

**Initial Study/Mitigated Negative Declaration
For the Proposed**

**HEAVY FIRE EQUIPMENT OPERATOR SAFETY TRAINING
FUELS REDUCTION and FIRELINE IMPROVEMENT PROJECT**

Tehama County, California

State Clearinghouse Number 2012042028



Prepared by: Adam Wyman, Environmental Coordinator
Tehama-Glenn Unit
604 Antelope Boulevard, Red Bluff, CA 96080

The California Department of Forestry and Fire Protection (CAL FIRE)
The Lead Agency Pursuant to Section 21082.1 of the
California Environmental Quality Act (CEQA)

CAL FIRE's Resource Management Program – Room #1516-37
P.O. Box 944246
Sacramento, CA 94244-2460
(916) 653-0839

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MITIGATED NEGATIVE DECLARATION

Introduction and Regulatory Context

Stage of CEQA Document Development

- Administrative Draft.** This CEQA document is in preparation by California Department of Forestry and Fire Protection (CAL FIRE) staff.
- Public Document.** This completed CEQA document has been filed by CAL FIRE at the State Clearinghouse on April 16, 2012, and is being circulated for a 30-day agency and public review period. The public review period ends on May 15, 2012. Instructions for submitting written comments are provided on Pages 5-6 of this document.
- Final CEQA Document.** This Final CEQA document contains the changes made by the Department following consideration of comments received during the public and agency review period. The changes are displayed in strike-out text for deletions and underlined text for insertions. The CEQA administrative record supporting this document is on file, and available for review, at CAL FIRE's Sacramento Headquarters which is located in the Natural Resources Building, 1416 Ninth Street, Room #1516-37 on the 15th Floor, Sacramento, California.

Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND¹) describes the environmental impact analysis conducted for the proposed HEAVY FIRE EQUIPMENT OPERATOR SAFETY TRAINING FUELS REDUCTION and FIRELINE IMPROVEMENT PROJECT. This document was prepared by California Department of Forestry and Fire Protection (CAL FIRE) staff utilizing information gathered from a number of sources including research and field review of the proposed project area and consultation with environmental planners and other experts on staff at other public agencies. Pursuant to Section 21082.1 of the California Environmental Quality Act (CEQA), the Lead Agency, CAL FIRE, has prepared, reviewed, and analyzed the IS/MND and declares that the statements made in this document reflect CAL FIRE's independent judgment as Lead Agency pursuant to CEQA. CAL FIRE further finds that the proposed project, which includes revised activities and mitigation measures designed to minimize environmental impacts, will not result in significant adverse effects on the environment.

Regulatory Guidance

This IS/MND has been prepared by CAL FIRE to evaluate potential environmental effects which could result following approval and implementation of the proposed HEAVY FIRE EQUIPMENT OPERATOR SAFETY TRAINING FUELS REDUCTION and FIRELINE IMPROVEMENT PROJECT. The proposed project is located approximately 18 miles west of Red Bluff and 12 miles north-northwest (NNW) of Paskenta in Tehama County, California. This document has been prepared in accordance with current CEQA Statutes (Public Resources Code [PRC] §21000 *et seq.*) and CEQA Guidelines (California Code of Regulations [CCR] §15000 *et seq.*).

An Initial Study (IS) is prepared by a lead agency to determine if a project may have a significant effect on the environment (14 CCR § 15063[a]), and thus, to determine the appropriate environmental document. In

¹ A list and definition of the acronyms and symbols used in this CEQA document is presented on page 78.

accordance with CEQA Guidelines §15070, a “public agency shall prepare ... a proposed negative declaration or mitigated negative declaration ... when: (a) The Initial Study shows that there is no substantial evidence ... that the project may have a significant impact upon the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions will reduce potentially significant effects to a less-than-significant level.” In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the proposed project will not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR). This IS/MND conforms to these requirements and to the content requirements of CEQA Guidelines Section 15071.

Purpose of the Initial Study

CAL FIRE has primary authority for carrying out the proposed project and is the lead agency under CEQA. The purpose of this IS/MND is to present to the public and reviewing agencies the environmental consequences of implementing the proposed project and describe the adjustments made to the project to avoid significant environmental effects or reduce them to a less-than-significant level. This disclosure document is being made available to the public, and reviewing agencies, for review and comment. The IS/MND is being circulated for public and agency review and comment for a review period of 30 days as indicated on the *Notice of Intent to Adopt a Mitigated Negative Declaration* (NOI). The 30-day public review period for this project begins on April 16, 2012 and ends on May 15, 2012.

The requirements for providing an NOI are found in CEQA Guidelines §15072. These guidelines require CAL FIRE to notify the general public by utilizing at least one of the following three procedures:

- Publication in a newspaper of general circulation in the area affected by the proposed project,
- Posting the NOI on and off site in the area where the project is to be located, or
- Direct mailing to the owners and occupants of property contiguous to the project.

CAL FIRE has elected to utilize the second of the three notification options. The NOI was posted at three prominent locations on and off site in the area where the project is located for the entire 30-day public review period. The three locations where the NOI was posted during the 30-day public review period are:

1. At the CAL FIRE Tehama-Glenn Unit Headquarters office in the public lobby reception area.
2. At a prominent location near the junction of Lowery Road and Colyear Springs Road where it can readily be seen by anyone passing through this area.
3. At the Tehama County Clerk/Recorder’s Office in Red Bluff, CA.

A complete copy of this CEQA document was made available for review by any member of the public requesting to see it at Locations #1 and #3 above. An electronic version of the NOI and the CEQA document were made available for review for the entire 30-day review period through their posting on CAL FIRE’s Internet Web Pages at:

http://www.fire.ca.gov/resource_mgt/resource_mgt_EPRP_PublicNotice.php

If submitted prior to the close of public comment, views and comments are welcomed from reviewing agencies or any member of the public on how the proposed project may affect the environment. Written comments must be postmarked or submitted on or prior to the date the public review period will close (as

indicated on the NOI) for CAL FIRE's consideration. Written comments may also be submitted via email (using the email address which appears below) but comments sent via email must also be received on or prior to the close of the 30-day public comment period. Comments should be addressed to:

Adam Wyman
Environmental Coordinator
California Department of Forestry and Fire Protection, CAL FIRE
Tehama-Glenn Unit
604 Antelope Boulevard
Red Bluff, CA 96080
Phone: (530) 528-5106
Email: Adam.Wyman@fire.ca.gov

After comments are received from the public and reviewing agencies, CAL FIRE will consider those comments and may (1) adopt the Mitigated Negative Declaration and approve the proposed project; (2) undertake additional environmental studies; or (3) abandon the project. If the project is approved and funded, CAL FIRE could design and construct all or part of the project.

Project Description and Environmental Setting

Project Location:

The project area is located in western Tehama County, Sections 1, 2, 11 and 12; T25N-R7W; and in Section 36; T26N-R7W all MDBM, within the Lowrey 7.5 USGS Quadrangle. The project is located on the private land of two separate landowners who are providing CAL FIRE the use of portions of their land under mutual agreement. Both land owners are within the Sunflower Coordinated Resource Plan (SCRMP). The access to the project area from Red Bluff is travel west on Red Bank Road to Lowrey Road to Colyear Springs Road, to the Burrows Ranch on Colyear Springs Road. The GPS coordinates for the Incident Command Post (ICP) are: N40' 02.4702" – W122' 35.0397".

Background and Need for the Project:

The need for this project is twofold. First is to provide safety training to Heavy Fire Equipment Operators (HFEO) as per pending revision to Handbook 4000. Second is to establish fuel breaks to prevent large catastrophic wildfires and the resulting damage to watershed, wildlife habitats and to soils from excessive heat. The HFEO Safety Training was initiated after a fatal 2007 accident involving a HFEO constructing a fire line in steep brush covered terrain. The dozer became stuck in loose soils. Another CAL FIRE dozer came to assist the stuck dozer. The assisting dozer lost traction rolled multiple times to the bottom of the drainage. The HFEO experienced a fatal wound during the accident.

A CAL FIRE Serious Accident Review Team found a disparity of experience among operators working in steep terrain and in their knowledge of soils and soils behavior on disturbed ground. A Board of Review (BOR) concluded that additional training for all operators should be mandated to ensure a consistent level of knowledge and skill to maintain a safe and effective firefighting force. A field site with a range of slopes and soil conditions such as on the Sunflower CRMP can provide a superior training ground to meet the intent of the BOR recommendations. Fuel modification projects can meet the direction and objectives as established

by department policies and as required under CAL-OSHA Title 8, Section 3203. The required annual safety training will support existing and non-existing fuel break construction as planned for in the SCRMP.

Project Objectives:

The objective(s) of the project is to:

- Train and provide 3-year recurrence training to maintain the skills of CAL FIRE Heavy Fire Equipment Operators (HFEO) in the operation of equipment owned by the Department including but not limited to; bulldozers, backhoes, graders, water tenders, and transports;
- Provide field safety training in fire line operations that includes the construction of fuel breaks, roads, watercourse crossings, safety zones, and helicopter landing zones;
- Provide 24 hours of classroom safety presentations on dozer operations, winching, loading and unloading, securing equipment, soil identification, environmental assessment, archaeological preservation, map reading, night operations, habitat sensitivity assessment, watercourse protection, crossing construction, fire line construction and rehabilitation, erosion control installment, resource management, radio and global positioning satellite (GPS) use, and others;
- Provide training on measures to protect the environment during fire control operations;
- Improve CAL FIRE's ability to respond to California's changing fire protection needs.

Project Start Date:

May 2012.

Project Description:

The proposed project encompasses and provides a location for California Department of Forestry and Fire Protection's (CAL FIRE) mandated training program for HFEO's to ensure they have familiarity with and are adequately trained to safely operate all the heavy equipment owned by the Department. The HFEO Safety Training is an annual field skill refreshment workshop whose objective is to ensure that HFEOs have training and minimum operating skills when working in varying terrain, soil and vegetation types. The HFEOs utilize several models of bulldozers, graders, backhoes and loaders during the safety training. A component the training is to cross-train operators with all the diverse equipment used by CAL FIRE. The project includes training in fire line operations, fuel break construction, road construction and maintenance, watercourse crossings, safety and landing zone construction. Students additionally learn techniques to limit or avoid environmental degradation during fire control operations such as identification and avoidance of archaeological sites; water quality protection such as providing buffer areas for watercourses and proper watercourse crossing installation and removal; erosion control techniques such as proper waterbreak installation and spacing; and identification and avoidance of sensitive areas such as wetlands and sensitive wildlife habitat.

The project area is located on the Burrows Ranch in rural western Tehama County. The community of Red Bluff, is approximately 18 miles to the northeast and Paskenta is approximately 6 miles south from the project. The Burrows Ranch has been primarily used for cattle grazing, growing agricultural crops, and recreation. The proposed project will develop fuel breaks, and provide for road improvement and watercourse crossing repairs for the land owners within the greater SCRMP. The fuel breaks produced from

the training project will tie into existing fuel breaks that have been completed or are currently being funded and developed by the SCRMP.

The safety training project under this IS/MND supports the SCRMP project with a coordinated approach to mechanically clear and crush chaparral brush along prominent ridgelines as part of a larger fuel break system and/or to clean up existing fuel breaks. An objective is to clear the surface vegetation with minimal soil disturbance. It is anticipated that crushed and cleared brush will be burned approximately 3 to 5 years after removal.

Environmental Setting of the Project Region:

The HFEO Safety Training Fuel Break project area is within western Tehama County's chaparral belt which includes a fringe of oak-woodlands. Elevations within the project area range from between 400' to almost 1,000'. Slopes range from gentle 0-20% on ridge tops; to steep, up to 65%. The area's topography is broken into numerous narrow canyons and short sub-ridges. The area is designated as open space in the Tehama County General Plan and is zoned for ranching and wildlife production. Vegetation within the project impact area consists generally of mature chaparral although scattered grasslands and small stands of blue oaks and Gray Pine are found in the area, particularly at its north end near Ball Rock Road.

Variation in plant species and vegetation density cause variation in wildfire intensity and effect. South slopes are characteristically chamise-dominated mixed chaparral which include ceanothus and foothill pine. On north slopes, ceanothus and live oak dominate other chaparral species. Where fuels have been treated, mosaic patches of chaparral ranging from 5 acres to 200 acres of various age classes have been created. These mosaics offer greater habitat diversity for wildlife and reduce the threat from wildfire.

The project region is geologically complex as a result of a long sequence of sedimentary deposits and uplifting and subsequent erosion. Available geologic mapping (Blake and others, 1999, *Geologic map of the Red Bluff 30' X 60' quadrangle, California*: US Geological Survey, Geologic Investigations Series, Map I-2542, Scale 1:100,000) shows the field area to be underlain entirely by Early Cretaceous and late Jurassic mudstone of the Elder Creek terrane. Associated with the mudstone are sandstone and conglomerate beds. The rocks underlying the project area are sedimentary rocks consisting mainly of mudstone, with minor siltstone and sandstone, and locally-abundant nodules, lenses, and/or thin beds of limestone. No serpentine or metamorphic rocks were mapped within the project area. The soils in the project area are formed from this sedimentary parent material.

Permeability is slow and the available water holding capacity and fertility are low. Where runoff is allowed to concentrate with rapid flow, the erosion hazard is often high to extreme. On ridge areas and on gentle slopes, erosion hazard is moderate. Soils are shallow, ranging 6-20 inches in depth. Rock outcrops are present in certain areas, usually in draws or canyons where erosion has exposed such elements. Areas of surface rock have created patches of sparse vegetation.

The project area is located in a rural, remote area with a few scattered large ranches. The communities nearest to the project are: City of Red Bluff located approximately 18 miles to the northeast; the community of Paskenta located approximately 6 miles south of the project. The principal watercourses within the proposed project vicinity are Red Bank Creek flowing east toward the Sacramento River and Elder Creek, which also drains to the east.

Description of the Local Environment:

The ecological setting of the project is characterized as a foothill mixed chaparral and includes a fringe of California blue oak-woodland with introduced grasses/forbs. South-facing slopes are chemise-dominated with significant additions of green and white manzanita, wedgeleaf ceanothus and grey pine. North slopes are characterized with a lesser amount of chemise with a more mixed-chaparral type which includes live oak, yerba santa, poison oak and the above listed species.

Vegetative Response. The species present are considered to be fire-adapted or fire dependent. Adaptive characteristics include early seeding, hard seed, and bulb or root sprouting. Chemise and live oak are prolific stump sprouters as well as strong seeders. Poison oak and yerba santa sprout from rhizomes. Green manzanita is a moderate sprouter. White manzanita, foothill pine, ceanothus and buckeye germinate from seed. The Sunflower area likely has retained most of its pre-European natural fire frequency. Sunflower's isolation probably supports a history of periodic moderate-intensity and stand-replacing summer fires. The historic return frequency was probably in the 30-100 year frequency range. Even with CAL FIRE's modern suppression efforts, this return interval range is probably still in effect because this vegetation type has been found to burn under severe fire conditions that overwhelm the best suppression efforts. The distinction from the prehistoric past is that the moderate intensity wildfires have been eliminated. Anthropological evidence indicates during the pre-European period, native Californians may have used fire in this vegetation type to clear access, drive game, and improve habitat. The ecology of the local environment has been modified by herbivore grazing, prescribed burning, construction of a large network of road, trails and fuelbreaks, along with fire suppression over the last forty years.

Current Land Use and Previous Impacts:

The property where the project is located is designated as open space in the Tehama County General Plan and is zoned for ranching and wildlife production. The current use of property is light grazing and hunting. The land has been under management of a Coordinated Resource Management Plan (Sunflower CRMP) for many years, and more recently the landowner agreed to sell a Conservation Easement in order to protect the land long-term from subdivision.

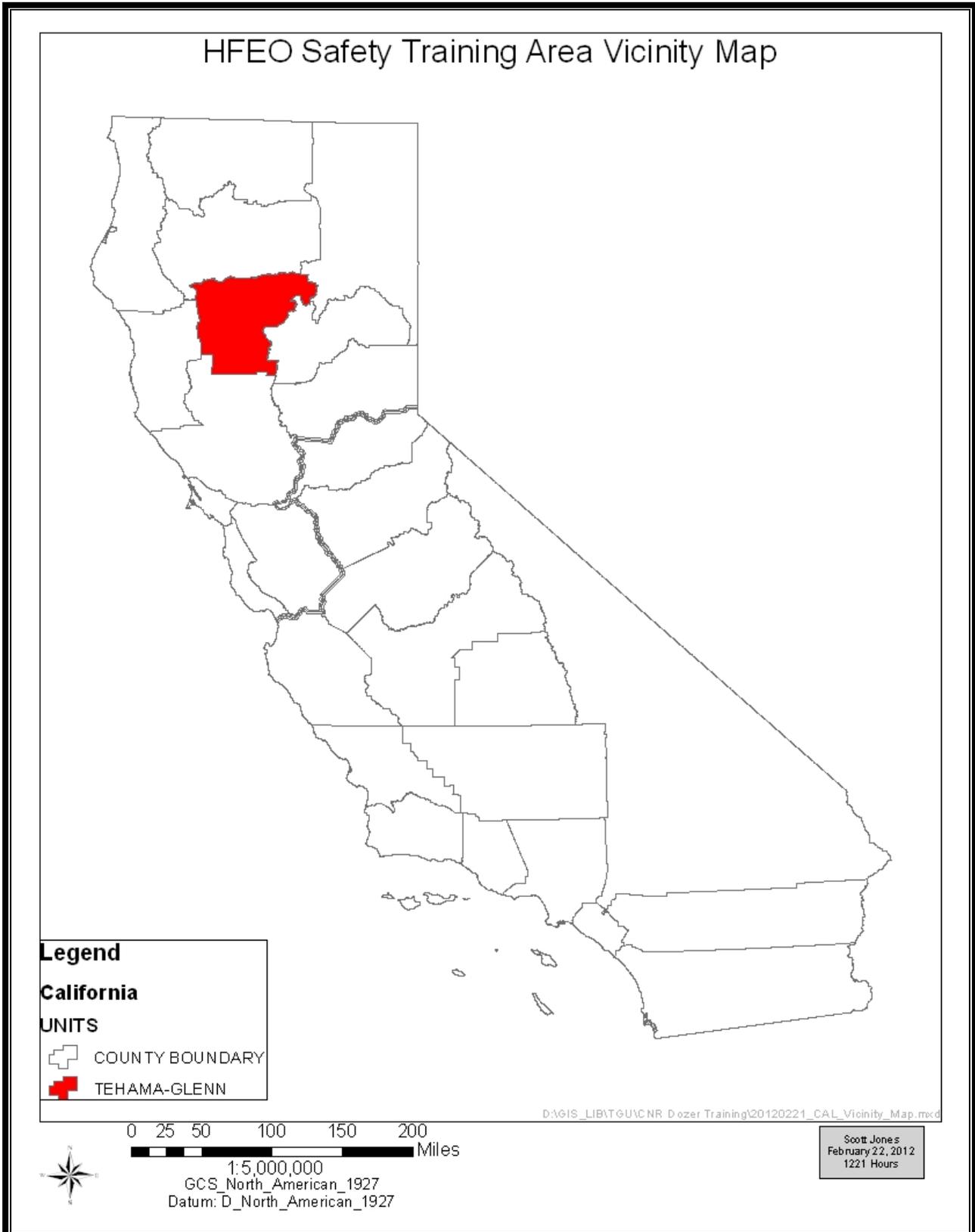


Figure 1. Project Vicinity Map. Map of California showing CAL FIRE’s Tehama-Glenn Unit in Red, which contains the proposed project area. Figure 2 below shows more detail.

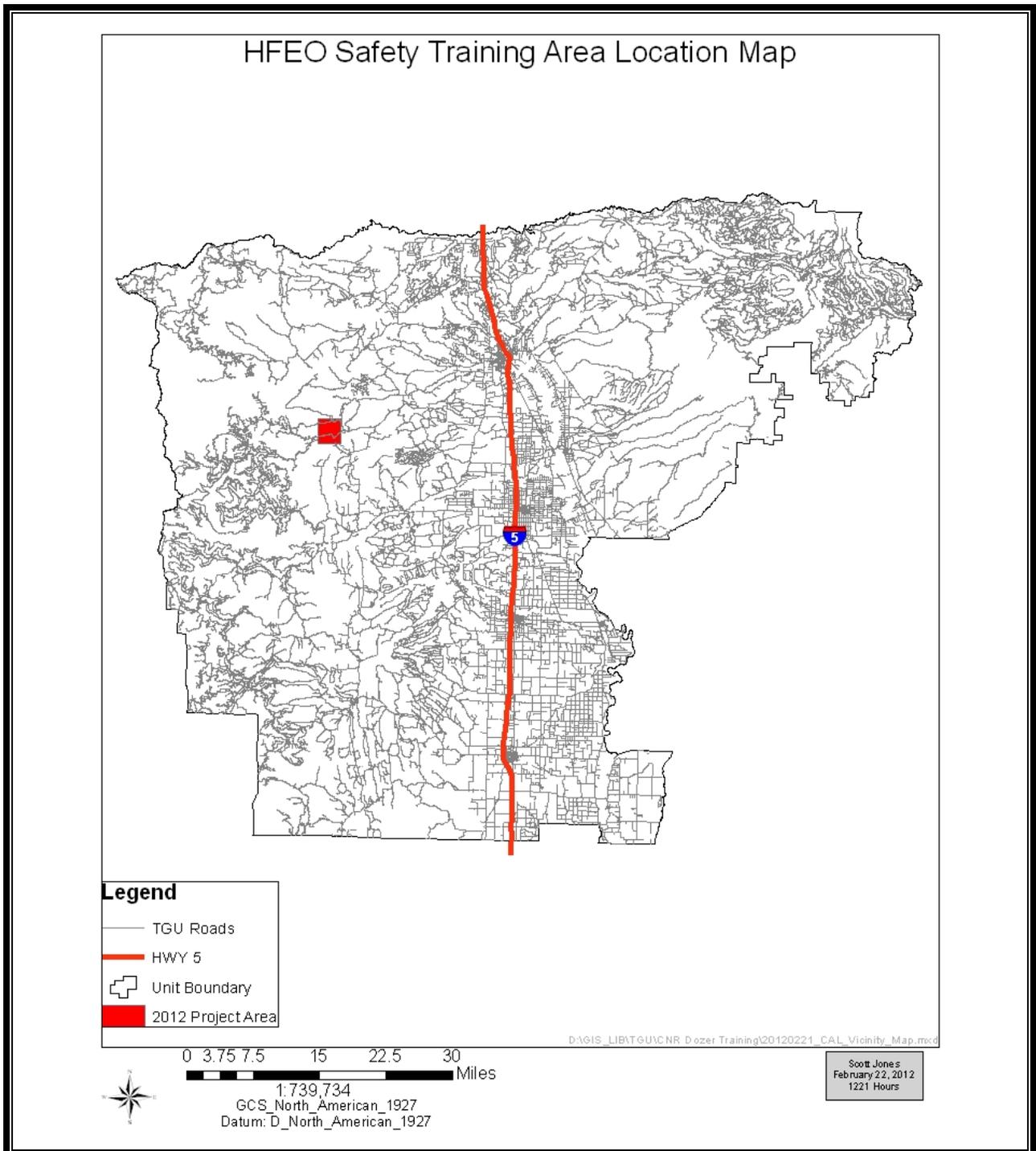


Figure 2. Project Location Map, the project is within western Tehama County, approximately 20 miles west of Interstate 5 and the City of Red Bluff.

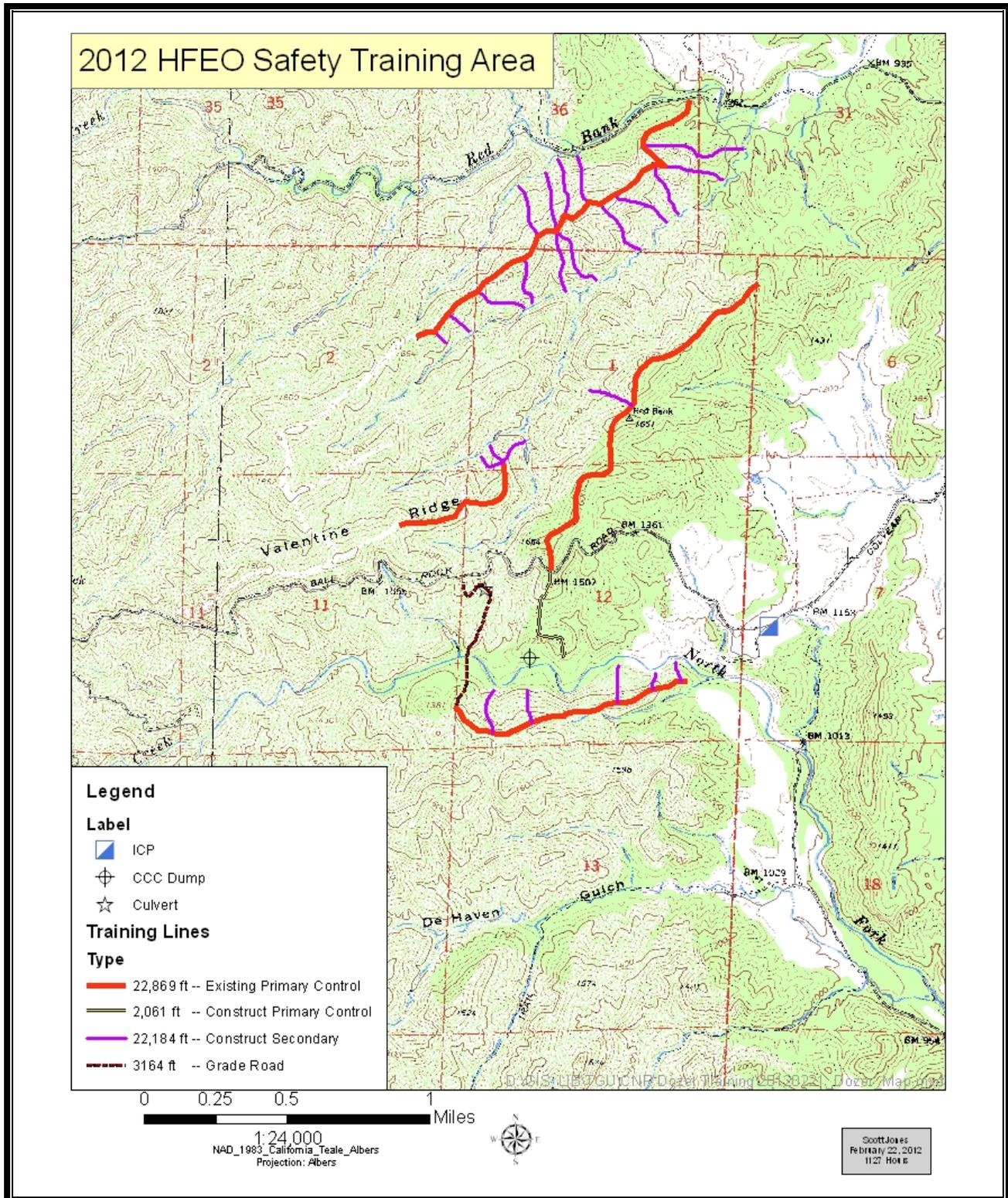


Figure 3. Project Map, shows all proposed project activities and locations. ICP indicates Incident Command Post which will be used for personnel briefings, staging of equipment, fuel supplies, etc. (Lowery USGS 7.5 Min. Quadrangle)

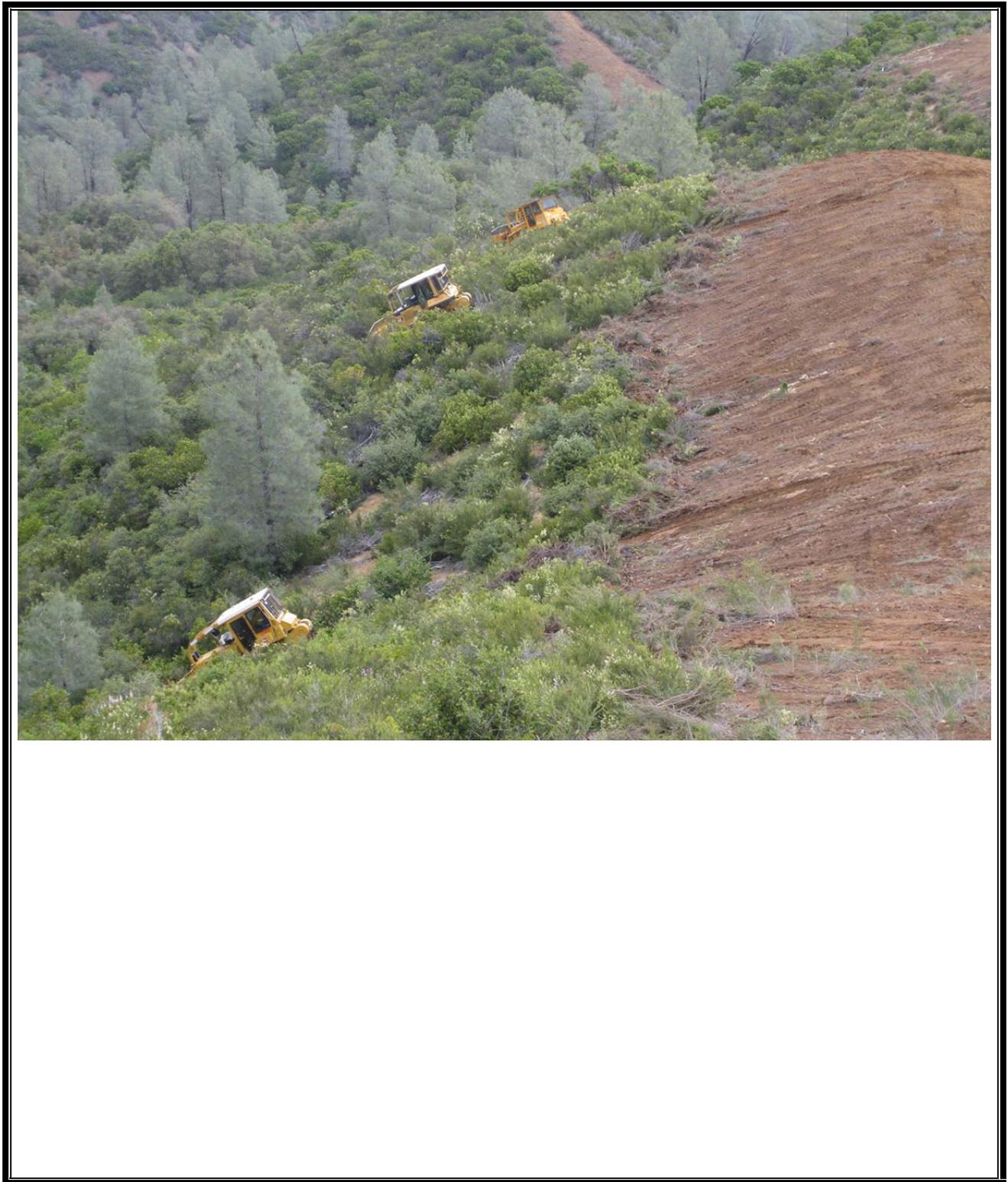


Figure 4. Dozers performing secondary line construction below a primary control line.

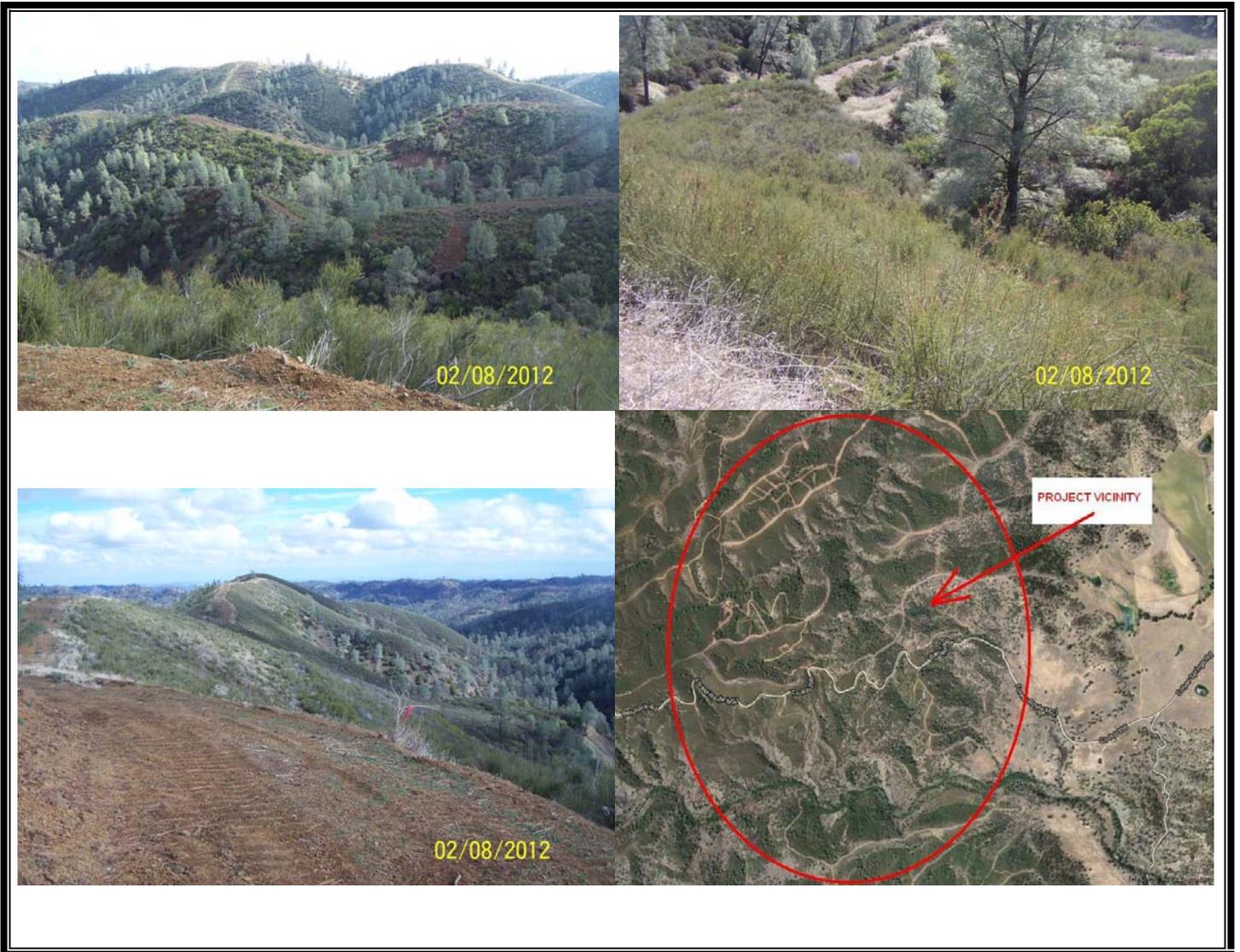


Figure 5. Project setting and characteristics of the site are shown in these (4) photos, designed to illustrate the topography and vegetation conditions. The Google aerial image with the red circle shows the Project Vicinity containing all areas of the project and the locations where the other 3 photos were taken.



Figure 6. Example of dozer operations in a similar topography and vegetation type.



Figure 7. Example of completed dozer line prior to the construction of waterbars.



Figure 8. Example of completed ridge-top dozer line prior to the construction of waterbars.



Figure 9. Example of completed dozer line prior to the construction of waterbars.



Figure 10. Example of the Incident Command Post. The ICP will be used for personnel briefings, staging of equipment, fuel, supplies, etc. This area is shown in Figure 3 map, Section 7.



Figure 11. Example of the road grader and the type of erosion control work proposed.



Figure 12. Site of Watercourse Crossing, Culvert Installation. The ATV and dog are located in the watercourse channel where a new culvert installation is proposed. The bottom photo is looking downstream.

Conclusion of the Mitigated Negative Declaration:

Environmental Permits and Other Public Agencies Who's Approval May be Required:

The proposed project may require the following environmental permit(s).

1. A non-discretionary burn permit to burn brush piles will be obtained from the Tehama County Air Pollution Control District (Burn Permit #0786 already on file in Tehama-Glenn Unit Headquarters).
2. A Streambed Alteration Agreement (1600 permit) may be required from the California Department of Fish and Game to authorize alterations along the bank and channel for permanent watercourse crossings.
3. Regional Water Quality Control Board may request an application for a "discharge waiver."

Mitigation Measures:

The following fourteen (14) mitigation measures will be implemented by CAL FIRE to avoid or minimize environmental impacts. Implementation of these mitigation measures will reduce the environmental impacts of the proposed project to a less than significant level. These mitigation measures appear in **Appendix A** along with a **Mitigation Monitoring and Reporting Plan (MMRP)**. These mitigation measures will also appear within the **ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS** section (checklist) where applicable.

Mitigation Measure #1 (related to air quality): The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from the Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the vegetative fuels are sufficiently cured to assure a clean burn. CAL FIRE will determine the burn-day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

Mitigation Measure #2 (related to biological resources, geology): Red Bank Creek and perennial tributaries shall have a 150-foot no treatment area buffers on either side of the channel. All other watercourses, dry gulches, seeps and springs shall have 25-foot no treatment buffers established. Buffers will be established as directed by the CAL FIRE Project Manager prior to the implementation of any project work. Equipment may be excluded at established crossings. The CAL FIRE Project Manager or a professional botanist will inspect crossing sites prior to equipment entry to ensure that special status species are not impacted and that there are no significant impacts to riparian vegetation. If special status species are discovered at a crossing site, another more appropriate site will be located and used. Otherwise, the equipment will use existing crossings.

Mitigation Measure #3 (related to air quality, biological resources, geology): During the development of fuel breaks, the dozer blade will be maintained above ground throughout the project area. This effort will assist in dust reduction and reduce risk to biological resources. Frequent inspections of blade height will be made by the CAL FIRE safety training evaluator/mentor during the execution of the training work to ensure dozer operator adherence.

Mitigation Measure #4 (related to biological resources): Any List 1, List 2 or List 3 Sensitive Plants found within the project area will be avoided with a equipment exclusion zone during execution of project work. Likelihood of species presence and need for survey will be evaluated through scoping efforts that consider species habitat requirements and known locations. On discovery of a sensitive species within the project area site-specific avoidance measures will be developed by the CAL FIRE Project Manager in consultation with a professional botanist or the CDFG. The dimension of exclusion zones will be tailored to the growth characteristics and needs of the specific species. Qualifications for personnel who make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled **“Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities”**. The result of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file.

Mitigation Measure #5 (related to biological resources): Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, vegetation removal will be minimized in order to reduce impact to stream channels, stream banks, and riparian vegetation. Verification of flagging prior to project work as well as inspection once project work has been completed will be made by the CAL FIRE Project Manager and documented in the project file.

Mitigation Measure #6 (related to biological resources): In order to protect potential nesting habitat, trees larger than 10 inches diameter breast height (DBH) will not be removed in association with the project. Nests found during the nesting season (February through August 30) will be evaluated by the CAL FIRE Project Manager for use by listed species or species of concern. If an occupied nest of a listed bird (ESA, CESA, or Board of Forestry “Sensitive Species”) is discovered during project activities, vegetation disturbing activities shall be suspended in the vicinity of the nest. Site-specific protection measures, including equipment use buffers will be developed in consultation with CDFG personnel, and implemented prior to mechanical disturbance.

Mitigation Measure #7 (related to cultural resources): Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archaeological, prehistoric, historic or paleontological resource sites along the path of the fuel break or within 100 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archaeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site has been adequately assessed for significance. Findings of significance will be prepared, recorded and submitted to appropriate agencies along with all the tribes listed on the current Native American contact list at the discretion of the professional archeologist. Findings will also be recorded in the project files.

Mitigation Measure #8 (related to cultural resources): If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared, and recorded and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the

project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

Mitigation Measure #9 (related to geology and erosion): Waterbars shall be installed on slopes of 30% or greater where 800 sq. ft. or more of bare mineral soil has been exposed by project activities. Waterbars will be installed where trails lead into or have access to a watercourse. An adequate number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. The waterbar spacing shall be applied at the same standard and spacing requirements found in the California Forest Practice Rules under the requirements for the “Moderate” erosion hazard rating. Constructed trails on side slopes shall be located where impacts can be minimized and their numbers kept to the minimum number required. Waterbar installation will be inspected by the CAL FIRE Project Manager prior to completion of the project and prior to the first precipitation event in order to assure adequacy. Condition and operation of waterbars will be recorded in the project files.

Mitigation Measure #10 (related to geology and erosion): Any area of newly exposed soil of over 800 square feet that has the potential to transfer sediment to a watercourse shall be mulched with brush to minimize the potential for erosion. Hand water bars will be installed to divert water onto stable vegetation and away from watercourses, if needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to the season’s first precipitation event and recorded in the project file.

Mitigation Measure #11 (related to hazardous materials): The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from watercourses as well as areas that could potentially flow into a watercourse in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be made available at refueling and maintenance areas. Fueling will occur over an impermeable membrane to capture any accidental minor spills. Equipment shall be stored and maintained within properly cleared areas. Transportation of fuel will be in approved DOT containers. CAL FIRE personnel will inspect refueling areas to assure compliance Mitigation Measure #11. These inspections will also verify the sites’ adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Mitigation Measure #12 (related to hazardous materials): Diesel fuel shall not be transported across a live stream, except for in the tanks of the equipment being operated. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across any perennial watercourse.

Mitigation Measure #13 (related to hazardous materials): Operators providing equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of watercourses flowing water. Any inspection reports shall be submitted to the CAL FIRE Project Manager along with evidence of any repairs required and completed before returning equipment to project work sites. Inspection reports will be incorporated into the project files.

Mitigation Measure 14 (related to water quality): Equipment will cross stream buffer zones only at previously flagged and designated crossing sites where soils are found to be firm and where disturbance to riparian vegetation is minimal. Designation and flagging of crossing sites will be made by the CAL FIRE Project Manager. Adherence to Mitigation Measure #14 will be assured through periodic inspection of project work by the CAL FIRE Project Manager.

Summary of Findings:

This IS/MND has been prepared to assess the project's potential effects on the environment and an appraisal of the significance of those effects. Based on this IS/MND, it has been determined that the proposed project will not have any significant effects on the environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project will have no effect related to aesthetics, agriculture and forest resources, land use and planning, mineral resources, population and housing, public services, recreation, transportation and traffic, utilities and service systems.
2. The proposed project will have a less than significant impact on greenhouse gas emissions, and noise.
3. Mitigation is required to reduce potentially significant impacts related to air quality, biological resources, cultural resources, geology and soils hazards, hazardous materials, and hydrology and water quality.

The Initial Study/Environmental Checklist included in this document discusses the results of resource-specific environmental impact analyses which were conducted by the Department. This Initial Study revealed that potentially significant environmental effects could result from the proposed project; however, after scoping, CAL FIRE revised its project plans and has developed mitigation measures which will eliminate impact or reduce environmental impacts to a less than significant level. CAL FIRE has found, in consideration of the entire record, that there is no substantial evidence that the proposed project as currently revised and mitigated would result in a significant effect upon the environment. The IS/MND is therefore the appropriate document for CEQA compliance.

INITIAL STUDY/ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION					
1. Project Title:	HEAVY FIRE EQUIPMENT OPERATOR SAFETY TRAINING FUELS REDUCTION and FIRELINE IMPROVEMENT PROJECT				
2. Lead Agency Name and Address:	California Department of Forestry and Fire Protection P.O. 944246 Sacramento, CA 94244-2460				
3. Contact Person and Phone Number:	Dan Foster (916) 653-0839				
4. Project Location:	Western Tehama County, Sections 1, 2, 11 and 12; T25N R7W, Section 36 T26N R7W-MDBM, within the Lowrey 7.5 USGS Quadrangle.				
5. Project Sponsor's Name and Address:	N/A (CAL FIRE is project sponsor and lead agency)				
6. General Plan Designation:	O: Open Space				
7. Zoning:	U: Unclassified/(Wildland and Ranches)				
8. Description of Project: See Pages 7-9 of this document					
9. Surrounding Land Uses and Setting:	Refer to page 9 of this document				
10: Other public agencies whose approval may be required:	See pages 22 of this document				
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:					
<p>The environmental factors checked below are the ones which would potentially be affected by this proposed project and were more rigorously analyzed than the factors which were not checked. The results of this analysis are presented in the detailed Environmental Checklist which follows.</p>					
<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry Resources	<input checked="" type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input checked="" type="checkbox"/>	Geology / Soils
<input checked="" type="checkbox"/>	Greenhouse Gas Emissions	<input checked="" type="checkbox"/>	Hazards & Hazardous Materials	<input checked="" type="checkbox"/>	Hydrology / Water Quality
<input type="checkbox"/>	Land Use / Planning	<input type="checkbox"/>	Mineral Resources	<input checked="" type="checkbox"/>	Noise
<input type="checkbox"/>	Population / Housing	<input type="checkbox"/>	Public Services	<input checked="" type="checkbox"/>	Recreation
<input checked="" type="checkbox"/>	Transportation / Traffic	<input type="checkbox"/>	Utilities / Service Systems	<input type="checkbox"/>	Mandatory Findings of Significance

DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

I find that although the proposed project **COULD** have a significant effect on the environment, there **WILL NOT** be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

I find that the proposed project **MAY** have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Daniel G. Foster

April 16, 2012

Daniel G. Foster, Senior Environmental Planner
Environmental Protection Program, Room #1516-37
Department of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460
(916) 653-0839

Date Signed

ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Will the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which will adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Will the project have a substantial adverse effect on a scenic vista?

No Impact: The proposed project site is not visible to any members of the public except from an extreme distance. The proposed project is located on private property where the public does not have permission to pass. The project site may be visible from a considerable distance (2-5 air miles away) if the public were to drive on remote dirt/gravel roads (the M-2 road) up to high elevations and look downward unto the site. There are few users of the Colyer Springs Road or other travelers in the Franklin Point/Valentine Ridge area. There are no established or designated scenic vistas in the area.

b) Will the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact: No designated scenic vistas, rock outcroppings, or historic buildings exist in the project area. There are no scenic highways within the project area or view shed, and the topography is broken making visibility of the project area impossible from any highway.

c) Will the project substantially degrade the existing visual character or quality of the site and its surroundings?

No Impact: The project activities are an extension of many years of similar types of activities dating back to the 1970's.

d) Will the project create a new source of substantial light or glare which will adversely affect day or nighttime views in the area?

No Impact: No light or glare changes are expected. No structures or permanent fixtures will be installed.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forest Resources.				
<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The proposed project will not involve the conversion of any existing agricultural lands, including grazing. The site contains no prime or unique farmland or soil types considered to have significant agricultural potential.

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact. Zoning or land uses will not change as a result of this proposed project.

c) Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))

No Impact. Zoning or land uses will not change as a result of this proposed project.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. There are no areas of the project that meet the definition of forest land. No commercial conifer trees are proposed for cutting or removal.

e) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The project is located on land that is currently used as open space for grazing, recreation and coordinated resource management program (CRMP) efforts designed to foster uses consistent with the activities proposed in this project.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations. Will the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Information about Air Quality

The project site is located in Tehama County, which lies in the Sacramento Valley Air Basin and is under the jurisdiction of the Tehama County Air Pollution Control District (TCAPCD). In general, the air quality in Tehama County is good, however Tehama County as a whole does not fully meet state health standards for clean air, although no specific data is available for the project area. Ozone and particulate matter are the air pollutants of greatest concern. The county's climate and topography that traps Sacramento Valley pollution, along with smoke from recent wildfires, all contribute to the air quality problem.

Ozone is an invisible pollutant formed by chemical reactions involving nitrogen oxides, reactive hydrocarbons and sunlight. It is a powerful respiratory irritant that can cause coughing, shortness of breath, headaches, fatigue and lung damage, especially among children, the elderly, and the sick. Particulate matter is fine mineral, metal, soot, smoke and dust particles suspended in the air. For health reasons, the greatest concern is with inhalant particulate matter less than 10 microns in diameter (PM10), which can lodge in the most sensitive areas of the lungs, and cause respiratory and other health problems.

Air quality within Tehama County is regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) at the federal and state levels, respectively, and locally by the TCAPCD. The TCAPCD seeks to improve air quality conditions in the County through a comprehensive program of planning, regulation, enforcement, technical innovation and education to promote the understanding of air quality issues. The clean air strategy of the TCAPCD includes the development of programs for attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of

permits for stationary sources. The TCAPCD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the federal Clean Air Act (CAA) federal Clean Air Act Amendments of 1990 (CAAA) and the California Clean Air Act (CCAA).

In compliance with the CCAA, air districts submit Air Quality Attainment Plans (AQAP) primarily to address ozone non-attainment. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plans must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The AQAPs stress attainment of ozone standards and focus on strategies for reducing reactive organic gas and nitrogen oxide emissions. They promote active public involvement, enforcement of compliance with district rules and regulations, education in the public and private sectors, development and promotion of transportation and land use programs designed to reduce vehicle miles traveled within the region, and implementation of stationary and mobile source control measures. The AQAPs become part of the State Implementation Plan in accordance with the requirements of the CAAA. The TCAPCD has not established quantitative thresholds of significance for the purpose of CEQA with respect to short-term construction emissions of criteria air pollutant or precursor emissions, but instead emphasizes comprehensive control measures which were reviewed for this Initial Study.

Discussion

a) Will the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact with Mitigation.

As per the TCAPCD, Tehama County is designated as being either “unclassified” or having met attainment with all federal standards and state standards with the exception of state PM10. The TCAPCD has prepared an AQAP which it implements, through its rules and permitting program with the goal of achieving compliance, the state PM10 standard and the maintenance of the other standards. This project will not obstruct implementation of the TCAPCD’s air quality plan.

Mitigation Measure #1 (related to air quality): The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from the Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the vegetative fuels are sufficiently cured to assure a clean burn. CAL FIRE will determine the burn-day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

b) Will the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact with Mitigation. Operation of the project will not result in a net increase of long-term regional organic gas, nitrogen oxide, PM10, or local carbon monoxide emissions from area or mobile sources. The long-term operation of the proposed project will result in temporary operations of approximately 12 pieces of heavy equipment annually for a 3-5 day period.

Mitigation Measure #1: As listed above applies.

c) Will the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant with Mitigation. The project will generate short-term emissions of dust from driving roads and utilizing heavy equipment during the construction/maintenance of firebreaks, firelines, safety zones, etc. This will occur during a relatively short period of time during the month of May when soils may have enough moisture preventing dust from occurring. The numbers and types of equipment used during construction activities varies from day to day depending on the specific operations being conducted. Emissions (exhaust from engines) produced during the project are short-term in the

sense that they will be limited to 3-5 days. There will be multiple pieces of equipment working simultaneously, up to 12 pieces of equipment for a 3-5 day period each year. All of the emissions from heavy equipment will be produced in open, remote areas several miles from members of the public, with the exception of heavy equipment transport tractor-trailer vehicles, which will travel public roads to and from the project area not more than once per day. Emissions from burning is addressed separately under the greenhouse gas (GHG) analysis.

Mitigation Measure #1: As listed above applies.

Mitigation Measure #3 (related to air quality, biological resources and geology): During the development of fuel breaks, the dozer blade will be maintained above ground throughout the project area. This effort will assist in dust reduction and reduce risk to biological resources. Frequent inspections of blade height will be made by the CAL FIRE safety training evaluator/mentor during the execution of the training work to ensure dozer operator adherence.

d) Will the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant with Mitigation. Sensitive receptors in the vicinity of the proposed project are limited to on-site CAL FIRE personnel (HFEO's) engaged in the training, which is expected to be 10-12 people for a short duration limited to 8 hours a day for less than 5 days per year.

Mitigation Measure #1: As listed above applies.

Mitigation Measure #3: As listed above applies.

e) Will the project create objectionable odors affecting a substantial number of people?

Less than Significant Impact. The occurrence and severity of odor impacts depend on factors including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. The diesel exhaust from the use of on-site construction equipment will be intermittent and temporary, and will dissipate rapidly from the source with an increase in distance.

Project operations will not involve the use of any materials that could create objectionable odors with the exception of diesel exhaust and fuel vapors that may be considered to be an objectionable odor by some individuals. However, these odors are common to heavy equipment operators to whom the training is targeted. Because of the anticipated rapid dissipation of gases in the air and the distance to the nearest sensitive receptors, potential for the project to generate objectionable odors is minimal over the current baseline. As a result, this impact is considered less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Will the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Information about Biological Resources

The project has the capacity to modify animal and plant habitats and thereby impact populations of various species. Plant and animal species can either be benefited or harmed by habitat change. In general, the construction of a fuelbreak in a dense chaparral brush field will create a more diverse landscape, and return those portions of the chaparral to an early seral stage. Those species that utilize a transition zone between habitat types (such as the edge between chaparral and oak-woodland), will be benefited. Those species which favor early seral stage in the chaparral community, such as many herbs and ephemeral annuals, will also benefit and tend to occupy and colonize cleared soils. Species which may be dependant upon undisturbed habitats such as in old-growth timberland (or old-growth chaparral) may be disrupted by fragmentation or other disturbance.

In addition to providing a training site for equipment operators and installing fuel breaks that help avoid catastrophic wildfire, this project is intended to benefit or be neutral to listed species or species of concern. For species with potential to be harmed by this project, various species investigations, analysis and mitigations have been incorporated to avoid harm and reduce habitat impacts to the level of insignificance.

In January, 2012, a nine 7.5-minute quadrangle query was made using the Department of Fish and Game's CA Natural Diversity Database (CNDDDB). The quadrangles used in this analysis are listed in Appendix C. The results of the query include listed Rare, Endangered, Threatened, or Sensitive Species (List 1, List 2 and List 3). Appendix C contains the results CNDDDB Species/Habitat Review. A draft of the Dozer Training IS/MND was provided to the CA Department of Fish and Game and Bob Motroni, CAL FIRE Senior Wildlife Biologist. On 3/6/12, Motroni provided suggestions to add CNPS listing definitions and how to clarify some mitigations. These items have been incorporated into the MND.

Discussion

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status

species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. The project will modify vegetation by the use of heavy equipment that will disrupt dense chaparral vegetation along ridges and sub-ridges, installation or reopening of roads and fuelbreaks, repairing of old watercourse crossings, and shaping or erosion control repairs of roads. The soils in the Sunflower area do not support long-term conversion of chaparral to a different vegetative community such as grassland or oak woodland. During the next few decades, the chaparral community will gradually replicate itself back onto the site. However, many annual and perennial herbs, sedges, and other plant species are already present as dormant components under the existing chaparral canopy. These tend to be minimal or unobserved components in a climax community but rapidly recolonize the area after disturbance occurs. Disturbance, can be natural such as from wildfire or flood, or can be human-caused such as from commercial grazing or mechanical disturbance. Episodic disturbance was the pre-European, natural order in California. This disturbance has become truncated by modern practices. In recent years, ranchers have attempted intensive goat and sheep grazing to restore some of the prehistoric disturbance that has been eliminated by fire suppression policies and commercial cattle grazing.

The disturbance outlined by the proposed project along with mitigation protections, may restore some of the missing disturbance and avoid adverse effects to biological or other resources. The following mitigations #2-6 have been developed to minimize potential adverse effects to the biological environment, including listed species and those of special concern.

Mitigation Measure #2 (related to biological resources and geology): Red Bank Creek and perennial tributaries shall have a 150-foot no treatment area buffers on either side of the channel. All other watercourses, dry gulches, seeps and springs shall have 25-foot no treatment buffers established. Buffers will be established as directed by the CAL FIRE Project Manager prior to the implementation of any project work. Equipment may be excluded at established crossings. The CAL FIRE Project Manager or a professional botanist will inspect crossing sites prior to equipment entry to ensure that special status species are not impacted and that there are no significant impacts to riparian vegetation. If special status species are discovered at a crossing site, another more appropriate site will be located and used. Otherwise, the equipment will use existing crossings.

Mitigation Measure #3 (related to biological resources, air quality, and geology): During the development of fuel breaks, the dozer blade will be maintained above ground throughout the project area. This effort will assist in dust reduction and reduce risk to biological resources. Frequent inspections of blade height will be made by the CAL FIRE safety training evaluator/mentor during the execution of the training work to ensure dozer operator adherence.

Mitigation Measure #4 (related to biological resources): Any List 1, List 2 or List 3 Sensitive Plants found within the project area will be avoided with a equipment exclusion zone during execution of project work. Likelihood of species presence and need for survey will be evaluated through scoping efforts that consider species habitat requirements and known locations. On discovery of a sensitive species within the project area site-specific avoidance measures will be developed by the CAL FIRE Project Manager in consultation with a professional botanist or the CDFG. The dimension of exclusion zones will be tailored to the growth characteristics and needs of the specific species. Qualifications for personnel who make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled "**Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**". The result of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file.

Mitigation Measure #5 (related to biological resources): Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, vegetation removal will be minimized in order to reduce impact to stream channels, stream banks, and riparian vegetation. Verification of flagging prior

to project work as well as inspection once project work has been completed will be made by the CAL FIRE Project Manager and documented in the project file.

Mitigation Measure #6 (related to biological resources):

In order to protect potential nesting habitat, trees larger than 10 inches diameter breast height (DBH) will not be removed in association with the project. Nests found during the nesting season (February through August 30) will be evaluated by the CAL FIRE Project Manager for use by listed species or species of concern. If an occupied nest of a listed bird (ESA, CESA, or Board of Forestry "Sensitive Species") is discovered during project activities, vegetation disturbing activities shall be suspended in the vicinity of the nest. Site-specific protection measures, including equipment use buffers will be developed in consultation with CDFG personnel, and implemented prior to mechanical disturbance.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. No sensitive habitats or sensitive natural communities have been identified. Except for crossing sites, riparian habitats along watercourses or in wet areas such as springs or seeps will be protected by equipment exclusion zones. Old road crossing sites do exist in the project area and some of these have washed out or otherwise need maintenance. These will be repaired as part of the Fire Equipment Operator's Safety Training, providing sites for culvert installation, rolling dips, rocked approaches, etc. Riparian vegetation will be protected from disturbance except as necessary for crossing repair.

Mitigations #2 and 5 above applies.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. No wetlands as defined by Section 404 of the Clean Water Act occur at the project site or will be affected by project implementation.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation. The Migratory Bird Treaty Act (MBTA) protects many species of migratory birds. Neo-tropical migratory bird populations however are declining throughout the United States. Causes could be related to habitat loss in breeding or wintering sites or along migratory routes. Other causes such as predation, pollution, or other factors. Lead agencies must consider impacts to those species from projects that could cause harm. Although this proposed project will not include actions intended to harm such birds, the removal of existing trees and other vegetation within the project site could result in disruption to protected birds and or their reproduction. This impact could occur if migratory birds nested within the project site, nests were not identified, and construction activities were to take place during the nesting season.

Although raptors and other migratory nesting birds are known to utilize adjacent undeveloped habitat, mitigation measures have been developed to protect such birds. Trees greater than 10 inches DBH, riparian vegetation, and areas near watercourse have been excluded.

Mitigation # 2, 5, & 6 above applies.

Although anadromous fish are not present in the project area, native (exotic) trout utilize nearby Red Bank Creek. Riparian vegetation and shade producing trees will not be disturbed by the projects. The repair of existing crossings may help to improve water quality slightly by reducing sources of sediment.

The proposed project is unlikely to disturb any native resident or migratory fish or wildlife species, migratory corridors, or impede the use of native wildlife nursery sites.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. No local tree preservation policy exists in this portion of Tehama County. The project will not conflict with any local policies or ordinance protection biological resources.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The proposed project site is not within the boundaries of a Habitat Conservation Plan, Natural Community Conservation Plan, or other habitat conservation plan. The project does not conflict with implementation of any such plan in this part of Tehama County.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Will the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Information about Cultural Resources

The project area was surveyed by Richard Jenkins, CAL FIRE Senior State Archaeologist on 2/1/2012. Prior to conducting any archaeology surveys of the project area, an Archaeology Records Check was conducted at the Northeast Information Center on 1/13/2012 (IC#W12-11). All Native American Tribes listed on the current Native American Contact List were sent information (notification) about the project and were provided with an opportunity to provide comments or concerns to Richard Jenkins for 30 days following receiving their notification letters. No prehistoric archeological resources or historic resources were discovered within the project area or within 100' of any project areas. The Records Check, sample Native American Inquiry letters and complete Archaeological Survey by Richard Jenkins is on-file at the Tehama-Glenn Unit Headquarters.

Discussion

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No Impact. No prehistoric archeological resources or historic resources were discovered within the project area or within 100' of any project areas.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

No Impact. No prehistoric archeological resources or historic resources were discovered within the project area or within 100' of any project areas.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact. No prehistoric archeological resources or historic resources were discovered within the project area or within 100' of any project areas.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant with Mitigation. No human remains or associated grave goods were encountered during the archaeological surveys completed during this Initial Study and none are expected to be encountered during project activities. The possibility exists for human remains to be discovered within the project area. If human remains were unearthed and not protected in accordance with procedures in State Law (see below), this could be a potentially significant impact. To prevent this impact, the following mitigation measure shall be implemented.

State Law: Procedures for Inadvertent Discovery of Human Remains:

In accordance with the California Health and Safety Code, if human remains are discovered during ground-disturbing activities, CAL FIRE and/or the project contractor(s) shall immediately halt potentially damaging excavation in the area of the burial and notify the Tehama County Coroner and a qualified professional archaeologist to determine the nature and significance of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050[c]). Following the coroner's findings, the archaeologist and the Most Likely Descendent (designated by the Native American Heritage Commission) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities of Tehama County and CAL FIRE to act upon notification of a discovery of Native American human remains are identified in PRC § 5097.

Mitigation Measure #7 for cultural resources: Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archaeological, prehistoric, historic or paleontological resource sites along the path of the fuel break or within 100 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archaeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site has been adequately assessed for significance. Findings of significance will be prepared, recorded and submitted to appropriate agencies along with all the tribes listed on the current Native American contact list at the discretion of the professional archeologist. Findings will also be recorded in the project files.

Mitigation Measure #8 for cultural resources: If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared, and recorded and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion: The United States Department of Agriculture Natural Resource Conservation Service Web Soil Survey (WSS) <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm> was used to assess all of the soil types located within the project area. The Table below summarizes the soils, ratings and an assessment of the potential of the project to damage the soil. A draft of the Dozer Training IS/MND was reviewed by Michael Wopat, Sr. Engineering Geologist, California Geological Service. On March 20, 2012, Wopat provided minor corrections to the soil discussion that were incorporated into the geology and soil review in this section.

SOIL MAP ID	SOIL NAME/ DESCRIPTION	SOIL RATING FOR EROSION HAZARD (OFF ROAD/TRAIL)	SOIL RATING FOR SITE PREPARATION (SHALLOW DEPTH)	SOIL RATING FOR POTENTIAL DAMAGE BY FIRE	POTENTIAL FOR PROJECT TO DAMAGE SOIL ASSESSMENT	SIGNIFICANCE ASSESSMENT WITH MITIGATION INCORPORATED
AvA	Arbuckle gravelly loam, 0 to 3 percent slopes	Slight	Well suited	Moderate	Low, no mitigation	No Impact
KoA	Kimball gravelly loam, 0 to 3 percent slopes	Slight	Well suited	Low	Low, no mitigation	No Impact
LdE2	Lodo and Maymen shaly loams, 30 to 65 percent slopes, eroded	Severe	Poorly suited	Low	High, mitigation proposed	Less Than Significant
LgE	Los Gatos gravelly loam, 30 to 50 percent slopes	Severe	Poorly suited	Moderate	High, mitigation proposed	Less Than Significant
MsE	Millsap loam, 30 to	Severe	Poorly suited	Moderate	High, mitigation	Less Than

	50 percent slopes				proposed	Significant
PaE	Parrish gravelly loam, 30 to 50 percent slopes	Severe	Poorly suited	Moderate	High, mitigation proposed	Less Than Significant
PaF	Parrish gravelly loam, 50 to 65 percent slopes	Severe	Poorly suited	Moderate	High, mitigation proposed	Less Than Significant
SmE	Sehorn-Millsholm complex, 30 to 50 percent slopes	Severe	Poorly suited	Moderate	High, mitigation proposed	Less Than Significant

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

No Impact. There are no Alquist-Priolo Earthquake Fault Zone maps prepared for Tehama County. As of June 1, 1997, 543 Official maps of Earthquake Fault Zones have been issued. Thirty-six (36) counties and 97 cities are affected by the existing Earthquake Fault Zones, and of these 36 counties, Tehama County is not listed as being affected by potentially active faults.

ii) Strong seismic ground shaking?

No Impact. The proposed project will be limited to scraping of the top 1-4 inches of the surface during fireline construction and brush removal. The only exception will be the installation of waterbars/waterbreaks, which will be installed on roads and trails at a depth of 6-12 inches. This activity is not expected to create measurable ground shaking or trigger any seismic events. No blasting or explosives are proposed. No known faults exist in the project area.

Seismic shaking from regional earthquakes is unlikely to deleteriously affect the project.

iii) Seismic-related ground failure, including liquefaction?

No Impact. Soil liquefaction occurs within relatively loose, cohesionless sands located below the water table that are subjected to ground accelerations from earthquakes. The soils and geology in the area are underlain by metamorphic rock with sedimentary rock that has been uplifted and subject to erosion.

iv) Landslides?

No Impact. The project site has no potential to be affected by local or regional landslides or other mass-wasting characteristics.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant with Mitigation Incorporated. The majority of the proposed project area currently contains existing seasonal (dirt) roads and tractor (dozer) constructed fire lines and fuelbreaks. The staging areas and Incident Command Post (ICP) are existing features located on relatively flat open land that require no new construction or clearing of any vegetative material. There are several areas where new construction of primary control lines (greater soil disturbance since they are greater in width) and secondary lines (lesser soil disturbance since they will generally be narrow in width). These activities will result in only minor alterations to localized topography and disturbance of surface soils.

The project also includes the use of road grading work along existing roads (see map). The road grading is designed to maintain existing road surfaces to reduce surface soil erosion from occurring in the future. This is considered maintenance activities that are expected to provide a beneficial effect to the loss of topsoil by minimize erosion.

Mitigation Measure #9 (related to geology and erosion): Waterbars shall be installed on slopes of 30% or greater where 800 sq. ft. or more of bare mineral soil has been exposed by project activities. Waterbars will be installed where trails lead into or have access to a watercourse. An adequate number of waterbars as

determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. The waterbar spacing shall be applied at the same standard and spacing requirements found in the California Forest Practice Rules under the requirements for the “Moderate” erosion hazard rating. Constructed trails on side slopes shall be located where impacts can be minimized and their numbers kept to the minimum number required. Waterbar installation will be inspected by the CAL FIRE Project Manager prior to completion of the project and prior to the first precipitation event in order to assure adequacy. Condition and operation of waterbars will be recorded in the project files.

Mitigation Measure #10 (related to geology and erosion): Any area of newly exposed soil of over 800 square feet that has the potential to transfer sediment to a watercourse shall be mulched with brush to minimize the potential for erosion. Hand water bars will be installed to divert water onto stable vegetation and away from watercourses, if needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to the season’s first precipitation event and recorded in the project file.

Mitigations #2 and #3 for additional mitigations for geology and erosion also apply.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

No Impact. Ground disturbance from the proposed project appears unlikely to affect the geological stability of the area.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

No Impact. The Uniform Building Code is not applicable to the proposed project.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impact. No sewage or septic systems are proposed. No existing systems will be affected. Portable toilets will be placed at the ICP for use by all personnel on-site during project activities. All waste will be removed from the project site. Figure 10 shows the location and layout of the same ICP previously used on another project showing portable toilets. There are no significant changes in the use of the site; therefore, No waste water concerns are expected.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Information about Greenhouse Gas Emissions

CEQA Guideline § 15064.4 requires a lead agency to make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of Greenhouse Gas (GHG) emissions resulting from a project, and make a careful judgment to determine significance. The analysis presented below was conducted in accordance with the GHG analysis requirements found in the CEQA Guidelines and utilized recently published technical guidance for CEQA environmental impact studies (ICF Jones and Stokes 2007, CAPCOA 2008, and OPR 2008).

State Law (Health and Safety Code §38505g) defines greenhouse gas to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and hexafluoride. Significant changes in global climate patterns have recently been associated with global warming which has been attributed to the accumulation of GHG emissions in the atmosphere. Greenhouse gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally while others are created and emitted solely through human activities. The emission of GHGs from burning fossil fuels (i.e., fuels containing carbon), in conjunction with other human activities, appears to be closely associated with global warming (OPR 2008:2). The standard unit to measure GHG emissions is expressed in metric tons (or tonnes) of CO₂e.

The baseline conditions at the project site currently include ranching operations which results in GHG emissions from activities such as operating motorized equipment, such as backhoes, tractors, light vehicles (pick-ups and all-terrain vehicles), chainsaws, etc. The GHG emissions from current operations were not calculated for this analysis as they will all continue outside the activities proposed in this project. The estimate of the GHG emissions which would result from approval and implementation of the proposed project above and beyond the existing baseline conditions has been assessed in the analysis below.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. In order to evaluate the total GHG emissions for this project, 3 categories of emissions were assessed. A complete analysis for each of the GHG categories in the Table is presented in Appendix B. Table I below summarizes the full analysis, which includes the rationale for the factors/variables used in the second column of the Table to calculate GHG emissions. The conversion factors were obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). Other conversions were made using factors in the Forestry Handbook (Wenger 1984).

GHG Category	Factors/Variables	Quantity of Units Used for Project	Calculation	GHG Emissions Metric Tons *CO₂e
1. Chaparral removal	Chaparral avg's 27.5 to 36.7 tons per acre. (36.7 used for a conservative estimate)	37 Acres	37 ac. X 36.7 tons per ac. =	1,357.900
2. Diesel fuel	Conversion factor for diesel is 10.15 **KG per Gallon, then gallons X 10.15 / ***1,000 = CO ₂ e	1,250 Gallons	1,250 gal. X 10.15 / 1,000 =	12.687
3. Gasoline fuel	Conversion factor for gas is 8.81 KG per Gallon, then gallons X 8.81 / 1,000 = CO ₂ e	300 Gallons	300 gal. X 8.81 / 1,000 =	2.643
*CO ₂ e = Carbon Dioxide Equivalent (a standard unit to measure global warming potential) **KG = kilograms *** dividing by 1,000 determines the volume of emissions in metric tons				Total 1,373.230

Discussion

1. Chaparral Removal:

As shown on the Figure 3. Project Map on page 12, there are three different types of dozer line. The existing Primary Control Line (22,869 feet) will not be subject to chaparral removal. The construction of the Primary Control line (2,061 feet) and the Secondary Control lines (22,184 feet) will result in the removal of 37 acres of chaparral. A conservative estimate of 66 feet in width of these proposed lines was used to calculate acres.

2. Diesel Fuel Used During Operations:

The heavy mechanical equipment proposed for use is estimated to consume 1,250 gallons of diesel resulting in 12.687 tons of CO₂e as shown in Table I above. This estimate of gallons of diesel fuel consumption is based on the following parameters;

Equipment Type	Quantity	Days Used	Diesel Usage Per Day Gallons	Total Diesel Usage Gallons
D-6 Dozer	8	4	20	640
Dozer Transport	8	1.5	15	180
Grader	2	4	15	120

Water Tender	1	4	10	40
Backhoe	1	4	15	60
Dozer Tender	6	5	7	210
				1,250

3. Gasoline Fuel During Used During Operations /CAL FIRE Personnel Trips to Project Site:

The estimate of 300 gallons of gasoline fuel consumption shown in Table I is based on the following parameters;

Equipment Type	Quantity	Days Used	Gasoline Usage Per Day Gallons	Total Gasoline Usage Gallons
Light Vehicles (pick-ups)	6	5	10	300

This allows for travel from Red Bluff to the project site of one round-trip each day and mileage throughout the project area each day by CAL FIRE employees. Using an estimated average of 12 miles per gallon, each of these commute vehicles using 10 gallons of gas per day could travel 120 miles per day. This is a very conservative estimate, since the project site is only 18-20 miles from Red Bluff and round trips alone would be approximately 40 miles. Add to that driving throughout the project area or any extra vehicles or round trips would still be within the estimated use.

Total GHG Emissions:

The total amount of GHG emissions (above and beyond baseline conditions) resulting from implementation of the project is estimated to be 1,373.230 metric tons of CO₂e.

Significance Assessment:

CAL FIRE has not established a significance threshold for GHG emissions and additional research is required before a useful threshold for these types of projects can be established. Of the 1,373.230 metric tons of CO₂ this project would emit, only 15.33 metric tons is from diesel and gasoline consumption alone. The much larger amount of CO₂ (1,357.9 tons) is from the chaparral removal. The rapid rate of regrowth of chaparral would likely offset the CO₂ release within an estimated 5-8 years. It is CAL FIRE's determination that this level of GHG emission is a less than significant environmental impact.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact. There are no local plans, policies, or regulations which are applicable to this issue.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, will it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, Would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, Would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than significant Impact. Hazardous materials associated with the project are fuel for the vehicles and equipment. The transport and storage of these materials will be in standard registered of off-road vehicles and will meet all local, state, and federal regulations, licensing, and protocols.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact, mitigation proposed. Hazardous wastes, such as minor amounts of waste oils and other vehicle fluids may be generated as a result of the normal operations of the project. These waste materials will not be dumped into the environment, the waste will be brought back to the vehicle’s or equipment’s assigned base location and the waste products will be handled per Department policy for removing and recycling these materials in an environmentally sound manner. No other hazardous wastes will be generated as part of the project.

Measures to Reduce Impacts Related to Hazards and Hazardous Materials

Mitigation Measure #11 (related to hazardous materials, hydrology/water quality): The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat

sites that are away from watercourses as well as areas that could potentially flow into a watercourse in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be made available at refueling and maintenance areas. Fueling will occur over an impermeable membrane to capture any accidental minor spills. Equipment shall be stored and maintained within properly cleared areas. Transportation of fuel will be in approved DOT containers. CAL FIRE personnel will inspect refueling areas to assure compliance Mitigation Measure #11. These inspections will also verify the sites' adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Mitigation Measure #12 (related to hazardous materials, hydrology/water quality): Diesel fuel shall not be transported across a live stream, except for in the tanks of the equipment being operated. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across any perennial watercourse.

Mitigation Measure #13 (related to hazardous materials, hydrology/water quality): Operators providing equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of watercourses flowing water. Any inspection reports shall be submitted to the CAL FIRE Project Manager along with evidence of any repairs required and completed before returning equipment to project work sites. Inspection reports will be incorporated into the project files.

c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. There are no proposed or existing schools within one-quarter mile of the project area.

d) *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact. The proposed project site is not included on any list of hazardous materials sites.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The proposed project site is not located within two miles of a public or private airport. The nearest airport is in Red Bluff and is approximately 17 miles northeast of the project.

f) *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The proposed project site is not located in the vicinity of a private airstrip.

g) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

No Impact. The site is not within or adjacent to any local designated evacuation routes.

h) *Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

No Impact. The proposed project site is located within an area designated as a high fire severity area, however the area is very remote with a very low population density on adjacent ranches. These same risks occur within the existing baseline conditions and will not increase as a result of the project.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells will drop to a level that will not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which will result in substantial on- or off-site erosion or siltation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project violate any water quality standards or waste discharge requirements?

Less than Significant Impact. The project will not violate any water quality standards or waste discharge requirements.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

No Impact. No new wells or water diversions are proposed. All project activities will be limited to the surface of the earth, and to a depth of what heavy equipment typically disturb when conducting the type of work proposed by road graders and dozers when fireline, roads and trails are being constructed or maintained. The small portion of the area (37 acres distributed among over 1000 acres of wildland is unlikely to have a measurable effect on infiltrating or groundwater recharge.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

No Impact. The project will not substantially change any existing drainage pattern or create new drainage patterns. To the extent that road maintenance activities and crossing repairs are conducted, existing erosion levels may be reduced.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

No Impact. Drainage patterns will not be altered as a result of the project, potential surface runoff water impacts will be reduced as a result of the mitigation measures included in item f) below.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No Impact. The project will not result in significant surface runoff, any potential runoff water impacts will be reduced as a result of the mitigation measures included in item f) below.

f) Would the project otherwise substantially degrade water quality?

Less than Significant with Mitigation Incorporated. There is no expected adverse impact to water quality after the project is completed, the road grading activities may improve existing conditions.

Measures to Reduce Impacts to Hydrology and Water Quality

Mitigation Measure #2 (related to biology, to geology/erosion, hydrology/water quality): Red Bank Creek and perennial tributaries shall have a 150-foot no treatment area buffers on either side of the channel. All other watercourses, dry gulches, seeps and springs shall have 25-foot no treatment buffers established. Buffers will be established as directed by the CAL FIRE Project Manager prior to the implementation of any project work. Equipment may be excluded at established crossings. The CAL FIRE Project Manager or a professional botanist will inspect crossing sites prior to equipment entry to ensure that special status species are not impacted and that there are no significant impacts to riparian vegetation. If special status species are discovered at a crossing

Mitigation Measure #3 (related to air quality, biology, to geology/erosion, hydrology/water quality): During the development of fuel breaks, the dozer blade will be maintained above ground throughout the project area. This effort will assist in dust reduction and reduce risk to biological resources. Frequent inspections of blade height will be made by the CAL FIRE safety training evaluator/mentor during the execution of the training work to ensure dozer operator adherence.

Mitigation Measure #5: (related to geology/erosion, hydrology/water quality): Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, vegetation removal will be minimized in order to minimize impact to stream channels, stream banks, and riparian vegetation. Verification of flagging prior to project work as well as verification of no impacts to vegetation and soils once project work has been completed will be made by the CAL FIRE Project Manager and documented in the project file. Only existing crossings will be used.

Mitigation Measure #9 (related to geology/erosion, hydrology/water quality): Waterbars shall be installed on slopes of 30% or greater where 800 sq. ft. or more of bare mineral soil has been exposed by project activities. Waterbars will be installed where trails lead into or have access to a watercourse. An adequate number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. The waterbar spacing shall be applied at the same standard and spacing requirements found in the California Forest Practice Rules under the requirements for the “Moderate” erosion hazard rating. Constructed trails on side slopes shall be located where impacts can be minimized and their numbers kept to the minimum number required. Waterbar installation will be inspected by the CAL FIRE Project Manager prior to completion of the project and prior to the first precipitation event in order to assure adequacy. Condition and operation of waterbars will be recorded in the project files.

Mitigation Measure #10 (related to geology/erosion, hydrology/water quality): Any area of newly exposed soil of over 800 square feet that has the potential to transfer sediment to a watercourse shall be mulched with brush to minimize the potential for erosion. Hand water bars will be installed to divert water onto stable vegetation and away from watercourses, if needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to the season’s first precipitation event and recorded in the project file.

Mitigation Measure #11: (related to hazardous materials, hydrology/water quality): The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from watercourses as well as areas that could potentially flow into a watercourse in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be made available at refueling and maintenance areas. Fueling will occur over an impermeable membrane to capture any accidental minor spills. Equipment shall be stored and maintained within properly cleared areas. Transportation of fuel will be in approved DOT containers. CAL FIRE personnel will inspect refueling areas to assure compliance Mitigation Measure #11. These inspections will also verify the sites’ adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Mitigation Measure #12: (related to hazardous materials, hydrology/water quality): Diesel fuel shall not be transported across a live stream, except for in the tanks of the equipment being operated. In addition, ongoing inspections of the project area will assure compliance to the prohibitions of transporting fuel across any perennial watercourse.

Mitigation Measure #13: (related to hazardous materials, hydrology/water quality): Contractors providing private equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of watercourses flowing water. The inspection reports shall be submitted to the CAL FIRE Project Manager along with evidence of any repairs required and completed before returning equipment to project work sites. Inspection reports will be incorporated into the project files.

Mitigation Measure #14: (related to hydrology/water quality): Equipment will cross stream buffer zones only at previously flagged and designated crossing sites where soils are found to be firm and where disturbance to riparian vegetation is minimal. Designation and flagging of crossing sites will be made by the CAL FIRE Project Manager. Adherence to Mitigation Measure #14 will be assured through periodic inspection of project work by the CAL FIRE Project Manager.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. No new housing is proposed.

h) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

No Impact. The construction of any structures is not proposed.

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact. The project area is very remote with very few people who live nearby. The project will not increase the risk of flooding over existing baseline conditions. No levees or dams are located downstream of the project.

j) Would the project result in inundation by seiche, tsunami, or mudflow?

No Impact. The project site is not located within an area subject to seiche, tsunami, or mudflow.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Land Use and Planning. Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project physically divide an established community?

No Impact. The project and adjacent area is rural ranchland.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The activities proposed are consistent with the activities that have occurred on these private lands for decades. The activities are in conformance with the county general plan.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The project site is not located within a habitat conservation plan or natural community conservation plan area. Therefore, no potential conflicts with such plans will occur.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. There no known sites having a potential for mineral production located in the project area.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The site is not designated in the general plan as having locally-important mineral resources.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, will the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, will the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion:

The project is unlikely to raise noise levels above the long-term ambient condition.

a) *Would the project create exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?*

Less than Significant Impact. The project area is very remote with very few people who live nearby. The project will not result in a substantial increase in ambient noise levels due to its remote location and duration of the project (3-5 days per year). Operational noise generated by the project will be associated with the onsite operation of equipment (i.e., dozers, road graders and light vehicles). The noise levels are not expected to be significant due to the short duration of use and all equipment is maintained in accordance with workplace standards.

b) *Would the project create exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

No Impact. The activities proposed do not involve the use of explosives, pile driving or other intensive construction techniques that could generate vibration or noise. Vibration and noise levels will be experienced by the people operating the equipment, which is part of their normal duties described in their job classification. The level of vibration and noise will be within accordance of workplace standards.

c) *Would the project create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

No Impact. There is no permanent increase in noise levels associated with any activities proposed in the project. Immediately following active equipment operations, noise levels will fall to ambient levels.

d) *Would the project create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less than Significant Impact. Although unlikely, the temporary duration and number of tractor trailer truck trips to haul-in and haul-out the heavy equipment may raise the ambient noise level on County roads as they travel through the community of Red Bluff past private dwellings on the way to the project area. These trucks are louder than passenger cars or pickups which typically come and go in the region. The residences along the route of travel to the project area most likely will hear the truck traffic. These occupants are accustomed to cattle truck traffic in their area from other ranches, properties and commercial activities. The proposed project will add to that traffic for a short duration.

No truck traffic will occur at night or on weekends. Noise levels could reach 85 dBA within the project site for short periods with the use of dozers. There will be added truck traffic for short durations; however noise levels are not expected to increase above background levels in public areas as a result of the added truck traffic.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The project is not located within the immediate vicinity of a commercial or private airport. Due to the distance to the nearest airports, the project site will not be subject to high levels of aircraft noise and will, therefore, not result in a safety hazard for people residing or working in the area.

f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. See e) above.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Population and Housing. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The project will not induce any new growth. No building construction for human habitation is proposed.

b) Would the project displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

No Impact. The project will not involve the displacement of housing or necessitate construction of replacement housing.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. The development of the project will not remove or displace people, requiring the construction of replacement housing.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

No Impact. The project will not change the population of the area thus causing impact to fire protection. The project will enhance wildland firefighting ability with the establishment of fire control lines.

Police protection?

No Impact. Police protection will not be impacted by the project.

Schools?

No Impact. The project does not include any new residential uses.

Parks?

No Impact. Parks or other recreational facilities will not be impacted by the proposed project. The project will not add residences to the project area that could result in increase demand for parks or other recreational opportunities.

Other public facilities?

No Impact.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The project will not generate demand or affect existing recreational facilities since the project will not use any parks or recreational facilities.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact. See a) above.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Transportation/Traffic. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

No Impact. The project would not conflict with any applicable plan, ordinance, or policy.

b) Would the project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

No Impact: The project would not conflict any congestion management program established by Tehama County.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. There will be no change to air traffic patterns as a result of the project.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. No new roads, easements or changes to public roads are proposed.

e) Would the project result in inadequate emergency access?

No Impact. The project will not involve alteration of any roadways that will reduce emergency access. No road closure or traffic control is proposed along any public roadways at any time.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. The project would not conflict with any such policies nor would it decrease safety of such plans.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. No new wastewater facilities are proposed.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. No new water or wastewater facilities are proposed.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. No new storm water facilities are proposed.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. Potable water for workers will be hauled in or provided by the private landowner from a private existing well. During any project burning activities, water for fire suppression could be needed. If a burn escapes and fire suppression is necessary, water would be supplied by any means necessary as an emergency would exist and there would be no limitations

placed on water use. The likelihood of this occurring is very low. There are many fuelbreaks in the area to contain a wildfire. Water is available for drafting from Elder and Red Bank Creeks and from various ranch ponds. No new wells or water impoundment features are proposed. No dams or waterholes will be constructed. No physical change to the project site for water supplies is proposed.

e) Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project’s projected demand, in addition to the provider’s existing commitments?

No Impact. See Item (a-d) above.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?

No Impact. Any solid waste generated during the training course will be collected and disposed of in a responsible manner. Solid waste material is not expected to be significantly higher than pre-project levels and is limited to waste from meal and beverage containers. CAL FIRE will recycle material to minimize impacts to landfills. The recyclable materials generated from this proposed project will be separated, salvaged, and recycled, as feasible. There is not expected to be any change in solid waste generation or disposal as a result of this project.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The proposed project will comply with all applicable federal, state, and local statutes and regulations pertaining to disposal of solid waste. See Item f) above.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Authority: Public Resources Code Sections 21083 and 21083.05.

Reference: Government Code Section 65088.4, Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21083.05, 21083.3, 21093, 21094, 21095, and 21151; *Sundstrom v. County of Mendocino*, (1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors* (1990), 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Discussion

a) Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or

wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated. The proposed project will not substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self sustaining levels; threaten to eliminate a plant or animal community; reduce or restrict the range of rare or endangered plants or animals or eliminate important examples of the major periods of California history or prehistory. No cultural or historic resources were identified in the project area. Detailed analysis led to the conclusion that the impacts will not cause substantial adverse change or elimination of important examples of California's history or prehistory.

Mitigation measures #1-14 have been incorporated into the project design to reduce or limit potential impacts to the level of less than significant.

b) Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant Impact. The project is not expected to result in adverse cumulative effects since most of the roads, fuelbreaks, firelines, staging areas and the ICP are already in existence. The new construction of firelines will eventually regenerate with brush. These areas comprise a very small percentage of the project area and of the overall area in the watershed. Wildlife and water quality resources would command the greatest concern for this project. There are no known future projects within the project vicinity that when added with project-related impacts could result in cumulative impacts if those projects are conducted through CEQA compliance. Projects known to exist or are in the planning stage include ongoing projects as part of the Sunflower Coordinated Resource Management Plan (SCRMP), ongoing Burrows Ranch management activities, pending Burrows Conservation Easement, projects funded by the Mendocino National Forest through the Resource Allocation Committee (RAC), and those projects supported through the Tehama County Resource Conservation District. All past projects that were considered in this assessment were CEQA or NEPA compliant projects, with no violations, public complaints or emergencies experienced. See discussion under a) above.

c) Would the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. The project will not have substantial adverse effect on humans. The project will, by contrast, provide a training opportunity expected to improve fire and rescue services to the community.

Appendix A
Mitigation Monitoring and Reporting Plan (MMRP)
For the
HEAVY FIRE EQUIPMENT OPERATOR SAFETY TRAINING FUELS REDUCTION and FIRELINE
IMPROVEMENT PROJECT
Initial Study/Mitigated Negative Declaration
Tehama County, California

In accordance with CEQA Guidelines Section 15074(d), when adopting a mitigated negative declaration, the lead agency will adopt a Mitigation Monitoring and Reporting Plan (MMRP) that ensures compliance with mitigation measures required for project approval. The California Department of Forestry and Fire Protection (CAL FIRE) is the lead agency for the above-listed project and has developed this MMRP as a part of the final Initial Study/Mitigated Negative Declaration (IS/MND) supporting the project. This MMRP lists the mitigation measures developed in the IS/MND which were designed to reduce environmental impacts to a less-than-significant level. This MMRP also identifies the party responsible for implementing the measure, defines when the mitigation measure must be implemented, and which party or public agency is responsible for ensuring compliance with the measure.

Potentially Significant Effects and Mitigation Measures

The following is a list of the resources that will be potentially affected by the project and the mitigation measures made part of the Initial Study/Mitigated Negative Declaration.

Environmental Permits and Other Public Agencies Who's Approval May be Required:

The proposed project will require the following environmental permit.

1. A non-discretionary burn permit to burn piles will need to be obtained from the Tehama County Air Pollution Control District depending upon the exact time of burning.
2. A Streambed Alteration Agreement (1600 permit) may be required from the California Department of Fish and Game to authorize alterations along the bank and channel for permanent watercourse crossings.
3. Regional Water Quality Control Board may request an application for a "discharge wavier."

Mitigation Measures:

The following mitigation measures will be implemented by CAL FIRE to avoid or minimize environmental impacts. Implementation of these mitigation measures will reduce the environmental impacts of the proposed project to a less than significant level.

Mitigation Measure #1 related to air quality:

The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from the Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the vegetative fuels are sufficiently cured to assure a clean burn. CAL FIRE will determine the burn-day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

Schedule: Prior to burning.

Responsible Party: CAL FIRE TGU Unit personnel shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #2 related to biological resources, geology:

Red Bank Creek and perennial tributaries shall have a 150-foot no treatment area buffers on either side of the channel. All other watercourses, dry gulches, seeps and springs shall have 25-foot no treatment buffers established. Buffers will be established as directed by the CAL FIRE Project Manager prior to the implementation of any project work. Equipment may be excluded at established crossings. The CAL FIRE Project Manager or a professional botanist will inspect crossing sites prior to equipment entry to ensure that special status species are not impacted and that there are no significant impacts to riparian vegetation. If special status species are discovered at a crossing site, another more appropriate site will be located and used. Otherwise, the equipment will use existing crossings.

Schedule: Prior to operations.

Responsible Party: CAL FIRE Project Manager shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #3 related to air quality, biological resources, geology:

During the development of fuel breaks, the dozer blade will be maintained above ground throughout the project area. This effort will assist in dust reduction and reduce risk to biological resources. Frequent inspections of blade height will be made by the CAL FIRE safety training evaluator/mentor during the execution of the training work to ensure dozer operator adherence.

Schedule: During operations.

Responsible Party: CAL FIRE Class Coordinator or Safety Officer shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #4 related to biological resources:

Any List 1, List 2 or List 3 Sensitive Plants found within the project area will be avoided with a equipment exclusion zone during execution of project work. Likelihood of species presence and need for survey will be evaluated through scoping efforts that consider species habitat requirements and known locations. On discovery of a sensitive species within the project area site-specific avoidance measures will be developed by the CAL FIRE Project Manager in consultation with a professional botanist or the CDFG. The dimension of exclusion zones will be tailored to the growth characteristics and needs of the specific species. Qualifications

for personnel who make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled **“Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities”**. The result of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file.

Schedule: Prior to operations.

Responsible Party: CAL FIRE Project Manager shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #5 related to biological resources:

Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, vegetation removal will be minimized in order to reduce impact to stream channels, stream banks, and riparian vegetation. Verification of flagging prior to project work as well as inspection once project work has been completed will be made by the CAL FIRE Project Manager and documented in the project file.

Schedule: Prior to operations.

Responsible Party: CAL FIRE Project Manager shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #6 related to biological resources:

In order to protect potential nesting habitat, trees larger than 10 inches diameter breast height (DBH) will not be removed in association with the project. Nests found during the nesting season (February through August 30) will be evaluated by the CAL FIRE Project Manager for use by listed species or species of concern. If an occupied nest of a listed bird (ESA, CESA, or Board of Forestry “Sensitive Species”) is discovered during project activities, vegetation disturbing activities shall be suspended in the vicinity of the nest. Site-specific protection measures, including equipment use buffers will be developed in consultation with CDFG personnel, and implemented prior to mechanical disturbance.

Schedule: Prior to operations or immediately when discovered.

Responsible Party: CAL FIRE Project Manager shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #7 related to cultural resources:

Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archaeological, prehistoric, historic or paleontological resource sites along the path of the fuel break or within 100 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archaeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site has been adequately assessed for significance. Findings of significance will be prepared, recorded and submitted to appropriate agencies along with all the tribes listed on the current Native American contact list at the discretion of the professional archeologist. Findings will also be recorded in the project files.

Schedule: Prior to operations or immediately when discovered.

Responsible Party: CAL FIRE Project Manager or Class Coordinator shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #8 related to cultural resources:

If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared, and recorded and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

Schedule: Prior to operations or immediately when discovered.

Responsible Party: CAL FIRE Project Manager or Class Coordinator shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #9 related to geology and erosion:

Waterbars shall be installed on slopes of 30% or greater where 800 sq. ft. or more of bare mineral soil has been exposed by project activities. Waterbars will be installed where trails lead into or have access to a watercourse. An adequate number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. The waterbar spacing shall be applied at the same standard and spacing requirements found in the California Forest Practice Rules under the requirements for the "Moderate" erosion hazard rating. Constructed trails on side slopes shall be located where impacts can be minimized and

their numbers kept to the minimum number required. Waterbar installation will be inspected by the CAL FIRE Project Manager prior to completion of the project and prior to the first precipitation event in order to assure adequacy. Condition and operation of waterbars will be recorded in the project files.

Schedule: Immediately upon completion of the project or prior to the beginning of the winter period (November 15th of any year), whichever occurs first.

Responsible Party: CAL FIRE Class Coordinator shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #10 related to geology and erosion:

Any area of newly exposed soil of over 800 square feet that has the potential to transfer sediment to a watercourse shall be mulched with brush to minimize the potential for erosion. Hand water bars will be installed to divert water onto stable vegetation and away from watercourses, if needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to the season's first precipitation event and recorded in the project file.

Schedule: Immediately upon completion of the project or prior to the beginning of the winter period (November 15th of any year), whichever occurs first.

Responsible Party: CAL FIRE Class Coordinator shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #11 related to hazardous materials:

The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from watercourses as well as areas that could potentially flow into a watercourse in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be made available at refueling and maintenance areas. Fueling will occur over an impermeable membrane to capture any accidental minor spills. Equipment shall be stored and maintained within properly cleared areas. Transportation of fuel will be in approved DOT containers. CAL FIRE personnel will inspect refueling areas to assure compliance Mitigation Measure #11. These inspections will also verify the sites' adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Schedule: Prior to and during operations.

Responsible Party: CAL FIRE Project Manager or Class Coordinator shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #12 related to hazardous materials:

Diesel fuel shall not be transported across a live stream, except for in the tanks of the equipment being operated. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across any perennial watercourse.

Schedule: During project activities.

Responsible Party: CAL FIRE Class Coordinator shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #13 related to hazardous materials:

Operators providing equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of watercourses flowing water. Any inspection reports shall be submitted to the CAL FIRE Project Manager along with evidence of any repairs required and completed before returning equipment to project work sites. Inspection reports will be incorporated into the project files.

Schedule: During project activities.

Responsible Party: CAL FIRE Equipment Operators shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure 14 related to water quality:

Equipment will cross stream buffer zones only at previously flagged and designated crossing sites where soils are found to be firm and where disturbance to riparian vegetation is minimal. Designation and flagging of crossing sites will be made by the CAL FIRE Project Manager. Adherence to Mitigation Measure #14 will be assured through periodic inspection of project work by the CAL FIRE Project Manager.

Schedule: Prior to operations and during project activities.

Responsible Party: CAL FIRE Project Manager shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Appendix B
Analysis of Greenhouse Gas (GHG) Emissions
Prepared by: Adam Wyman
February 8, 2012

In order to evaluate the total GHG emissions for this project, 3 categories of emissions were assessed. The Table below summarizes the full analysis in this section. A complete analysis for each of the GHG categories in the Table is presented in this section, which includes the rationale for the factors/variables used in the second column of the Table to calculate GHG emissions.

GHG Summary Table				
GHG Category	Factors/Variables	Quantity of Units Used for Project	Calculation	GHG Emissions Metric Tons *CO₂e
1. Chaparral removal	Chaparral avg's 27.5 to 36.7 tons per acre. (36.7 used for a conservative estimate)	37 Acres	37 ac. X 36.7 tons per ac. =	1,357.900
2. Diesel fuel	Conversion factor for diesel is 10.15 **KG per Gallon , then gallons X 10.15 / ***1,000 = CO ₂ e	300 Gallons	1,250 gal. X 10.15 / 1,000 =	12.687
3. Gasoline fuel	Conversion factor for gas is 8.81 KG per Gallon , then gallons X 8.81 / 1,000 = CO ₂ e	300 Gallons	300 gal. X 8.81 / 1,000 =	2.643
*CO ₂ e = Carbon Dioxide Equivalent (a standard unit to measure global warming potential) **KG = kilograms *** dividing by 1,000 determines the volume of emissions in metric tons				Total 1,373.230

Greenhouse gas emissions from Chaparral

Removal or burning of chaparral vegetation as proposed in this project will result in greenhouse gas emissions. Approximately 37 acres of chemise brush are encompassed within the project footprint. It is uncertain whether all 37 acres will be treated within this training area, as it will depend on how much progress the students in the course may achieve. However, for the purpose of this evaluation, it will be assumed that all acres will be treated, since it will yield a conservative estimate for this project. It is expected that 100% of displaced brush will die. Although burning this brush is proposed, burning would not occur until 3 to 5 years after it is removed, which will allow time for the brush to act as ground cover for erosion control of soils, allow some resprouting of the brush and to allow the material to cure before burning.

To analyze the impacts of the emissions, an understanding of the carbon cycle is required. Below is a brief explanation of the carbon cycle.

*The **carbon cycle** is the biogeochemical cycle by which carbon is exchanged among the biosphere, pedosphere, geosphere, hydrosphere, and atmosphere of the Earth. It is one of the most important cycles of the earth and allows for the most abundant element to be recycled and reused throughout the biosphere and all of its organisms.*

Carbon exists in the Earth's atmosphere primarily as the gas carbon dioxide (CO₂). Although it is a small percentage of the atmosphere (approximately 0.04% on a molar basis), it plays a vital role in supporting life. Other gases containing carbon in the atmosphere are methane and chlorofluorocarbons (the latter is entirely anthropogenic). Trees convert carbon dioxide into carbohydrates during photosynthesis, releasing oxygen in the process. This process is most prolific in relatively new forests where tree growth is still rapid. The effect is strongest in deciduous forests during spring leafing out. This is visible as an annual signal in the Keeling

curve of measured CO₂ concentration. Northern hemisphere spring predominates, as there is far more land in temperate latitudes in that hemisphere than in the southern.

Forests store 86% of the planet's above-ground carbon and 73% of the planet's soil carbon.

Carbon is released into the atmosphere in several ways:

- Through the respiration performed by plants and animals. This is an exothermic reaction and it involves the breaking down of glucose (or other organic molecules) into carbon dioxide and water.
- Through the decay of animal and plant matter. Fungi and bacteria break down the carbon compounds in dead animals and plants and convert the carbon to carbon dioxide if oxygen is present, or methane if not.
- Through combustion of organic material which oxidizes the carbon it contains, producing carbon dioxide (and other things, like water vapor).

Around 42,000 gigatonnes of carbon are present in the biosphere. Carbon is an essential part of life on Earth. It plays an important role in the structure, biochemistry, and nutrition of all living cells.

- Autotrophs are organisms that produce their own organic compounds using carbon dioxide from the air or water in which they live. To do this they require an external source of energy. Almost all autotrophs use solar radiation to provide this, and their production process is called photosynthesis. A small number of autotrophs exploit chemical energy sources in a process called chemosynthesis. The most important autotrophs for the carbon cycle are trees in forests on land and phytoplankton in the Earth's oceans. Photosynthesis follows the reaction $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- Carbon is transferred within the biosphere as heterotrophs feed on other organisms or their parts (e.g., fruits). This includes the uptake of dead organic material (detritus) by fungi and bacteria for fermentation or decay.
- Most carbon leaves the biosphere through respiration. When oxygen is present, aerobic respiration occurs, which releases carbon dioxide into the surrounding air or water, following the reaction $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$. Otherwise, anaerobic respiration occurs and releases methane into the surrounding environment, which eventually makes its way into the atmosphere or hydrosphere (e.g., as marsh gas or flatulence).
- Burning of biomass (e.g. forest fires, wood used for heating, anything else organic) can also transfer substantial amounts of carbon to the atmosphere
- Carbon may also be circulated within the biosphere when dead organic matter (such as peat) becomes incorporated in the geosphere.

Carbon storage in the biosphere is influenced by a number of processes on different time-scales: while net primary productivity follows a diurnal and seasonal cycle, carbon can be stored up to several hundreds of years in trees (or thousands of years in long lived trees such as redwoods) and up to thousands of years in soils and oceans. Changes in those long term carbon pools (e.g. through de- or afforestation or through temperature-related changes in soil respiration) may thus affect global climate change (Wikipedia).

Air Resources Board GHG Inventory Work

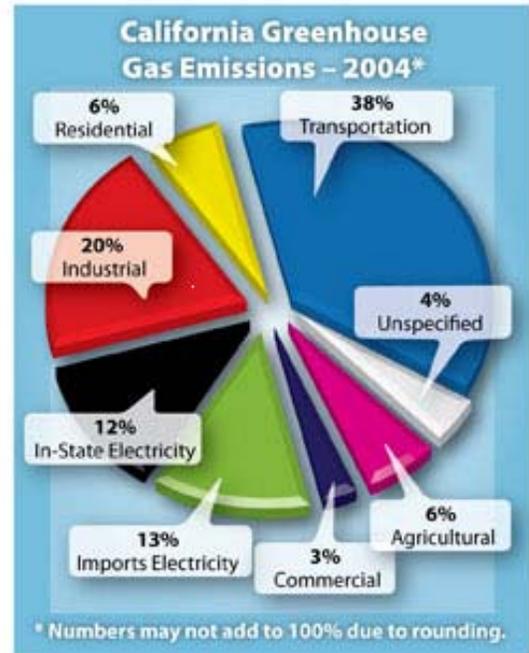
ARB has undertaken an extensive inventory documentation and refinement exercise to develop a draft updated statewide GHG emissions inventory and corresponding documentation. This statewide GHG inventory is an aggregate, "top-down" inventory for the period 1990-2004. The Board approved a 2020 emissions limit of 427 million metric tonnes of CO₂ equivalent in December 2007. The 2020 emissions limit is equivalent to the 1990 emissions level (ARB 2010).

<http://www.climatechange.ca.gov/inventory/index.html>

In California, the annual fossil fuel burning (FFB) emissions inventory of CO₂ is 362 million metric tonnes CO₂ per year averaged from 1990–2003. Even so, the annual averaged emissions of CO₂ from wildfires are significant (24 million metric tonnes CO₂ per year; equivalent to 6% of the FFB emission estimates). Although the ratio of annual state-level CO₂ emissions from fires to FFB sources is fairly low, and California does not have significant coal-fire power plant CO₂ emissions, this ratio is also subject to substantial variation. By the end of October 2003, wildfires burned more than 750,000 acres, producing the equivalent of 49% of the monthly CO₂ emitted by FFB sources for state. This occurred in more than one year that we investigated. The major wildfires in September 2006, including the Day Fire in Southern California, produced an estimated 16 million metric tonnes CO₂ for that month, equivalent to approximately 50% of estimated total monthly FFB emissions for the entire state (Wiedinmyer, C. and Jason C Neff, 2007). Far more acres are burned each year in wildfires than are burned in prescribed fires. To the extent that prescribed fire can lessen the intensity or reduce the acres burned in wildfires, prescribed fire can temporarily reduce the carbon emissions from the wildland.

Chaparral is a complex of shrubby vegetation types, characterized by evergreen sclerophyll shrubs in genera such as *Adenostoma*, *Ceanothus*, and *Arctostaphylos*, that dominates many sites at low to middle elevations throughout California, and into Arizona and Mexico as well. Notable for its intense fire behavior, chaparral has been classified as an intermediate fire return interval system (FRI of 20-100 years) that typically burns in stand-replacing crown fires (Conard and Weise 1998).

Plants in this ecosystem are adapted to the Mediterranean climate, local soils, and the fire regime. Fire adaptations include vigorous stump sprouting after fires by many shrubs, including the manzanitas, *Ceanothus*, and scrub oak. Chamise produces dormant seeds that require fire for scarification; these seeds create a large seed bank during non-fire years. In addition, most chaparral plants seed quickly, usually within three to five years after sprouting. Many of the shrubs, especially chamise, promote fire by producing highly flammable dead branches after about 20 years. Another chaparral plant, *Ceanothus*, has leaves that are coated with flammable resins. Fires occurring at intervals greater than 20 years are often high intensity because of the large amount of fuel existing in shrub tops. Many nutrients are locked in the foliage of chaparral plants. Through burning, these nutrients are recycled back into the soil. After fires in chaparral, forbs are usually profuse on the newly opened floor. After a year, the plant community is dominated by annual grasses. Five years after a fire, chaparral shrubs once again dominate the ecosystem (NWCG). Fertilization increases leaf area production and capacity to sequester carbon (Mader 2007). Prescribed fire



returns a portion of the nutrients stored in the biomass and litter to the soil. Thereby, fertilizing the remaining vegetation and increasing the capacity to sequester carbon.

On average, the biomass accumulation of chaparral lands in California is about 15 to 20 tons per acre (Bolsinger 1989). The carbon component of the biomass accounts for about 50% of the mass. Therefore, California's chaparral lands contain on average 7.5 to 10 tons per acre of carbon (27.5 to 36.7 tons per acre CO₂ equivalent) in the biomass. There is approximately 10 million acres of chaparral in California. At 7.5 tons per acre the carbon stored in chaparral in the state is about 75 million tons (275 million tons CO₂ equivalent). At some point the carbon stored in the plants will be released through respiration, decay or combustion. Although some of the carbon will be added to the soil most will be released to the atmosphere.

Over time the carbon that is stored in vegetation will be released as part of the normal carbon cycle. Carbon will also be sequestered overtime as new vegetation grows as long as the land remains productive. Prescribed fire is a tool to help maintain those carbon stocks over time. By reducing the probability of catastrophic wildfire prescribed fire can increase the probability of survival some of the vegetation within the project area, as well as, vegetation adjacent to the project allowing the remaining vegetation to continue to sequester carbon. The carbon released by the prescribed fire will be resequenced by the remaining vegetation and new vegetation following the burn. This has the potential to reduce the massive increase in short term emissions from wildfire and spread the emissions over a longer time period while allowing sequestration to occur in the remaining vegetation.

Prescribed burning is generally used to reduce the fuel load of the forest floor and coarse woody debris, as well as a portion of the above ground biomass. The purpose of the fire is to reduce the risk of large damaging fires by creating conditions that increase the effectiveness of fire suppression. Prescribed fire typically does not affect soil carbon due to lower burn temperatures than wildfire. Prescribed burning returns some carbon dioxide, methane, nitrous oxide, and particulate matter to the atmosphere. Combustion generally is more complete than wildfire, which releases higher concentrations of the other greenhouse gasses and particulate matter (Mader 2007).

Chaparral is an intermediate fire-return interval (FRI) system, which typically burns with high-intensity crown fires. Although it covers only perhaps 10% of the state of California, and smaller areas in neighboring states, its importance in terms of fire management is disproportionately large, primarily because it occurs in the wildland-urban interface through much of its range. Historic fire regimes for chaparral are not well-documented, partly due to lack of dendrochronological information, but it appears that infrequent large fires with FRI of 50-100+ years dominated. Fires in chaparral seem to have always burned the largest areas under severe fire weather conditions (major heat waves or high winds). Patterns of fuel development and evidence on the effectiveness of age-class boundaries at stopping fires suggest that, while fire in young stands is more amenable to control than that in older stands, chaparral of all ages will burn under severe conditions. We recommend a two-part strategy of: 1) establishment of strategically placed dynamic fuel management zones in wildland areas to provide access and opportunities for fire control, and; 2) intensive fire risk management zones (managed and developed cooperatively with local agencies and landowners) to protect values in the wildland-urban interface (Conard and Weise 1998).

An important cause of carbon loss is catastrophic wildfires, especially in fire-adapted ecosystems (Helms 2007). Fire is one of the largest potential risks to loss of stored terrestrial C and is a loss pathway that is difficult to quantify due to the high degree of spatial and temporal variation in fire emissions. At multi-decadal time scales, wildfires have a near neutral effect on atmospheric CO₂: vegetation regrowth balances punctuated C losses due to combustion, assuming that fire return intervals remain constant (Wiedinmyer, C.

and Jason C Neff, 2007). Fuel reduction projects that do not change the vegetation type are carbon neutral over time. The time needed to sequester the amount of carbon released by the treatment is determined by the amount of carbon released and the subsequent regrowth of the vegetation.

California's wildlands are going to burn and the carbon is going to be released. Through prescribed fire land managers can have a say in the timing and quantity of some of those releases. Land managers can also lessen the impacts or provide benefits for other environmental resources. Fire hazard reduction may be an objective of prescribed fire; however, other objectives such as, control of invasive species, wildlife habitat improvement, or range improvement are often also objectives. If a wildfire does happen to enter an area that was treated the wildfire may be contained sooner with reduced area burned and consequently reduced carbon emissions. The reduce number of acres or fire intensity may have benefits to other resource areas beside the reduction of carbon emissions. The reduced wildfire size or intensity may also have benefits to environmental resources, public health, as well as, public and firefighter safety.

All CAL FIRE prescribed burns get a Smoke Management Permit from the Local Air District. Burning is done on approved burns days as determined by the Air District. This process ensures there are not any significant smoke impacts to public health from the project.

Prescribed burn projects undertaken by CAL FIRE are a management tool. These projects only take place on working landscapes. They are not used to convert areas to other land uses. The land remains in production and therefore is available to sequester carbon into the future. Conversion of land to other uses such as factories or subdivisions would have a much greater increase in carbon emissions. Prescribed fires are also designed to achieve the landowners objectives; they are carefully planned to minimize the area treated and to only consume the amounts of fuel necessary to meet the prescribed burn objectives. Prescribed burns are not initiated without specific burning objectives to be achieved. CAL FIRE does not believe prescribed burning produces an increase in the long term release of greenhouse gases from chaparral landscapes.

Chaparral Removal on the Proposed Project:

As shown on the Figure 3. Project Map on page 12, there are three different types of dozer line. The existing Primary Control Line (22,869 feet) will not be subject to chaparral removal. The construction of the Primary Control line (2,061 feet) and the Secondary Control lines (22,184 feet) will result in the removal of 37 acres of chaparral. A conservative estimate of 66 feet in width of these proposed lines was used to calculate acres.

References for the GHG Chaparral Section;

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NWCG. National Wildfire Coordinating Group (NWCG). Communicator's Guide for Wildland Fire Management: Fire Education, Prevention, and Mitigation Practices

Wiedinmyer, C. and Jason C Neff, 2007. Estimates of CO₂ from fires in the United States: Implications for carbon management **Carbon Balance and Management**.

Wikipedia, the free encyclopedia. Carbon cycle From Wikipedia, the free encyclopedia
http://en.wikipedia.org/wiki/Carbon_cycle

Greenhouse Gas Emissions from Diesel Consumption

The conversion factor presented below was obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). These factors may change (slightly) over time. The prudent GHG emissions researcher may wish to review the most current CCAR General Reporting Protocols to obtain any updated conversion factor.

The conversion factor for diesel consumption is **10.15 KG/GALLON.**

If a project would consume 300 gallons of diesel fuel, to calculate the GHG emissions one would multiply 300 (the number of gallons) times 10.15 (the conversion factor) divided by 1,000 to determine the volume of emissions to be 3.15 metric tons of CO₂e.

Greenhouse Gas Emissions from Gasoline Consumption

The conversion factor presented below was obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). These factors may change (slightly) over time. The prudent GHG emissions researcher may wish to review the most current CCAR General Reporting Protocols to obtain any updated conversion factor.

The conversion factor for gasoline consumption is **8.81 KG/GALLON.**

If a project would consume 30 gallons of gasoline, to calculate the GHG emissions one would multiply 30 (the number of gallons) times 8.81 (the conversion factor) divided by 1,000 to determine the volume of emissions to be 0.265 metric tons of CO₂e.

Appendix C CNDDDB Species/Habitat Review

Prepared by: Adam Wyman CAL FIRE

In January 2012, a nine 7.5 Minute quadrangle query was made of the Department of Fish and Game’s California Natural Diversity Database (CNDDDB). The quadrangles used in this analysis are listed below. The following results relate to listed Endangered, Threatened, or Sensitive Species (List 1, List 2 and List 3) that were generated in the query.

The Squares below represent the orientation of the Nine 7.5 Minute USGS Quadrangles Used For CNDDDB Query:

Cold Fork	Oxbow Bridge	Blossom
Raglin Ridge	Lowrey (Contains All Project Areas)	Red Bank
Riley Ridge	Paskenta	Flournoy

California Department of Fish and Game Species of Special Concern:

Under California law, Species of Special Concern are to be considered during the environmental review process. The California Environmental Quality Act (CEQA; California Public Resources Code §§ 21000-21177) requires State agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the State. Section 15380 of the CEQA Guidelines indicates that species of special concern should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined in State regulations. Therefore, species of special concern have been included in this analysis.

“Special Plants”** is a broad term used to refer to all the plant taxa inventoried by the Department of Fish and Game’s Natural Diversity Database, regardless of their legal or protection status. Special plant taxa are species, subspecies or varieties that fall into one of the following categories:

Officially listed by California or the federal Government as Endangered, Threatened or Rare

- A candidate for State or Federal listing.

- Taxa which meet the criteria for listing even if not currently included on any list.
- A BLM, USFWS or USFS Sensitive species.
- Taxa listed in the CA Native Plant Society's *Inventory of Rare and Endangered Plants of California*
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range.
- Populations in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California
- Taxa closely associated with a habitat that is declining in California.

**Definition from DFG "*Special Vascular Plants, Bryophytes and Lichen List*".

Global and State Rank.

The Global Rank (G-rank) is a reflection of the overall status of an element throughout its global range. The State rank (S-rank) refers to the imperilment status only within California's state boundaries. Both Global and State ranks represent a letter+number score that reflects a combination of rarity, threat and trend factors with weighting being heavier on rarity than the other two:

G1/S1 Critically Imperiled. At very high risk of extinction due to extreme rarity, very steep declines, or other factors.

G2/S2 Imperiled. At high risk of extinction due to very restricted range, very few populations, steep declines or other factors.

G3/S3 Vulnerable. At moderate risk of extinction due to a restricted range, relatively few populations, recent and widespread declines, or other factors.

G4/S4 Apparently Secure. Uncommon but not rare. Some cause for long-term concern due to declines or other factors

G5/S5 Secure. Common widespread and abundant.

During the species review portion of this document, the author reviewed a previous botanical survey that had been prepared for an earlier Sunflower Fuel Reduction Project. The 2004 survey covered approximately seventeen (17) miles of fuelbreaks located near the currently proposed project. Some portions of the current project were included in the previous survey. Eighteen (18) listed or special status plant species were targeted for field survey based upon their likelihood of being present in the project area. There were no TESS plant species discovered within the earlier project area. A previously recorded single occurrence of adobe lily (*Fritillaria pluriflora*) FRPL was relocated outside the project boundary. The same FRPL specimen is outside the current project boundary. No additional TESS species was located near or within the current project.

Botanical Survey Report for Threatened, Endangered Sensitive and Special Status Plant Species 2004-2005 Phase (II) of the Sunflower Fuels Reduction Project. February 11, 2005. 32pp. Chief investigator: Gregory Treber - Botanist, MS Plant Ecology.

SPECIES STATUS SUMMARY TABLE
Results of Listed Species Found in the CNDDDB Query

SCIENTIFIC NAME	COMMON NAME	FED STATUS	CAL STATUS	DFG STATUS	CNPS LIST	USGS 7.5 QUAD
<i>Antirrhinum subcordatum</i>	dimorphic snapdragon	NL	NL	--	4.3	CF, LO, P, RR, RI, TM
<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	NL	NL	--	1B.2	CF, LO, P
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	NL	NL	--	1B.2	RI
<i>Brodiaea coronaria</i> ssp. <i>rosea</i>	Indian Valley brodiaea	NL	E	--	1B.1	RI
<i>Carex klamathensis</i>	Klamath sedge	NL	NL	--	1B.2	RR
<i>Chamaesyce ocellata</i> ssp. <i>rattanii</i>	Stony Creek spurge	NL	NL	--	1B.2	CF, LO, P, RR
<i>Chlorogalum pomeridianum</i> var. <i>minus</i>	dwarf soaproot	NL	NL	--	1B.2	P, RR, RI
<i>Clarkia gracilis</i> ssp. <i>albicaulis</i>	white-stemmed clarkia	NL	NL	--	1B.2	P
<i>Dendroica petechia brewsteri</i>	yellow warbler	NL	NL	SSC	--	LO, RR
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	T	NL	--	--	P
<i>Emys marmorata</i>	western pond turtle	NL	NL	SSC	--	CF
<i>Eriastrum brandegeae</i>	Brandegee's eriastrum	NL	NL	--	1B.2	CF, LO, P, RR,
<i>Eriastrum tracyi</i>	Tracy's eriastrum	NL	R	--	1B.2	CF, LO
<i>Falco mexicanus</i>	prairie falcon	NL	NL	WL		P, RI
<i>Fritillaria pluriflora</i>	adobe-lily	NL	NL	--	1B.2	LO
<i>Harmonia stebbinsii</i>	Stebbins' harmonia	NL	NL	--	1B.2	RI
<i>Hesperolinon tehamense</i>	Tehama County western flax	NL	NL	--	1B.3	P, RR, RI
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	NL	NL	--	1B.1	BM, OX
<i>Layia septentrionalis</i>	Colusa layia	NL	NL	--	1B.2	P, RI
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	woolly meadowfoam	NL	NL	--	4.2	CF, LO
<i>Martes pennanti (pacifica) DPS</i>	Pacific fisher	C	NL	SSC	--	RR
<i>Oncorhynchus tshawytscha</i>	chinook salmon - Central Valley spring-run ESU	T	T	--	--	CF
<i>Rana boylei</i>	foothill yellow-legged frog	NL	NL	SSC	--	CF, LO
<i>Rana draytonii</i>	California red-legged frog	T	NL	SSC	--	LO
<i>Spea hammondi</i>	Western spadefoot	NL	NL	SSC	--	RB

Species Status Identifiers Used on the Table

F – Federal Listing E – Endangered C – Candidate CA – State Listing
T – Threatened NL – Not Listed R – Rare WL – Watch List
SSC – DFG Species of Special Concern

USGS 7.5 Minute Quad Identifiers Used on the Table

BM - Blossom CF - Cold Fork LO - Lowrey
PK – Paskenta RR - Raglin Ridge RI - Riley Ridge
RB – Red Bank OX - Oxbow Bridge FN - Flournoy

Species/Habitat Evaluation

Dimorphic snapdragon (*Antirrhinum subcordatum*): Annual or perennial herb. Blooms Apr-Jul. Stem vine-like, ascending or erect, often clinging by twining pedicels or branchlets, Found on gentle, open slopes on serpentine, often under shrubs, Chaparral and lower montane conifer forests. Elevation: 300–800 m. Bioregional distribution: Inner North Coast Ranges. Not FED/CA listed, CNPS 4.3. Sightings of this plant have been made northeast of the project area near Highway 36W. No serpentine soils are present in project area. This species is unlikely to be present. No impact to *A. subcordatum*.



Jepson's Milk Vetch (*Astragalus rattanii* var. *jepsonianus*): This plant grows as a low annual herb with purple flowers, blooming in April to June. The plants are normally confined to moist areas along creeks and springs. Wet areas will be protected by equipment exclusion zones. No impact to *A. rattanii* jepsonianus.



Big-Scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*): Perennial herb. This species of plant is found within grasslands, foothill woodlands and occurs in various land cover types, including purple needle grass grassland, serpentine bunchgrass grassland, mixed serpentine chaparral, mixed oak woodland and forest, Ponderosa pine forest and woodland, between 150 and 4,500 feet in elevation. Strong affinity to serpentine soils. Not FED/CA listed, CNPS 1B.2. Several sightings for this plant have been made east of the project area. Habitat may be present in the project area. This species may be benefited by disturbance and brush removal along ridges. No adverse impact to *B. macrolepis* macrolepis.

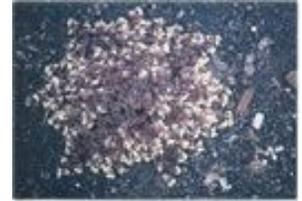


Indian Valley Brodiaea (*Brodiaea coronaria* ssp. *rosea*): This bulbiferous perennial herb grows in grasslands and chaparral, often on serpentine soils at elevations ranging between 1072' and 4640'. Not FED/CA listed, CNPS 1B.1. No true grassland present in project area but oak-woodland is present. The project area contains formerly open areas that have become overgrown with dense stands of chaparral vegetation that in some instances completely shade the soil surface. With the removal of this vegetation, these openings will be reestablish for a period of time, increasing the likelihood this species could colonize, or recolonize the project areas. Project may have a slight benefit to *B. coronaria* rosea, if present.



Klamath Sedge (*Carex klamthensis*): Perennial herb (rhizomatous). Klamath Sedge habitat includes fens and other moist and wet habitat, generally on serpentine soils. A number of springs are located in the project vicinity where habitat for this plant is present. No springs, bogs or fens are known to be located in the project boundary subject to mechanical disturbance. Riparian areas along streams and any springs and seeps will be excluded. Except for desired stream crossings, areas of disturbance target ridge tops and upper slopes. Crossing sites will be surveyed by the CAL FIRE Project Manager for plant presence. The crossing site will be eliminated from the project or site-specific protection measures will be implemented to eliminate any impact to this species. Other areas near watercourses or drainages will be afforded equipment exclusion zones. No impact to *C. klamthensis*.

Stony Creek Spurge (*Chamaesyce ocellata* ssp. *rattanii*): Annual herb. Hairy prostrate stems forming mats. Blooms May-October. The plant is found in dry stream beds, rock outcrops, dry gravelly and grassy slopes, flats, and roadsides. Typically in valley and foothill grassland habitat types. This plant is endemic to Tehama County's westside and is unlisted FED/CA and rated 1B.2 by California Native Plant Society. The project



area is within this species' normal range of habitation. Primary disturbance will be dense areas of chaparral brush. Minor disturbance along an existing oak-woodland fuelbreak. No adverse impacts to *C. ocellata rattanii* anticipated.

Dwarf soap root (*Chlorogalum pomeridianum* var. *minus*): Perennial herb (bulbiferous). Flowers on long 15-30mm stems. Found in chaparral habitat type. This bulb is found on grassy road banks, open meadows, and slopes. Not FED/CA listed, CNPS 1B.2. The project's treatment areas are currently covered by both dense stands of chaparral and oak-woodland with scattered chaparral vegetation. Shade from competing vegetation reduces the opportunity for the plant to flourish. This large (7-15 cm dia.) bulb was used by native-californians for soap and as a chemical aid to fishing. It is anticipated that clearing chaparral vegetation and opening the soil to sunlight will increase the potential for the *C. pomeridianum minus* to occupy or colonize disturbed portions of the project area.



White-Stemmed Clarkia (*Clarkia gracilis* ssp. *albicaulis*): Annual herb. Blooms May-June. Erect slender stem with a few sparse, narrow leaves several centimeters long. Found in habitat types: chaparral, cismontane woodland, ultramafic soils. WSC has a weak affinity to serpentine soils. This plant is unlisted FED/CA and has a CNPS rating of 1B.2 and grows abundantly in open woodlands and grassy meadows that have been created by wildfire. Suitable habitat may be available in the project area. Removal of woody chaparral vegetation and soil scalping will temporarily increase the percentage of open sites and the potential of this *C. gracilis albicaulis* to become enhanced within the disturbance area.



Yellow Warbler (*Dendroica petechia*): Yellow Warblers generally occupy riparian vegetation in close proximity to water along streams and in wet meadows. Throughout these areas they are found in willows, cottonwoods and other species of riparian shrubs or trees. Yellow Warblers also breed in xeric montane shrub fields and occasionally in the shrubby understory of mixed-conifer forest. This species appears to adapt its foraging to variation in local vegetation structure and its diet in California consists largely of animal matter, including ants, bees, wasps, caterpillars, beetles, true bugs, flies, and spiders. Yellow Warblers have shown a high degree of site fidelity returning to their previous year's breeding grounds and territory. The project's effect on vegetation is expected to result in the creation of variations in upland brush age and size classes. Mixed conifer forest and montane shrubfields are not present. Riparian areas, except at existing crossings needing repair will not be disturbed. No impacts to *D. petechia*.

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*): Arboreal beetle with primary reproduction in elderberry shrubs. This insect is found intimately associated with elderberry (*Sambucus*) trees and shrubs as it spends its larval stage within the canes of this woody species. Presence of the beetles is usually determined by discovery of quarter-inch exit holes in the canes or stems of plants. The lack of observable exit holes does not preclude the presence of longhorn beetles however. Elderberries are rarely found in dense patches, more typically as a few plants or single specimen within a variety of habitat types including riparian scrub, oak woodland, and rarely grassland. In Tehama, elderberries are sometimes found within rural home landscaping or along roadside right of ways. Elderberries can be at risk from overgrazing, mechanical clearing and heavy burning. Established shrubs are good sprouters and are able to flourish after moderate cutting or fire. Elderberries are present



in the vicinity of the project along Red Bank Creek. No elderberry plants have been observed within any portion of the project area. Riparian areas are excluded from dozer disturbance. No impact to *D. californicus dimorphus*.

Western Pond Turtle (*Actinemys marmorata*): Prefers still water or slow-flowing streams or artificial waters with presence of basking sites such as partially submerged logs or rocks, or mud banks. Found in aquatic sites and small reservoirs and even perennial stock ponds if permanent riparian vegetation is present. Potentially in slow-flowing irrigation ditches. This species is found widespread in California in a variety of habitat types: Klamath & northcoast standing waters, marsh and swamp, Sacramento/San Joaquin standing waters, southcoast flowing waters, southcoast standing waters, wetland. Pond turtles build shallow nests in mud or friable soils adjacent to or above suitable water habitat. Habitat quality seems to vary with the availability of aerial and aquatic basking sites. Hatchlings (i.e. individuals through their first year of activity) require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western Pond Turtles also require an upland oviposition site in the vicinity of the aquatic site. Suitable oviposition sites must have the proper thermal and hydric environment for incubation of the eggs. As this species requires slack or slow water aquatic habitat. As a result, is uncommon within high gradient streams that occur within the project area such as Red Bank Creek. Although ponds are common in commercial rangelands, none are present within the project area. All springs, streams and wet areas will be protected by equipment exclusion zones. No impact to *A. marmorata*.

Brandege's eriastrum (*Eriastrum brandegeae*): Annual herb. Blooms May-Aug. Found in chaparral, cismontane woodland. Threatened by grazing and vehicles. Not FED/CA listed, CNPS 1B.2. This plant is widespread throughout the general area. The plant responds favorably to disturbance and is often found along the edges of roads. Vegetation manipulations to be completed in connection with the project are expected to benefit this species. No adverse impacts to *E. brandegeae*.



Tracy's eriastrum (*Eriastrum tracyi*): Annual herb. Blooms May-Aug. Tracy's eriastrum is closely related to Brandege's eriastrum (*Eriastrum brandegeae*). Not FED/CA listed, CNPS 1B.2. Sightings of this plant have occurred near the community of Platina located northwest of the project area. The plant responds favorably to disturbance and is often found along the edges of roads. Vegetation manipulations to be completed in connection with the project are expected to benefit this species. No adverse impacts to *E. tracyi*.

Prairie Falcon (*Falco mexicanus*)

Resident along the inner coast range and Sierra Nevada. Distributed from annual grasslands to alpine meadows. Associated primarily with perennial grassland, savannahs, rangeland and some agriculture fields. Feeds mostly on small mammals and some small birds and reptiles. Nests in open terrain with canyons cliffs and escarpments. Uses open terrain for foraging. The prairie falcon is a California species of special concern. Prairie falcons shift habitats periodically throughout the year, and some may migrate long distances. In late summer, ground squirrels move underground to escape the dry, hot environment. Prairie falcons, losing their major source of prey, may leave the nesting grounds at this time and head to higher elevations, where snowmelt prolongs the growing season. In late fall, some birds may return to their breeding range, and many spend the winter in open fields and agricultural areas, taking advantage of the flocking birds that over-winter in these habitats. There are no suitable cliffs for prairie falcon nesting in, or adjacent to, the project site. The project vicinity is oak-woodland, meadow and brushfield and provides suitable foraging habitat but no nesting. Brush clearing from this project could result in a small, temporary increase in rodent prey base if falcon is present. There will be no impact to *F. mexicanus*.

Adobe-Lily (*Fritillaria pluriflora*): Perennial herb (bulbiferous) Blooms Feb-Apr. Threatened by grazing, vehicles and horticultural collecting. Adobe-lily occurs in chaparral, cismontane woodlands as well as valley and foothill grasslands utilizing dense clay-dominated soils. Occurrences have been found between 196' to 2313' elevations. Not FED/CA listed, 1B.2. The project area is within this species normal range of habitation but soils are thin and gravelly. The potential for this plant occurring within the project area is minimized as a majority of the disturbance area is very steep and fine textured soils are absent. The condition of the site prior to ground-disturbing activities is dominated by dense

chaparral brush species, inhibiting other herbs and bulbs. Post project, there will be more openings for the plant community to diversify. Adverse impacts to *F. pluriflora* are unlikely.

Stebbin's Harmonia (*Harmonia stebbinsi*): Blooms May-July. SH is a species of flowering plant in the aster family. It is endemic to northern California, where it is limited to the Klamath Mountains and adjacent slopes of the North Coast Ranges. It is a member of the serpentine soils plant community in these mountains. It is an annual herb producing a bristly stem up to about 25 centimeters tall studded with black resin glands. The bristly leaves are up to about 2 centimeters long and are mostly gathered near the base of the plant. NO FED/CA listing, CNPS 1B.2. Sightings have been reported to the north and west of the project area but none have been reported within the project area. No serpentine present in the project. SH is unlikely to be present. Or be impacted.



Tehama County Western Flax (*Hesperolinon tehamense*): Annual herb, leaves alternate. Blooms May-Jul. TCWF is endemic to northern California, where it is known from only about ten occurrences, mostly within Tehama and Glenn Counties. Found in openings in mixed chaparral 328-3280 feet in elevation. Most of its habitat is on Bureau of Land Management lands and within the Mendocino National Forest, in chaparral ecosystems with serpentine soils. The plant produces thin, hairy stems up to 50 centimeters in maximum height with small, sparse linear leaves. Annual herb, $\frac{3}{4}$ to 20 inches tall with bright yellow flowers. Located in chaparral, cismontane woodland, on serpentine barrens in chaparral. Associated with *Pinus sabiniana*, *Arctostaphylos viscida*, *Adenostoma fasciculatum*, *Quercus durata*. Risk: Road work could threaten; also impacts from star thistle invasion. Not FED/CA listed, CNPS 1B.3. Found 15 miles south of project area but similar habitat and associations exist in western half of the project area. Also found along Elder Creek. *H. tehamense* apparently colonizes abandoned roads, grows on open sites with less than 50% cover. Suitable habitat in Sunflower area west of the project area could include shaley serpentine types with intermittent grassland. Seeps not present. The road grading work is confined to a relatively small area of the project, where it has occurred annually or semi-annually for many years, and would continue to occur without this project. TCWF is unlikely to be present within the project area. If, present, *H. tehamense* is likely to slightly enhanced.

Red Bluff Dwarf Rush (*Juncus leiospermus* var. *leiospermus*), is a plant of vernal pools and other wet seasonal depressions in the local habitat. It is a small annual herb forming dense clumps of hairlike reddish brown stems no more than 10 or 11 centimeters tall. The stems are surrounded by a few thready leaves. Found in chaparral, valley grassland, foothill woodland, usually occurs in wetlands, but occasionally found in non-wetlands, freshwater wetlands, vernal-pools and wetland-riparian. There are no vernal pools or upland wetlands in the project area. The watercourses shall be protected with equipment exclusion buffers. No impact to *J. leiospermus leiospermus*.



Colusa Layia (*Layia septentrionalis*): Annual herb. Blooms Apr-May. Colusa Layia occurs on loose serpentine or other rocky soils in fields, on grassy slopes or along road cuts within chaparral and cismontane woodland habitats. This species habitat is normally found between 328' to 3,593' in elevation. Not FED/CA listed, CNPS 1B.2. The project area is within this species normal range of habitation. At the present time there is very little botanical diversity within the project area which consists almost entirely of tall, dense stands of chaparral brush species. It is anticipated that with the removal of a portion of the current vegetation, additional moisture and sunlight along with shallow soil disturbance, will result in a greater variety of plant species within the project's impact area. No adverse impact to *L. septentrionalis* is anticipated.

Woolly Meadowfoam (*Limnanthes floccosa* ssp. *floccosa*): Annual herb. Blooms Mar-June. Occurs almost always under natural conditions in wetland. Can be found within the following habitat types where suitable microsites are present: chaparral, cismontane woodland, valley and foothill grassland, vernal pool, wetland. The California Natural Diversity Data reports *Limnanthes floccosa* ssp. *floccosa* as having a Heritage Rank of G4T4/S3.2 and a Rare Plant Rank of 4.2. This fairly endangered California species is typically found near the wet inner edges of vernal



pools the closest of which are located 25 miles southeast of the project area. This species is found near the wet inner edges of vernal pools the closest of which are located 30 miles to the southeast of the project area. The watercourses shall be protected with buffers and there are mitigation measures proposed in this project designed to minimize any risk of significant impacts to this species. No suitable habitat found in the project area. No impact to *L. floccose floccose*.

Pacific Fisher (*Marten pennanti (pacifica) DPS*): The Pacific Fisher is a specialized forest carnivore that is associated with closed-canopy, late-succession forests throughout its range. The project area will be conducted within chaparral brush lands that occur within northwestern Tehama County. Habitat for this species is not found within the project, but it does exist within 9 miles south west of the project area. No impacts to *M. pacifica* as a result of this project.

Spring-run Chinook Salmon (*Oncorhynchus Tshawytscha (s)*): Largest species of the pacific salmon family and anadromous to the rivers of the west coast including the Sacramento and its tributaries. Requires substantial winter flows with dependable summer cool-water flows. Risk: warm summertime water temperatures and fish passage barriers. Found sporadically in Cottonwood Creek, not found in Red Bank Creek. Habitat is unlikely to be present in Red Bank Creek due to low flows and high temperatures. Elder Creek is slightly better. No operations are planned near Red Bank Creek or Elder Creek. No impact to *O. tshawytscha*.

Foothill Yellow Legged Frog (*Rana boylei*): This aquatic species requires shallow, flowing water, found in small to moderate-sized streams with at least some cobble-sized substrate. This type of habitat is best suited to oviposition and provides significant refuge habitat for larvae and postmetamorphs. Foothill yellow-legged frogs are infrequent or absent in habitats where introduced aquatic predators such as fishes and bullfrogs are found including small streams and wet areas. Potential habitat is present in Red Bank Creek although trout are present. This project would not impact the species if present in nearby streams as no activity will occur within riparian zones and upland burrows will not be affected by project work. Any pile burning will occur outside riparian zones and only during winter months when this species is in hibernation. No adverse impact to *R. boylei*.

California Red Legged Frog (*Rana aurora draytonii*): The California Red Legged Frog is highly aquatic with little movement away from streamside habitat during the dry season. Individuals found in interior areas of California tend to hibernate in burrows during winter months as well as for temporary retreat during periods of activity. This project is not anticipated to impact the species as no activity will occur within its primary aquatic habitat. In addition, upland burrows will not be affected by project work. Any pile burning will occur outside riparian zones and only during winter months when this species is in hibernation. No adverse impact to *R. aurora draytonii*.

Western Spadefoot (*Spea hammondi*): Western spadefoot toads are amphibians in the family Pelobatidae. Spadefoot toads are distinguished from true toads (genus *Bufo*) by their cat-like eyes (due to vertically elliptical pupils), single black sharp-edged "spades" on their hind feet, teeth in their upper jaws and rather smooth skin. The western spadefoot toad is one of three species native to California. It is found in the western half of the state. Adult western spadefoot toads will forage on a variety of insects, worms, and other invertebrates, including grasshoppers, true bugs, moths, ground beetles, predaceous diving beetles, ladybird beetles, click beetles, flies, ants and earthworms. The call of western spadefoot toads is hoarse and snore-like, and lasts about one-half to one second. Western spadefoot toads breed from January to May in temporary pools. Water temperatures in these pools must be between 48° F and 86° F. The principal factors contributing to the decline of the western spadefoot toad are loss of habitat due to urban development and conversion of native habitats to agricultural lands, the introduction of non-native predators and stochastic events that particularly impact small, isolated populations. Activities that produce low frequency noise and vibration in or near habitat for western spadefoot toads may be detrimental to the species. Spadefoot toads are extremely sensitive to such stimuli, which cause them to break dormancy and emerge from their burrows. This could result in mortality or reduced productivity. This project is not expected to impact the species if individuals did occupy portions of the riparian habitat found within the project area as no activity will occur within riparian zones. Any pile burning will occur exclusively outside riparian zones and only during winter months when this species is in

hibernation. Vibration from heavy equipment will occur when the species is out of dormancy. This species typically found in true grassland which is not present in the project area. No adverse impact to *S. hammondi*.

LIST AND DEFINITION OF ACRONYMS AND SYMBOLS USED IN THIS DOCUMENT

Acronym	Definition
Ac.	Acre
ADT	Average Daily Trips
ARB	Air Resources Board
BBD	Below-Ground Biomass Density
BLM	Bureau of Land Management
BMPs	Best Management Practices
CA	California
CAL FIRE	California Department of Forestry and Fire Protection
CCAR	California Climate Action Registry
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection (changed to CAL FIRE in 2007)
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Data Base
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent (a standard unit to measure global warming potential)
et al.	<i>et alii</i> (Latin) (it means “and others”)
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
Gal.	Gallon
GHG	Greenhouse Gas
H	Historic
HFEO	Heavy Fire Equipment Operator
HWY	Highway
ICP	Incident Command Post
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
LSAA	Lake or Streambed Alteration Agreement
MDBM	Diablo Base Meridian
MND	Mitigated Negative Declaration
MMRP	Mitigation, Monitoring, and Reporting Plan
N/A	Not Applicable
NDDDB	Natural Diversity Data Base
NOI	Notice of Intent (to adopt a negative declaration or mitigated negative declaration)
PM ₁₀	Particulate Matter less than 10 microns in diameter
RPF	Registered Professional Forester
RWQCG	Regional Water Quality Control Board
SCH	State Clearinghouse
TCAPCD	Tehama County Air Pollution Control District
USGS	United States Geological Survey
Symbols	Definition
§	Section
#	Number
%	Percent

LIST OF PREPARERS OF THIS DOCUMENT

Adam Wyman

Environmental Coordinator, California Department of Forestry and Fire Protection
Tehama-Glenn Unit,
604 Antelope Boulevard
Red Bluff, CA 96080
(530) 528-5106

Chuck Schoendienst
Forester, California Department of Forestry and Fire Protection
Tehama-Glenn Unit,
604 Antelope Boulevard
Red Bluff, CA 96080
(530) 528-5199

Kelly Dreesmann

Staff Chief - Regional Resource Manager, California Department of Forestry and Fire Protection
6105 Airport Road
Redding, CA 96002
(530) 224-2472

Tony Roberts

Assistant Chief, Training Northern Region
6105 Airport Road
Redding, CA 96002
(530) 224-2457

Richard C. Jenkins

M.A., Senior State Archaeologist, California Department of Forestry and Fire Protection
6105 Airport Road
Redding, CA 96002
(530) 224-4749

LIST OF EXPERTS CONSULTED

Bill Burrows

Private Landowner & Sunflower CRMP
12250 Colyer Springs Road
Red Bluff, CA 96080
(530) 529-1535

Tony Joachim

Private Landowner & Sunflower CRMP
P.O. Box 690751
Stockton, CA 95269
(209) 940-2214 (o); (209) 649-6480 (c)

Dan Foster

California Department of Forestry and Fire Protection
Resource Management – Environmental Protection Program

P.O. Box 944246
Sacramento, CA 94244-2460
Phone: (916) 653-0839

Alan Abbs

Air Quality Issues, Tehama County Air Pollution Control District
Red Bluff, CA 96080
(530) 527-3717

Biological Issues

California Department of Fish and Game
601 Locust Street
Redding, CA 96001
(530) 225-2300

Stacy Stanish

Streambed Alteration Agreement
California Department of Fish and Game
601 Locust Street
Redding, CA 96001
(530) 225-2300

Bob Motroni

Senior Wildlife Biologist, California Department of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460
(916) 653-9420

Michael Wopat

RCC OPS Sr. Engineering Geologist, California Geological Service
6105 Airport Road
Redding, CA 96002
(530) 224-4748

Angela Wilson

Senior Engineering Geologist
Central Valley Regional Water Quality Control Board
415 Knollcrest Drive, Suite 100
Redding, CA 96002

US Fish and Wildlife Service

2800 Cottage Way; W-2605
Sacramento, CA 95825

Northeast Information Center

California State University, Chico
123 West 6th Street, Suite 100
Chico, CA 95928
530-898-5438

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1980 California Natural Diversity Data Base Quick find available on-line at:
http://imaps.dfg.ca.gov/viewers/cnddb_quickviewer/app.asp

CGS (California Geological Survey) California Department of Conservation
2007 Alquist-Priolo Earthquake Fault Zones available on line at
<http://www.conservation.ca.gov/CGS/rghm/ap/Pages/Index.aspx>

Google Maps and Google Earth
<http://maps.google.com/maps?ie=UTF-8&hl=en&tab=wl>

The United States Department of Agriculture Natural Resource Conservation Service Web Soil Survey (WSS)
<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Botanical Survey Report for Threatened, Endangered Sensitive and Special Status Plant Species 2004-2005 Phase (II) of the Sunflower Fuels Reduction Project. February 11, 2005. 32pp. Author Gregory Treber. Available at CAL FIRE Tehama Glenn office, 604 Antelope Blvd. Red Bluff CA 96080. document not available online.