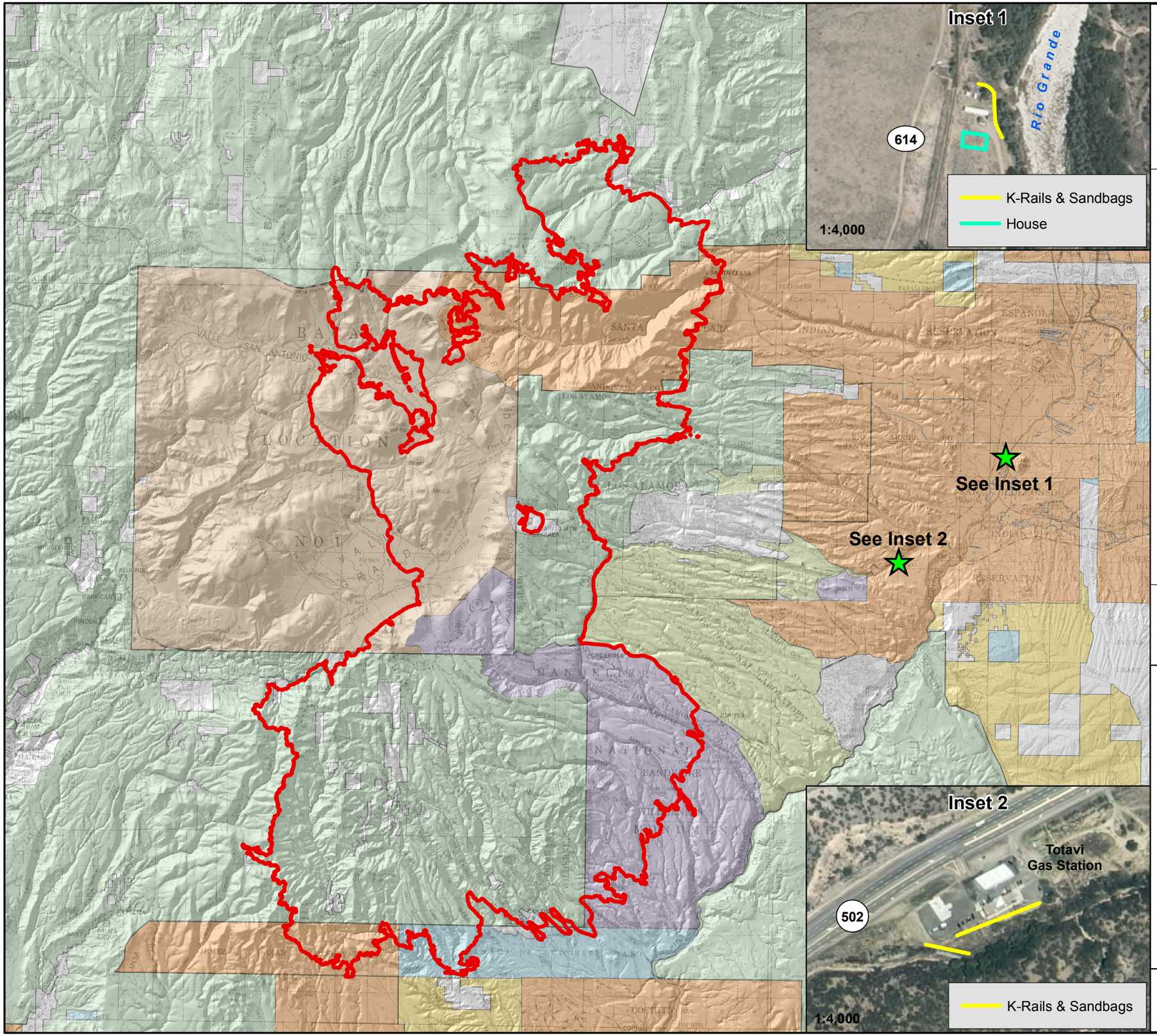
1:13,000

The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

Las Conchas Fire - Treatments - San Ildefonso

Burned Area Emergency Response

Las Conchas Fire
Treatments - San Ildefonso



Fire Perimeter (7-13-2011)

Ownership

- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

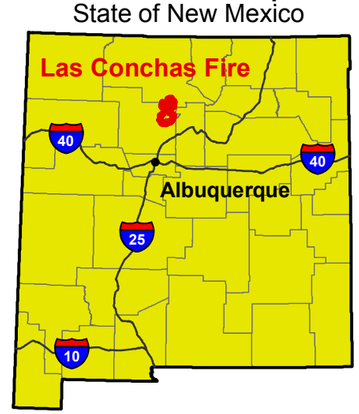
1:200,000

0 1 2 3 4 5

Miles

Locator Map

State of New Mexico



The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

Las Conchas Fire - Treatments - Cochiti Pueblo

Burned Area Emergency Response

Las Conchas Fire Treatments - Cochiti Pueblo

- Fire Perimeter (7-13-2011)
- Bureau of Land Management
- Department of Defense
- Department of Energy
- Forest Service
- Tribal
- National Park Service
- Other Federal Agency
- Private
- State
- State Game & Fish
- State Park

1:82,000

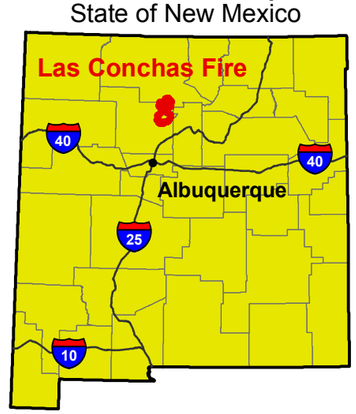
0 0.5 1 2

Miles

N W E S

Locator Map

State of New Mexico



Inset 1

1:12,000

K-rails

See Inset 1

See Inset 2

Location Map

Inset 2

Channel Clean

K-rails

Berm

Channel Clean

1:31,680

The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

Burned Area Emergency Response

Las Conchas Fire
July 14, 2011 - Debris Flow Event

Fire Perimeter (7-13-2011)

Santa Clara Canyon
Draft 30-Minute 25-Year Event

Debris Flow Hazard

- High
- Moderate / High
- Moderate
- Low

Mud Flow / Debris Flow Location

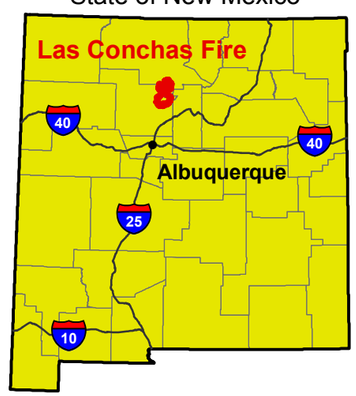
- Debris Flow Point
- Mud Flow Point
- Retention Pond

Streamlines

1:15,840

0 0.1 0.2 0.3 0.4 0.5 Miles

Locator Map
State of New Mexico



The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

Area of Interest

1113 1111 1109 1101 1102 1103 1105 1107 1112 1110 1108 1106 1104

Retention Pond

Retention Pond

MF1

DF1 DF2 DF2 DF3 DF4 DF5 DF6 DF7 DF8 DF9 DF10

Las Conchas Fire - July 14, 2011 - Debris Flow Event

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Burned Area Emergency Response

Las Conchas Fire
Vegetation Top Kill / Mortality

Fire Perimeter (7-13-2011)

Fire Perimeter (7-19-2011)

Vegetation Mortality

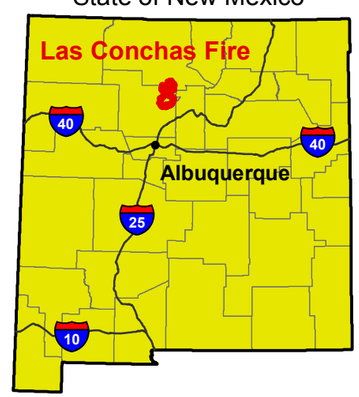
- High
- Moderate - High
- Moderate - Low
- Low

1:200,000

0 1 2 3 4 5

Miles

Locator Map
State of New Mexico

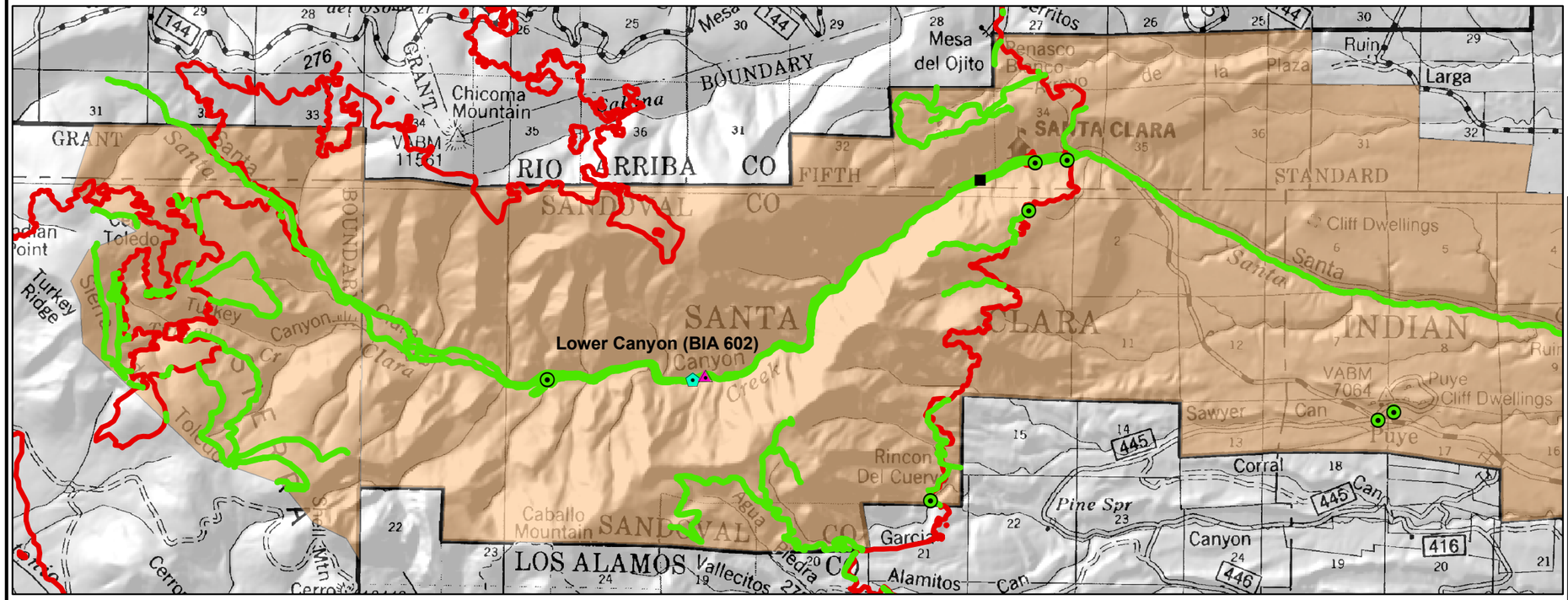


The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

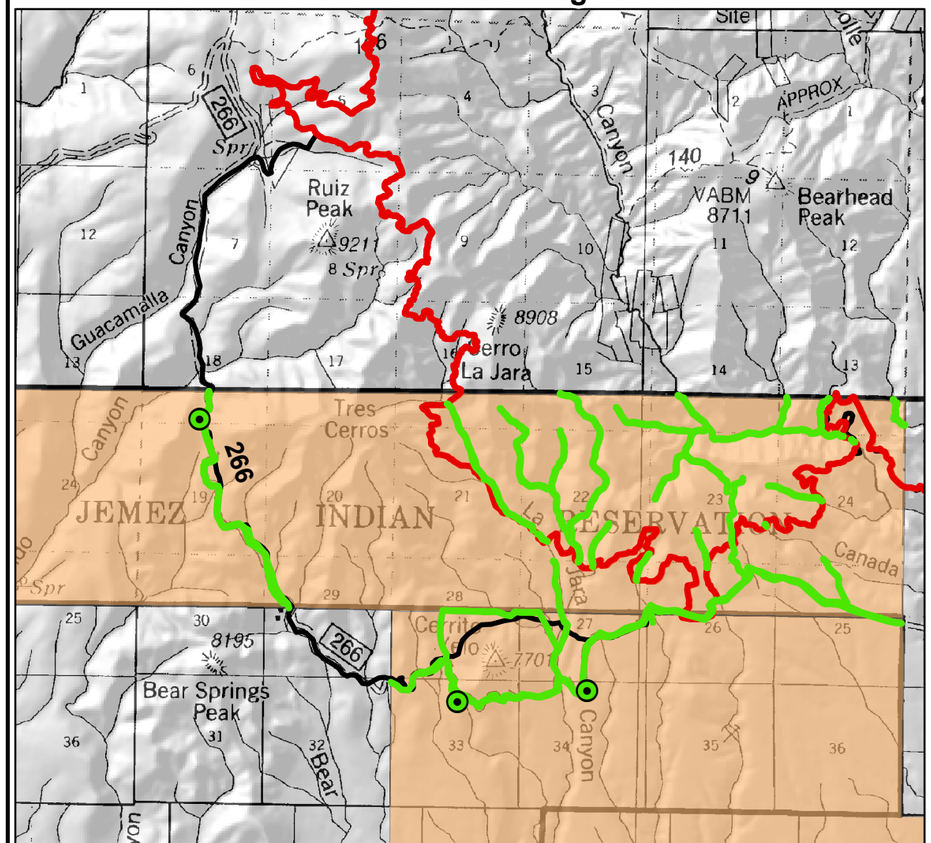
BAER

Las Conchas Fire - Vegetation Top Kill / Mortality

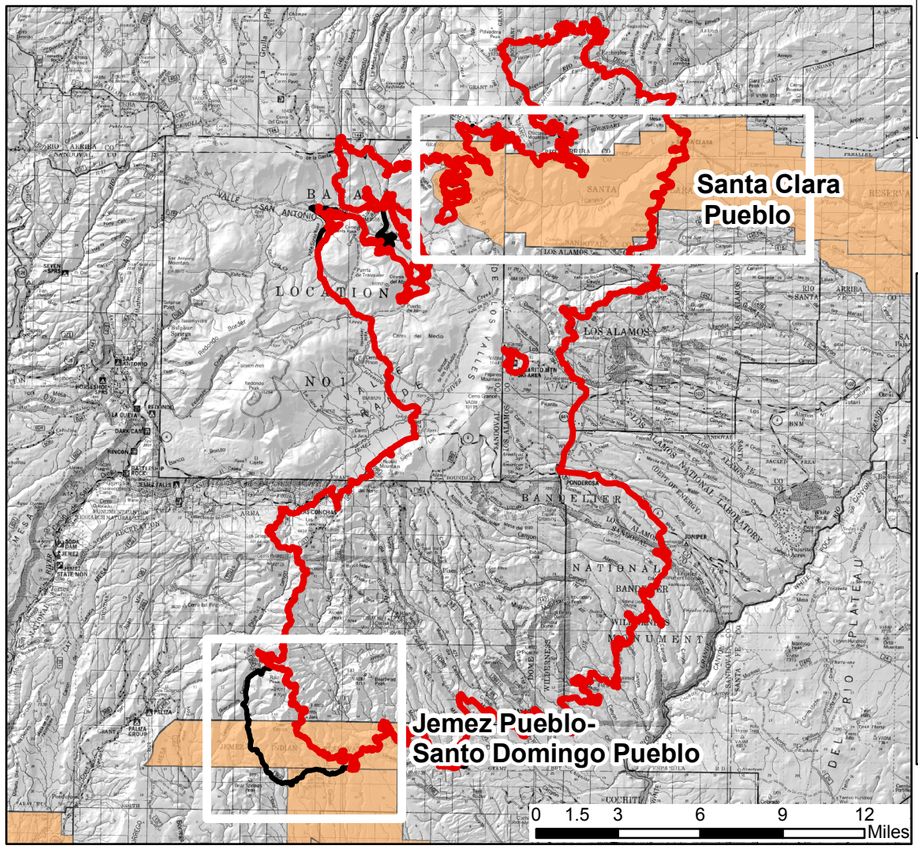
Santa Clara Pueblo



Jemez Pueblo- Santo Domingo Pueblo



Overview: Las Conchas Fire



Burned Area Emergency Response

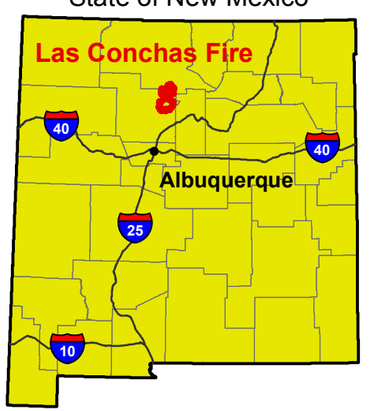
Las Conchas Fire
Noxious Weeds Mitigation

- Fire Perimeter (7-13-2011)
- Fire Perimeter (7-19-2011)
- Santa Clara
- Noxious Weed / Non-native Species Monitoring & Control
- Suppression Impacted Areas needing Monitoring & Control
- Musk Thistle
- Russian Knap Weed
- Bull Thistle

1:75,000

0 0.5 1 1.5 2 Miles

Locator Map
State of New Mexico

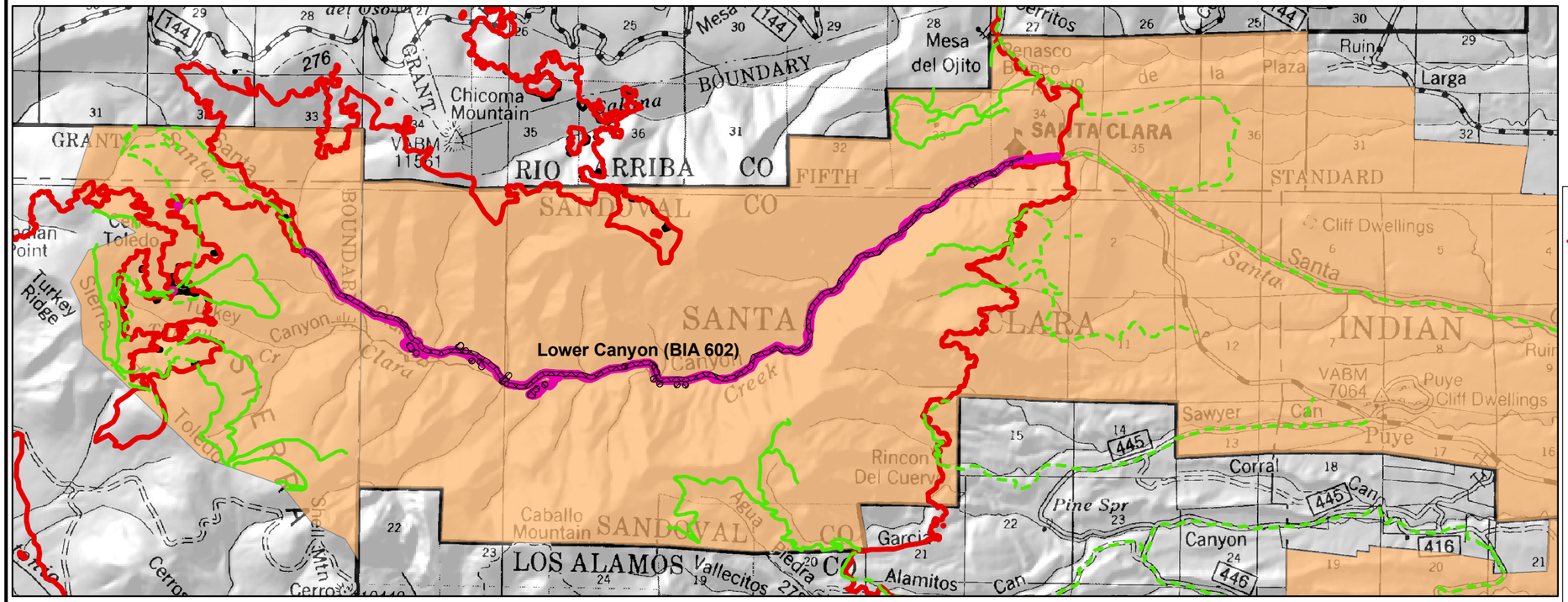


The data represented in this map were gathered from multiple sources, which may vary in accuracy, scale and date. This is for display purposes only.

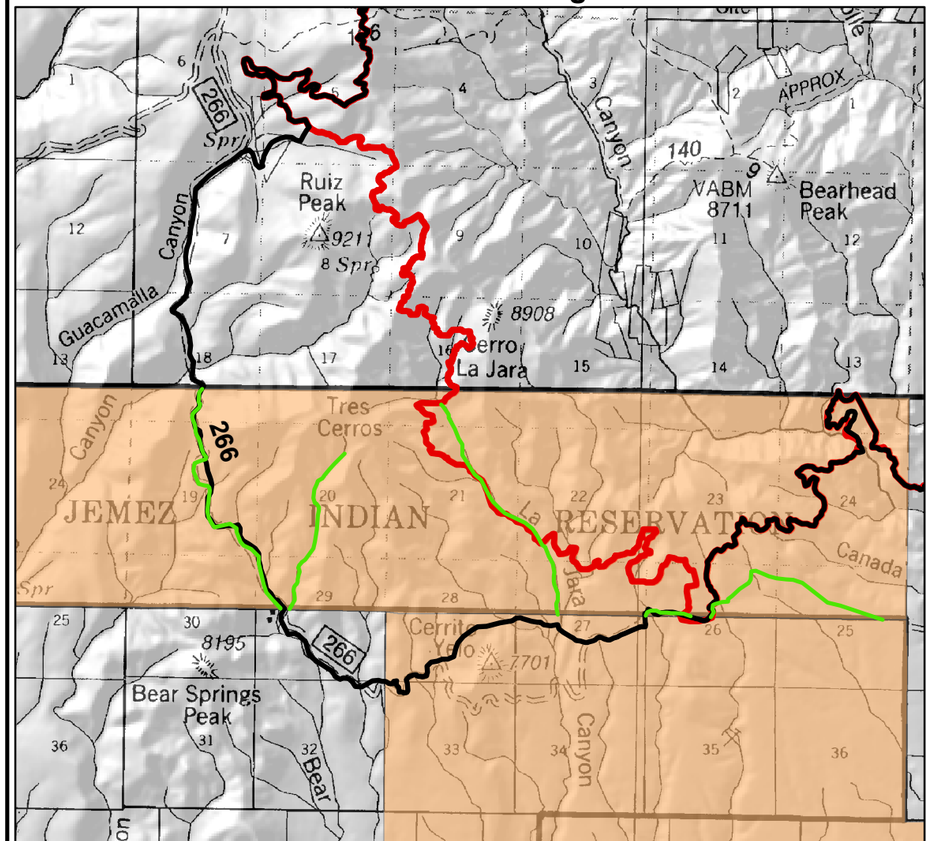
Las Conchas Fire - Noxious Weeds Non-Native Invasive Species Treatment

Las Conchas Fire - Tree Hazard Surveillance / Mitigation

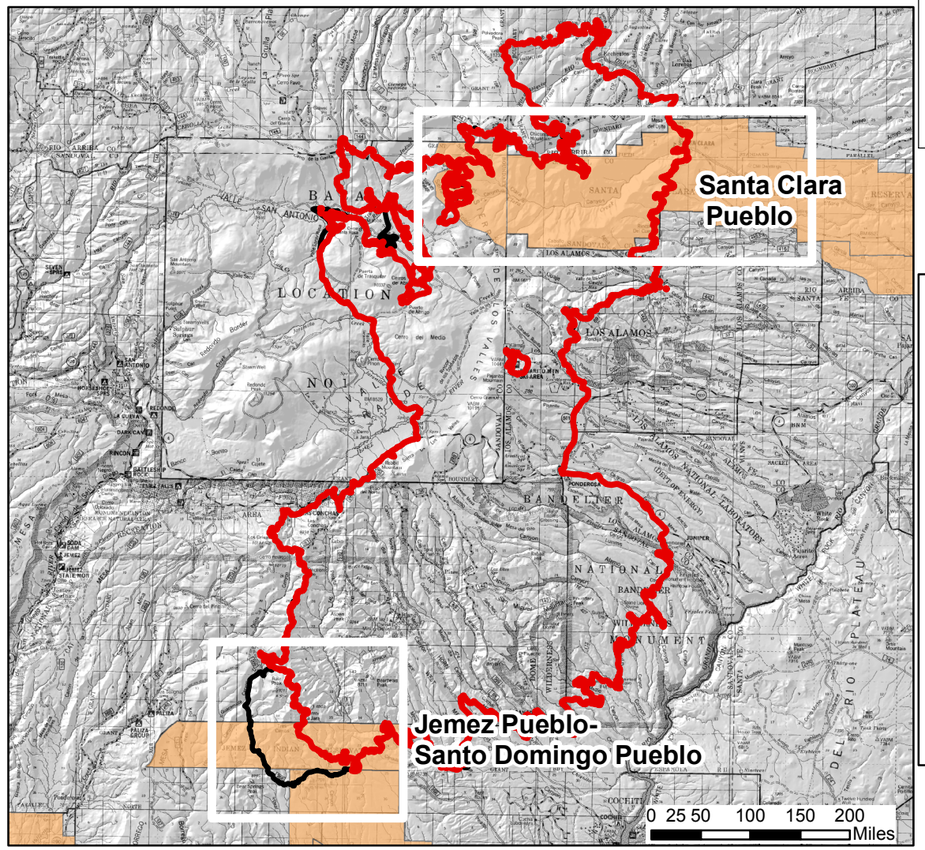
Santa Clara Pueblo



Jemez Pueblo- Santo Domingo Pueblo



Overview: Las Conchas Fire



Burned Area Emergency Response

SANTA CLARA PUEBLO · WALATOWA PUEBLO OF JEMEZ · PUEBLO DE COCHITI NEW MEXICO · PUEBLO DE SAN ILDEFONSO TEWA · PUEBLO OF SANTO DOMINGO

Las Conchas Fire
Tree Hazard Surveillance / Mitigation

- Fire Perimeter (7-13-2011)
- Fire Perimeter (7-19-2011)
- Santa Clara Pueblo
- Tree Hazard Survey/Mitigation
- Road Surveyed for Hazard Trees
- Roads in Fire, Requiring Survey
- Roads Outside of Fire

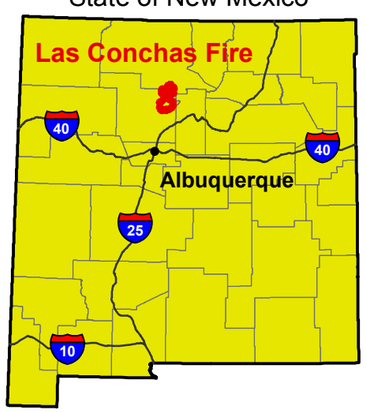
1:75,000

0 0.5 1 1.5 2 Miles

N W E S

Locator Map

State of New Mexico



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BAER

BURNED AREA EMERGENCY STABILIZATION PLAN

2011 LAS CONCHAS FIRE

APPENDIX V SUPPORTING DOCUMENTATION

1. Delegation of Authority
2. BAER Team North Zone Organization
3. JHA_BAER
4. DOI_BAER Team Roster
5. Forest Service_Values at Risk by disicipline
6. Endangered Species List of Four Counties
7. Jemez Salamander Mitigation
8. NPS Tree Hazard Rating System
9 Mulching Cost Justifcation and Contract Sources
10. Structure Protection and Channel Cleaning
11.Peralta Canyon Treatment
12. Close Out Agenda_SPA
13. Close Out Agenda_NPA
14. FS_2500_8
15. Santa Clara State Of Emergency
16. Santa Clara Culvert and Pond 404 Form App
17. Santa Clara Debris 404 Form App
18. Cosk Risk_Forestry
19. Cosk Risk Cultural
20. Cosk Risk Operations
21. Cosk Risk Vegetation
22. Cost Risk Floatable Debris
23. Cost Risk Road and Culvert
24. Cost Risk Structure Protection
25. Cost Risk Civil Engineering
26. Cost Risk Aerial Mulching and ponds
27. Cost Risk_Early Warning
28. Las Conchas Closeout_SPA

Bureau of Indian Affairs
Southwest Region
Albuquerque, NM

July 10, 2011

Memorandum

To: Erv Gasser DOI BAER Team Leader
Las Conchas Burned Area Emergency Response (BAER) Team – North Zone

From: William Walker, BIA Southwestern Regional Director

Subject: DOI BAER Team Delegation of Authority

You are hereby delegated authority and responsibility to assess post fire effects and produce an Emergency Stabilization (ES) Plan outlining measures and standards necessary to mitigate fire damage to Bureau of Indian Affairs (BIA) administered lands resulting from the Las Conchas Fire. All BAER activities will be conducted within the framework of provisions contained in Part 620 Department of Interior Manual Chapter 3, BIA policy and sound resource management practices.

Your primary responsibility is to organize and direct your assigned resources for the rapid assessment and implementation of cost-effective emergency stabilization measures to protect the lives, property, and critical cultural and natural resources of Pueblo lands from further damage and initiate the process of recovery. You are to work in cooperation with the Northern Pueblo Agency and Southern Pueblo Agency and individual Pueblos. Additionally, you are to cooperate and coordinate with the Las Conchas Interagency BAER organization, including the NIMO and South Zone BAER Teams.

Your immediate priority is Santa Clara Canyon. In addition, you are to look at the fire effects of the Pacheco Fire and how it may affect Nambe Pueblo lands.

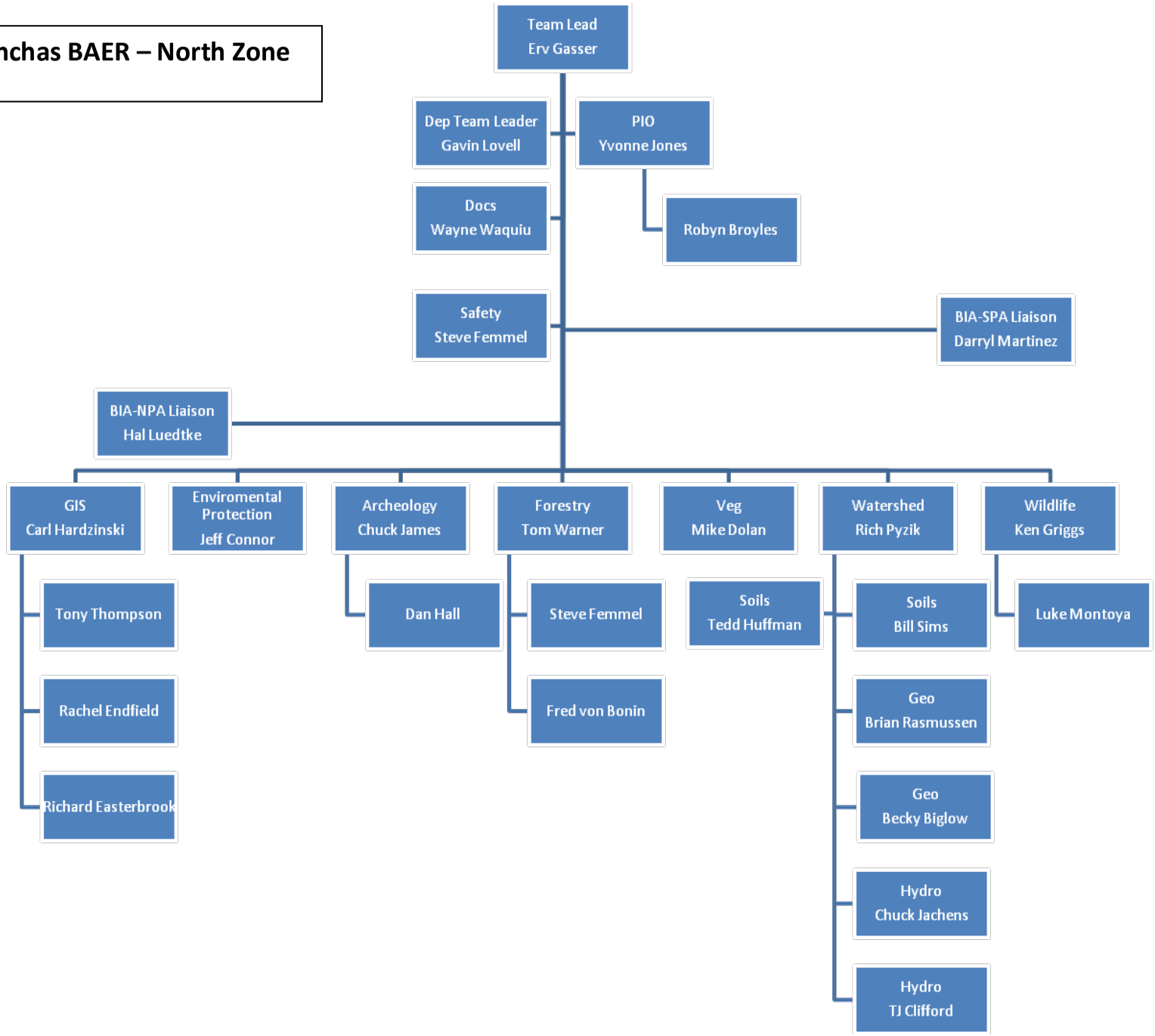
Using these authorities, please prepare an ES Plan which will outline the standards necessary to mitigate fire and suppression damages resulting from the Las Conchas Fire. A National Environmental Policy Act (NEPA) document will be prepared for the ES Plan.

As the Team Leader of the BAER planning process, you are accountable to the Southwest Regional Director. On any occasion that I am not immediately available, Ryan Riley, has full authority to represent me.

Regional Director — Date: 11 Jul 11

BAER Team Leader — Date: 7-11-11

Las Conchas BAER – North Zone



DOI Interagency BAER Team	1. WORK PROJECT/ACTIVITY **Las Conchas Fire 2011**	2. LOCATION: **Espanola, NM**	3. UNIT **DOI-BIA, USFS, NPS**
JOB HAZARD ANALYSIS (JHA)	4. NAME OF ANALYST **Erv Gasser**	5. JOB TITLE **DOI BAER Team Leader**	6. DATE PREPARED **7/07/11**

7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE
General Air Reconnaissance	Low level flights (<500 feet); helicopter or fixed wing, extreme temperatures affecting density altitude	**Is this flight really necessary?** Is there another way to do the job? Follow instructions from helitack and the pilot. Ask questions if you do not understand the instructions. Do not fly in hazardous situations. Ask questions of pilots and others to determine what hazardous situations exist. Minimize time in the air. Follow agency guidelines to include flight following and communications. Wear required personal protective equipment (PPE). Early morning flights will be scheduled to avoid extreme midday temperatures which may affect flight safety associated with density altitude.
General Ground Reconnaissance	Footing on steep, rough, uneven terrain; falling trees; heavy vehicle traffic on narrow, winding roads; dehydration/fatigue; burned out holes.	Wear eight-inch-high leather boots with lug soles. Full Fireline PPE is required at all times within the burn area. Stay in communication with BAER Team members and always remember LCES. Drive defensively with headlights on. Be aware of suppression efforts within the area you are working in. Be careful not to slip, trip or fall, especially on wet ash. Be aware of road conditions. **Conduct tailgate safety sessions with your colleagues**. Utilize "Six Minutes for Safety" (http://www.nifc.gov/sixminutes/dsp_sixminutes.php).
Office	Tight quarters	Keep work space clean and **take frequent breaks**. Clean up your own messes.
General Field Work and Monitoring	General personal safety	**Work in pairs. Keep fresh batteries in your radio, and carry an extra battery pack**. All personnel within the fire perimeter need a ***working*** radio and cell phone. If folks separate in the field, each individual **WILL** have a radio. Wear required PPE. Carry reserved energy food or Meals-Ready-to-Eat (MRE's) and extra water. Be prepared to spend the night if necessary.
	If driving to a remote area alone, Check in / Check out	Let someone know specifically where you will be. Make sure your radio works before you leave. Get it fixed or replaced if necessary. Be sure someone knows when you have returned. Sign in/ Sign out.

	Fatigue	Provide 2:1 work/rest ratios and ensure eight hours off between shifts. Manage for cumulative physical, cognitive or emotional fatigue.
	Sun / hyperthermia	Carry sunglasses. Use sunscreen to prevent sunburn. Consider deferring field work when temperatures exceed 100 degrees F.
	Dehydration	Drink enough water supplemented with electrolyte-based drinks to keep hydrated and prevent heat exhaustion or heat stroke (at least six-eight quarts of water per day in extreme temperatures). Pace yourself when climbing steep, open slopes.
	Stream channel surveys	Use extra caution in stream bottoms to prevent falling. Fire-caused stream temperature increases might have already caused rock-slickness to increase.
Field Surveys, Monitoring	Steep slopes and remote worksites	Wear lugged soled shoes with eight-inch tops, with good ankle support. Carry a radio, and leave your itinerary with someone.
Mapping/Inventory Within Fire Perimeter	Working within fire perimeter.	Wear PPE (hard hat, leather boots, NOMEX, fire shelter, goggles, and gloves) at all times. Recognize that the fire is not controlled. Know your ten standard fire orders and 18 "watch out" situations.
	Stump and root holes	Keep your eyes on your path of travel. If your attention is diverted, stop and complete the task before proceeding. Excessive amounts of white ash may indicate the presence of a stump or root hole.
	Snags and hazard trees	Size up your surroundings. Avoid work in areas where hazards exist. Be aware of anticipated conditions. Avoid the common BAER habit of spending all of your time looking down, not noticing hazards in the air. Use spot lookouts, and establish safety zones. If the wind is blowing (trees swaying), stop working.
	Slippery and unstable footings	Be careful in areas of wet ash, retardant drops, loose rocks and unstable slopes.
	Rattlesnakes	Be aware at all times of the potential for encounters with rattlesnakes. Withdraw from the area. If bitten medivac may be required.
	Personal health and safety	Take care of cuts, bruises and blisters immediately. Report any accidents to the Team Leader and complete an accident report. Take no risks that jeopardize your personal safety or the safety of others.
Storm Events	Lightning	Check weather report, and stay off ridge tops and open slopes during lightning storms. If stuck in the open, keep radio and metallic objects away from you, squat down with only your feet on the ground, using an insulated pad if possible. Keep as much of your body off the ground as possible.
	Fog, smoke; poor visibility, disorientation	Drive with lights on low beam. If fog and/or smoke are so dense as to affect safe driving, cease operations before getting into a situation where safety is compromised.
	Rain	Don't walk on logs; avoid small stems that are parallel to the slope; insure footing. If roads are muddy, stay off roads. Stay out of major drainages that have potential for flash flooding.
	Wind	Check weather reports; monitor wind events. If trees are swaying, move to a safe area with no trees or snags, or get out of the wind path. Always wear hard

		hat while in burned areas or other areas when hazards exits.
Burned Over Environment	Falling rocks	Don't work directly above or below another person; be wary of rocks.
	Heavy brush	Wear long-sleeved shirt, goggles and gloves
	Insect bites / stings	Wear long-sleeved shirt and hat; use repellent at your discretion. Bees and yellowjackets are a problem in fires. Carry anti-histamine and sting kits for bee stings. If you know you are allergic, carry proper medication and instruct coworkers in administration. **Tell your Team Leader about your allergies**.
Communication/Coordination with Team Leaders and Suppression Personnel	Loss of repeaters or dead spots	Follow Communications Plan. Notify incident personnel on specific zone when working in field.
Defensive Driving	Vehicle accidents and associated injuries; general driving conditions, and vegetation buildup under vehicle and possible vehicle fire	Always wear safety belts and make sure everyone else does! Keep windows clean and remove garbage from the cab of the truck. DRIVE WITH THE LIGHTS ON! Remote roads can be narrow. Drive defensively, giving yourself enough time and space to react to other drivers or wildlife on the road. If possible, remove hazards from the roadbed rather than try to drive over or around them. Stay on roadway and out of heavily vegetated areas to avoid dead vegetative material buildup under vehicle which could cause a fire. Each vehicle should carry a shovel and fire extinguisher in case of fire. Check and clean out undercarriage of vehicle after each field visit to avoid possible vehicle fire. Limit driving time to ten hours or less. Stop and take a break if you feel sleepy while driving, or let someone else drive. (See attachments for local road hazard information) ***Don't drive if you feel sick or are taking medication that affects your ability to handle a vehicle.***
	Mechanical malfunction; narrow, rough roads, heavy use impacts	Conduct daily preventive maintenance checks. Each vehicle is to have a first aid kit and required equipment. Check spare tire to ensure proper inflation in case of flat tire. Drive as far to the right as safely possible. Ensure stopping distance is ½ the sight distance on blind curves. Confirm road status, traffic patterns and the presence of heavy equipment before use. Drive defensively. Watch out for public / contractor use of roads.

JHA Instructions (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) writing the JHA, the date(s) of development, and the name of the appropriate line officer approving it. The supervisor acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:

a. Research past accidents/incidents
b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.
c. Discuss the work project/activity with participants
d. Observe the work project/activity
e. A combination of the above

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in block 8. Abatement measures listed below are in the order of the preferred abatement method:

a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.

b. Substitution. For example, switching to high flash point, non-toxic solvents.

c. Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.

d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills portable water pumps)

e. A combination of the above.

Block 10: The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.

Blocks 11 and 12: Self-explanatory.

Emergency Evacuation Instructions (Reference FSH 6709.11)

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

a. Nature of the accident or injury (avoid using victim's name).
b. Type of assistance needed, if any (ground, air, or water evacuation)
c. Location of accident or injury, best access route into the worksite (road name/number), identifiable ground/air landmarks.
d. Radio frequency(s).
e. Contact person.
f. Local hazards to ground vehicles or aviation.
g. Weather conditions (wind speed & direction, visibility, temp).
h. Topography.
i. Number of person(s) to be transported
j. Estimated weight of passengers for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment

We, the undersigned work leader and crew members, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents:

SIGNATURE	DATE	SIGNATURE	DATE
	7/9/11		7/10/11
	7-9-11		7/10/11
	7/10/11		7/10/11
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	7-11-11		7/12/11
	7/11/11		7/12/11

2011 DOI NATIONAL INTERAGENCY BURNED AREA EMERGENCY RESPONSE TEAM (BAER) TEAM (GASSER)

Las Conchas and Pacheco Fires Los Alamos, NM

POSITION	NAME/ORGANIZATION/ADDRESS (Unit Identifier) (GACC)	WORK PHONE	FAX	CELL./PAGE EMAIL
Team Leader BAEL	***Erv Gasser*** /NPS Pacific West Region (WAPNP) 909 First Ave., Seattle, WA 98104 (NW)	206-220-4263	206-220-4160	360-204-1646c erv_gasser@nps.gov
Deputy Team Leader BAEL	***Gavin Lovell*** /BLM Rock Springs Field Office (WYRSD) 280 Hwy 191N, Rock Springs, WY 82901 (RM)	307-352-0246	307-352-0328	307-389-3425c g75lovel@blm.gov
BAEL	***Hal Luedtke***/BIA- Southwest Region (NMABA) 1001 Indian School Rd, Albuquerque, NM 87104 (SW)	505-563-3303	505-563-3052	505-228-2403c hal.luedtke@bia.gov
BAEL	***Darryl Martinez*** /BIA NIFC (NMSWC) 1001 IndianSchoolRd.NW,Albuquerque, NM 87104 (SW)	505-563-3369	505-563-3052	505-331-3514c darryl.martinez@bia.gov
Forester BAFO	***Tom Warner*** /NPS Sequoia/Kings (CAKNP) Canyon NP, Three Rivers, CA 93271 (SO)	559-565-3722	559-565-4204	559-280-6218c tom_warner@nps.gov
BAFO	***Fred vonBonin***/BIA Southwest RO (NMABA) 1001 Indian School Rd, Albuquerque, NM 87104 (SW)	505-563-3381	505-563-3052	505-903-4966c fred.vonbonin@bia.gov
BAFO	***Steve Femmel***/NPS, Whiskeytown NRA POB 188, Whiskeytown, CA 96095	530-242-3440	530-246-5154 530-242-3409	530-604-3799c
Vegetation Specialist BABO	***Mike Dolan*** /BLM Alturas FO (CANOD) 708 W 12th St., Alturas, CA 96101 (NO)	530-233-7923	530-233-5696	530-640-8686c mdolan@blm.gov
Hydrologist BAHY	***Rich Pyzik***/USFS- Fremont National Forest (ORFRF) PO Box 67, Paisley, OR 97636 (NW)	541-943-4440	541-943-4459	541-219-1871 rpyzik@fs.fed.us
BAHY	***TJ Clifford***/ BLM (IDBOD) 3948 Development Way, Boise, ID 83705 (EGB)	208-384-3459	208-384-3326	208-866-3204c thomas_clifford@blm.gov
BAHY	***Chuck Jachens***/BIA Pacific Region, (CAPAA) 2800 Cottage Way, Sacramento, CA 95825	916-978-6049	916-978-6081	916-261-6756c Charles.jachens@bia.gov
Geologist BAGE	***Brian Rasmussen***/NPS, Whiskeytown NRA (CAWNP) POB 188, Whiskeytown, CA 96095 (NO)	530-242 3444 530-949-9838c	530-246-5154	brian_rasmussen@nps.gov
BAGE	***Becky Biglow***/USFS Inyo NF 351 Pacu Ln, Suite 200 Bishop, CA 93514	760-873-2446		bbiglow@fs.fed.us
Soil Scientist BASS	***William K. Sims***/BIA SWRO (NMABA) PO Box 26567, Albuquerque, NM 87125 (SW)	505-563-3478 505-228-9850c	505-563-3062	william.sims@bia.gov william_sims@hotmail.com
BASS	***Edward "Tedd" Huffman***/USFS Monongahela NF (WVMNF) 200 Sycamore St, Elkins WV 26241 (EA)	304-636-1800 x192	304-637-7304	304-940-5469c elhuffman@fs.fed.us
Wildlife Biologist BABI	***Kenneth Griggs***/ FWS Humboldt Bay NWR (CALUR) PO Box 576, Loleta, CA 95551 (SO)	707-733-5406	707-733-1946	707-499-2397c kenneth_griggs@fws.gov
BABI	***Luke Montoya***/ FWS NMESFO (NM-R2R) 2105 Osuna Rd NE, Albuquerque, NM 87113	505-761-4708	505-346-2535	505-205-5728 Luke_montoya@fws.gov
Archeologist/ Cultural BACS	***Chuck James*** /BIA Northwest RO (ORNWA) 911 NE 11th Ave., Portland, OR 97232 (NW)	503-231-6229	503-231-2275	971-235-4470c Chuck.james@bia.gov
BACS	***Dan Hall*** /BIA Pacific Region (CASAA) 2800 Cottage Way, Sacramento, CA 95825 (NO)	916-978-6041 916-803-3840c	916-978-6055	530-613-0404 persc dan.hall@bia.gov
BACS	***Harding Polk***/ BIA SW Region (NMABA) 1001 Indian School Rd., Albuquerque, NM 87104 (SW)	505-563-3416	505-563-3052	505-409-8850c Harding.polk@bia.gov
Env. Prot. Spec. BAEN	***Jeff Connor***/NPS Rocky Mtn. NP (CORMP) Estes Park, CO 80517 (RM)	970-586-1296	970-586-1392 970-586-1359	303-668-0369c jeff_connor@nps.gov
BAEN	***Wendy Poinsot***/NPS Point Reyes NS (CAGNP) 1 Bear Valley Rd, Point Reyes, CA 94956 (NO)	415-218-6551wc	415-464-5183	415-218-6551 wendy_poinsot@nps.gov
Comp/Doc. Spec BADO	***Wayne Waquiu*** /BIA Albuquerque AO (NMABA) PO Box 26567, Albuquerque, NM 87125-6567 (SW)	505-563-3380	505-563-3052	505-259-6483c wayne.waquiu@bia.gov
Geo. Info. Specialist GISS	***Carl Hardzinski*** /BIA Midwest RO (MNMRA) 5600 W. American #500 Blvd, Bloomington MN 55437 (EA)	612-725-4524	612-713-4401	612-328-8226c carl.hardzinski@bia.gov
GISS	***Richard Easterbrook***/FWS Region 9 (COFTC) 201 Oakridge Dr. Suite 320 Fort Collins, CO 80525 (RM)	970-266-2931	970-266-2921	richard_easterbrook@fws.gov
GISS	***Anthony J. Thompson Jr.***/ BIA Southwest Region (NMABC) BIA-Laguna Agency (NM-LAA) P.O. Box 1448, Laguna, NM 87026	505-552-6001	505-379-6601	505-235-3543c anthony.thompson@bia.gov
GISS	***Rachel Endfield*** /White Mountain Apache Tribe (AZFTA) P.O. Box 700, Whiteriver, AZ 85941 (SW)	928-338-1650	928-338-1907	928-594-2660c rach_endfield@frontiernet.net
IT Specialist CTSP	***Justin Kirchmeier***/NPS NIFC 3833 S. Development Ave., Boise, ID 83705	208-387-5205	208-387-5250	208-908-2588 Justin_Kirchmeier@nps.gov
Information Officer	***Yvonne Jones***/ BIA Pacific Region (CAPAA) 2800 Cottage Way, Sacramento, CA 95835 (ONCC)	916-978-6066	916-978-6081	916-718-8648 yvonne.jones@bia.gov

Information Officer	***Robyn Broyles/***BIA NIFC (IDFCA) 3833 S. Development Ave., Boise, ID 83705		208-387-5473		208-559-1187c robyn.broyles@bia.gov

2011 Las Conchas Fire
Value at Risk Assessment – Cultural Resources
North Zone BAER Team

Value at Risk #: None **Address: Northern section of Santa Fe National Forest**

Date: July 14, 2011 **Name: Cultural Resources Assessment**

GPS Location (UTM Zone 13 N NAD 83): **FS 03100800145**
(Chicoma Peak)
N 3985654 **E 375198**
Site FS 03100600163
N 3992695 **E 378638**
Site FS 03100600212
N 3995298 **E 395295**
Site FS 03100600205
N 39955008 **E 394699**

Risk Statement: There is a **Low** risk (*probability* <10% and *magnitude* = *very low*) loss or damage to the assessed significant cultural resources, and noted above, as the result of the Las Conchas Fire.

Treatment Description: No treatments under emergency stabilization are being specified for these cultural resources. The crest of Chicoma Peak lies outside of the burn and those upper portions of the trail systems radiating from the peak were only subject to a very light underburn and therefore are not expected to be affected by post-fire events. However, it is recommended that any burned area rehabilitation on Forest Service lands that involve tree falling related to safety concerns, or salvage logging along one or more trails, include the presence of knowledgeable individuals from the affected tribe(s) to ensure that such activities do not adversely impact the cultural values associated with these or associated features.

Site FS 03100600163, a large lithic scatter with two circular rock features is situated on a flat to gently sloping landform partially within the burn in the vicinity of Vallecitos Creek and to the southwest of Loma Parda. Considering the site's location, it is not expected to be subject to post fire watershed events and accordingly, no treatments are recommended.

Sites FS 03100600212 and FS 03100600205 are expansive ceramic and lithic scatters with both masonry and adobe features. These resources are located on the second terrace above and on the south side of lower Rio del Oso canyon just west of the Forest Service boundary. Based on the mapped locations and field verification, it was established that these sites are located sufficiently above the channel so as not to be at risk from post-fire watershed flow events. There are several other sites, one of which is a large multi-component site (FS 03100800391) located approximately three miles upstream from sites 205 and 212. Due to poor road conditions which prohibited access this site could not be evaluated for post-fire risks. As depicted on the map layer, Burn Severity and Known Heritage Sites-July 2011 (map is held by Santa Fe National Forest), the site appears to extend onto the first terrace above the river channel. However, this is inconsistent with what was observed from sites 205 and 212 noted above. It is recommended that the forest consider accessing this site via quads or horseback to verify if the site does in fact include low ground that could be susceptible to flooding or erosion resultant from post-fire watershed events.

Justification: As expressed above, the sites that are the subject of this assessment are either not located in areas that would be subject to post-fire risks, or, as in the case of the Chicoma Peak trail system, needs to be addressed in conjunction with rehabilitation efforts as opposed to emergency stabilization. Although, not likely to be at risk, site FS 03100800391 should be assessed to confirm this conjecture.

Discipline conducting this assessment:

Archeology
Cultural Resources

2011 Las Conchas Fire
Value at Risk Assessment – Hydrology & Soils
North Zone BAER Team

Value at Risk #: 1 & 2 **Address: Santa Fe National Forest, Rio del Oso Watershed Area**

Date: 7-13-11 **Name: Watershed Value at Risk Assessment**

Risk Statement: There is a **Low** risk *(probability < 10% and magnitude = very low)* of loss or damage to the structures due to post-fire watershed conditions.

There is a **Low** risk *(probability > 10% to < 50% and magnitude = low)* of loss or damage to the infrastructure (culverts) due to post-fire watershed conditions.

Treatment Description: No treatments necessary for the two structures identified in the downstream areas of the fire (VAR #1 and VAR #2).

Identify, clean, and monitor culverts on roads within and below the burned area along FS 144 for up to five years after the fire.

Install flood warning signs at low-water crossings downstream of burned areas.

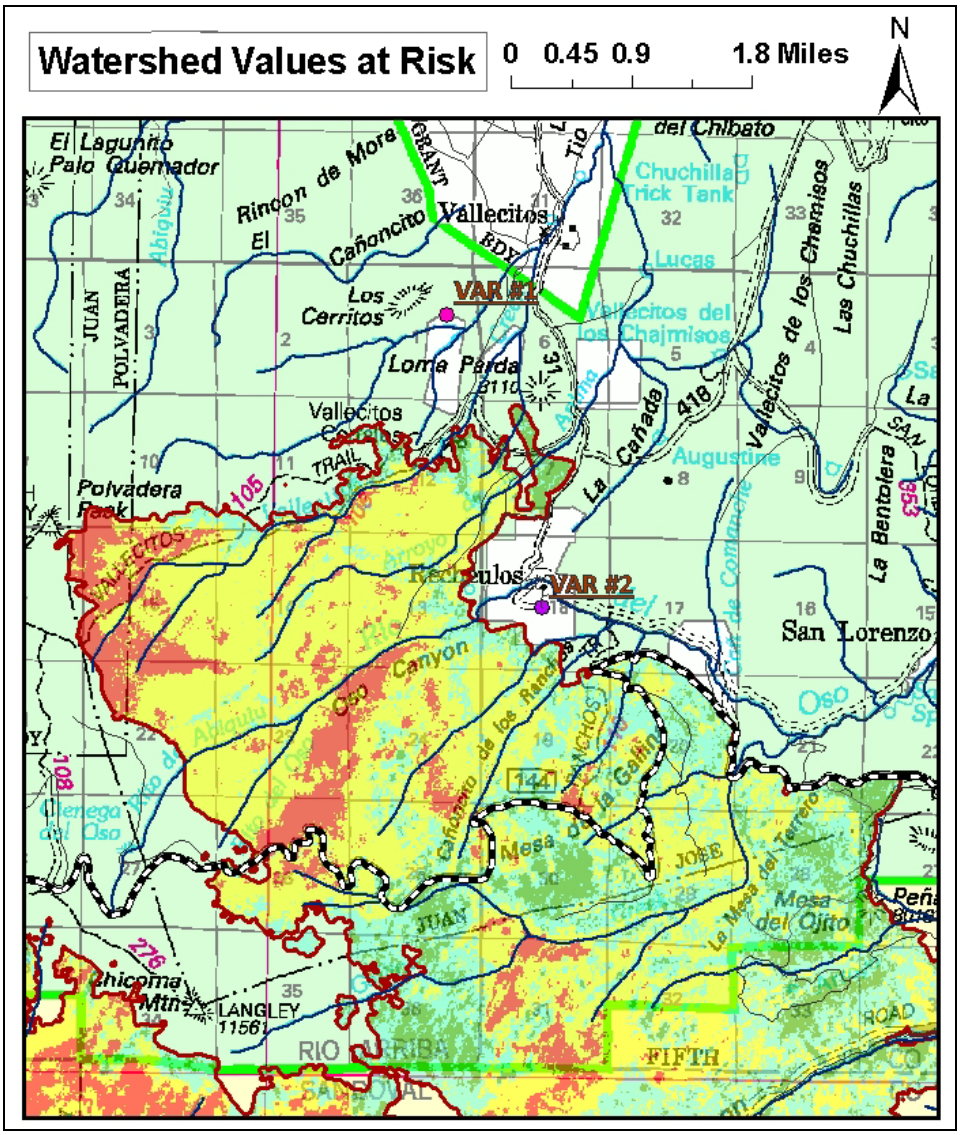


Figure 1. Map of Santa Fe National Forest area assessed for Values at Risk (VAR) showing location of two structures evaluated and FS 144.

Figure 2. VAR #1. Hunting trailer near burned area. Trailer is well away and elevated above burned area drainage (background).

Figure 3. VAR #2. Structure near burned area. Structure is well elevated above streams within the burned area.

Justification: Two structures were identified downslope of the burned areas (Figure 1, 2, & 3) however both structures, a single room house and a hunting trailer, are positioned well above and away from the active channels downstream of the burned areas and are not at risk to flooding from post-fire watershed conditions.

Most roads downstream of the burned area in the Rio del Oso area are low-water crossings. However, FS 144 road system has several culverts that are potentially at risk to plugging in areas in and below the burned areas. Given the large areas of high and moderate soil burn severity, potential for sediment transport, and woody debris in streams, the culverts should be marked, cleaned, and monitored for plugging. Culverts will be at risk to post-fire watershed conditions up to 5 years after the fire.

Disciplines conducting this assessment:

Hydrology
Soil Science
Geology

2011 Las Conchas Fire
Value at Risk Assessment - Forestry
North Zone BAER Team

Value at Risk #: None **Address: Santa Fe National Forest, Rio del Oso Watershed Area**

Date: July 13, 2011 **Name: Hazard Tree Assessment**

Risk Statement: There is a **Low** risk (*probability* <10% and *magnitude* = *very low*) of injury or Loss of Life due to the effects of the Las Conchas fire. Live trees were burned due to the fire that moved through the area. The vast majority of the trees in the fire area will die due to live crown or cambial scorch. Some of the trees burned in a crown fire, resulting in the immediate mortality of these trees.

Treatment Description: After a thorough evaluation of the fire area, it was determined that there was no hazard tree potential in this section of the fire. The dirt roads in this area are rough and very remote and the trees that have died do not meet the criteria to be categorized as hazard trees. There are no structures or targets, other than the dirt roads and the vehicles that use them, where property damage or injury could occur (see Figures 1 and 2). There is the potential for salvage logging if the agency chooses to pursue that action as a management alternative.

Figure 1. Burned trees along roadside in Rio del Oso Watershed

Justification: Although the fire burned with varying degrees of intensity, there was heavy mortality with needle kill in several areas of the fire. The live crown ratio in these areas is 0%, which will allow rot to develop and lead to tree failure within a shorter period of time than those trees which burned in a less intense fire.

Disciplines Conducting this Assessment:

Silviculturist
Forester

2011 Las Conchas Fire
Values at Risk Assessment - Vegetation
North Zone BAER Team

Value at Risk #: None **Address: North part of fire, north of Santa Clara Pueblo lands**

Date: July 13, 2011 **Name: Vegetation Assessment (including noxious weeds and Range Management)**

GPS Location (UTM Zone 13 N NAD 83): Rio Del Oso N 378876.24 E 3987556.63

Risk Statement: There is a Low risk *(probability <10% and magnitude = very low)* to life and property directly from loss of vegetation. Any risks determined by the Watershed group that are associated with loss or lack of vegetation cover, should be referred to that groups' Assessment. Risks will be to ecological diversity and habitat fragmentation. Other risks will be from invasion of noxious weeds off private lands, where noxious weeds were located. The risk from noxious weed invasion is moderate to high. Other risks will be loss to ecological integrity and vegetation recovery from livestock grazing—the risk is moderate.

A determination was made of vegetation mortality (or vegetation top-kill). Veg top kill is a determination of immediate post fire effects and does not reflect vegetation recovery. The Burned Area Reflectance Classification map is used as a guide but aerial and ground reconnaissance is used to make the final determination. In grassland and shrubland systems observations are made of amount of the above ground vegetation that was damaged or removed by fire. These vegetation types many times burn in a mosaic pattern, leaving root crowns of grasses intact and growing parts of shrubs unburned. The rating system is as follows; Low – 0-25%; Moderate-Low – 26-50%; Moderate-High – 51-75%; High - >75%. Overall, P-J, Ponderosa pine, meadow and riparian, and grassland vegetation types had Low and Moderate-low top kill. Montane shrub, including Gambel oak brushfields had a low to Moderate high rating. The mixed conifer and spruce-fir types ranged form unburned to high vegetation top kill. Usually, but not always, a high soil burn severity will equate to a high vegetation top kill in the mixed conifer and spruce-fir types. Aspen stands were mostly low to moderate-low but there was moderate-high to high top kill, especially in drainages surrounded by mixed conifer that burned hot with longer fire residency times.

The drainage of Rio del Oso about ½ mile inside the fire perimeter (in Oso Canyon and habitat of the Rio grand cutthroat trout) burned very hot. Residency time was long enough to burn into the crown and root zone of shrubs and grasses. This area was determined to have high vegetation top kill/mortality for most species. The aspens should resprout as clones need disturbance to stimulate the growth hormones. There is a concern that this site will take years to recover, especially if the drought continues.

The first ½ mile up Rio del Oso had low to moderate low veg top kill. Riparian species will recover within 1 year here. The team walked through aspen stands that had mature trees with silvaglyphs and graffiti of varying ages. The oldest date seen was 1951. There was one tree with script style handwriting that appeared to be old. A more thorough investigation of these silvaglyphs should be made

Treatment Description: Inventory for noxious weeds in the burned area adjacent to and near known locations of noxious weeds. Inventory should occur after the monsoon season and in the fall. Known weeds are musk thistle and bull thistle. There could be weed invasions from suppression vehicles and dozers that potentially could have driven over noxious weed infestations. If noxious weeds are located, a separate request should be made to obtain funding to control those weeds using approved Integrated Weed Management (IWM) methods; IWM approved at the Forest/District level.

Stringer meadows, aspens stands, montane meadows and grasslands, montane riparian wetlands and secondary range in conifer types should be rested from livestock grazing for at least 2 growing seasons. This will be dependent upon local Forest/District policy. Rangeland Health and Proper Functioning

Condition Assessments should be used to aid the determination of resting grazable lands within the burn area.

Long-term treatments (Burned area rehabilitation or other rehabilitation implemented out of project funds) could include vegetation recovery monitoring. Suggested transects could include point intercept for herbaceous species and line intercept/gap transects for shrubs. The Jornada Experimental Range has developed a standardized technique with calculable forms (http://jornada.nmsu.edu/monit-assess/manuals/monitoring). Similar monitoring methods are described on the FIREMON section of the FFI website (http://frames.nbii.gov/portal/server.pt/community/feat_firemon_integrated_%28ffi%29/483/home/2216)

Seeding is not recommended.

Justification: Noxious weeds were located on private lands (Rechuelos below Oso Canyon). Vehicular traffic and livestock are moving between private and Forest Service land and these are primary vectors of transport. Musk thistle has been reported to increase after fire (http://www.fs.fed.us/database/feis/plants/forb/carnut/all.html). Noxious weed surveys conducted before late fall will allow the Forest to map new infestations and plan for implementation of IWM measures before weeds go into winter dormancy. If chemical methods are approved for use they can be planned for implementation before late fall weather makes chemical applications ineffective. Early survey and detection will enable the Forest Service to map new infestations and plan for control methods the following spring.

There is currently moderate to heavy livestock utilization in the Rio del Oso canyon and creek area, especially in riparian areas on Forest Service lands adjacent to the private land. Vegetation recovery in all grassland, riparian and aspen vegetation types will be promoted with rest from grazing pressure. There is some green up occurring in the burn area where grasses and forbs dominate the understory layers. Regrowth is more evident in the more mesic sites of the P-J, montane shrubland and ponderosa pine types (low to Moderate-high top kill), and more so in the riparian areas. Proper grazing management--rest from grazing for 2 growing seasons—will prevent grass and forb seedlings from being grazed until they develop roots that can withstand being pulled out by grazing animals. The crowns of bunchgrasses that were damaged, but not killed, by the wildfire will be able to improve in vigor and production if rested from livestock grazing. Common shrubs located in the burn area of the Los Conchas Fire that resprout after fire include mock orange, chokecherry, New Mexico locust, mountain mahogany and Bebb willow. These species are browsed by livestock, especially the young sprouts and their regeneration would be ensured if livestock were removed for the two recommended growing seasons. After two growing seasons burned grasses should develop sufficient leaf material, vigor and be more palatable; livestock will tend to seek these species out rather than shrubs that are important for wildlife.

Discipline conducting this assessment:

Range Conservationist
Biology

2011 Las Conchas Fire
Value at Risk Assessment - Wildlife and Fisheries
North Zone BAER Team

Overview: The purpose of this document is to provide the South Zone BAER Team Wildlife/Fisheries Resource Group with an assessment of fire, suppression, and BAER treatment impacts to Threatened and Endangered Species occurring on Forest Service lands north of Santa Clara Pueblo. A broader assessment of impacts to habitat conditions which can be applied to other fish and wildlife species in the area is also included. Though no wildlife/fisheries specific BAER treatments are proposed, management recommendations, avoidance measures, and monitoring/research needs are included.

Value at Risk #: n/a **Address: Santa Fe National Forest, North of Santa Clara Canyon**

Date: July 13, 2011 **Name: Wildlife and Fisheries Assessment**

GPS Location (UTM Zone 13 N NAD 83): Rio Del Oso N 378876.24 E 3987556.63

Risk Statement: There is a **Very Low** risk *(probability ,10% and magnitude = very low)* of loss or damage to resources due to the effects of the Las Conchas fire..

Treatment Description: No emergency stabilization treatments proposed for wildlife and fisheries resources.

Justification: The purpose of this Burned Area Emergency Response (BAER) Wildlife/Fisheries Assessment is to document the effects of the fire, suppression activities, proposed stabilization treatments, and potential post fire flooding and sediment delivery to all federally listed threatened and endangered species and designated critical habitats within the fire area. This assessment includes effects to species that occur on lands under the jurisdiction of the U.S. Forest Service, Santa Fe National Forest, Espanola Ranger District.

Species addressed in this assessment include all federally listed Threatened and Endangered species and critical habitat on USFWS lists found on USFS lands, and within the fire perimeter or downstream where post fire run-off and sediment delivery could impact species. Numerous other native species, some of which are sensitive, and the habitats they depend on where directly and indirectly affected by the fire. While there may have been an impact, BAER policy only allows for treatment of federally listed species and designated critical habitats (BAER ES Handbook Section 4.2.9). However, non-specification, general recommendations are made.

Because the South BAER Team is assessing the majority of USFS lands impacted by the fire, it was agreed upon by the wildlife/fisheries resource disciplines that they would conduct the emergency consultation for actions occurring on USFS lands. Though information provided to the South Team in this report will be used in that consultation with the USFWS, Section 7 Branch.

Reconnaissance Methodology and Results

Information used in this assessment was generated from review of relevant literature, recovery and management plans, GIS databases, and discussion with species experts from USFS and USFWS. Field reconnaissance consisted of an on-site inspection of know species occurrence sites on July 13, 2011. Resource advisors that took part in field reconnaissance and meetings, and discussions of species included Will Amy (USFS-Santa Fe NF), Chantel Cook [is last name correct?] (USFS-Santa Fe NF), Mary Orr (USFS-Santa Fe NF), Steve Fettig (NPS-Bandelier NM), Luke Montoya (USFWS-Albuquerque), Eric Hein (USFWS-Albuquerque), Norman Jojola (BIA-Northern Pueblos Agency), Mike Dolan (BAER Vegetation Specialist), and the North BAER Team Watershed Unit.

The FWS Albuquerque Field Office has jurisdiction over the listed species within the area of the fires. Identification of known listed species occurrences and critical habitat is crucial to accurately assessing fire affects. A species list for 4 counties was generated for the entire fire, however the section of USFS land addressed in this assessment occurs in Rio Arriba County, therefore a species list for this county was used. GIS data from the USFS was made available to the North BAER Team for analysis and was supplemented by information provided by the USFWS Albuquerque Field Office, and local species experts.

This Wildlife and Fisheries Assessment is a summary of fire effects to species and their habitats. While the effects of the fire to the vegetation that makes up their habitats is discussed, a more thorough coverage of impacts to vegetation communities and watersheds can be found in the BAER Vegetation and BAER Soil and Watershed Assessments. These reports contain more detailed description of pre and post fire vegetation, post fire vegetation recovery estimates, and run-off and debris flow estimates. Additionally, information on the fire cause, start location and time, behavior, and suppression actions can be found in the Incident Management Teams' documentation.

Findings

Analysis of GIS databases, species occurrence maps, and consultation with species experts indicates that that no Federally Listed Threatened and Endangered Species and only one Candidate Species (Rio Grande cutthroat trout, *Oncorhynchus clarki virginalis*) occur on USFS Land and within or downstream of the fire (see attached map).

The Rio Grande cutthroat trout (RGCT) is a subspecies of cutthroat trout, endemic to the Rio Grande, Pecos, and possibly the Canadian River Basins in New Mexico and Colorado (Federal Register 72 FR 28664 28665). The historical distribution of Rio Grande cutthroat trout is not known with certainty. It is assumed that Rio Grande cutthroat trout occupied all streams capable of supporting trout in the Rio Grande, Pecos River, and Canadian River basins (Alves *et al.* 2007). In Colorado and New Mexico, streams currently capable of supporting trout are at elevations of 6,000 feet ft and above; on north-facing slopes they are found in streams at elevations of 5,500 ft and above. Conservation populations (those populations with 10 percent or less introgression (hybridization) from nonnative trout genes) are concentrated in elevations from 9,000–10,000 ft (Alves *et al.* 2007). Conservation populations of Rio Grande cutthroat trout occupy approximately 10 percent of their historical habitat (Alves *et al.* 2007). Because Rio Grande cutthroat trout are now restricted to headwater, first, and second order streams that are narrow and small compared to the larger third, and fourth order streams they once occupied, the absolute loss of habitat is much greater than stream miles might indicate.

Within the area covered by this assessment, RGCT are only found in the Rio Del Oso and it's upper tributaries, the Rito Del Oso and Rito Del Abique (spelling?). Though not as robust as the populations found in other drainages, further loss of due to fire impacts could be significant to overall population persistence in the area.

Field reconnaissance of the area revealed high burn severity and vegetation mortality on the slopes above occupied streams. These findings are based on field observation rather than mapping conducted with BARC imagery. At the time of assessment preparation, burn severity and vegetation mortality maps of this area of the fire were not yet complete. Visits were made to the slopes in the upper watershed near Rito Del Oso and Rito Del Abique, Rio Del Oso Canyon, and lower elevation sites just outside the fire perimeter. Upper slopes experienced high intensity fire that killed approximately 90% of the vegetation on exposed slopes and likely increased soil hydrophobicity. This can result in decreased water absorption and increased run-off, erosion, and debris flows. During reconnaissance of the Del Oso Canyon, the team again observed high burn severity and vegetation mortality. The fire removed all vegetation from the edges of the creek, effectively erasing any buffering that the riparian strip would have provided to the stream. Run-off from the rainfall that occurred the previous day, brought ash and sediment into the creek and began to degrade water quality. This degradation will likely increase as summer monsoons continue to bring rain. These issues are exacerbated by the low flow volume of the creek at this time of the year due to drought conditions in the region.

Direct Effects: The intense heat coupled with the narrow, shallow shape of the stream may have lead to direct mortality of RGCT from the fire. However, if fish were able to find deeper pools, remain under cover, or remained in pockets of unburned habitat, they may have been able to survive the burn period.

Indirect Effects: As mentioned above, increased run-off, erosion, and debris flow have the potential to significantly alter Rio Del Oso and its tributaries. Portions of the stream could be completely buried under rock, logs, and sediment, though the stream would eventually cut a new channel through this. In the long term this could lead to increased stream complexity and creation of pools, which would benefit the RGCT. The loss of vegetation within the riparian zone, which shaded the stream, will lead to increased water temperatures. Increased sediment will cover clean gravel (6-40mm, NMDFG 2002) used as spawning habitat. Ash inputs to the stream will alter water chemistry, pH, and dissolved oxygen, decreasing the suitability for RGCT. Also, changes in water quality parameters and vegetative cover could impact invertebrate species that RGCT rely on as prey.

Suppression Impacts: A full accounting of all suppression activities in the Rio Del Oso watershed has yet to be completed, as suppression efforts are continuing in the area. As suppression actions are mapped and assessed, a more detailed description of their impact will be developed. Resource advisors on site should ensure that dozer and hand lines are properly rehabilitated by suppression crews to decrease erosion, slope instability, and noxious weed establishment. Any retardant drops that are identified near streams should be treated with cup trenches down slope of the chemical to catch any that runs-off.

Impacts of BAER Emergency Stabilization Treatments: Currently, no impact is expected from BAER emergency stabilization treatments that are being prescribed. No seeding, mulching, or infrastructure work are being proposed. Impacts should be re-evaluated if new treatments are proposed in the future.

Other Species

Peregrine falcon (Falco peregrinus anatum) occurs within the fire area, using the cliff faces as roost sites and canyon bottoms and riparian areas for foraging. The peregrine falcon was removed from the Endangered Species List in 1999, due to successful habitat conservation, cessation of DDT use, and successful captive breeding and release efforts. The species is monitored to ensure population stability and continued recovery.

Direct effects: Because peregrine are highly mobile, any individuals would likely be able avoid the flame front and associated smoke. Therefore, direct mortality as a result of the fire would likely be minimal.

Indirect effects: Impacts to canyon bottoms and riparian areas could decrease the availability of prey species utilized by the peregrines. However, numerous drainages within the fire perimeter contained unburned areas. The mosaic pattern of the burn will provide more diverse habitat which could increase prey diversity as well. Also, peregrines roosting within the burn area can easily move to areas outside of the fire area in order to forage. In short, the indirect effects of the fire may decrease foraging opportunities in the short term, but could enhance prey diversity in the longer term.

Important ungulate game species, such as mule deer and elk, will likely be temporarily displaced from intensively burned areas. They may remain in the area, seeking cover and forage in unburned and low intensity burn areas within the fire perimeter. Review of the vegetation mortality map will help managers identify suitable areas. Both species have been observed during field reconnaissance of the fire within the last week. Grasses and forbs in low to moderate burn severity areas have already begun to re-sprout. Within 1-2 years many of the Aspen impacted by the fire will re-sprout and provide quality forage for these species. This coupled with the more open characteristics of the recently burned habitat may result in increased use of the fire area by these species.

Treatment Description: While the area impacted by the fire will naturally regenerate over time, the removal of grazing from burned areas of the Rio Del Oso watershed will speed recovery. The young tender re-sprouts of grasses, forbs, shrubs, and aspen may be selected for by cattle and suppress recovery. If grazing restrictions for the watershed are infeasible, a restricted buffer along the stream itself of 100 feet on each side is recommended. This will allow riparian vegetation to come back quicker providing shade, stabilization, and buffer to filer sediments and debris.

Seeding of burned areas should be limited or avoided due to the negative impacts the dense roots may have on Jemez Mountains salamander. This species is sub-terrainean add needs loose soil to survive.

Survey for Mexican spotted owl in burned and unburned areas. If detected, avoid seeding and mulching in any identified Mexican spotted owl PAC's.

The Las Conchas Fire provides a unique opportunity for agency biologists and the scientific community to determine species and habitat responses to wildfire. Collaboration on a host of research questions that will come from this event is encouraged. Information generated from these efforts will help guide managers in long term planning, land management decisions, and species and habitat recovery. Research needs include: water quality monitoring in Rio Del Oso, surveys to determine presence/absence of RGCT, habitat use and population densities of mule deer and elk within the fire area, abundance and distribution of passerines, Jemez Mountains salamander surveys, etc.

Discipline conducting this assessment:

Wildlife Biology

2011 Las Conches Fire
Value at Risk Assessment for Private Land
North Team DOI BAER

Value at Risk #: 3 **Address: County Road 136b House 25a, Chili, NM 87537**

Date: 7-16-2011 **Name: Denise Lopez (505) 927-8032**

Risk Statement: Structure at risk to flooding from post-fire watershed conditions from Rio del Oso watershed.

Treatment Description: Place 200 feet of 20 foot long K-Rail along the north bank of the Rio del Oso and place 150 feet of sandbags (approximately 2000) around house as prescribed (Figure 1). Tie K-Rail structure to large trees with steel cable if possible. Sandbags will be placed 5 high with three wide on the base and second level, two wide on the third and forth level, and capped with one fifth level (see map for sandbag profile). The K-Rail treatment should remain in place and the sandbag treatment should be removed in 5 years. Paint the sandbags after placement with exterior latex paint (earth-tones) to prolong lifespan of sandbag treatment. Without painting, the sandbag treatment will last only 1 to 1.5 years when exposed to sunlight in an arid climate, which is not long enough to protect the home from post-fire watershed conditions that may persist up to five years. Also recommended, the resident should raise the propane tank off of ground level to local construction standards for safety concerns.

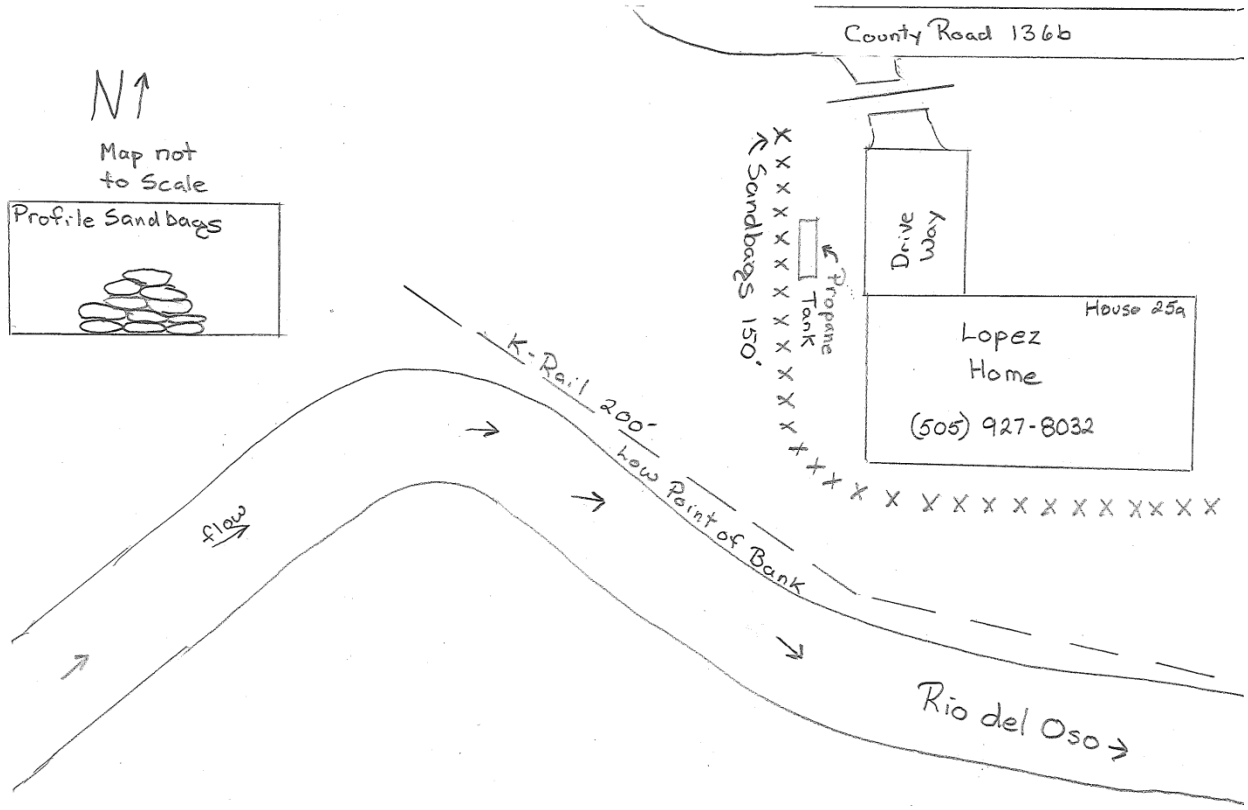


Figure 1. Treatment locations of K-Rail and sandbags along Rio del Oso and Lopez home.

Justification: Large areas of high and moderate soil burn severity in the headwaters of the Rio del Oso watershed (Forest Service Land) will increase stream flow delivery to downstream areas during large storm events. The Lopez home is situated close to the Rio del Oso River on an active flood plain. Ms. Lopez described localized flooding in 2009 without the presence of fire in the watershed which was evident by active high-water relief channels near the home and flood debris stranded in vegetation at a level about 1 foot below the home. Placement of the K-Rail will remove energy from high water flows and help divert the flow back into the Rio del Oso. The sandbags will aid in preventing flooding to the structure that the K-Rails will not stop.

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for New Mexico:

Counties Selected: Los Alamos, Rio Arriba, Sandoval, Santa Fe

Select one or more counties from the following list to view a county list:

Bernalillo
Catron
Chaves
Cibola
Colfax

View County List

Los Alamos County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
bald eagle	*Haliaeetus leucocephalus*	Birds	DM				P
black-footed ferret	*Mustela nigripes*	Mammals	E, EXPN				P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T			Final	P
southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E				P
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				P

Rio Arriba County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
bald eagle	*Haliaeetus leucocephalus*	Birds	DM				P
black-footed ferret	*Mustela nigripes*	Mammals	E, EXPN				P
least tern	*Sterna antillarum*	Birds	E				P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T			Final	P
Mountain plover	*Charadrius montanus*	Birds	PT				P
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	Fishes	C				P
Rio Grande silvery minnow	*Hybognathus amarus*	Fishes	E				P

southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E			Final	P
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				P

Sandoval County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
bald eagle	*Haliaeetus leucocephalus*	Birds	DM				P
black-footed ferret	*Mustela nigripes*	Mammals	E, EXPN				P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T			Final	P
Mountain plover	*Charadrius montanus*	Birds	PT				P
New Mexican meadow jumping mouse	*Zapus hudsonius luteus*	Mammals	C	No Image			P
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	Fishes	C				P
Rio Grande silvery minnow	*Hybognathus amarus*	Fishes	E			Final	P
southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E				P
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				P

Santa Fe County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
bald eagle	*Haliaeetus leucocephalus*	Birds	DM				P
black-footed ferret	*Mustela nigripes*	Mammals	E, EXPN				P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T			Final	P
Mountain plover	*Charadrius montanus*	Birds	PT				P
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	Fishes	C				P
Rio Grande silvery minnow	*Hybognathus amarus*	Fishes	E				P
southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E				P
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				P

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

July 20, 2011

Memorandum

To: Land and Natural Resource Managers in the Jemez Mountains; Las Conchas BAER Teams

From: Field Supervisor, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque, New Mexico Nancy D. Kelly, acting

Subject: Recommendations for Minimizing Effects to Jemez Mountains Salamander Post Wildfire

The purpose of this document is to provide some guidance to minimize adverse effects to the Jemez Mountains salamander (*Plethodon neomexicanus*), a candidate species, from actions that may occur in salamander habitat burned in the Las Conchas wildfire. A candidate species is one that warrants listing as threatened or endangered under the Endangered Species Act, as amended, but precluded by other listing priorities. Listing priorities can change as threats to species are assessed. Life history information and a threat assessment can be found in 75 FR 54824, September 9, 2010. Additional information and recommendations can be obtained by contacting Michelle Christman of my staff at michelle_christman@fws.gov or 505-761-4715.

Recommendations to minimize post-fire adverse effects to Jemez Mountains salamander:

- **Do not distribute grass seed, chemicals, or straw mulch in salamander habitat**
- **Avoid ground disturbing activities in salamander habitat**
- **Do not salvage log (downed or standing trees) in salamander habitat**

The Jemez Mountains salamander (salamander) is a terrestrial species, living in the forested areas of the Jemez Mountains between 2,100 and 3,350 meters (7,000 and 11,000 feet) in elevation. The species lacks lungs, breathes through its skin, and requires a moist microhabitat at all times. The salamander spends most of its time underground and becomes surface active presumably to feed and mate during the summer monsoon rains. The salamander uses existing tunnels, burrows, and naturally occurring spaces in the soil to move between underground and surface habitats.

Threats to the species are numerous and among them are all factors that significantly warm and dry its habitat. High-severity, stand-replacing wildfire is a primary threat to the species that is further exacerbated by the threats of post-fire rehabilitation and forest management (including

salvage logging). We believe that some post-fire actions may negatively affect salamander persistence in the short and long-term. Seeding areas that have been severely burned with native or non-native grasses could be detrimental to the salamander by making its habitat unusable due to fibrous roots blocking access to the surface (for feeding and mating). For these reasons, we recommend that seeding, particularly grass seed, not be used post-fire in salamander habitat. Use of straw mulch for soil stabilization could have negative effects to salamander habitat particularly if it becomes wet, then dries into an impenetrable crust that the salamander cannot breach. Furthermore, seeding or mulching can introduce non-native and noxious weed seeds into the area that germinate and develop fibrous roots, once again, negatively impacting salamander mobility and can slow the recovery of the habitat. While we are less certain of the potential effects from straw mulching, we also recommend avoiding its use in salamander habitat.

If at all possible, ground disturbing activities should be avoided in salamander habitat because it modifies both above and below ground habitats, and can injure or kill individual salamanders. We recommend avoiding any ground disturbing activities in salamander habitat.

Finally, salvage logging (both standing trees and downed log removal) would negatively affect salamander habitat by altering the above and below ground conditions (additional warming and drying) due to decreased shading, loss of moisture containment materials, and loss of surface cover objects. We recommend that no salvage activities take place in salamander habitat.

We are in need of developing and testing positive measures that can be taken for the conservation of salamanders after wildfire and would be interested in working with partners towards this end. Again, please contact Michelle Christman of my staff at michelle_christman@fws.gov or 505-761-4715 for questions, concerns, or project development for Jemez Mountains salamanders.

Appendix IV

NPS 7 Point Rating System

The rating is comprised of two components incorporating the following factors: (1) **tree failure potential**; (2) **target damage potential**; (3) **target impact potential**; and, (4) **target value**.

The **Tree** or **Defect Rating Value** component represents an estimation of the tree's relative potential for imminent failure and its damage potential based upon an evaluation of tree condition (defect), including site factors, plus size and height of the potentially hazardous portion of the tree. There are three possible ratings, 1-3, with three representing the highest failure/damage potential.

An additional point may be added for severe lean, which increases the likelihood of failure. Thus, 4 is the maximum defect rating possible, and represents a very defective (and/or predisposed to failure) tree with a severe lean which has great potential for damage and/or injury/death.

Defect ratings for high, medium, and low ratings are usually assigned and/or modified on a local/regional basis and reflect variations in species and environmental factors. The following is provided as an example and may need to be revised for local conditions.

High (3)--Significant Visible Defect/Damage (Predisposed to failure w/in 3 yrs. or before next scheduled inspection)
--Conifer crown > 70% dead; hardwood crown >50% dead
--Dead limbs 4-6" diameter > 40% of crown
--Dead limbs 6-8" diameter > 20% of crown
--Dead limbs > 8" diameter
--Live limbs with visible signs of rot or splits
--Hangers ≥ 2" diameter
--Heart rot/hollow > 70% diameter
--Multiple conks ≥ 6" wide on bole or limbs, indicating extensive heart rot
--Catface/canker > 50% circumference
--Shallow rooting/soil saturation; obvious signs of uprooting (e.g. mounding, cracking)
--Conks or mushrooms of root decay fungi at root crown, or loose bark at ground level, indicating root rot
--Characteristics (e.g. slabbing bark, extensive decay, etc.) which could result in unsafe deferred removal

Medium (2)--Moderate Visible Defect/Damage (Failure unlikely w/in 3 yrs. or before next scheduled inspection)
--Reduced growth; flattened conifer tops
--Numerous scattered dead/dying limbs

--Conifer crown 30-70% dead; hardwood crown 30-50% dead
--Dead limbs 4-6” diameter 20- 40% of crown
--Dead limbs 6-8” diameter 10- 20% of crown
--Live limbs w/ rot, hollow, or dead areas
--Heart rot/hollow 30-70% diameter
--Single conk < 6” wide on bole or limbs
--Catface/canker 30- 50% circumference
--Proximity to identified root rot center

Low (1)--Limited Visible Defect
--Reduced growth; rounded conifer tops
--Discolored and/or sparse foliage
--Conifer crown < 30% dead; hardwood crown <30% dead
--Dead limbs 2-4” diameter <20% of crown
--Dead limbs 4-6” diameter <10% of crown
--Heart rot/hollow <30% diameter
--Catface/canker <30% circumference
--Proximity to suspected root rot center

The second component is the **Target Rating** and represents impact potential and target value (monetary or possibility of injury/death). The ratings for this element are similarly rated 1-3, with 3 being the highest. A target rated 3 is one which has a high value (property or person) with a high likelihood of being impacted in event of failure. These ratings are usually more standardized with following an example:

High (3)--Overnight Exposure
--Campgrounds
--Lodges, hotels, dormitories
--Residences
--24-hour visitor service facilities

Medium (2)--Daytime Exposure
--Paved trails
--Interpretive sites, such as amphitheaters, kiosks
--"High use" road networks where occupancy is "constant"
--Roadside attractions, such as vista points or historic stops
--Information stations, visitor centers, fee collection portals
--High-use facility designated parking areas; designated trailhead parking areas
--Utilities, infrastructure
--“High-use” areas with “constant” occupancy, such as plazas, staging areas, commercial sites
--Picnic areas

Low (1)--Transitory Exposure
--Highway corridors

--Unimproved roads
--Turnouts
--Bicycle paths
--Structures with sporadic occupancy, such as restrooms associated with parking areas, storage buildings

The **Total Hazard Rating** is the **sum** of the **Defect Rating** and **Target Rating**.

Hazard Rating	**Treatment Priority**
2-3	Low
4-5	Medium
5 (w/3 defects)-6	High
7	Very High

Supporting documentation for costs used in Specification SC-18

Tedd Huffman, BASS, discussed aerial mulching with local individuals who had recent experience with aerial mulching contracts in New Mexico and Eastern Arizona. The discussions are summarized below.

Erica Nevins, Watershed and Soil Program Manager on the Santa Fe National Forest provided me with some recent costs that she had on the Santa Fe and what Greg Miller had on the Carson NF to the north. Last year she had a similar aerial mulching contract awarded at about $700 per acre. She also knew of a contract for the White Fire that was for $825 (see note under Mike Natharius) per acre but that used 2 tons/acre. Greg Miller had a contract for the Osha Fire in 2011 for similar aerial mulching that was about $700 per acre.

Greg Martinez, contracting officer with the Cibola National Forest, provided me with information on recent contract with relatively similar specs for aerial mulching in New Mexico and Arizona.

- Trigo (2008) - $427/ac
- Big Springs (2008)- $477/ac
- Tecolote (2010) - $711/ac (this is probably the contract that Erica Nevins is referencing)
- South Fork (2010) - $395/ac
- Several on the Apache-Sitgraves NFs (probably including the Wallow Fire) - $385 to $810/acre

Mike Natharius, Soil Scientist on the Gila National Forest, provided additional insight into the costs for aerial mulching on the White Fire on the Lincoln NF which was actually awarded at $861 per acre for mulching 2 tons/acre on 1800 acres.

Given these recent costs for awarded aerial straw mulching contracts I fell it is reasonable to estimate that an aerial mulching contract for 1 ton/acre of certified weed free straw applied to 2635 acres in Santa Clara Canyon can be awarded for approximately $700 to $750 per acre.

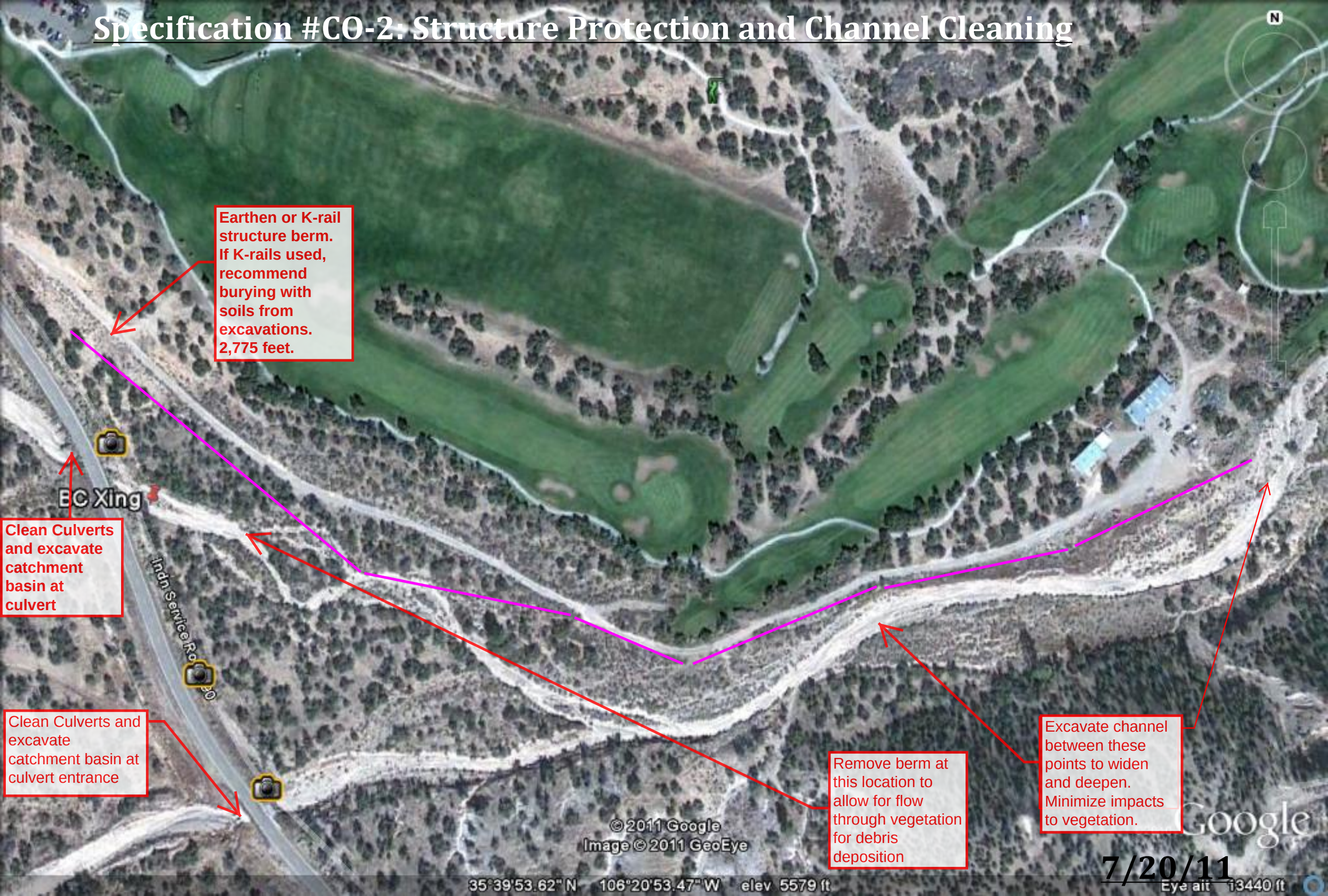
Potential sources for contracting aerial application of straw mulch include:

Revegetation Services – (New Mexico Office, 341 Caja Del Rio Rd., Santa Fe NM 87507 – 1-800-945-5811; Arizona office (Main Office), PO BOX 1480, Higley AZ 85236 – 480-988-3011)

Apex Curb and Turf (Washington State) - 1280 Fair St, Clarkston, WA, 99403; PO Box 417, Asotin, WA 99402; 509-758-1543 OFFICE; 509-758-7831 FAX; Email: apexhydro@gmail.com

Columbia Basin Helicopters, Inc., 14178 Ben Dier Lane, Baker City, Oregon 97814; 541-523-7388 Office; 541-523-7384 fax

Specification #CO-2: Structure Protection and Channel Cleaning



Specification #CO-2: Structure Protection and Channel Cleaning

Road through berm is about 4' lower than berm. Store sandbags in protective structure or tarped for emergency response. Sandbags stacked starting with 4-bag base and stacked to level of berm across road. About 200 bags.

Earthen or K-rail structure berm. If K-rails used, recommend burying with soils from excavations. 3,249 feet.

Earthen berm and channel excavation to route flow to main channel. 1,452 feet.

Clean Culverts and excavate catchment basin at culvert entrance

Earthen or K-rail structure berm. If K-rails used, recommend burying with soils from excavations. 700 feet.

7/20/11

Las Conchas Fire – 2011

Bureau of Indian Affairs, Southern Pueblo Agency

DOI National Interagency Burned Area Emergency Response Team
Agency Close-Out Briefing
July 25,2011 @ 10:00 am

Santa Ana Casino, Willow Room
Santa Ana Pueblo, New Mexico

Agenda

Welcome	
Introduction	**Darryl Martinez, BIA**
Resource Assessments:	
Soil & Watershed	**TJ Clifford, Bill Sims, Becky Biglow, BLM, BIA, USFS**
Vegetation/Forestry	**Steve Femmel, NPS**
Cultural	**Dan Hall, BIA**
Wildlife	**Luke Montoya, BIA**
Environmental Compliance	**Luke Montoya, BIA**
Questions	**All**
Plan Status, Approval, Action Items	**Darryl Martinez, BIA**
Closing Remarks	**Angela Arviso, BIA**

Las Conchas Fire – 2011
Pacheco Fire - 2011

Bureau of Indian Affairs, Northern Pueblo Agency

DOI National Interagency Burned Area Emergency Response Team
Agency Close-Out Briefing
July 25,2011 @ 10:00 am

Santa Clara Hotel, Mountain View Room
Espanola, New Mexico

Agenda

Welcome	
Introduction	**Erv Gasser, NPS**
Resource Assessments:	
PIO	**Yvonne Jones, BIA**
Soil & Watershed	**Rich Pyzik, Tedd Huffman, USFS**
Vegetation/Forestry	**Tom Warner, Mike Dolan, NPS, BLM**
Cultural	**Chuck James, BIA**
Wildlife	**Gavin Lovell, BLM**
Environmental Compliance	**Wendy Poinsot, NPS**
Questions	**All**
Plan Status, Approval, Action Items	**Myron Hotinger, BIA**
Closing Remarks	**Raymond Fry, BIA**

Date of Report: 07/17/2011

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 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)

[X] 2. Interim Report # 2 .
[ ] 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: Las Conchas Fire

B. Fire Number: NM-N6S-000451

C. State: NM

D. County: Sandoval, Los Alamos, Rio Arriba

E. Region: 3

F. Forest: Santa Fe

G. District: Jemez/Espanola/Coyote RDs

H. Fire Incident Job Code: PNF5PS

I. Date Fire Started: June 26, 2011

J. Date Fire Contained: unknown at this time

K. Suppression Cost: $40.9M (as of 7/16/2011)

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred and slashed (miles)**: none at this time
2. **Fireline seeded (miles)**: none at this time
3. **Other (identify)**: n/a

M. Watershed Number:

N. Total Acres Burned: 150,628 acres (from 7/15/2011 infrared)

Own/Admin	Acres	%
BIA - Jemez	2,842	1.9%
BIA - Santa Clara	16,609	11.0%
BIA - Santo Domingo	63	0.0%
County - Los Alamos	44	0.0%
Dept of Energy	118	0.1%
National Park Service	20,817	13.8%
Private or Other	5,033	3.3%
USFS - SFNF- Coyote	22	0.0%
USFS - SFNF- Espanola	27,220	18.1%
USFS - SFNF- Jemez	50,023	33.2%
Valles Caldera National Preserve	27,837	18.5%
	150,628	

Total administered by the Santa Fe National Forest – 51%

O. Vegetation Types: Pinyon/Juniper, Ponderosa Pine, Mixed Conifer

P. Dominant Soils: Mollic Eutroboralfs/Andic Ustochrepts/Typic Ustorthents, viltrandic hapludalfs, viltrandic eutrocryepts, pachic argiustolls

Q. Geologic Types: Rhyolite/andesite/pumice/tuff/basalt

R. Miles of Stream Channels by Order or Class: Ephemeral/Intermittent – 272, Perennial - 110

S. Transportation System
Trails (miles): 100
Roads (miles): Level 1 – 117, Level 2 – 154, Level 3 - 56

PART III - WATERSHED CONDITION

A. Burn Severity (acres):
Low – 43,450
Moderate – 39, 910
High – 28,470
Unburned – 17,950
No data – 19,620

B. Water-Repellent Soil (acres): 35,000

C. Soil Erosion Hazard Rating (acres):
Low – 75,080 **Moderate** – 37, 490 **Severe** – 33,807

D. Erosion Potential: 14 **tons/acre**

E. **Sediment Potential**: 972 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. **Estimated Vegetative Recovery Period, (years)**: 5

B. **Design Chance of Success, (percent)**: 20 - 90

C. **Equivalent Design Recurrence Interval, (years)**: 25

D. **Design Storm Duration, (hours)**: 1

E. **Design Storm Magnitude, (inches)**: 1.7"

F. **Design Flow, (cubic feet / second/ square mile)**: 100

G. **Estimated Reduction in Infiltration, (percent)**: 20

H. **Adjusted Design Flow, (cfs per square mile)**: approximately 700

PART V - SUMMARY OF ANALYSIS

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

The Las Conchas fire began on June 26, 2011 as the result of a windthrown tree striking and shorting out a powerline. The burned area is located southwest, west, north and northwest of the town of Los Alamos, NM. The burned area is on National Forest System lands managed by the Jemez, Espanola, and Coyote Ranger Districts of the Santa Fe National Forest, Jemez Pueblo, Santa Domingo Pueblo, and Santa Clara Pueblo lands, Bandelier National Monument, Valles Caldera National Preserve lands, Department of Energy lands, as well as numerous tracts of private lands.

Slopes within the burned area are predominantly moderately steep-to-steep, with lesser amounts of flat mesas. The tuff and pumice derived soils are productive but have very high erosion potentials due to low bulk density of extrusive volcanic parent material. Many channels have not experienced high flows in many years and consequently have large amounts of stored sediments that could entrain easily under peak flows.

Burn severity mapping for the Las Conchas burned area was done using an initial BARC map obtained from RSAC from a Landsat image on July 3, 2011 and a spot image on July 5, 2011. Field verification and assessment of the BARC image was done.

Please see Appendix A for an executive summary on the resources and threats.

Critical Values Identified

Critical Values identified (FSM 2523.1 Exhibit 01) during the Las Conchas BAER assesment are:

1. Human Life and Safety,
2. Property,
3. Cultural Resources, and
4. Natural Resources.

The Las Conchas BAER team evaluated the risk to those critical values per FSM 2523.1 Exhibit 02.

The risk matrix (below), Exhibit 2 of Interim Directive **2520-2010-1** was used to evaluate the Risk Level for each value at risk identified during Assessment:

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major	Moderate	Minor
	Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.	– Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects	Property damage is limited in economic value and/or to few investments; damage to natural or cultural resources resulting in minimal, recoverable or localized effects
	RISK		
Very Likely (>90%)	**Very High**	**Very High**	**Low**
Likely (>50% to <90%)	**Very High**	**High**	**Low**
Possible (>10% to <50%)	**High**	**Intermediate**	**Low**
Unlikely (<10%)	**Intermediate**	**Low**	**Very Low**

The Very High and High Risk are unacceptable risk levels due to threats to human life, property, infrastructure and resources, therefore treatments should be applied. An Intermediate Risk could be unacceptable if human life or safety is the critical value at risk.

Value at Risk: Property			
Risk	**Probability of Damage**	**Magnitude of Consequences**	**Value at Risk**
Very High	Very likely	Major	Dixon Apple Orchard/ State Land, Cochiti Mining District in Bland Cyn, West Road Bridge on Los Alamos Cyn (Flooding)
Very High	Very Likely	Moderate	FR 89 in Cochiti Cyn, FR 268 in Bland Cyn, Armijo Ranch Homes (Flooding)
Very High	Likely	Major	Los Alamos Dam, Ice Rick in Los Alamos Canyon (Flooding)
High	Likely	Moderate	LANL gas line, Cochiti golf course (Flooding)
High	Possible	Major	Bland Cemetery, Los Alamos Water Wells (Flooding)
Intermediate	Possible	Moderate	Cochiti Pueblo, Pueblo route 85 crossing of Peralto, Sewage lagoon at Cochiti Pueblo, San Ildefonso water wells (Flooding)
Low	Likely	Moderate	Pvt. Land near Tent Rocks (Flooding)
Low	Unlikely	Moderate	Los Alamos wastewater, Bland Historic Structures, NM State Highway 4 (Flooding)
Low	Possible	Minor	Cochiti at Rio Grande (Debris delivered to the Lake)
Very Low	Unlikely	Minor	Tent Rock Facilities, Town of Cochiti Lake, Pvt. Property (Flooding)

Value at Risk: Life			
Risk	**Probability of Damage**	**Magnitude of Consequences**	**Value at Risk**
Very High	Likely	Major	Ice Rink in Los Alamos Canyon, Los Alamos Dam (Flooding)
Very High	Very Likely	Moderate	Abrigo Communication Repeater VCNP (Communications/ Safety)
High	Possible	Major	Natural Gas Pipeline VCNP, Cochiti Pueblo (Flooding)

Value at Risk: Resources			
Risk	**Probability of Damage**	**Magnitude of Consequences**	**Value at Risk**
Very High	Very Likely	Major	Historic Sites/ Ancestral Pueblo Ruins, (Flooding)Rio Grande cutthroat trout (Habitat)
Very High	Very Likely	Moderate	Soil Productivity (Loss Downstream)
High	Likely	Moderate	Mexican Spotted Owl PAC (Habitat), Jemez Mountain Salamander (FS/ VCNP) (Habitat) , Trails (Flooding) , Road Infrastructure (FS/ VCNP) (Flooding) , Water Quality (FS/ VCNP) (Contaminants/ Sediment) , Traditional Cultural

			Properties (Flooding), Historic Sites VCNP (Flooding), Soil Productivity (FS/ VCNP) (Loss Downstream)
Intermediate	Possible	Moderate	Non-Native and Invasive Weeds (FS/ VCNP) (Introduction/ Spread) , East Fork Springs (Debris Cover)
Low	Likely	Minor	Mexican Spotted Owl VCNP (Habitat)
Low	Possible	Minor	Developed Recreation Sites (Flooding) , Range (Forage), Aquatic Habitat and Species VCNP (Loss of Habitat)

B. Emergency Treatment Objectives (narrative):

1. Treatments include the following activities.
   a. Work with NWS and partner agencies to establish an early-warning system to notify downstream residents of impending storm runoff.
   b. Remove road infrastructure (e.g. culverts, bridges) that might fail from post-fire flows.
   c. Protect culvert inlets on critical road segments.
   d. Provide point protection with seed and mulch for the Pajarito nordic ski trails.
   e. Provide point protection with hazard tree removal and mulch at 5 ancestral communities and one historic cemetery.
   f. Install armored drainage dips to protect stategic culverts.
   g. Remove in-stream debris that might be transported downstream and cause debris jams.
   h. Treatment actions to protect one recreation site.
   i. Post warning signs on potential flooding and debris flow concerns.
   j. Install gates to effectively close the burn area.
   k. Improve drainage along the pipeline access road (VC09), and install a low water crossing on the VC09a and San Antonio Creek.
   l. Remove road infrastructure (e.g. culverts,) on VC02 and VC 13, replace with low water crossings).
   m. Repair or replace Abrigo repeater.
   n. Remove hazard trees and rocks from roads and other treatment areas.
   o. Notify local government officials about the post-fire flood risk through certified letters.
   p. Remove the recreation bridge on Peralta Creek to prevent it from collecting debris and then breaching.
   q. Stabilize 12 miles of trails in order to minimize erosion from post-fire runoff.
   r. Seed approximately 6700 acres in two watersheds with considerable amounts of high and moderate burn severity in order to minimize the loss of soil productivity.
   s. Mulch approximately 1100 acres of high and moderate burn severity within the Bland drainage in order to minimize effects to water quality from runoff out of the historic Cochiti Mining District.

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

Land 10 % **Channel** 20 % **Roads/Trails** 20% **Protection/Safety** 60%

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	50	90	90
Channel	60	80	90
Roads/Trails	60	60	60
Protection/Safety	90	95	95

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

F. Cost of Selected Alternative (Including Loss): to be determined

The economic analysis is still being conducted and will be submitted on a future 2500-8.

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering
[ ] Contracting	[X] Ecology	[X] Botany	[X] Archaeology
[X] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS

BAER Assessment Team Members: see Appendix B

Team Leader: Greg Kuyumjian, Okanogan-Wenatchee National Forest

Email: gkuyumjian@fs.fed.us **Phone**: (509) 664-9330 **FAX**:

H. Treatment Narrative:

1. Remove an estimated 50 culverts from Level 1 and 2 Forest Roads to protect the roads from increased damage or loss as a result of increased flows.

2. Improve drainage on pipeline access road and remove one culvert above the pipeline and replace it with a low water crossing on the VCNP.

3. Remove an estimated 3 culverts and replace with low water crossings from Level 1 and 2 VCNP Roads to protect the roads from increased damage or loss as a result of increased flows.

4. Install 12 (10 small and 2 large) trash racks to protect culvert inlets on Level 3 and 4 Forest Roads to protect the roads from increased damage or loss as a result of increased flows.

5. Install 10 armored drainage dips alongside existing culverts to protect stategic road segments.

6. Clear 25 miles of stream channels of large woody debris that could mobilize and create debris jams at culvert inlets.

7. Pump, sanitize, and lock one toilet at Las Conchas Picnic Recreation Area. This will ensure there will be no release of sewage if there is overland flow from nearby burned hillsides.

8. Purchase and install 230 signs to warn forest users about potential flood and debris flow danger.

9. Seed the Pajarito Nordic Ski Trails. Seed would be applied at a target rate of 25 Pure Live Seed (PLS) per square foot (18 lbs/acre x 20 acres = 360 lbs PLS). Proposed weed free seed mix is slender wheatgrass (40%), cereal barley (40%), and little blue stem (20%).

10. Mulch the Pajarito Nordic Ski Trails with certified weed free straw. Mulch would be applied at a rate of 1 ton per acre. This treatment is intended to provide point protection by providing immediate ground cover to high burn severity areas.

11. Remove trees from 120 acres at 5 ancestral communities (4 SFNF and 1 VCNP) and one historic cemetery (SFNF). This treatment is intended to reduce the risk of wind thrown trees uprooting and damaging these sites.

12. Mulch 120 acres of high burn severity areas with certified weed free straw at 5 ancestral communities (4 SFNF and 1 VCNP) and one historic cemetery (SFNF). Mulch would be applied at a rate of 1 ton per acre. This treatment is intended to provide point protection by providing immediate ground cover to high burn severity areas.

13. Install 7 gates (5 on SFNF and 2 on VCNP) in order to adequately close the burned perimeter. These gates will prevent Forest visitors from entering areas that are unsafe following the fire.

14. Repair or replace Abrigo repeater on VCNP. It is unknown at this time how much damage the Abrigo repeater sustained from the fire, but it is likely that full replacement will be needed.

15. Remove hazard trees and rocks from roads and other treatment areas. For the safety of those implementing treatments and employee safety, hazards need to be removed from the area.

16. Notify local government officials about the post-fire flood risk through certified letters. Letters would outline pre- and post-fire conditions and values at risk.

17. Remove the recreation bridge on Peralta Creek to prevent it from collecting debris and then breaching. The bridge will be removed and stored on high ground until it is deemed safe to reinstall it.

18. Stabilize 12 miles of trails in order to minimize erosion from post-fire runoff. Segments of trail that are out of the drainages would have waterbars installed in order to try to protect the trail tread from further erosion.

19. Seed approximately 6700 acres in two watersheds with considerable amounts of high and moderate burn severity in order to minimize the loss of soil productivity. Using criteria; areas outside of Jemez Mountains Salamander, sensitive soils (those with highest modeled erosion rates), and soil productivity. Areas of Bland at Cochiti Pueblo and the Cochiti at Rio Grande watersheds were identified as candidates for seeding resulting from this filtering exercise.

20. Mulch approximately 1100 acres of high and moderate burn severity within the Bland drainage in order to reduce effects to water quality from runoff out of the historic Cochiti Mining District.

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.)

1. Monitoring of land treatments (e.g. culvert removal, seeding/mulching) will be conducted after the first damage-inducing storm to determine the effectiveness of the treatments.

2. Monitoring of point protection on ancestral pueblos and lithic landscapes will be conducted during implementation of treatments.

Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #2**

Please see enclosed Excel spreadsheet for treatments and requested funding.

PART VII - APPROVALS

1. Forest Supervisor (signature) — Date: 7/17/2011

2. Regional Forester (signature) — Date

Appendix A: Executive Summary for Resources and Threats

The Las Conchas fire started on June 26, 2011. The fire is located on portions of the Espanola, Coyote, Jemez Districts of the Santa Fe National Forest, Bandelier National Monument, Los Alamos National Laboratory, Los Alamos County, Valles Caldera National Preserve, Jemez Pueblo, Santo Domingo Pueblo, Santa Clara Pueblo, and numerous private inholdings. The fire was situated in an area bounded by the Sierra De los Valles to the east, on the western side by the Pajarito Plateau, Polvadera Peak to the north and Cochiti on the south. As of July 16, 2011, the fire had burned more than 150,000 acres with large patches of high and moderate severity burns. The size and intensity of this fire has resulted in considerable threats to life and property, natural resources and created values at risk.

Currently there is an unacceptable risk, particularly in regards to life and property related to watershed response. Post-fire discharge calculations range between 280 and 3600 cfs. Within the burn perimeter, critical values at risk were identified in 6 of 33 watersheds. Values at risk were evaluated using a risk matrix. Bland and Cochiti drainages were found to have the greatest risks with calculated maximum runoff estimated at 1900 and 3200 cfs respectively. Bland Canyon contains a historic mining district that poses risk of debris jams at road crossings and contamination of flood waters. Cochiti Canyon contains state land and lease-holder facilities and assets such as the Dixon Apple Orchard.

Approximately 23% (28,470 acres) of the fire burned with high severity and 25% (39,910 acres) burned with moderate severity. Combined, the high and moderate severity accounted for 48% (68,380 acres) of the burned area. From a soils and watershed condition standpoint, these burned acres will account for a majority of the erosion and sedimentation in the burned area. In high burn severity areas soils may become water repellent (hydrophobic tendency) that impacts the potential runoff hazard and predicted sediment production of the burned area. Results of hydrophobicity tests from 30 sites throughout the burn area indicate highly variable soil conditions. Even though there may be somewhat limited fire induced hydrophobic tendency within the burn (30-40% of moderate and high burn severity with the aerial extent), watersheds will realize significant increased hydrologic response and loss of control of water. The soil hydrophobic tendency in areas of high and moderate burn severity may result in emergency conditions such as loss of control of water, particularly in drainages of Frijoles Canyon, Cochiti Canyon, Medio dia Canyon, Bland Canyon, Peralta Canyon and Santa Clara Canyon; accelerated soil erosion; potential flooding, sedimentation and debris flows and torrents onto private properties below areas of the burn; and loss of long-term site productivity.

Eight roads were identified that had potentially critical values at risk. Treatments to address threats to life and property were identified for these priority roads and include removal of hazard trees, culvert cleaning or removal, posting warning signs for flooding and falling rock hazards, installing gates, closing areas, and addressing road drainage issues.

As a result of the fire's severity and extent, little can be done to mitigate losses to wildlife and fisheries resources. Fire effects to the Mexican spotted owl (Federally listed) and Jemez Mountain Salamander (Federal candidate species) may result in the long term loss or reduced habitat suitability for both species.

Four populations of Rio Grande cutthroat trout (USFS Region 3 Sensitive Species and Federal candidate species) are within the burn area. Of these populations, one is a recreation population (Peralta Canyon),

two are conservation populations (Medio Dia Canyon and Rio del Oso and tributaries), and one is a core population (Capulin Creek). Because of the size, severity, steepness of slopes, and proximity of the wildfire aquatic habitats and Rio Grande cutthroat trout are at a very high risk of impact. Impacts include changes in peak flows and deposition of ash and sediment which negatively alter fish and macro-invertebrate habitat and water quality. Fish deaths due to fire are also associated with ash flows, which can obstruct gill membranes and cause asphyxiation.

Cultural and archeological resources are abundant within the area burned by the Las Conchas fire. Values at risk include sensitive and irreplaceable Traditional Cultural Properties for the Pueblos of Jemez, Santa Domingo, Cochiti, San Ildefonso, Santa Clara, and Ohkay Owingeh; irreplaceable archeological sites of tremendous scientific and cultural significance; and historic sites of both Puebloan and non-Puebloan origin.

Recreation values at risk include the Dome Wilderness, East Fork of Jemez Wild and Scenic River, 100 miles of trail, developed recreation sites such as trailheads and picnic areas, Pajarito Nordic Ski Trail, and views along the State Road 4 Scenic Byway.

Changed environmental conditions resulting from the fire are conducive to non-native invasive plant species (NNIS) introduction and establishment, especially areas of high and moderate burn severity. NNIS can dramatically reduce biodiversity, alter ecosystem processes that provide surface water and benefits to other natural resources, reduce habitat and forage for native wildlife, increase soil erosion, and change the fire return interval. These alterations are not easily healed. Depending on the scale, duration, and frequency of the invasion, restoring the ecosystem to its original condition may not be technically or financially feasible.

Ten National Forest System grazing allotments and the Chicoma Wild Horse and Dome Wild Burro Territories are wholly or partially within the burned area. The area within each allotment that was affected by the Las Conchas fire and the degree of the burn severity was variable for each of the allotments. In addition, range structures such as fences and water developments may have been directly affected by the fire or are likely to be affected by post-fire run off events.

Treatments proposed to minimize values at risk include:

- Removing culverts and installing structures to protect culverts or road segments.
- Clearing stream channels.
- Addressing flooding issues associated with toilets at the Las Conchas Picnic Recreation Area.
- Install hazard warnning signs about potential flood and debris flow danger.
- Seeding and mulching around the Pajarito Nordic Ski Trails.
- Protecting cultural sites with tree removal and mulching.
- Installing gates to close the forest within the burn perimter.
- Repairing or replacing the Abrigo repeater on VCNP.
- Remove hazard trees and rocks from roads and other treatment areas.
- Notifying local government officials about the post-fire flood risk through certified letters.
- Remove the recreation bridge on Peralta Creek.
- Stabilize recreation trails in order to minimize erosion from post-fire runoff.
- Seeding in two watersheds with considerable amounts of high and moderate burn severity.
- Mulching in high and moderate burn severity within Bland Canyon.

Appendix B: South BAER Team Roster

South BAER Team Position	Name	Title
Archeology	Anna Steffen	Cultural Resources Coordinator, Valles Caldera National Preserve
Infrastructure LEAD	Anne Apodaca	Acting Forest Recreation/Trails/Wilderness Program Manager, Santa Fe National Forest, R3
NPS Representative	Barbara Judy	Chief of Resources, Bandelier National Monument
Ecology	Beth Gastineau	Biological Technician - Fire Effects, Bandelier National Monument
Vegetation	Brian Jacobs	Vegetation Specialist, Bandelier National Monument
Agencies Liaison	Bruce Sims	Regional Hydrologist and BAER Coordinator, R1
Wildlife, Fish, Vegetation LEAD	Chantel Cook	Fisheries Biologist, Santa Fe National Forest, R3
Hydrology	Collin Haffey	Biological Science Technician, Bandelier National Monument
Public Information Officer	Craig Martin	Open Space Specialist, Los Alamos County
Tribal Liaison	Daryl Martinez	Southwest ESR Coordinator, National Interagency Fire Center, Bureau of Indian Affairs
Hydrology	Eric Moser	Hydrologist, TEAMS Enterprise Unit
Team Lead (Trainee)	Erica Nevins	Watershed Program Manger, Santa Fe National Forest, R3
Archeology	Heath Bailey	Archeological Technician, Bandelier National Monument
BAER Team Planning LEAD	Jennifer Cramer	Forest Planner, Santa Fe National Forest, R3
Soils	Jennifer Hill	Forest Soil Scientist, Lincoln National Forest, R3
GIS LEAD	John Hutchison	GIS Specialist, Santa Fe National Forest, R3
Forest Representative	Julie Bain	Environmental Coordinator, Santa Fe National Forest, R3
GIS	Kay Beeley	Information Specialist, Bandelier National Monument
Hydrology	Kyle Wright	Hydrologist, Sequoia National Forest, R5

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GIS LEAD	John Hutchison	GIS Specialist, Santa Fe National Forest, R3
Forest Representative	Julie Bain	Environmental Coordinator, Santa Fe National Forest, R3
GIS	Kay Beeley	Information Specialist, Bandelier National Monument
Hydrology	Kyle Wright	Hydrologist, Sequoia National Forest, R5

Soils and Hydrology LEAD	Mike Natharius	Soil Scientist, Gila National Forest, R3
ICP Liaison	Pete Grinde	Range Program Manager, Santa Fe National Forest, R3
Recreation	Phyllis Martinez	Recreation Foreman, Jemez Ranger District, Santa Fe National Forest, R3
Fish	Rene Galindo	Fisheries SCEP, Santa Fe National Forest, R3
Team Lead (Deputy)	Rich Schwab	National BAER Coordinator, National Park Service
Lands	Roger Norton	Realty Specialist, Santa Fe National Forest, R3
Archeology	Rory Gauthier	Archeologist, Bandelier National Monument
Wildlife	Steve Fettig	Wildlife Biologist, Bandelier National Monument
Soils	Steve Strenger	Supervisory Soil Scientist, R3 Regional Office
GIS	Tim Downing	GIS Specialist, Santa Fe National Forest, R3
Soils	Vince Archer	Soil Scientist, TEAMS Enterprise Unit
Wildlife	Will Amy	Wildlife Program Manager, Santa Fe National Forest, R3
Archeology LEAD	Will Reed	Regional Heritage Program Manager, R4 Regional Office
ICP Liaison	Yolynda Begay	Assistant Regional Social Scientist, R3

Part VI – Emergency Stabilization Treatments and Source of Funds Interim #2

Treatments funded in the initial are in purple, and those funded in the interim #1 are in green.

			NFS Lands			All
		Unit	# of		Other	Total
Line Items	Units	Cost	Units	BAER $	$	$
A. Land Treatments						
SFNF - Point protection seeding (Pajarito nordic ski trails)	acres	85	20	$1,700		$1,700
SFNF - Point protection mulching (Pajarito nordic ski trails)	acres	750	20	$15,000		$15,000
SFNF - Tree removal at cultural sites	acres	480	100	$48,000		$48,000
VCNP - Tree removal at cultural site	acres	480	20	$9,600		$9,600
SFNF - Mulching at cultural sites	acres	500	100	$50,000		$50,000
VCNP - Mulching at cultural site	acres	500	20	$10,000		$10,000
SFNF - Hillside seeding	acres	95	6700	$636,500		$636,500
SFNF - Hillside mulching	acres	710	1100	$781,000		$781,000
SFNF - TCP Springs	acres	20	500	$10,000		$10,000
SFNF & VCNP - Pueblo consultation for implementation	days	10	300	$3,000		$3,000
Subtotal Land Treatments				$1,564,800	$0	$1,564,800
Insert new items above this line!						
B. Road & Trail Treatments						
SFNF - Culvert Removal	each	1500	50	$75,000		$75,000
VCNP - Culvert Removal	each	1500	3	$4,500		$4,500
SFNF - Road Storm Proofing	each	3000	10	$30,000		$30,000
SFNF - Trash Racks (small)	each	10000	10	$100,000		$100,000
SFNF - Trash Racks (large)	each	30000	2	$60,000		$60,000
VCNP - Install low water crossings	each	3200	2	$6,400		$6,400
SFNF - Channel Clearing	mile	2500	25	$62,500		$62,500
VCNP - Channel Clearing	mile	2500	1	$2,500		$2,500
SFNF - Trail waterbars	mile	2500	12	$30,000		$30,000
SFNF - Peralta foot bridge	each	2500	1	$2,500		$2,500
Subtotal Road & Trail Treatments				$373,400	$0	$373,400
Insert new items above this line!						
B. Safety & Protection						
SFNF - Warning Signs	each	150	200	$30,000		$30,000
VCNP - Warning Signs	each	150	25	$3,750		$3,750
SFNF - Pump & Close Toilet	each	1500	1	$1,500		$1,500
SFNF - Gates	each	8000	4	$32,000		$32,000
VCNP - Gates	each	8000	1	$8,000		$8,000
VCNP - Replace/repair Repeater	each	25000	1	$25,000		$25,000
Subtotal Safety & Protection				$100,250	$0	$100,250
Insert new items above this line!						
C. BAER Evaluation						
BAER Assessment					$200,000	$200,000
Subtotal Evaluation				---	$200,000	$200,000

Insert new items above this line!						
D. Monitoring						
SFNF - Monitoring of treatments	daily rate	325	10	$3,250		$3,250
VCNP - Monitoring of treatments	daily rate	325	10	$3,250		$3,250
SFNF & VCNP - Cultural resource protection monitoring	daily rate	1500	10	$15,000		$15,000
Insert new items above this line!						
Subtotal Monitoring				$21,500	$0	$21,500
E. Implementation						
Implementation team lead	daily rate (with per diem)	700	30	$21,000		$21,000
Implementation team lead	daily rate (with per diem)	700	5	$3,500		$3,500
Certified letters	each	2	1000	$2,000		$2,000
Subtotal Implementation Lead				$26,500	$0	$26,500
E. Totals				$2,086,450	$200,000	$2,286,450
Previously approved				$488,850		$488,850
Total for this request				**$1,597,600**		**$1,597,600**

SANTA CLARA
POST OFFICE BOX 580
(505) 753-7330
(505) 753-5375 Fax

INDIAN PUEBLO
ESPANOLA, NEW MEXICO
87532
OFFICE OF GOVERNOR

PRESS RELEASE

FOR IMMEDIATE RELEASE
July 6, 2011

CONTACT: Joe Baca
(505) 929-7061

DECLARATION OF STATE TO EMERGENCY

Call for Volunteers

Due to the eminent threat of a major flood or thunder storms that cause flash floods the Pueblo of Santa Clara is declaring a state of emergency. The magnitude of a flood is exasperated by the divesting Las Conchas fire on 15,600 acres of Santa Clara forested lands on our reservation. Santa Clara creek directly flows from the burnt areas and then traverses through the Pueblo of Santa Clara. One such recent flood had a 20 foot crest. Such a flood could be divesting to the Pueblo residents, their homes, tribal property, the main and old village, the community day school, and the beloved Senior Center.

The Pueblo is calling for volunteers to assist in sand bagging. A safety class on sand bagging will conducted at the Day School in Santa Clara Pueblo at 9:00 a.m. Thursday, July 7, 2011. Volunteers will initially need to report to the Santa Clara Senior Center prior to 9:00 a.m.

Thank you on behalf of Santa Clara Pueblo

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 AUGUST 2012

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Ray Middle - Last - Fry	First - Wendy Middle - L. Last - Poinsot
Company - Bureau of Indian Affairs, Northern Pueblos Agency,	Company - DOI BAER Team, Las Conchas, Northern Zone
E-mail Address - raymond.fry@bia.gov	E-mail Address - wendy_poinsot@nps.gov
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address- PO Box 4269	Address- Point Reyes National Seashore
City - Espanola State - NM Zip - 87566 Country - USA	City - Point Reyes State - CA Zip - 94956 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business 505-753-1400 c. Fax 505-753-1404	a. Residence b. Business 415-218-6551 c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____ _____
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
BAER Projects, Santa Clara Pueblo

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Santa Clara Creek	Address Santa Clara Canyon
15. LOCATION OF PROJECT Latitude: ◦N see specific action Longitude: ◦W	City - Pueblo of Santa Clara State- NM Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID see individual spec sheets Municipality
Section - Township - Range -

17. DIRECTIONS TO THE SITE

The sites of all proposed actions are located on or adjacent to Santa Clara Canyon Road which intersects Highway 30 at 3.75 miles south of the intersection of Highway 285/84 (Santa Fe Highway).

18. Nature of Activity (Description of project, include all features)

The following activities are 1) proposed as part of the DOI BAER Emergency Stabilization Plan addressing emergency repairs needed as a result of the Las Conchas Fire (July 2011) and 2) include elements that may require a CWA 404 permit from the USACE, Albuquerque District. Specific descriptions of actions, photos of existing conditions and aerial images indicating the location and lat/long location.
SC-5: Sediment and Debris Removal from 4 Ponds in Santa Clara Canyon & the J & Zero ponds on Sawmill Canyon (unnamed drainage).
SC-19: Stream Crossing Protection: Remove corrugated metal pipe culverts over creek connecting to spur roads with low water ford crossings in five locations on Santa Clara Creek.
SC-21: Canyon Road Culvert Replacement: replacing double road culvert crossings with larger pipe-arch culverts (corrugated metal) to increase the capacity of the road/stream crossing in 4 locations on Santa Clara Creek. See attachments.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The primary objectives of BAER actions for the Santa Clara Pueblo are:
1) to protect protect human life and property, 2) stabilize soil and water to prevent further degradation of the affected watersheds, 3) deter the establishment or spread of noxious weeds and 4) to monitor the effectiveness of treatments to determine if additional or amended treatments are needed.
All projects in Santa Clara County are improvements or repairs that will improve the ability of the creek channel to withstand high flows that are not constricted by inadequate or partially blocked culverts, storm debris and soils deposited in the upper ponds and lower sediment diversion structures. Other actions include removing portable toilets swept into the channel by recent debris flows and "storm patrol" where a crew will inspect the channel conditions following heavy rains clear culverts by several techniques from hand tools to backhoes.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Dredged materials would only be negligible amounts discharged incidentally to transferring dredge soils to a truck for off-hauling.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
0 (negligibe)		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 0
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

1. If during storm patrol, the crew finds that heavy equipment needs to enter the stream channel or a platform to support heavy equipment needs to be constructed in the stream channel, the crew must notify the USACE office in Albuquerque for permission to proceed.
2. If during storm patrol, the crew finds that channel excavation without immediate removal of sediment from the channel is needed, the crew must contact the USACE office in Albuquerque for permission to proceed.
Both actions would discharge sediment into U. S.waters and are actions not anticipated through implementation of the proposed actions.

24. Is Any Portion of the Work Already Complete? ☒ Yes ☐ No IF YES, DESCRIBE THE COMPLETED WORK

ESA. Impact assessments are completed. The creek was assessed for potential to support listed species by BAER Team wildlife biologist Kenneth Griggs, himself FWS biologist in another area, in consultation with local USFWS staff. Local FWS concurred with Ken there is no habitat for listed species in or near the Creek channel. Two candidate species with potential habitat in the canyon would also not be impacted by project actions: the Jemez Mountain Salamander (Plethodon neomexicanus) is strictly an upland species not dependent on open water and the Rio Grande cutthroat trout (Oncorhynchus clarki virginalis) could only be found upstream of the work sites which are all downstream of 4 ponds stocked with nonnative trout that have hybridized with native trout. NHPA. Archaeologist Dan Hall with BAER Team cultural resources specialists toured the area affected by the recent fire with tribal specialists. No resources are within or near the channel and the channel itself is highly disturbed by past actions especially in the work areas of the ponds, basins and stream crossings.

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- same as applicant

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
see item 24 above.					

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
			2011-07-25

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

2011 Las Conchas Fire
Cost/Risk Analysis –Forestry Treatments

Part 1. Treatment Cost

Treatments	Cost
Short-Term Tree Hazard Mitigation	$36,327.00
Short-Term Tree Hazard Surveillance	$4,422.00.
Total	

Part 2. Probability of Stabilization Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Short-Term Tree Hazard Mitigation	383 Trees	95
Short-Term Tree Hazard Surveillance	28.4 Miles	95

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives			X	
Residential & Commercial Property			X	
Water Quality & Soil Productivity	X			
Cultural Resources	X			
Roads			X	X

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives		X		
Residential & Commercial Property		X		
Water Quality & Soil Productivity	X			
Cultural Resources	X			
Roads		X		

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [X] No [ ] Rationale for Answer:

Short-Term Tree Hazard Mitigation - Santa Clara Canyon
Burned trees located within Santa Clara Canyon pose a significant threat to visitors, employees and property in the burn area. As these trees rot and break apart or uproot, they can cause serious injury or death as well as property damage to anyone in the area. Removal of hazard trees will greatly reduce this risk.

Short-Term Tree Hazard Surveillance – Santa Clara Reservation
Burned trees located along secondary roads and trails that have not been surveyed pose a significant threat to visitors, employees and property in the burn area. As these trees rot and break apart or uproot, they can cause serious injury or death as well as property damage to anyone in the area. Surveillancel and removal of potential hazard trees will greatly reduce this risk.

No Action Yes [ ] No [X] Rationale for answer:

Short-Term Tree Hazard Mitigation Santa Clara Canyon
Without this treatment, it is inevitable that trees marked as potential hazard trees will rot and break apart or uproot, threatening injury or property damage to anyone in the area.

The No-Action alternative would prevent potential hazard trees from being surveyed, identified, marked and removed, allowing these trees to rot and fail, resulting in potential injury or property damage

Alternative(s) Yes [ ] No [X]Rationale for answer:

Short-Term Hazard Tree Mitigation – Santa Clara Canyon
There are no viable, cost-effective alternatives to this proposed treatment.

Short-Term Tree Hazard Surveillance – Santa Clara Reservation
There are no viable, cost-effective alternatives to this proposed treatment. Potential hazard trees need to be surveyed and removed

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [X] No [ ] Rationale for answer:

Short-Term Hazard Tree Mitigation – Santa Clara Canyon
This is a low-cost treatment. Given the high probability of success, the cost is acceptable.

Short-Term Tree Hazard Surveillance – Santa Clara Reservation
This is a low-cost treatment. Given the high probability of success, the cost is acceptable

No Action Yes [ ] No [X] Rationale for answer:

Short-Term Hazard Tree Mitigation – Santa Clara Canyon
No action will not attain the ES objectives of removing hazard trees.

Short-Term Tree Hazard Surveillance – Santa Clara Reservation
No action will not attain the ES objectives of removing hazard trees

Alternative(s) Yes [No [X] Rationale for answer:

Short-Term Hazard Tree Mitigation – Santa Clara Canyon
There is no viable alternative for this specification

Short-Term Tree Hazard Surveillance – Santa Clara Reservation
There is no viable alternative for this specification

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [X] No [ ] Rationale for answer:

Short-Term Hazard Tree Mitigation – Santa Clara Canyon and Short-Term Tree Hazard Surveillance – Santa Clara Reservation are treatments identified in Part F of the BAER Plan. Surveillance and removal of hazard trees will meet the objectives of the Santa Clara Reservation and the Burned Area Emergency Stabilization and Response policy and Program. In addition, the treatments recommended for implementation will serve to protect the public and employees driving or recreating in the burned areas hwere hazard trees exist.

2011 Las Conchas Fire

Cost/Risk Analysis – Traditional Cultural AssessmentsTreatments

Part 1. Treatment Cost

Treatments	Cost
CO-1 Cochiti Traditional Cultural Assessment	$8079.
JE-3 Jemez Traditional Cultural Assessment	8079.
OO-1 Ohkay Owingeh Traditional Cultural Assessment	8079.
SI-2 San Ildefonso Traditional Cultural Assessment	8079.
SC-6 Santa Clara Traditional Cultural Assessment	8079.
SD-2 Santo Domingo Traditional Cultural Assessment	8079.
Total	**$48474.**

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
CO-1 Cochiti Traditional Cultural Assessment	1	80
JE-3 Jemez Traditional Cultural Assessment	1	80
OO-1 Ohkay Owingeh Traditional Cultural Assessment	1	80
SI-2 San Ildefonso Traditional Cultural Assessment	1	80
SC-6 Santa Clara Traditional Cultural Assessment	1	80
SD-2 Santo Domingo Traditional Cultural Assessment	1	80
		80

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives	X			
Residential & Commercial Property	X			
Water Quality & Soil Productivity	X			
Cultural Resources				X
Roads	X			

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives	X			
Residential & Commercial Property	X			
Water Quality & Soil Productivity	X			
Cultural Resources		X		
Roads	X			

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [X] No [ ] Rationale for Answer:

CO-1 Cochiti Traditional Cultural Assessment: The performance of a traditional cultural resources assessment has no potential to place natural resources and private property at risk. Oral interviews or connected subsequent site visits are non-ground disturbing activities.
JE-3 Jemez Traditional Cultural Assessment: See CO-1 above.
OO-1 Ohkay Owingeh Traditional Cultural Assessment: See CO-1 above.
SI-2 San Ildefonso Traditional Cultural Assessment: See CO-1 above.
SC-6 Santa Clara Traditional Cultural Assessment: See CO-1 above.
SD-2 Santo Domingo Traditional Cultural Assessment: See CO-1 above.

No Action Yes [X] No [ ] Rational for answer:

CO-1 Cochiti Traditional Cultural Assessment: Selection of the No Action Alternative, the decision to not implement the Proposed Action has no potential to place natural resources or private property at risk. The subjects of the Proposed Alternative are cultural resources, not natural resources or private property.
JE-3 Jemez Traditional Cultural Assessment: See CO-1 above.
OO-1 Ohkay Owingeh Traditional Cultural Assessment: See CO-1 above.
SI-2 San Ildefonso Traditional Cultural Assessment: See CO-1 above.
SC-6 Santa Clara Traditional Cultural Assessment: See CO-1 above.
SD-2 Santo Domingo Traditional Cultural Assessment: See CO-1 above.

Alternative(s) Yes [X] No [ ] Rationale for answer:

CO-1 Cochiti Traditional Cultural Assessment: As an alternative to a Traditional Cultural Assessment, the cultural resources team considered as an alternative, the employment of an agency archeologist to perform a customary cultural resources assessment to identify known sites at risk from post-fire effects. This alternative was rejected because of the high likelihood that some sites, and in particular, traditional cultural properties would be missed without the active engagement of tribal tradition keepers.
JE-3 Jemez Traditional Cultural Assessment: See CO-1 above.
OO-1 Ohkay Owingeh Traditional Cultural Assessment: See CO-1 above.
SI-2 San Ildefonso Traditional Cultural Assessment: See CO-1 above.
SC-6 Santa Clara Traditional Cultural Assessment: See CO-1 above.
SD-2 Santo Domingo Traditional Cultural Assessment: See CO-1 above.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [X] No [ ] Rational for answer:

CO-1 Cochiti Traditional Cultural Assessment: Oral interviews with tribal tradition keepers and subsequent field assessments will serve to consider effects to traditional cultural properties vital to the maintenance of Pueblo culture, and that were not identified during the BAER cultural resources assessment. The modest costs associated with this treatment are acceptable given the probability of success.
JE-3 Jemez Traditional Cultural Assessment: See CO-1 above.
OO-1 Ohkay Owingeh Traditional Cultural Assessment: See CO-1 above.
SI-2 San Ildefonso Traditional Cultural Assessment: See CO-1 above.
SC-6 Santa Clara Traditional Cultural Assessment: See CO-1 above.
SD-2 Santo Domingo Traditional Cultural Assessment: See CO-1 above.

No Action Yes [ ] No [X] Rational for answer:

CO-1 Cochiti Traditional Cultural Assessment: Selection of the No Action Alternative could result in unacceptable consequences to Traditional Cultural Properties. Consultation with tribal tradition keepers is essential for ensuring that these resources are not put at unnecessary risk levels from post-fire watershed flow events or from other emergency stabilization treatments. The potential costs to sacred sites and other traditional cultural properties that may occur if the Proposed Action is not selected is incalculable when compared with the modest cost that would be incurred by implementing this treatment.
JE-3 Jemez Traditional Cultural Assessment: See CO-1 above.
OO-1 Ohkay Owingeh Traditional Cultural Assessment: See CO-1 above.
SI-2 San Ildefonso Traditional Cultural Assessment: See CO-1 above.
SC-6 Santa Clara Traditional Cultural Assessment: See CO-1 above.
SD-2 Santo Domingo Traditional Cultural Assessment: See CO-1 above.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [X] No [ ] Rational for answer:

CO-1 Cochiti Traditional Cultural Assessment: The Proposed Action, Traditional Cultural Assessment will best meet the objective of ensuring that Traditional Cultural Properties not yet identified will be assessed for the potential to be affected by post-fire effects or by emergency stabilization treatments proposed to address effects to other values at risk. While no costs would be incurred by not implementing this treatment, there would be no evaluative process for determining if areas of religious or other cultural importance to tribes may be subject to irreparable harm.
JE-3 Jemez Traditional Cultural Assessment: See CO-1 above.
OO-1 Ohkay Owingeh Traditional Cultural Assessment: See CO-1 above.
SI-2 San Ildefonso Traditional Cultural Assessment: See CO-1 above.
SC-6 Santa Clara Traditional Cultural Assessment: See CO-1 above.
SD-2 Santo Domingo Traditional Cultural Assessment: See CO-1 above.

2011 Las Conchas Fire
Cost/Risk Analysis – Vegetation Treatments

Part 1. Treatment Cost

Treatments	Cost
Noxious Weed/Non-native Invasive Species Assessment & Control – Santa Clara	$18,000
Noxious Weed Monitor – Santa Clara	$10,000
Noxious Weed Monitor – Jemez	$10,000
Noxious Weed Monitor – Santo Domingo	$4,615
Livestock Closure & Compliance Monitoring	$7,000
Total	

Part 2. Probability of Stabilization Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Noxious Weed/Non-native Invasive Species Assessment & Control – Santa Clara	16,587 acres	90
Noxious Weed Monitor – Santa Clara	500 acres	90
Noxious Weed Monitor – Jemez	500 acres	90
Noxious Weed Monitor – Santo Domingo	100 acres	90
Livestock Closure & Compliance Monitoring	3 allotments	90

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives		X		
Residential & Commercial Property	X			
Water Quality & Soil Productivity				X
Cultural Resources	X			
Roads	X			

Proposed Action - Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives	X			
Residential & Commercial Property	X			
Water Quality & Soil Productivity		X		
Cultural Resources	X			
Roads	X			

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [**X**] No [ ] Rationale for Answer:

Noxious Weed/Non-native Invasive Species Assessment & Control – Santa Clara
The invasibility of plant communities burned in the Las Conchas Fire is high—the wildfire removed vegetative ground cover and created niches for noxious weed invasion. Identification and treatment of invasive species reasonably minimizes potential loss of wildlife habitat and ensures new noxious weed infestations do not degrade the ecological integrity of healthy rangelands, forestlands and sensitive riparian areas. Implementing Early Detection and Rapid Response (EDRR) will ensure new invasions are detected and control actions will be planned for.

Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo
Monitoring areas impacted by fire suppression activities for presence of noxious weeds and non-native invasive species ensures that Integrated Pest Management actions can be implemented quickly to prevent expansion of noxious weeds beyond their location.

Livestock Closure and Compliance Monitoring
Ensures that livestock are kept out of the burned areas to allow for natural recovery.

No Action Yes [ ] No [**X**] Rationale for answer:

Noxious Weed/Non-native Invasive Species Assessment & Control – Santa Clara
Without this treatment, those plant communities that are at risk of invasion could become infested with noxious weeds or non-native invasive species. Without EDDR small occurrences could increase in size and density which would make future control methods uneconomical and seriously threaten biodiversity of tribal lands, reduce forage for livestock, reduce recreational opportunities for Tribal members, and fragment wildlife habitat.

The No-Action alternative would prevent IPM from being implemented and delay requests for additional funding for any weed control from the Pueblo.

Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo
The probability of invasive species invading and occupying wildlife habitat and cultural plant collection sites is almost a certainty with a resulting loss of functionality of ecological indicators.

Livestock Closure and Compliance Monitoring
The probability of damage from unauthorized livestock to recovering vegetation, especially riparian areas and aspen stands will be significantly reduced.

Alternative(s) Yes [ ] No [**X**] Rationale for answer:

Noxious Weed/Non-native Invasive Species Assessment & Control – Santa Clara
Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo
Livestock Closure and Compliance Monitoring
There are no viable, cost-effective alternatives to this proposed treatment.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [**X**] No [ ] Rationale for answer:

Noxious Weed/Non-native Invasive Species Assessment & Control – Santa Clara
This is a low-cost treatment. Given the high probability of success, the cost is acceptable.

Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo
This is a low-cost treatment. Given the high probability of success, the cost is acceptable.

Livestock Closure and Compliance Monitoring

No Action Yes [ ] No [**X**] Rationale for answer:

Noxious Weed/Non-native Invasive Species Assessment & Control Santa Clara
Allowing invasive species to invade upland and riparian communities would result in altered ecological processes and a loss of wildlife habitat. Costs would be greater to control established weed populations rather than new infestations that are smaller in size.

Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo
Prevention of non-native invasive species will prevent the need for future control on Tribal lands. .

Livestock Closure and Compliance Monitoring

Alternative(s) Yes [No [**X**] Rationale for answer:

Noxious Weed/Non-native Invasive Species Assessment & Control Santa Clara
Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo
Livestock Closure and Compliance Monitoring
There is no viable alternative for this specification.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [**X**] No [ ] Rationale for answer:

Noxious Weed/Non-native Invasive Species Assessment & Control, Invasive Species Monitoring – Santa Clara, Jemez, and Santo Domingo, and

Livestock Closure and Compliance Monitoring are treatments identified in Part F of the BAER Plan. It is highly likely that the no action alternative would result in substantial damage to natural resources and result in further fragmentation of plant communities. Precluding invasive species from becoming established is necessary to ensure that the ecological integrity of plant communities and wildlife habitat is maintained. Allowing aspen stands, riparian areas and semi-arid rangelands still experiencing drought conditions to recover from the wildfire and improve in ecological integrity will help to stabilize soils and prevent further degradation of habitats.

2011 Las Conchas Fire

Cost/Risk Analysis – Floatable Debris, Irrigation Diversion, and Storm Patrol Treatments

Part 1. Treatment Cost

Treatments	Cost
Floatable Debris Removal Lower Santa Clara Canyon (SC-9), Santa Clara Pueblo.	$26,376
Floatable Debris Removal Upper Santa Clara Canyon (SC-16), Santa Clara Pueblo.	$191,920
Storm Patrol Santa Clara (SC-10), San Ildefonso (SI-6), Cochiti (CO-4) Pueblos.	$276,170
Portable Toilet Removal (SC-12) Santa Clara Pueblo.	$17,725
Irrigation Diversion Cleaning (SC-14) Santa Clara Pueblo.	$23,600
Total	**$535,791**

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Floatable Debris Removal Lower Santa Clara Canyon, Santa Clara Pueblo.	Lives & Property	70
Floatable Debris Removal Upper Santa Clara Canyon, Santa Clara Pueblo.	Lives & Property	90
Storm Patrol Santa Clara, San Ildefonso, Cochiti Pueblos.	Lives & Property	70
Portable Toilet Removal Santa Clara Pueblo.	Lives, Property, Natural Resources	70
Irrigation Diversion Cleaning Santa Clara Pueblo.	Property	70

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives				x
Property				x
Natural Resources		x		

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives			x	
Property			x	
Natural Resources		x		

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer: Treatments are focused on keeping the dams from overtopping which is the major threat to loss of lives and property downstream. Treatments reduces risks to lives and property.

No Action Yes [ ] No [ ] Rational for answer: Without treatments, the potential for loss of lives remains high.

Alternative(s) Yes [x] No [ ] Rationale for answer: Evacuate community for 2 to 5 years.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: Probability of success justifies costs in terms of reducing risk to lives and property.

No Action Yes [ ] No [ ] Rational for answer: No action keep risks lives and property high.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer: Treatments will be effective in reducing risks to lives and property.

2011 Las Conchas Fire
Cost/Risk Analysis – Structure Protection Treatments

Part 1. Treatment Cost

Treatments	Cost
Structure Protection at Santa Clara (SC-8), San Ildefonso (SI-3), and Cochiti Pueblos (CO-2)	$200,295
Sandbag painting at Santa Clara (SC-13) and San Ildefonso Pueblos (SI-7)	$6,900.
Total	**$207,195**

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Structural Protection at Santa Clara, San Ildefonso, and Cochiti Pueblos.	Feet of Protection	70
Sandbag painting at Santa Clara and San Ildefonso Pueblos.	Feet of Protection	95

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives				x
Property				x

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives			x	
Property			x	

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer: Yes, installation of structural protection such as K-rails and sandbags will reduce the risk to lives and property. Painting the sandbags will greatly increase the lifespan of the sandbags from 1 year to over 5 years, covering the span of fire effects.

No Action Yes [ ] No [x] Rational for answer: Without implementation of treatments, a greater threat to lives and property exists.

Alternative(s) Yes [ ] No [x] Rationale for answer: The only alternative would be evacuating the community for 3 to 5 years and considerable more costs than implementing the treatments.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: The probability of success justifies the cost given the alternative of loss of life and property or relocation of population.

No Action Yes [ ] No [x] Rational for answer: The value of lives and property and the probability of success far exceeds the costs of implementation

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer: Implementation of the proposed actions.

2011 Las Conchas Fire
Cost/Risk Analysis – Civil Engineering Assessments Treatments

Part 1. Treatment Cost

Treatments	Cost
Civil Engineering Risk Assessment (SI-5) San Ildefonso Pueblo.	$6,350
Engineering Assessment of Retention Ponds (SC-17). Santa Clara Pueblo.	$7,412
Prepare and Deliver Final BARC Map (CO-7) Cochiti Pueblo.	$0
Total	

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Civil Engineering Risk Assessment San Ildefonso Pueblo.	Critical Cultural Resouces	100
Engineering Assessment of Retention Ponds. Santa Clara Pueblo.	Lives & Property	100
Prepare and Deliver Final BARC Map Cochiti Pueblo.	Lives, Property, and Critical Natural and Cultural Resources	90

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives				x
Property				x
Critical Natural & Cultural Resources				x

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives	Unknown specification leads to treatment			
Property	Unknown specification leads to treatment			
Critical Natural & Cultural Resources	Unknown specification leads to treatment			

-

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer: Implementation of this treatment will lead to a recommend treatment or may recommend on treatment.

No Action Yes [ ] No [x] Rational for answer: No implementation of this treatment will leave unanswered questions about risk to lives and property.

Alternative(s) Yes [x] No [ ] Rationale for answer: Evacuate downstream communities for 2 to 5 years.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: Probability of success is 100 percent because implementation of this specification answers a question as yes or no to unknown threats.

No Action Yes [ ] No [x] Rational for answer: Without implementation critical answers to effects to lives, property, and critical natural and cultural resources will remain unanswered, potentially increasing risk to resources.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer: Implementation of these specification is the most cost-effective measure to answer questions that potentially have adverse consequences to resources.

2011 Las Conchas Fire
Cost/Risk Analysis – Aerial Mulching and Ponds Treatments

Part 1. Treatment Cost

Treatments	Cost
Aerial Straw Mulching (SC-18) Santa Clara Pueblo.	$2,014,400
Sediment Removal – Ponds (SC-5) Santa Clara Pueblo.	$342,720
Total	**$2,357,120**

$

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Aerial Straw Mulching Santa Clara Pueblo.	Lives & Property	70
Sediment Removal – Ponds Santa Clara Pueblo.		90

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives				x
Property				x

Proposed Action ☐ Treatments SuccessfullyImplemented (check one)

Resource Value	None	Low	Mid	High
Lives			x	
Property			x	

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer: Aerial mulching will reduce sedimentation to the dams reducing risk to downstream communities. Cleaning of dams will reduce risk of dams overtopping and catastrophic failure, reducing risk to downstream communities

No Action Yes [x] No [ ] Rational for answer: No action increases risk to lives and property to downstream communities.

Alternative(s) Yes [x] No [ ] Rationale for answer: Evacuate downstream communities for 2 to five years.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: Mulching is proven effective in reducing mobilization of sediment which will protect the dams below and thus reduce risk to downstream communities. Clearing sediment from the dams will reduce risk of failure and protect downstream communities.

No Action Yes [ ] No [x] Rational for answer: No action increases risk to lives and property in downstream communities.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer: Treatment is the most cost-effective measure to protect lives and property give the alternative of evacuation of communities.

2011 Las Conchas Fire

Cost/Risk Analysis – Early Warning System, Hazard Signs, and Portable Toilet Removal Treatments

Part 1. Treatment Cost

Treatments	Cost
Early Warning System Santa Clara (SC-11), San Ildefonso (SI-4), and Cochiti (CO-6) Pueblos.	$97,500
Hazard/Safety Signs Santa Clara (SC-1), San Ildefonso (SI-1), Cochiti (CO-5), and Jemez (JE-4) Pueblos.	$24,546.
Total	**$122,046**

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Early Warning System Santa Clara, San Ildefonso, and Cochiti Pueblos.	Each System	70
Hazard/Safety Signs Santa Clara, San Ildefonso, Cochiti, and Jemez Pueblos.	signs	90

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives				x
Property				x

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives		x		
Property			x	

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer: This action will greatly reduce the potential for loss of human life, and reduce potential for property damage.

No Action Yes [ ] No [x] Rational for answer: Taking on action keeps the risk for loss of life high, and also keeps the risk for loss of property high.

Alternative(s) Yes [x] No [ ] Rationale for answer: Evacuate community for 2 to five years.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: Risk reduction versus cost justify the cost.

No Action Yes [ ] No [x] Rational for answer: No action will allow for loss of life and this is not acceptable versus the cost.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer: Action is consistent with cost versus benefits in reduction of threats to loss of life and property.

2011 Las Conchas Fire
Cost/Risk Analysis – Hazard Sign Installation Treatments

Part 1. Treatment Cost

Treatments	Cost
Hazard / Safety Signs replacement and installation on Santa Clara, Jemez, Cochiti, and San Ildefonso	$24,546
	.
Total	**$24,546**

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Hazard / Safety Signs replacement and installation on Santa Clara, Jemez, Cochiti, and San Ildefonso	66 installed signs	100

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
LIves			x	
Residential and Commercial Property		x		
Water Quality and Soil Prodcuctivity		x		
Cultural Resources			x	
Roads			x	

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
LIves		x		
Residential and Commercial Property		x		
Water Quality and Soil Prodcuctivity		x		
Cultural Resources		x		
Roads		x		

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer:
The hazard signs are installed to alert the public of the hazards they may encounter in the fire area or due to downstream debris flows. These include “Road Closed”, “Entering Burn Area”, and “Water Crossing Signs”.

No Action Yes [ ] No [x] Rational for answer:
Without implementing this treatment the public will be less informed of the hazards they may face in the area and could be in danger.

Alternative(s) Yes [ ] No [x] Rationale for answer:
There are no viable, cost effective treatment alternatives.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: These are very cost effective methods for informing the public of hazards

No Action Yes [ ] No [x] Rational for answer: Signs are relatively cheap and inform the public of hazards. No action places the public in jeopardy and is not worth the cost savings

Alternative(s) Yes [ ] No [x] Rationale for answer:
There are no viable, cost effective treatment alternatives

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer:
Installations of the hazard signs should occur as outlined in the specifications SC-1, C0-5, JE-4, SI-1. This is a cost effective method to provide for public safety.

2011 Las Conchas Fire

Cost/Risk Analysis – Santa Clara Canyon Road and Culvert Treatments

Part 1. Treatment Cost

Treatments	Cost
Canyon Road Stream Crossing Protection/Dip Construction (SC-7) Santa Clara Pueblo.	$22,600
Spur Road Culvert Removal/Low Water Crossings (SC-19) Santa Clara Pueblo.	$21,000
Canyon Road Culvert Replacements (SC-21) Santa Clara Pueblo.	$56,570
Total	

Part 2. Probability of Rehabilitation Treatments Successfully Meeting ESR Objectives

Treatments	Units	%
Canyon Road Stream Crossing Protection/Dip Construction Santa Clara Pueblo.	Lives & Property	70
Spur Road Culvert Removal/Low Water Crossings Santa Clara Pueblo.	Lives & Property	70
Canyon Road Culvert Replacements Santa Clara Pueblo.	Lives & Property	75

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Mid	High
Lives				x
Property				x

Proposed Action ☐ Treatments Successfully Implemented (check one)

Resource Value	None	Low	Mid	High
Lives			x	
Property			x	

PART 3. SUMMARY

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes [x] No [ ] Rationale for Answer: These treatments are to allow maintenance for the dams at risk which are the major threats to the communities downstream.

No Action Yes [ ] No [x] Rational for answer: No action will reduce maintenance abilities to the dams increasing threats to downstream communities.

Alternative(s) Yes [x] No [ ] Rationale for answer: Evacuation of communities for 2 to 5 years.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes [x] No [ ] Rational for answer: Maintenance of roads allows for pond cleaning which reduces risk to the communities downstream has is considered effective.

No Action Yes [ ] No [x] Rational for answer: No treatment increases risk to downstream communities.

3. Which approach will most cost-effectively and successfully attain the Emergency Stabilization and Rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action Yes [x] No [ ] Rational for answer: Proposed action is most cost effective at protecting lives and property downstream.

Las Conchas BAER Closeout Meeting Southern Pueblo Agency July 25, 2011

Name	Organization	Phone Number	Email
Darryl Martinez	BIA · NIFC	505·331·3514	darryl.martinez@bia.gov
William Sims	BIA - SWR	505-563-3428	william.sims@bia.gov
T.J. Clifford	BLM - Boise	208-866-3204	tclifford@blm.gov
Steve Femmel	NPS - CA	530-242-3440	stephen_femmel@nps.gov
DAN HALL	BIA - PRO	916-978-6041	dan.hall@bia.gov
Becky Biglow	Forest Service - CA	760-873-2466	bbiglow@fs.fed.us
JOHN FANTA	BIA - SPA	505-563-3720	john.fanta@bia.gov
Ray BIRD	COCHITI PUEBLO	505.350.1761	bird_rndll@yahoo.com
MARS CHALAN	Cochiti Pueblo	505.321-1386	mars_chalan@pueblodecochiti.org
Allan Steinle	USACE	505-342-3282	allan.e.steinle@usace.army.mil
LINDA RIDDLE	US FS Jemez	575-829-3535	lriddle@fs.fed.us
Jose Tenorio	BIA/SPA	563-3659	Jose.Tenorio@bia.gov
John Galvan	POJ - Forestry	505 834-3211	John.L.galvan@jemezpueblo.org
HAROLD SANDO	Really - Jemez	834-7359	harold.w.sando@jemezpueblo.org
Anthony Armijo	Jemez Pueblo	834-7359	22armijo@jemezpueblo.org

Las Conchas BAER Closeout Meeting Southern Pueblo Agency July 25, 2011

Name	Organization	Phone Number	Email
Eddie Paulsgrave	USACE	505/342-3279	ed.l.paulsgrove@usace.army.mil
George Sisneros, Jr	1st Lt. Governor Pueblo of Jemez	575 834-7359	George.J.Sisneros@JemezPueblo.org.
Dwight Mody	Lt. Gov of Cochiti	(505) 205-4047	birdman_mody@yahoo.com
Susan Gant	USACE	505 342 3471	susan.w.gant@usace.army.mil
Ryan Gronewold	USACE	505-342-3340	Ryan.P.Gronewold@usace.army.mil
Sam Lovato	Santo Domingo	505 250-7455	lovato_sam@yahoo.com