



JACOBSZOOM & ASSOCIATES, INC.

natural resource planning & management

Oak Mitigation Plan

Prepared for:

Tyler Betts

9141 State Hwy 175

Kelseyville, CA 95451

Prepared by:

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Environmental Technician

Jacobszoon and Associates Inc.

209-482-6311

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Introduction

The proposed cannabis cultivation development will be established in areas of the project property characterized as pockets of Oak Woodland with signs of previous agricultural use as walnut orchards among a ponderosa pine (*Pinus ponderosa*) forest containing madrone (*Arbutus menziesii*) and Douglas-fir (*Pseudotsuga menziesii*). The oak woodlands within the property consist of open stands of mostly blue oak (*Quercus douglasii*), with interior live (*Quercus wislizeni ssp. wislizeni*), black oak (*Quercus kelloggii*), bush interior live oak (*Quercus wislizeni ssp. frutescens*), and valley oak (*Quercus lobata*) species interspersed. The understory can be characterized by California brome (*Bromus carinatus*) and blue wild-rye (*Elymus glaucus*). Sapling regeneration for blue oak (*Q. douglasii*) was observed in areas characterized by full sunlight either 20 feet or so from the nearest conifer tree. Black Oak (*Q. kelloggii*) saplings were observed clustered together in a shaded area containing blue and black oaks averaging 25 feet in height.

The Project Site was surveyed by Jacobszoon and Associates, Inc. Environmental Technician Rebecca Cosmero on July 7, 2021. Approximately two acres of oak woodland habitat on the property will be affected by the removal of oak trees of various species and a variety of life stages. The oak woodland is dominated by blue oaks (*Q. douglasii*) of up to 43 DBH but averaging 12 DBH and averaging approximately 39' in height. The average height of trees slated for removal is 45 feet. All trees were observed to be in good health. Eighteen (18) Blue oaks, (8) black oaks, eight (8) valley oaks, four (4) interior live oaks, and two (2) bush interior live oaks are targeted for removal for a total of forty (40) trees. See Table 4 for a complete breakdown by DBH and species.

In total, the development of the proposed cultivation operation will result in the disturbance of approximately 2 acres of oak woodland habitat and the removal of 40 oak trees. To comply with the California Oak Woodlands Conservation Act, 120 oaks will be protected and irrigated each year for seven years to mitigate for the loss because of project development. Number of trees to be replaced by species at the three to one ration are listed below.

Table 1: Number of trees to be replaced by species at 3:1.

Blue Oak	Black Oak	Valley Oak	Interior Live	Bush Interior Live Oak
54	24	24	12	6

Compliance with the California Oak Woodlands Conservation Act

The Oak Woodlands Protection Act and the County of Lake identify mitigation standards and requirements for projects that remove oak woodlands.

Under the Oak Woodlands Protection Act, Lake County shall require one or more oak woodland alternatives “to mitigate the significant effect of the conversion of oak woodlands.” Alternatives to mitigate the significant effect of the conversion of oak woodlands: replace removed trees at a rate of 3:1 and maintain trees pursuant to Section 4526 of Senate Bill No. 1334 terminating seven years after the trees are planted.



Mitigation Plan

Acorns will be harvested directly from species within the vicinity of the oak restoration site in late fall when the acorns are beginning their transition from green to brown. Jacobszoon & Associates, Inc. biological staff will collect, sort, store, and plant trees in addition to selecting saplings within the Restoration Site to protect. Oak regeneration guidelines are adapted from “Regenerating Rangeland Oaks in California” and will be followed for the harvesting, care, and planting of acorns.

Acorns will be planted in basins containing three to five acorns across approximately 2 acres of oak woodland running parallel to Highway 175 designated as the Restoration Site. Acorn basins will be spaced approximately 20-25 feet apart to allow for trees to reach full size at maturity and within a naturalistic manner using the surrounding trees as a model.

A critical factor affecting young oak seedlings is competing vegetation. Adjacent plants, especially grasses, can consume much of the available soil moisture leaving little for the seedlings. A 3-foot diameter circle around each plant is to be cleared of all vegetation by hand weeding or hoeing. A 3-foot diameter thick layer of wood chips will be placed around the base of each tree, to protect against weeds and help conserve moisture by reducing evaporation from the soil surface. Tree shelters will be placed over the acorn basins to deter herbivory by wildlife and encourage growth of saplings by creating a greenhouse effect. Drip irrigation will be used to water the trees.

Additional mitigation measures will be implemented based on project needs as the project unfolds to ensure survival.

Irrigation

All plants will require irrigation for seven years and will therefore be watered with a temporary drip irrigation system installed by the landowner. Recommendations for irrigation are listed in the table below.

Maintenance

Mitigation requires the maintenance and monitoring of plantings over a seven-year period. Weed growth reaches its peak during mid-February through early May. In addition to the primary competitive impacts of weeds, large amounts of dead annual grasses can provide favorable habitat for voles or meadow mice which are predators of both acorns and seedlings. During this period, the area around each basin should be hand weeded every four to six weeks. Weed growth within the mulch will be the highest in Year 1; however, with proper weed management in the first year, there will be fewer weeds in the following years, resulting in greatly diminished maintenance. Recommended maintenance activities by year are included in *Table 2: Mitigation Maintenance Schedule*.

Table 2: Mitigation Maintenance Schedule

Year	Maintenance Activities
Planting	Plant acorns between October and December to allow initial establishment during the wet season. Water as needed to ensure survival if rain is inconsistent. Clear weeds within a 3-foot diameter around acorn basins every four to six weeks and maintain a layer of mulch within a 3-foot diameter circle surrounding planting.



One	Water trees weekly (~15 gallons per week) with supplemental watering as needed if temperatures exceed 100 degrees for multiple days in a row. Replenish mulch in spring and remove weeds from the planting area as needed.
Two	Water trees weekly (~15 gallons per week) with supplemental watering as needed if temperatures exceed 100 degrees multiple days in a row. Replenish mulch in the spring. Remove weeds from the planting area, as necessary.
Three	Water trees as needed if temperatures exceed 100 degrees multiple days in a row, but do not water more often than twice per month. Replenish mulch in the spring. Remove weeds from the planting area, as necessary. Pruning may be necessary to remove defective limbs or deadwood under the discretion of a Qualified Arborist.
Four	Water trees as needed if temperatures exceed 100 degrees multiple days in a row, but do not water more often than twice per month. Replenish mulch in the spring. Remove weeds from the planting area, as necessary. Apply approximately 30 gallons per watering. Replenish mulch in the spring. Remove weeds from the planting area, as necessary.
Five	Water trees monthly. Replenish mulch in the spring. Remove weeds from the planting area, as necessary.
Six	Water trees monthly. Replenish mulch in the spring. Remove weeds from the planting area, as necessary.
Seven	Water trees monthly. Replenish mulch in the spring. Remove weeds from the planting area, as necessary.

Oak Planting and Restoration Site

The landowner will plant and protect a total of 120 oak trees for seven years to ensure successful establishment. Protected saplings and oak plantings will occur downslope of the proposed cannabis development area in habitat similar to that being impacted by development. The oak canopy within the proposed Restoration Site is composed of blue oak, black oak, and valley oak species along the margins of a ponderosa pine-mixed hardwood forest. Oak sapling recruitment was observed under the drip line of a mature valley oak within the Planting and Restoration Site adjacent to Cole Creek. Cole Creek borders Hwy 175 running Northwest to Southeast across the property and through the proposed planting site. Black and valley oak species are intermixed with willow along Cole Creek on the property just south of Highway 175.

Monitoring Plan

Annual monitoring reports will be submitted by Jacobszoon and Associates, Inc. to the Community Development Department of Lake County. The first annual report will be submitted by December 31 following the start of the project.

Monitoring will be conducted in the spring and fall to document tree survival and collect other pertinent data.



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The report will include an executive summary containing all relevant data regarding the health and vigor of the oaks, discuss any replacement planting, invasive plant management efforts or other remedial measures taken, summarize any changes or recommendations for adaptive management for the site, and contain photos.

Table 3: Surveyed Tree Data

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Species	Tree ID	DBH	Height (ft)	Location	Condition	Notes	
Platform 1:							
blue oak	3	15.6	55.1	38.897707, -122.748430	good	mistletoe	
blue oak	4		2.52	38.897884, -122.748399	good		
blue oak	5		2.5	38.897884, -122.748399	good		
blue oak	15	6.2	39	38.897657, -122.748985	good		
blue oak	17	0.8	18.9	38.897787, -122.749171	good		
black oak	20	15.3	38.2	38.897815, -122.749128	good		
black oak	31	29.2	90.8	38.898079, -122.749251	good		
bush interior live	40	0.1	3.2	38.898023, -122.748712	good		
black oak	55	3.3	31.5	38.897586, -122.747766	good		
blue oak	56	7	32.6	38.897612, -122.747769	good		
black oak	57	81	53.7	38.897535, -122.747845	good		
valley oak	58	8.9	47.2	38.897561, -122.747990	good		
bush interior live	59	0.25	12.2	38.897561, -122.747990	good		
blue oak	60	2.6	15.3	38.897649, -122.747678	good		
blue oak	61	13.8	60	38.897639, -122.747670	good		
interior live	62		2.8	38.897591, -122.747703	good		
interior live	63		2.11	38.897591, -122.747703	good	several black oak saplings in vicinity	
valley oak	64	9.9	36	38.897605, -122.747379	good		
valley oak	65	5.6	59.6	38.897570, -122.747438	good		
valley oak	66	4.8	25	38.897471, -122.747046	good		
black oak	67	5.2	16	38.897277, -122.747760	good		
blue oak	68	10.8	50.7	38.897481, -122.748014	good		
black oak	69		1.85	38.897414, -122.747932	good		
black oak	70		1.9	38.897414, -122.747932	good		
black oak	71	9.2	46.8	38.897306, -122.747929	good		
Platform 2:							
valley oak	80	35.5	65.4	38.899290, -122.749001	good		
valley oak	81	10.2	40.3	38.899277, -122.748757	good		
blue oak	82		1.92	38.899214, -122.748810	good		
blue oak	83		1.35	38.899274, -122.749006	good		
blue oak	84		1.1	38.899352, -122.748784	good		
blue oak	85	43.2	13.6	38.898819, -122.748211	good		
blue oak	86	13.6	50	38.899073, -122.748082	good		
blue oak	87	12.7	48.5	38.899016, -122.748063	good		
blue oak	88	14.3	41.5	38.898931, -122.748005	good		
valley oak	89	7.2	36.7	38.898931, -122.748005	good		
valley oak	90	5.7	22.9	38.898705, -122.748211	good		
interior live	91		3.55	38.898756, -122.748266	good		
interior live	92	1.8	13.9	38.898756, -122.748266	good		
blue oak	93	6.2	35.3	38.899102, -122.747523	good		
blue oak	94	10	45	38.899065, -122.747612	good		



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Table 4: Trees slated for removal by species, number, and diameter class.

DBH	Blue Oak	Black Oak	Valley Oak	Interior Live Oak	Bush Interior Live Oak
<1	6	2	0	3	2
1	0	0	0	0	0
2	0	0	0	1	0
3	1	1	0	0	0
4	0	0	0	0	0
5	0	1	1	0	0
6	2	0	2	0	0
7	1	0	1	0	0
8	0	0	0	0	0
9	0	1	1	0	0
10	1	0	2	0	0
11	1	0	0	0	0
12	0	0	0	0	0
13	1	0	0	0	0
14	3	0	0	0	0
15	0	1	0	0	0
16	1	0	0	0	0
30	0	1	0	0	0
35	0	0	1	0	0
43	1	0	0	0	0
81	0	1	0	0	0
Totals:	18	8	8	4	2



Report Author:

Becca Cosmero

Becca Cosmero is an Environmental Technician at Jacobszoon and Associates Inc. with three years of professional experience in fisheries management, biological monitoring and research, and ecological restoration. She provides botanical and biological assessments for projects requiring compliance with the California Environmental Quality Act (CEQA). She received a Bachelor's of Science in Biology with an emphasis in Ecology and Evolutionary Studies from the University of California, Merced in 2018 including studies regarding shifts in range of pine and fir species within the Sierras. Prior to working with Jacobszoon and Associates Inc., Ms. Cosmero has worked with FISHBIO to monitor and study predator populations threatening salmonids within the Stanislaus and Tuolumne Rivers, Sequoia Ecological Consulting and ERM, Inc. as an on-call biologist conducting compliance monitoring and nesting bird surveys, and Grassroots Ecology as an AmeriCorps intern providing hands on nature education and supporting restoration projects in the greater Bay Area. Becca has three years of experience conducting protocol-level nesting bird surveys as an on-call biologist for fuels reduction and biological compliance monitoring projects across the state of California. She received a Rare Plant and Vegetation Sampling certificate from the California Native Plant Society in March 2019 and holds a Rare Plant Voucher Collecting Permit through CDFW (No. 2081 a-21-076-V).

Sincerely,



Becca Cosmero (she/her)
Environmental Technician
Jacobszoon & Associates, Inc.

