BIOLOGICAL REPORT

App# 12205, 12206, 12207

This Report was submitted by Email to Max Hilken at the Humboldt County Planning & Building Dept. Cannabis Services Division on December 12th 2019.

Submitted again in person: February 5th 2020.

Biological Report

Humboldt County APN 221-141-015, -016, -017
Application #12206, 12205, 12207

Miranda, California

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NRM
NATURAL RESOURCES MANAGEMENT
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I. Summary of Findings and Conclusions

The projects at parcel APNs 221-141-015, -016, -017, located approximately 5 miles southwest of US Highway 101 near the community of Miranda in Humboldt County, California (Figure 1), includes cannabis cultivation on the parcels by the long time landowner(s). These parcels have been the site of past cannabis cultivation in the same or similar locations (Figures 4-6). The landowner(s) are applying for a cultivation permit under the Humboldt County Cannabis Land Use Ordinance (HCCLUO) 1.0 as an existing cultivator for a total of 14,255 square feet of cannabis cultivation. This report also serves as a Remediation Plan for the onsite relocation of previously existing cultivation.

The project areas and surroundings were surveyed in order to describe the terrestrial and aquatic plants and animals occurring in and around cultivation areas, ponds and watercourses, as well as determine whether habitat exists for special status species.

This Biological Report reviews the projects at the above APNs to determine to what extent wildlife species currently listed or proposed for listing (Table 1), including northern spotted owl (Table 2) would be affected (Table 3). Habitat for listed or sensitive wildlife species, collectively referred to as special status species, was identified in the vicinity of the project areas for Cooper's hawk *(Accipiter cooperii)* and fisher *(Pekania pennanti)*. No special status wildlife species were detected during the biological survey (Table 4), however, non-native bullfrogs *(Lithobates catesbeianus)* were present and will require management. It has been determined that the project and operations will have no impact on native species in the vicinity of the project areas.

Summary of Further Surveys Needed and Mitigation Recommendations

- Strict adherence to Riparian Setback Requirements for Humboldt County and State Water Board are required to maintain quality habitat for amphibians and anadromous fish. All cultivation should be well inside these setbacks once permitting allows (to be determined by pending CDFW 1600 LSAA).
- Draining of the lined, rain catchment pond will be required at the end of each growing season to discourage use by non-native bullfrogs (see Results and Discussion).
- No use of plastic support netting. This plastic netting is a hazard to all forms of wildlife and is not to be used. CDFW recommends using netting of natural materials such as jute or hemp, with no welded seams.
- All appropriate measures will be taken to avoid any sediment runoff from the parcel to receiving waters, including no overwatering of plants and proper storage of materials.
- All greenhouses utilizing early-season, low impact lighting will require tarps to block all potential light pollution from one hour prior to sunset through one hour past sunrise.

Further, all attempts to keep noise levels at a minimum during year-round operations will help maintain the quality of habitat for all wildlife species.

- Although CNDDB reports records for fawn lilly (*Erythronium revolutum*) approximately 520 feet northwest of the nearest parcel boundary, this plant is very unlikely to occur in open prairie grassland habitats or in pre-existing cultivation areas, therefore, no botanical surveys are required.

II. Introduction, Background, and Project Understanding

The purpose of this Biological Report is to review the project (described below) in sufficient detail to determine existing or potential impacts to wildlife species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), or designated as sensitive by the California Department of Fish and Wildlife (CDFW); these species are hereinafter referred to as special status species (Table 1). Species with potential habitat present, or whose presence was not confirmed but potentially occur in the general area are addressed in Table 3.

The projects at APNs 221-141-015, 221-141-016, and 221-141-017 (hereinafter referred to by the last 3 digits only) are located within the Salmon Creek watershed, a subwatershed of the South Fork Eel River, located approximately 5.4 miles southwest of US Highway 101 and the community of Miranda, in Humboldt County, California (Figure 1), and include previous and proposed cannabis cultivation (Figures 4-6). Please note that mileages are estimates from satellite and topographic imagery and distances are given in approximate air miles, that is, not exact.

Due to the relocation of previous cultivation sites on all three parcels to environmentally superior locations in 2017, the HCCLUO requires a Remediation Plan. This report also serves as a Remediation Plan for the onsite relocations and demonstrates steps taken to restore historic sites.

A biological assessment of the project area and the surrounding habitat was conducted to evaluate any potential habitat for special status plants and animals, or other environmental issues. In addition, these areas were surveyed to describe any terrestrial and aquatic plants or animals occurring in and around the project areas.

Project Site

These three contiguous parcels are located approximately 18 air miles east of the Pacific Ocean, and approximately 5.4 miles southwest of US Highway 101 and the community of Miranda. According to the Humboldt County Web GIS Portal, APN 015 is 37 acres; APN 016 is 36.2 acres; and APN 017 is 39 acres. Parcel 015 and 016 share a east-west border; 016 and 017 share a north-south border. The legal description is T03S, R02E, Section 25 HB&M, within the USGS 7.5' Ettersburg quadrangle (Figure 1).

When viewing the general area in Google Earth imagery (Google Earth Pro 2019), cannabis cultivation operations become apparent within one mile of the parcel around 2010. Based on time sequence imagery (1993-2019), cultivation activities in this portion of the watershed appear moderate in scale.

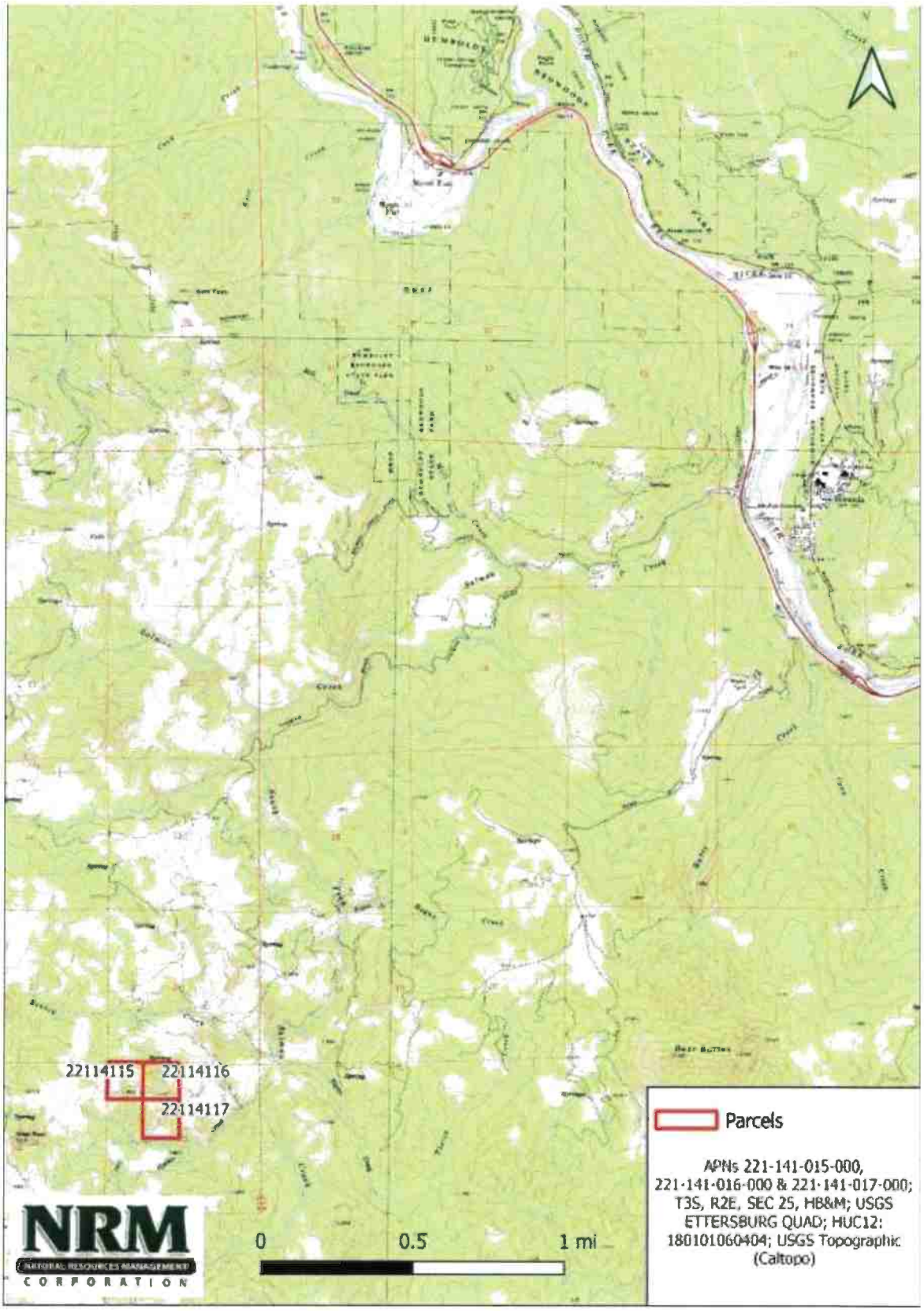

Figure 1. Vicinity map for APNs 221-141-015, -016, -017

Topography and Hydrology

The project parcels are located within the Salmon Creek watershed, a subwatershed of the South Fork Eel River. The general area is rich with springs, seeps and ephemeral watercourses.

There are two ponds on the parcels: a lined 250,000 gallon capacity rain catchment pond on APN 016 used for cannabis; and a seasonal, grass-bottomed pond on APN 017 (Photos 1-2). These ponds are present in the oldest available historic satellite imagery (1993, Google Earth Pro); the landowner(s) estimate the rain catchment pond was established around 1975. Each of the three parcels have spring and seep areas, including proximate to the two ponds, where over the course of years the springs have made shallow watercourses (Figure 2). Due to this, the ponds and previous cultivation areas are essentially within the Humboldt County (HCCLUO) and State Water Board setback (buffer) requirements of 50 feet from a Class III ephermeral watercourse riparian area.

The nearest watercourse to the parcels is Hacker Creek, located approximately 0.4 miles (2,100 feet) southeast of the nearest proposed project site on APN 017 (Figure 2). An unnamed tributary to Hacker Creek, due south of this project area approximately 0.13 miles (685 feet), orginates west of the parcel approximately 0.8 miles (4,200 feet) and continues 0.4 miles to the confluence. From here, Hacker Creek flows northeast approximately 1.2 miles to South Fork Salmon Creek. The South Fork Salmon Creek and Hacker Creek are Class II watercourses. This fork of Salmon Creek has headwaters that originate southwest of the parcels in the vicinity of Phelps Ranch (Figure 2) and continues north approximately 3 miles from Hacker Creek to the mainstem Salmon Creek. The mainstem Salmon Creek then travels east approximately 3.4 miles to the South Fork Eel River at Miranda. The South Fork Eel River flows northwest approximately 10.5 miles to the mainstem Eel River at Dyerville and Humboldt Redwoods State Park (HRSP). The mainstem Eel River continues flowing northwest approximately 20.5 miles to the confluence with the Van Duzen River, before continuing another 11.5 miles to the Pacific Ocean, just south of Table Bluff and Humbodlt Bay.

According to landowner(s), water for cannabis irrigation will be provided by the rain water catchment pond and rigid steel tank (Photo 3). There is currently 281,500 gallons of storage for cannabis on the parcel: 250,000 gallon rain catchment pond; 30,000 gallon rain catchment steel tank; 1,500 gallon hard-sided plastic tank. Domestic water is provided by a spring diversion (see Project Description below).

There is a general southeast aspect to the parcels, oriented towards Hacker Creek. Elevations on the parcels range from 1,630 feet in the southern portion of APN 015, to 1,600 feet in the central portion of APN 016, and down to 1,000 feet at the southeast corner of APN 017, where it is just over 200 feet to Hacker Creek.

The landscape in this area of southern Humboldt County is characterized by dominant ridges of open prairie grassland habitats interspersed with patches of mixed Douglas-fir and oak woodland forest, and forested watercourses.

The parcel is bound to the northwest by grassland-dominated Elk Ridge, ranging in elevations from 2,700 feet to 2,400 feet; this north-south ridge system continues west of the parcels with elevations nearer 2,200 feet. Nearly due west of APN 017 approximately 0.8 miles is a prominent rock outcrop, Goat Rock, at 2,319 feet in elevation. South and east of the parcels is primarly forested habitat that continues to South Fork Eel River, with portions of HRSP north approximately 4 miles in the Mill Creek drainage, and south approximately 5 miles in the Redwood Creek drainage (Figures 2, 3)

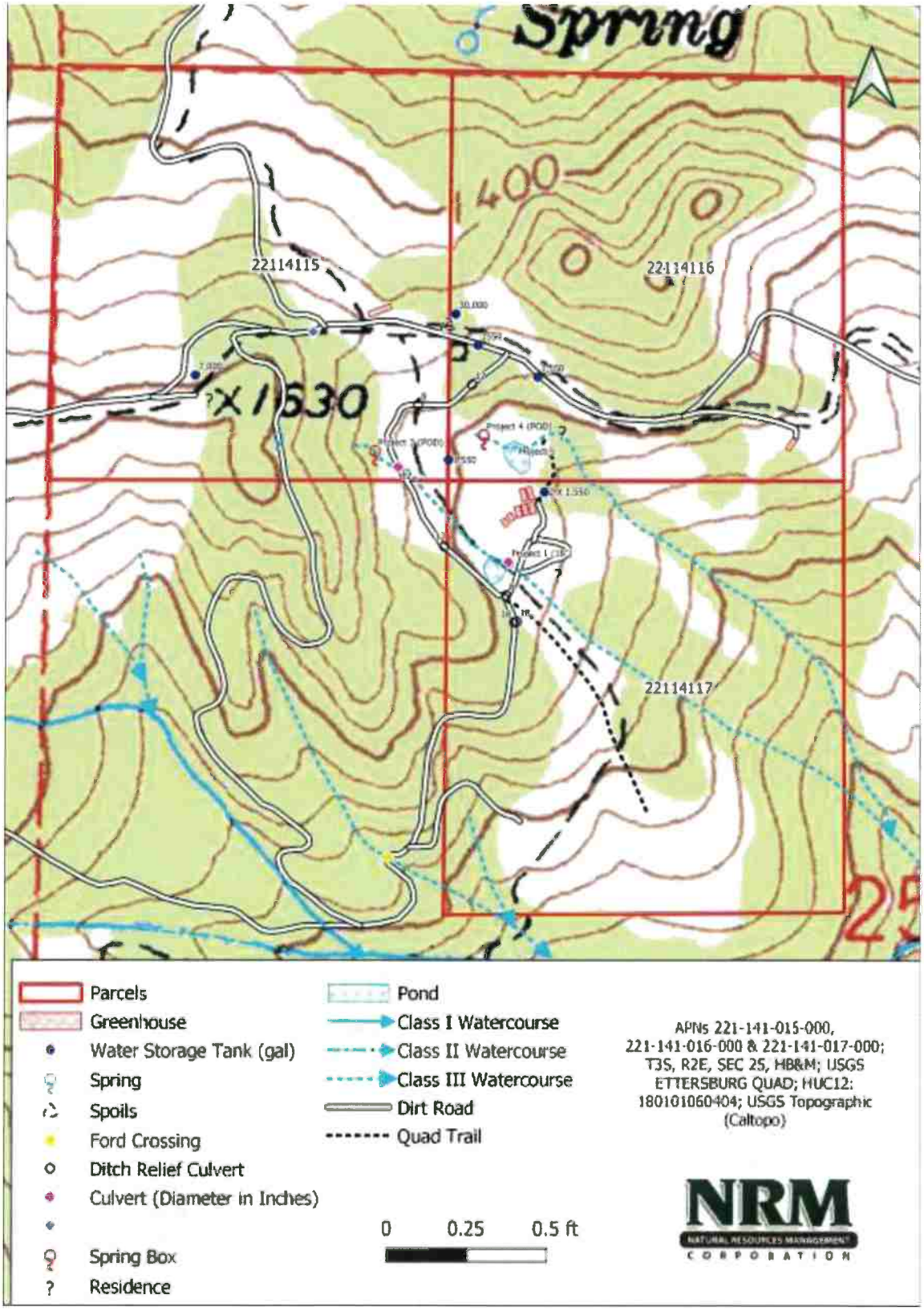

Figure 2. Site map for APNs 221-141-015, -016, -017 (Topographic)

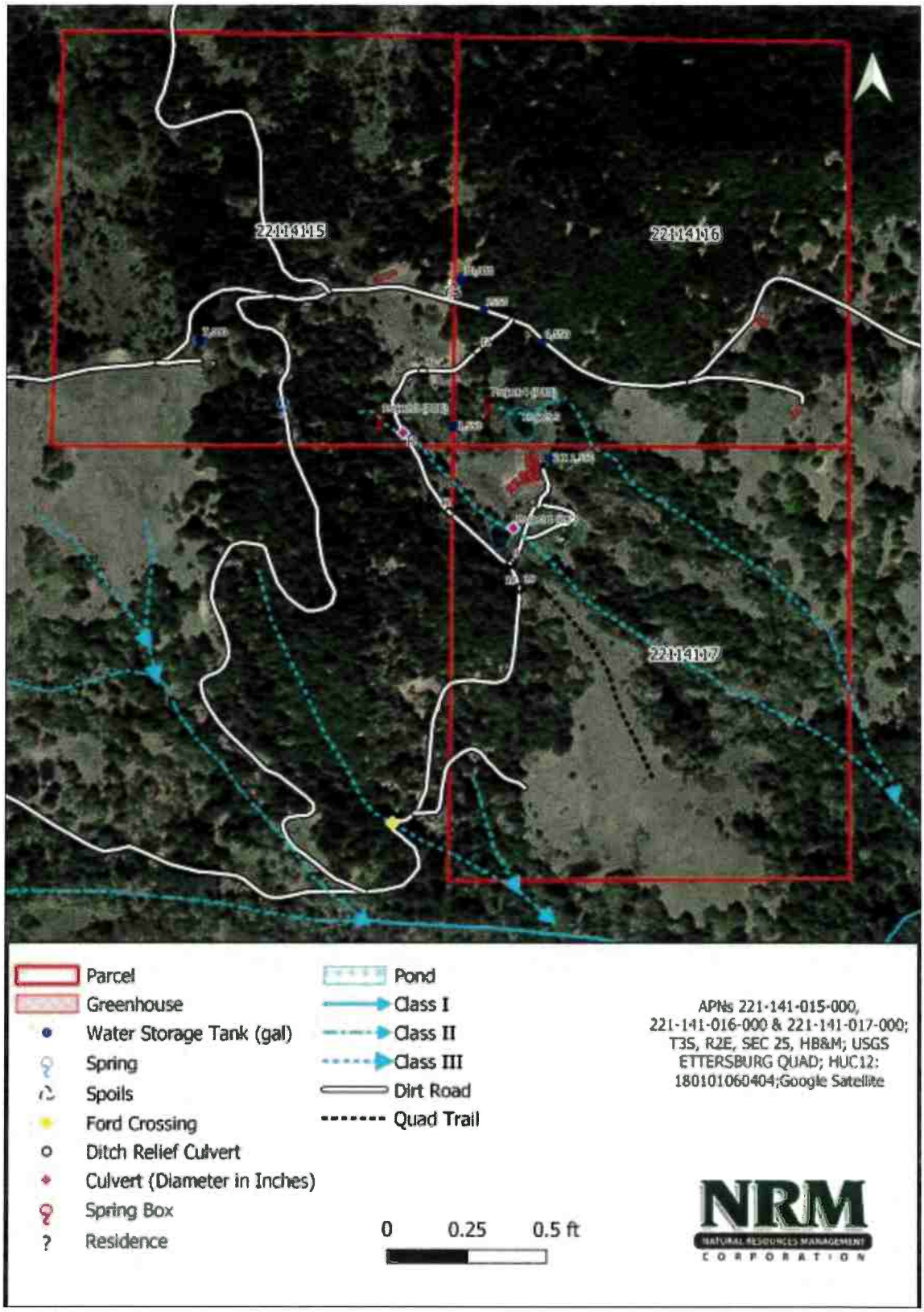

Figure 3. Site map for APNs 221-141-015, -016, -017 (Satellite)

Biological Description

The project parcels are located within the Salmon Creek watershed, a subwatershed of the South Fork Eel River. Declared a cannabis-impacted HUC12 watershed by Humboldt County, the South Fork Eel River watershed is critical to the recovery of coho salmon (Humboldt County 2018).

The South Fork Eel River and Salmon Creek are Class I fish-bearing streams important to anadromous fish, with fall run Chinook and summer and winter steelhead reportedly having historic runs in both watercourses (USFS 2004).

The project areas lie within the USDA Ecoregion Section 1i: Coast Range within the Northern Franciscan Redwood Forest Ecoregion Province (CALVEG 2004), on previously disturbed natural or historic flats. This area is dominated by a mix of native and non-native, annual and perennial grasses and forbs with components of hardwood and conifer stands in creek drainages and roadsides.

Project Description

These parcels have been the site of past cannabis cultivation in the same or similar locations. The current landowner(s) are applying for a cultivation permit under the HCCLUO 1.0 as an existing cultivator for 14,255 square feet of pre-existing (Figures 4-6). Cultivation square footage by parcel APN is shown below.

APN	Humboldt Co Application Number	Cultivation Applied/Verified (square feet)
221-141-015	12206	2,725
221-141-016	12205	4,030
221-141-017	12207	7,500

The total pre-existing 14,255 square footage verified by Humboldt County had some areas located within an ephemeral Class III watercourse related to the uphill spring(s). The proposed cannabis project includes relocating cultivation areas on all three parcels (see Remediation Plan section).

Plants will be grown in bags or raised beds within greenhouse structures, watered by drip system equipped with emitters on timers for efficient, controlled watering. Greenhouses are located on natural or historic flats in full sun, or within previously disturbed areas.

Water for irrigation purposes will be provided by the rain catchment pond on APN 015, with an estimated 250,000-gallon capacity, and the 30,000-gallon capacity rain catchment tank also on this parcel (Figure 4). This pond was established in the 1970s and is lined to maintain water levels. Water for domestic purposes is provided by a spring that fills two 1,500-gallon capacity hard-sided plastic tanks (Figure 4). Water is distributed from rain catchments systems and springs via

solar powered pump; all storage tanks are outfitted with automatic shut off valves to avoid overflow.

In the early season, 13-watt compact fluorescent lights may be used to keep young starts in a vegetative, non-flowering state. These bulbs project light only a short distance but greenhouses will nonetheless be covered with tarps to avoid any potential light pollution and disruption to local wildlife. This is the only use of lights for cultivation purposes. The use of a generator (Photo 4) on the parcel will be limited to approximately 10 hours a week to support cultivation-related, such as the use of a handheld tiller.

Remediation Plan

Due to the relocation of previous cultivation sites in 2017, the HCCLUO requires a Remediation Plan. This document serves as the Relocation Report for cannabis cultivation on all three parcels. This document describes the environmental threats associated with the pre-existing cultivation sites as well as the environmentally superior relocation areas proposed for these sites. Staff from NRM visited the property on September 19 and November 13, 2019 to inspect the pre-existing sites and evaluate relocation areas.

Pre-existing Cultivation Sites

APN 015: The pre-existing cultivation site (Photo 5) was located on the highest point of the parcel (1,630 feet elevation), which the landowner(s) considered environmentally unsuitable due to safety concerns related to water storage at the highest point, as well as the inefficiency of the location from the other cultivation areas. In order to consolidate the cultivation areas, increase security, decrease impact on these sloped parcels, and reduce ATV/gasoline use on parcel roads, this cultivation area was moved to within the security gate for the parcels. Road travel to the cultivation areas averages less than 1,000 feet; travel to the historic location on this parcel was over twice that (Figure 4).

APN 016: The pre-existing cultivation site (Photos 6-7) occurred within the Humboldt County and State Water Board setback (buffer) requirements of 50 feet from a Class III ephemeral watercourse. This watercourse is related to the outflow of an uphill spring/seep area that flows during rain events only after saturating rains have occurred (Figure 5).

APN 017: The pre-existing cultivation site (Photo 8), located adjacent to the residence, occurred within the Humboldt County and State Water Board setback (buffer) requirements of 50 feet from a Class III ephemeral watercourse. This watercourse is related to the outflow of an uphill spring/seep area that is west of the spring on APN 016, located between the seasonal, grass-bottomed pond and the historic location (Figure 6).

Relocation Sites

APN 015: The onsite relocation (Photo 9) is environmentally superior due to its location immediately adjacent to the parcels' access road, reducing travel and gasoline consumption (Figure 4). This flat, carved from the road cutbank, will be lowered and enlarged once proper grading permits are obtained to accommodate a greenhouse measuring 90.8 feet by 30 feet (2,724 square feet).

APN 016: The onsite relocations (Photos 10-11) are environmentally superior due to locations outside of setback requirements for ephemeral Class III watercourses (Figure 5). The 4,030 square feet of cultivation occurs in two areas. One site accommodates a 16 foot by 40 foot greenhouse (640 square feet). The other site is on a flat that previously cultivated in full sun, that will now be reoriented, expanded and improved with the use of greenhouses within a 30 foot by 113 foot area (3,390 square feet).

APN 017: The onsite relocations (Photos 12-16) are environmentally superior due to locations outside of setback requirements for ephemeral Class III watercourses (Figure 6). The 7,500 square feet of cultivation occurs in two areas. One site, located approximately between the two ponds, accommodates 7 greenhouses of varying sizes, totaling 3,840 square feet. The second location is a new site in open grasslands on a slope averaging 15 degrees, south of the residence. This site will have raised beds oriented perpendicular to the slope; no grading will be required. Three greenhouses with a combined measurement of 91.5 feet by 40 feet (3,660 square feet) are proposed at this site. Greenhouse and cultivation materials will be delivered using an ATV. It is the intention of the landowner(s) to use this as a walking path once set up, and to monitor the trail for any sign of erosion. Water bars will be installed in areas showing sign of degradation over time.

Restoration

APN 015: The pre-existing cultivation site is located adjacent to a small residental cabin, with little evidence of cannabis cultivation remaining. Historic imagery shows this site has always been grassland (2004 latest imagery, Google Earth Pro 2019), and later appears to be fenced for garden space (2009). Because the site is within historic grassland, as seen from the USGS topographic quadrangle map, revegetation does not appear to be necessary. The resident of the cabin intends to use this fenced area for food production within raised beds. No further restoration is necessary.

APN 016: The pre-existing cultivation site is located within a watercourse buffer and has naturally revegetated, likely due to the moist substrate. Historic imagery shows this site has always been grassland (Google Earth Pro 2019, USGS topographic map), and there is no evidence of past cultivation with the exception of a perimeter fence, so no further restoration is necessary.

APN 017: The pre-existing cultivation site is in a location that has been used as garden space since the landowner(s) took residence here in the 1970s. Historic imagery shows this site has always

been grassland (Google Earth Pro 2019, USGS topographic map). This fenced area often experiences saturated soils due to its location. The landowner(s) intend to use the area outside of the 50-foot setback requirement for food production within raised beds. No further restoration is necessary.

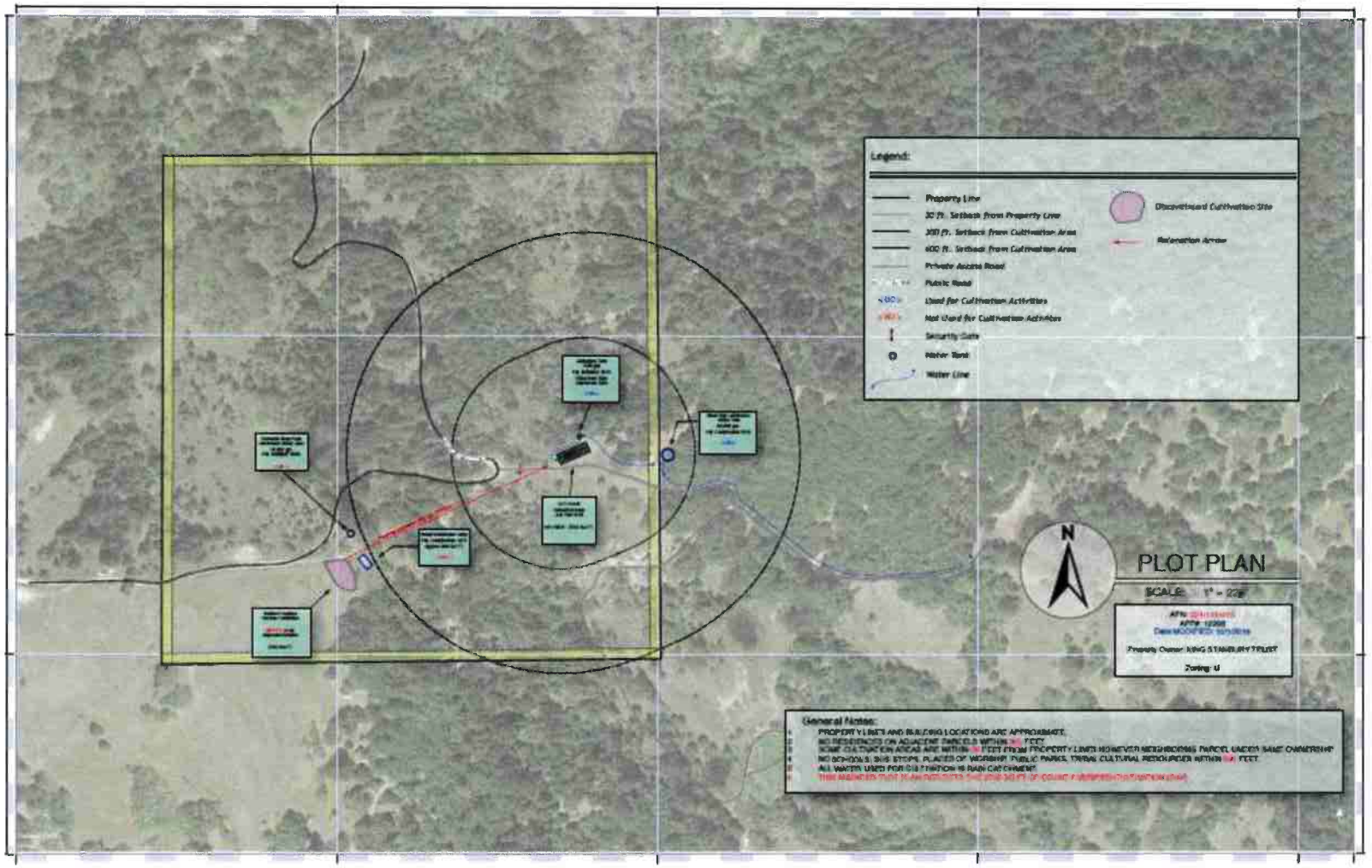

Figure 4. Plot plan for APN 221-141-015

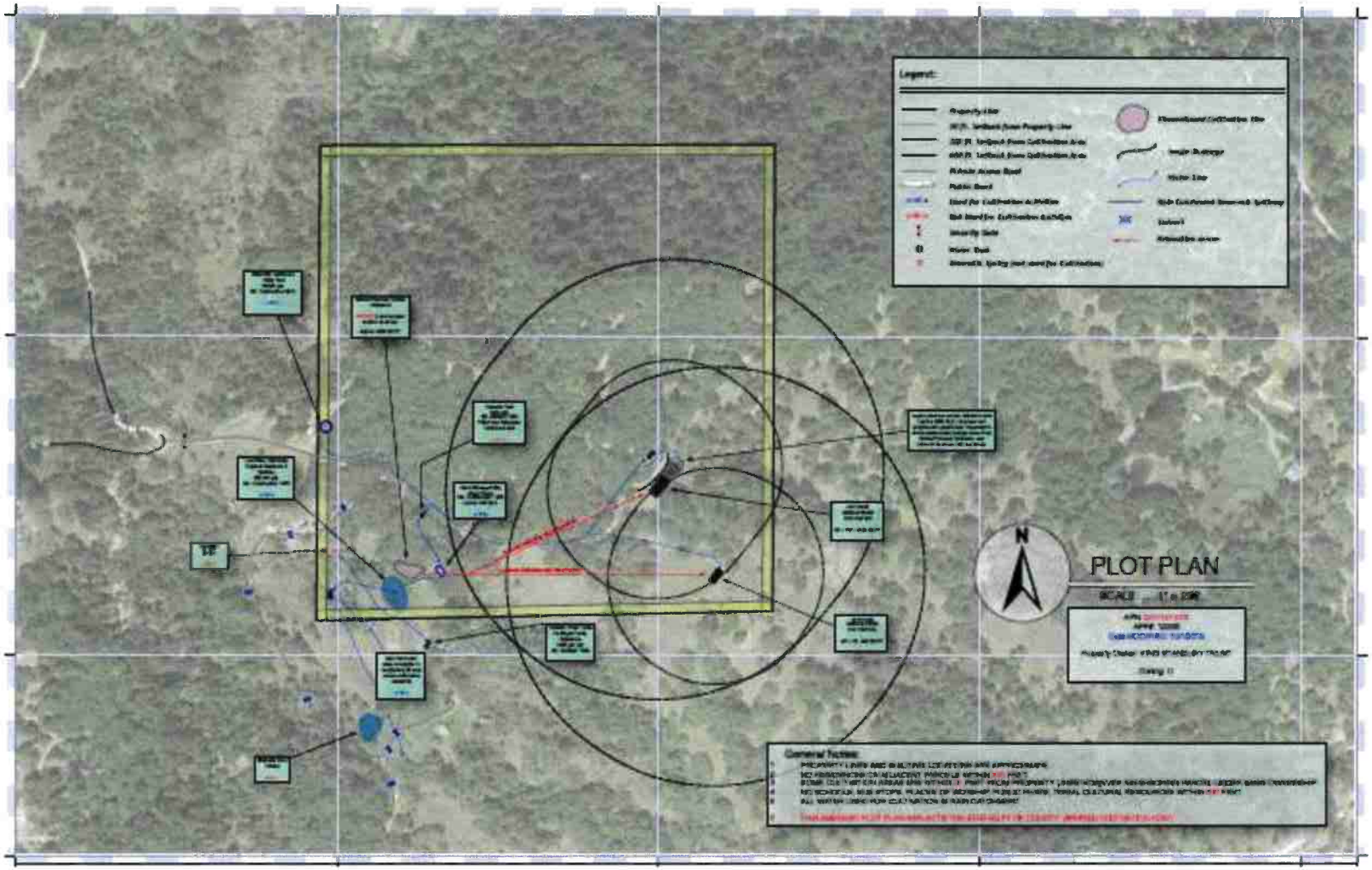

Figure 5. Plot plan for APN 221-141-016

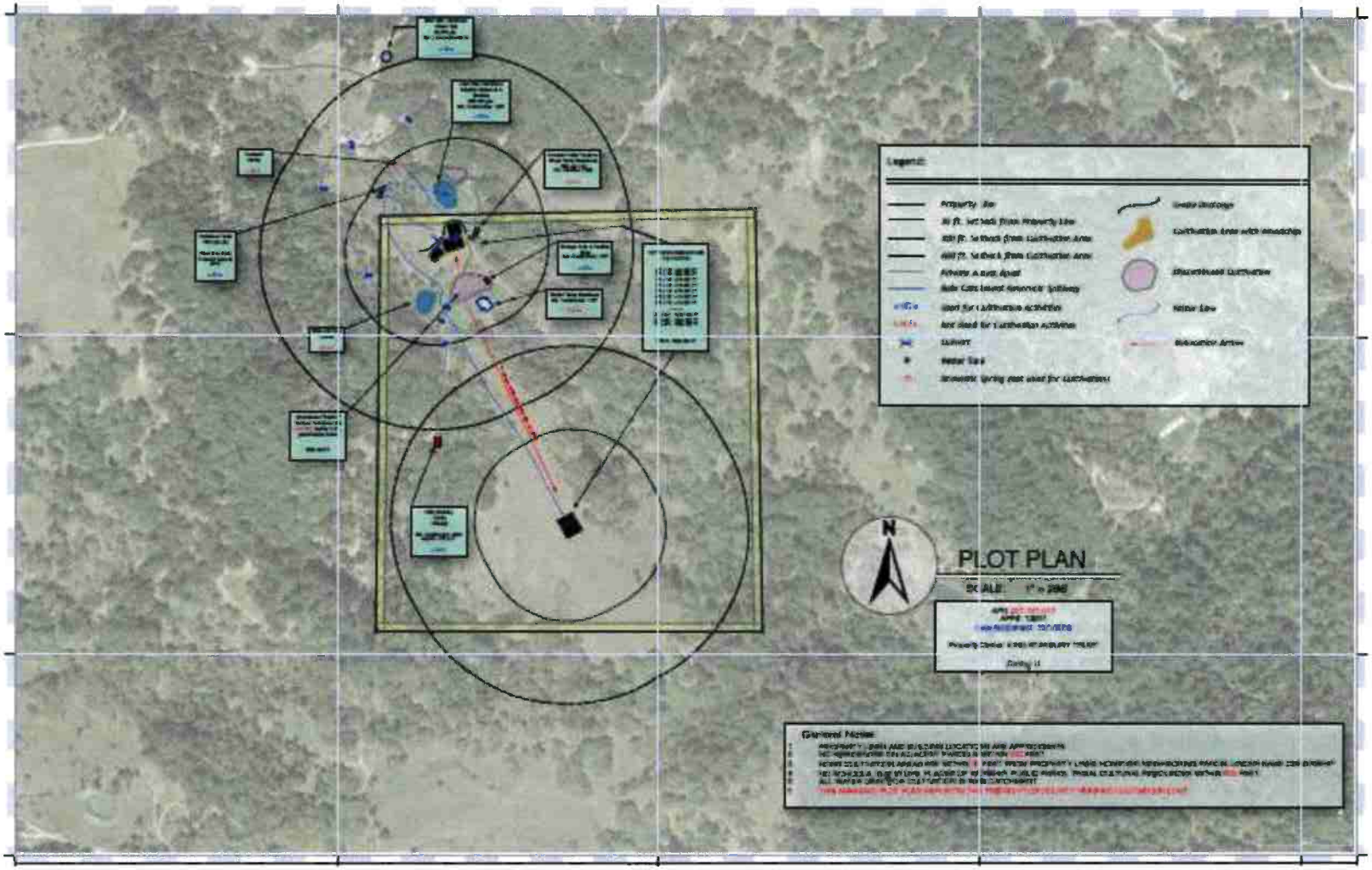

Figure 6. Plot plan for APN 221-141-017

III. Methods

Pre-Field Review

Prior to initiating field surveys, a query of the CDFW California Natural Diversity Data Base (CNDDB 2019) for wildlife species occurrences within a nine-quad topographical map area of the parcels was conducted. This provides a comprehensive target species list from which to determine habitat, presence, or sign of species, as well as any known locations for special status species in the general area (Table 1), including northern spotted owl (NSO) Activity Centers (ACs).

Table 1.CNDDB list of potential special status wildlife species in the Ettersburg nine-quad area

Common Name	Scientific Name	Federal / State Listing
northern spotted owl	*Strix occidentalis caurina*	Federal and State Threatened
golden eagle	*Aquila chrysaetos*	Fully Protected, Watch List
American peregrine falcon	*Falco peregrinus anatum*	Fully Protected
Cooper's hawk	*Accipiter cooperii*	Watch List
osprey	*Pandion haliaetus*	Watch List
marbled murrelet	*Brachyramphus marmoratus*	State Endangered
little willow flycatcher	*Empidonax traillii brewsteri*	State Endangered
Humboldt marten	*Martes caurina humboldtensis*	Candidate State Endangered
fisher- west coast DPS	*Pekania pennanti*	State Threatened
Townsend's big-eared bat	*Corynorhinus townsendii*	Species of Special Concern (SSC)
western red bat	*Lasiurus blossevillii*	SSC
pallid bat	*Antrozous pallidus*	SSC
Sonoma tree vole	*Arborimus pomo*	SSC
Pacific tailed frog	*Ascaphus truei*	SSC
northern red-legged frog	*Rana aurora*	SSC
foothill yellow-legged frog	*Rana boylii*	Candidate State Threatened
southern torrent salamander	*Rhyacotriton variegatus*	SSC
red-bellied newt	*Taricha rivularis*	SSC
western pond turtle	*Emys marmorata*	SSC
coho salmon - n. CA ESU	*Oncorhynchus kisutch pop. 2*	Federal and State Threatened
summer-run steelhead trout	*O. m. irideus pop.36*	State Endangered

The survey protocol for NSO Activity Centers (USFWS Revised 2012) in non-redwood (interior) habitat (USFWS 2008) requires a 1.3-mile habitat analysis buffer for determining potential project effects. The nearest AC to the project area is approximately 2.4 miles east of the project sites (Figure 7). Recent NSO data for the nearest AC is displayed in Table 2.

Table 2. NSO Activity Center in the vicinity of APNs 221-141-015, -016, -017

NSO Activity Center	CNDDB Reported Positive Data	CNDDB Reported Negative Data	Approximate Distance to Nearest Project Area (miles)
HUM0529	1992, 1994, 2000 non-nesting pair 2001 nesting pair with young 1995, 2002, 2017 single owls	2018	2.4

A CNDDB database search for all special status species within a 1-mile radius of the project revealed records for fawn lily (*Erythronium revolutum*). The location is depicted as a large polygon approximately 0.1 miles (520 feet) northwest of the nearest parcel boundary (Figure 8). This plant is very unlikely to occur in open prairie grassland habitats or in pre-existing cultivation areas.

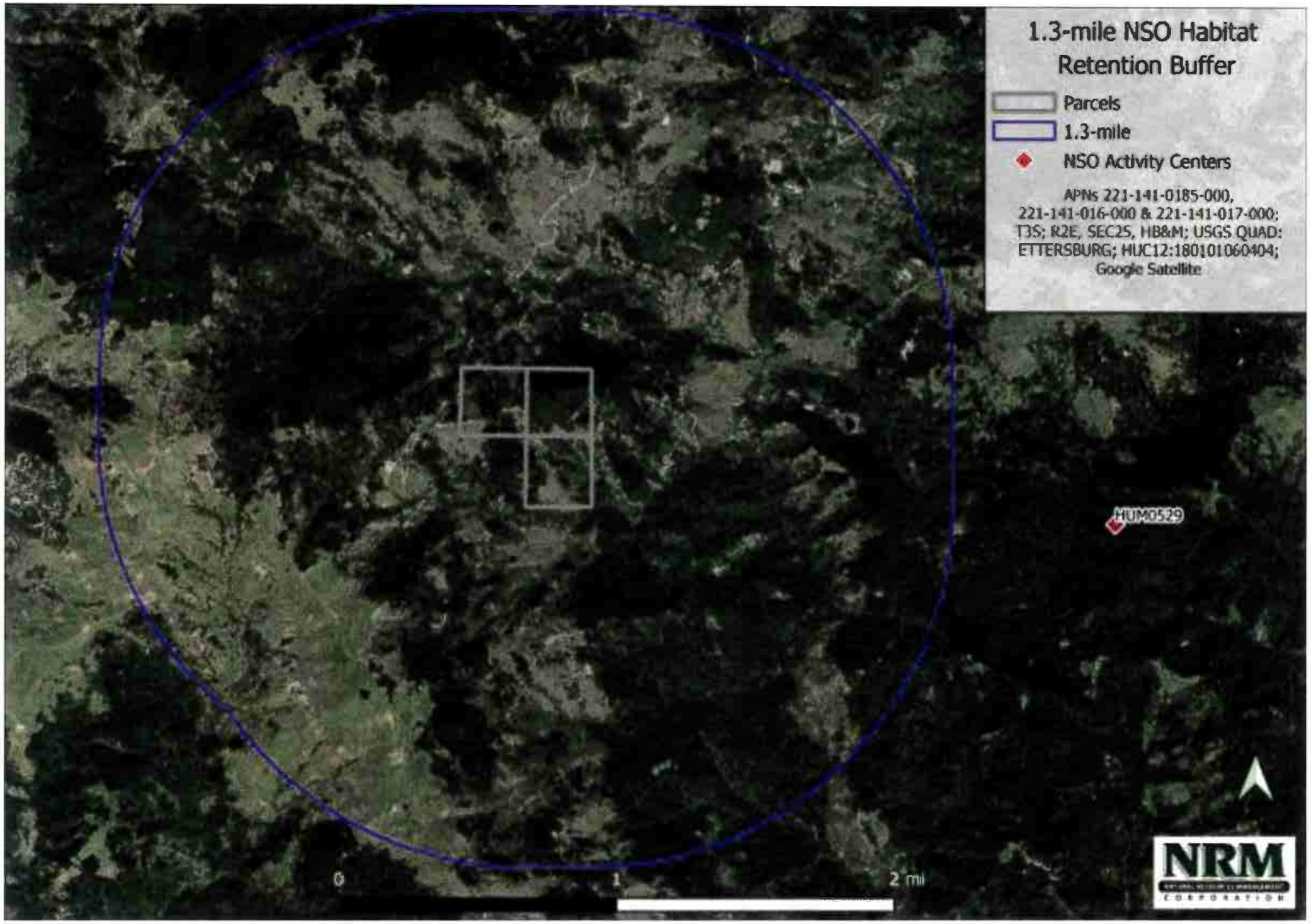

Figure 7. NSO Activity Center within 1.3-mile radius of project APNs

Figure 8. CNDDB records within 1-mile radius of project APNs

Field Survey

On September 19th, 2019, NRM wildlife biologist Michelle McKenzie conducted a site visit to survey existing, relocated and proposed cultivation areas, watercourses, and habitats where special status species (see Table 1) may occur. This survey was conducted for approximately 3 hours on a mild (75°F/24°C), mostly sunny afternoon.

While walking the area all audial detections of bird and mammal species were noted and the entire area traversed (an approximate 200-foot buffer around the project areas) was scanned for wildlife sign (tracks and scat). In addition, trees were inspected for activity or sign of use by wildlife (cavities, nests, scrapes or accumulated vegetation), and cover objects were inspected for potential amphibian species.

IV. Results and Discussion

Summary of Findings

For all species, direct impacts are those which are caused by the action (project) and occur at the same time and place. Indirect impacts are defined as those effects caused by the proposed action and are later in time, but still reasonably certain to occur.

Special status species and the potential for project impacts are presented in Table 3. Species are considered on a case-by-case basis as to the project's impact based on considerations such as home range, habitat, and sensitivity to disturbance. Habitat for listed or sensitive wildlife species was identified in the vicinity of the project areas for Cooper's hawk *(Accipiter cooperii)* and fisher *(Pekania pennanti)*. No spotted owl habitat exists on the parcels. The nearest NSO habitat appears to be in the vicinity of historic Activity Centers, over 2 miles east. No special status wildlife species were detected during the biological survey (Table 4), however, non-native bullfrogs *(Lithobates catesbeianus)* were present and will require management. It has been determined that the project and operations will have no impact on native species in the vicinity of the project areas.

Survey Results and Discussion

The area surveyed included the project sites and watercourses on the parcel, and any areas that may have wetlands or other sensitive habitats based on presurvey satellite imagery.

There are no NSO ACs in the immediate vicinity; the nearest is approximately 2.4 miles east of the nearest project site (Figure 7). No impacts are expected to NSOs from project operations. In addition, the parcel is powered by propane and solar, resulting in little use of generators and related noise pollution potential; any early season, low impact lighting used in greenhouses will be tarped against light pollution potential.

The lined, rain catchment pond was observed to have at least 8 adult, non-native bullfrogs present during the site visit. Bullfrogs are a species native to central and eastern US, introduced to the western states as a food source and insect control early last century, that will eat anything they can fit into their mouths (birds, bats, rodents, frogs, turtles), and prey on native amphibian and fish populations with great affect. Because habitat on the parcel could be habitat for native amphibians the bullfrogs need eradicated. The landowner(s) report neighbors in the watershed have had bullfrogs present on their parcels for many years, and estimate they showed up on these parcels, specifically at the rain catchment pond, approximately 6 years ago.

In order to maintain water levels, the landowner(s) put a liner in the pond 2 years ago. This may prevent bullfrog tadpoles from burrowing into the mud bottom to overwinter, but as a precautionary measure, the pond needs drained and kept free of standing water during the rainy season to eradicate this voracious predator from the parcels. This can be achieved by pumping or siphoning the water out using small diameter tubing to avoid sediment runoff at the outflow. The water should be allowed to disperse naturally into the surrounding landscape without transporting sediment to receiving waters.

Gigging (use of a multi-pronged spear or similar object) of adults is encouraged by CDFW, either for consumption or eradication. The most humane method of disposal is to place gigged adults into a cooler with some dry ice to immediately deprive them of oxygen.

There were two adult Pacific tree (chorus) frogs observed in the *Juncus* grass near the edge of the pond, otherwise, no other amphibians were observed at the rain catchment pond, seasonal pond or associated watercourses. There is potential with the removal of bullfrogs that some native amphibians, such as northern red-legged frogs, may find the pond areas and surrounding moist substrates suitable.

The seasonal, grass-bottomed pond had no water present during the time of the site visit. The associated overflow culvert (Photos 17-18) requires peak winter rains to reach the level of the culvert, and typically maintains this level for 3 to 5 weeks a year. This culvert crosses the orchard (Photo 19) a long distance, resulting in a concentrated outflow that has eroded the banks within 50 feet or so of the culvert, requiring some bank stabilization measures.

Other special status herpetofauna (reptiles and amphibians) are primarly expected to occur in areas outside of the parcels, although some habitat may exist in the multiple spring and seep areas on the parcel for southern torrent salamander. This species, like most local salamanders, remains underground in moist refugia until soaking winter rains bring them to the surface and would not have been visible during the time of the site visit. Otherwise, optimal habitat for this species, Pacific tailed frog and red-bellied newt is expected in Hacker Creek and South Fork Salmon Creek and tributaries, wherefast flowing headwater creeks and rocky substrates are more likely available. Foothill yellow-legged frogs, a stream-dwelling species, is reported in CNDDB as

occurring in the South Fork Salmon Creek drainage, approximately 1.5 miles northeast; this species likely also occurs in the lower reaches of Hacker Creek and within Salmon Creek and South Fork Eel River. Western pond turtles would also be expected in the South Fork Eel River in areas with available banks for sunning and basking substrates (rocks and logs).

Additional species expected in Salmon Creek and South Fork Eel River would include anadramous fish species (Coho salmon, summer-run steelhead trout) that have recorded historic runs in both watercourses; osprey (forage and nesting habitat), marbled murrelet (South Fork Eel River corridor for accessing old growth redwood habitat in HRSP) and little willow flycatcher (in riparian areas and willow-dominated vegetation locally more associated with larger river systems).

There is insufficient extensive forested habitat on the parcel to support special status species such as fisher. Although some large trees with denning opportunities are likely present on the landscape, proximate forest patches are limited in size for fisher. Foraging in the area is expected from this wide-ranging species, particularly in the vicinity of watercourses with sufficient canopy cover. For its smaller relative, the Humboldt marten, the most optimal habitat is likely within the old growth redwoods of HRSP, approximately 4 miles or more north and south of the parcels.

The large rock outcrop, Goat Rock, located due west of the parcels approximately 1 mile, is a prominent feature that may provide nesting habitat for peregrine falcon, but the nearest CNDDB record is east of the parcels on the Miranda topographic quadrangle map (location information suppressed, entire map shown).

Golden eagles are likely present in general vicinity, as the open grassy terrain is optimal foraging habitat for black-tailed jackrabbit, their primary food source in the area. However, there is little foraging habitat and no nesting habitat available on the parcels; the nearest CNDDB record is over 2 miles east. Conversely, habitat on the parcel appears optimal for nesting and foraging Cooper's hawk, with naturally occurring edge habitats at the grassland-forest interface.

The majority of the Douglas-fir on the parcel is of moderate size and in general the area may be too arid to support Sonoma tree vole, typically a fog belt species but with several inland records. Some habitat may be suitable in the vicinity of watercourses where Douglas-fir dominates, this species' preferred food source.

Structures on the parcel that could provide roosting or breeding habitat for bat species (Townsend's big-eared bat, western red bat, pallid bat) were inspected. No sign of guano or use was detected. Foraging in the vicinity of watercourses, where insect abundance is greatest, is presumed. However, pallid bats prefer ground-dwelling insects such as grasshoppers, and are more likely forage in the open grasslands in the general area.

The Humboldt County and State Water Board Order setback requirement of 50 feet from ephemeral Class III watercourse top of bank or riparian drip-line, whichever is greater, may require the removal or rearrangement of the westernmost greenhouse at the northern relocation site on APN 017, and retiring some western portion of the pre-existing cultivation site adjacent to the residence that is to be reverted to vegetable beds. A pending 1600 Lake and Streambed Alteration Agreement (LSAA) application, required by CDFW for determining potential impacts and use of waters of the State, is being prepared for the landowner(s) by NRM, and will help in defining actual setback buffer locations.

Special status species and the potential for impacts to species from the proposed projects, either directly or indirectly, are summarized in Table 3, below. Species are considered on a case-by-case basis as to the project's impacts based on considerations such as home range, habitat and sensitivity to disturbance.

Table 3. Special status species, suitable habitat in project area(s), and potential impacts

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
BIRDS					
northern spotted owl	FT, ST	Old-growth forests or mixed stands of old-growth and mature trees; occasionally in younger forests with patches of big trees	No	No	No impacts, due to no potential habitat in the project vicinity; nearest habitat likely associated with existing Activity Centers, over 2 miles east of parcels
golden eagle	FP, WL	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas	No	No	No impacts. Optimal foraging for this wide-ranging species exists in the general vicinity. Best foraging east of parcels where grasslands and ridgetop prairie habitat more prominent and where adjacent trees large enough to support nesting may occur; CNDDB record 2 miles east
American peregrine falcon	FP	Breeds near water in woodland, forest, and coastal habitats. Riparian areas important year-round. Requires cliffs, ledges for cover and breeding.	No	No	No impact; project sites adjacent to woodland habitat, but preferred riparian habitat likely in South Fork Eel River watershed, approximately 6.5 miles east. Rock outcrops for breeding available in general area, none observed

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
Cooper's hawk	WL	Woodland, chiefly of open, interrupted or marginal type	Yes	No	No impact, given available habitat in general area; likely to use forest edges greater than 500 feet of project areas for foraging, with suitable woodland habitat for nesting a similar distance
osprey	WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water	No	No	No impact; the South Fork Eel River is approximately 6.5 miles east of cultivation areas, the nearest largest body of water
marbled murrelet	FT, SE	Partial to coastlines with stands of mature redwood and Douglas-fir for nesting/roosting. In breeding season, may be seen regularly 6-8 km (4-5 mi) inland in dense, mature forests	No	No	No impact; no old growth habitat in vicinity of parcels. Likely use South Fork Eel River corridor for accessing nesting habitat approximately 4 air miles north and 5 air miles south in HRSP; approximately 16 air miles west to ocean from parcels
little willow flycatcher	SE	Breeds in moist brushy thickets, open second-growth, and riparian woodland, especially with willow	No	No	No impact; this species occurs in vicinity of watercourses with adequate, developed riparian habitat likely found at South Fork Eel River, approximately 6.5 miles east of parcels

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
MAMMALS					
Humboldt marten	SE	Only in the coastal redwood zone from the Oregon border south to Sonoma County. Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure	No	No	No impact; the nearest potential habitat is likely associated with old growth redwood habitat in HRSP, north and south over 4 air miles
fisher	FC, SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure	Yes	No	No impact; the nearest potential denning habitat is associated with NSO ACs, over 2 miles east of parcels; foraging on the parcels or transiting through is likely

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
Townsends big-eared bat	SSC	Throughout California in a wide variety of habitats; most common in mesic sites Typically found in caves, mines, manmade structures	No	No	No impact; possible roosting sites on parcel in forested areas; foraging expected at South Fork Eel River, approximately 6.5 miles east of parcels. All buildings inspected, no sign of bat use. No trees will be removed and no cavities observed in trees adjacent to project areas
western red bat	SSC	Roosts in trees on edge of habitat in forests and woodlands, sea level up to mixed conifer forests; feeds over grasslands and open forest; roosts singly on branches	No	No	No impact; possible roosting sites on parcel in forested areas; foraging and roosting tree species expected at South Fork Eel River, approximately 6.5 miles east of parcels. All buildings inspected, no sign of bat use. No trees will be removed
pallid bat	SSC	Frequents open habitats for foraging, often taking prey on the ground; day roosts in caves, crevices and occasionally hollow trees and buildings; night roosts more open sites such as bridges and open buildings; prefers rocky outcrops, cliffs to access open habitats	No	No	No impact; optimal foraging available in general vicinity. This species likely to use open habitats on parcel for foraging, especially areas near water where insect concentrations more abundant

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
Sonoma tree vole	SSC	North coast fog belt from Oregon border to Sonoma County; in Douglas-fir, redwood and montane hardwood-conifer forests	No	No	No impact; cultivation area within 200 feet of suboptimal Douglas fir habitat (most medium size, interspersed with other species and no large tracts as dominant species); habitat near parcels potentially in drainages; species not expected to occur at this site
HERPETOFAUNA					
western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation	No	No	No impact; there is no habitat for this species on the parcels; the nearest habitat likely the South Fork Eel River, approximately 6.5 miles east
Pacific tailed frog	SSC	Inhabits cold, clear, permanent rocky streams in wet forests; restricted to perennial montane streams. Suitable habitat likely exists in most flowing waterways within Humboldt County; known from Prairie Creek SP to King Range NCA	No	No	No impact; there is no habitat for this species in the cultivation areas; the nearest potential habitat appears to be in the headwater region or portions of Hacker Creek and tributary watercourses

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
foothill yellow-legged frog	SC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis	No	No	No impact; there is no habitat for this species, which requires permanent watercourse with rocky substrate; the nearest habitat likely in vicinity of CNDDB record in South Fork Salmon Creek, approximately 1.6 miles northeast and associated tributaries
northern red-legged frog	SSC	Humid forests, woodlands, grasslands, and stream sides in northwestern California, usually near dense riparian cover. Highly aquatic, little movement from streams/pond	No	No	No impact; locally found in stock ponds and backwater areas of larger rivers; nearest habitat likely in neighboring ponds that lack bullfrogs or in South Fork Eel River drainage

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
southern torrent salamander	SSC	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats; Old growth forests. Cold, well-shaded, permanent streams seepages/springs, splash zone or on moss-covered rocks within trickling water. Known to occur within rivers and creeks from Prairie Creek SP to the Mattole River; suitable habitat is likely present within most flowing streams and seeps within Humboldt County	No	No	No impact; there is no habitat for this species in the cultivation areas; the nearest potential habitat appears to be in the headwater region or portions of Hacker Creek and tributary watercourses
red-bellied newt	SSC	Primarily inhabits redwood forests but also mixed conifer; requires rapid streams for breeding and larval development. Known to occur within the Mattole River and tributaries; expected to occur in southern Humboldt County only	No	No	No impact; there is no habitat for this species in the cultivation areas; the nearest potential habitat appears to be in the headwater region or portions of Hacker Creek and tributary watercourses; also in areas of HRSP north and south of the parcels

Common Name	Listing Status	General Habitat Description	Presence of Suitable Habitat w/in Site?	Potentially Impacted by Project?	Comments
FISH					
coho salmon	FT, ST	Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters. Known to occur within South Fork Eel River and Salmon Creek. Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California	No	No	No impacts, if stream setback requirements strictly adhered to. Cultivation areas are approximately 6.5 miles west of South Fork Eel River and approximately 0.8 air miles west of Salmon Creek; cultivation areas located at least 2000 feet from Hacker Creek watercourse
summer-run steelhead trout	SE	Cool, swift, shallow water & clean loose gravel for spawning, and suitably large pools in which to spend the summer. Enter Mattole River between March and June	No	No	No impacts, if stream setback requirements strictly adhered to. Cultivation areas are approximately 6.5 miles west of South Fork Eel River and approximately 0.8 air miles west of Salmon Creek; cultivation areas located at least 2000 feet from Hacker Creek watercourse

State:
FP Fully protected (legally protected)
SC Candidate: Threatened or Endangered
SE Endangered (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
ST Threatened (legally protected)
Federal:
FC Candidate
FE Endangered (legally protected)
FT Threatened (legally protected)

Species, or their sign, observed during the survey are summarized below; no special status species were detected during the site visit.

Table 4. Species detected at APNs 221-141-015, -016, -017 on September 19th, 2019

Common Name	Scientific Name	Federal/ State Listing	Detection Method
red-tailed hawk	*Buteo jamaicensis*	None	visual
turkey vulture	*Cathartes aura*	None	visual
northern flicker	*Colaptes auratus*	None	auditory
acorn woodpecker	*Melanerpes formicivorus*	None	visual, auditory
common raven	*Corvus corax*	None	visual
wild turkey	*Meleagris gallopavo*	None	feathers
red-breasted nuthatch	*Sitta canadensis*	None	visual
American robin	*Turdus migratorius*	None	visual
Steller's jay	*Cyanocitta stelleri*	None	visual
scrub jay	*Aphelocoma californica*	None	visual
rufous-sided towhee	*Piplio erythrophthalmus*	None	auditory
black phoebe	*Sayornis nigricans*	None	visual
golden-crowned kinglet	*Regulus satrapa*	None	visual
chestnut-backed chickadee	*Poecile rufescens*	None	visual
American goldfinch	*Spinus tristis*	None	visual
black-tailed deer	*Odocoileus hemionus*	None	tracks, scat
raccoon	*Procyon lotor*	None	scat
black bear	*Urusus americanus*	None	scat
alligator lizard	*Elgaria coerulea*	None	visual
Pacific tree frogs	*Pseudacris regilla*	None	visual
American bullfrogs	*Lithobates catesbeianus*	Invasive	visual

V. Management Recommendations

- Strict adherence to Riparian Setback Requirements for Humboldt County and State Water Board are required to maintain quality habitat for amphibians and anadromous fish. All cultivation should be well inside these setbacks once permitting allows.
- Draining of the lined, rain catchment pond will be required at the end of each growing season to discourage use by non-native bullfrogs (see Results and Discussion).
- No use of plastic support netting. This plastic netting is a hazard to all forms of wildlife and is not to be used. CDFW recommends using netting of natural materials such as jute or hemp, with no welded seams.
- All appropriate measures will be taken to avoid any sediment runoff from the parcel to receiveing waters, including no overwatering of plants and proper storage of materials.
- All greenhouses utilizing early-season, low impact lighting will require tarps to block all potential light pollution from one hour prior to sunset through one hour past sunrise. Further, all attempts to keep noise levels at a minimum during year-round operations will help maintain the quality of habitat for all wildlife species.

VI. References Cited

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Appendix A: Photos taken September 19, 2019

Photo 1. Lined, rain catchment pond on APN 016, looking north

Photo 2. Seasonal, grass-bottomed pond on APN 017, looking north

Photo 3. 30,000-gallon capacity steel rain catchment tank on APN 016

Photo 4. Honda EU Inverter 2000i generator in fertilizer storage shed (l); in secondary containment (r)

Photo 5. Pre-existing cultivation on APN 017 reverting to vegetable garden; small residential cabin to left

Photo 6. Pre-existing cultivation on APN 016 to right of rain catchment pond in fenced area

Photo 7. Pre-existing cultivation on APN 016 in fenced area; naturally revegetated

Photo 8. Pre-existing cultivation on APN 017; vegetable garden to be put in outside of watercourse buffer

Photo 9. On site relocation cultivation for APN 015; cutbank to be improved with grading permit

Photo 10. On site relocation cultivation for APN 016 (1 of 2); 640 square feet

Photo 11. On site relocation cultivation for APN 016 (2 of 2); 3,390 square feet

Photo 12. On site relocation cultivation for APN 017 (1 of 2); 3,840 square feet within 7 greenhouses

Photo 13. Alternate view of on site relocation for APN 017; rain catchment pond in background to right

Photo 14. On site relocation cultivation for APN 017 (2 of 2); trail from residence (l) looking at steepest slope (r) with slopes >/= 20 percent; person at proposed relocation site

Photo 15. On site relocation cultivation for APN 017 (2 of 2); east is Bear Butte from proposed flat

Photo 16. On site relocation cultivation for APN 017 (2 of 2); looking south from proposed flat

Photo 17. Culvert at seasonal pond where water level reaches only 3 to 5 weeks a year

Photo 18. Culvert from above photo located in vicinity of small tree, right of center, on edge of pond

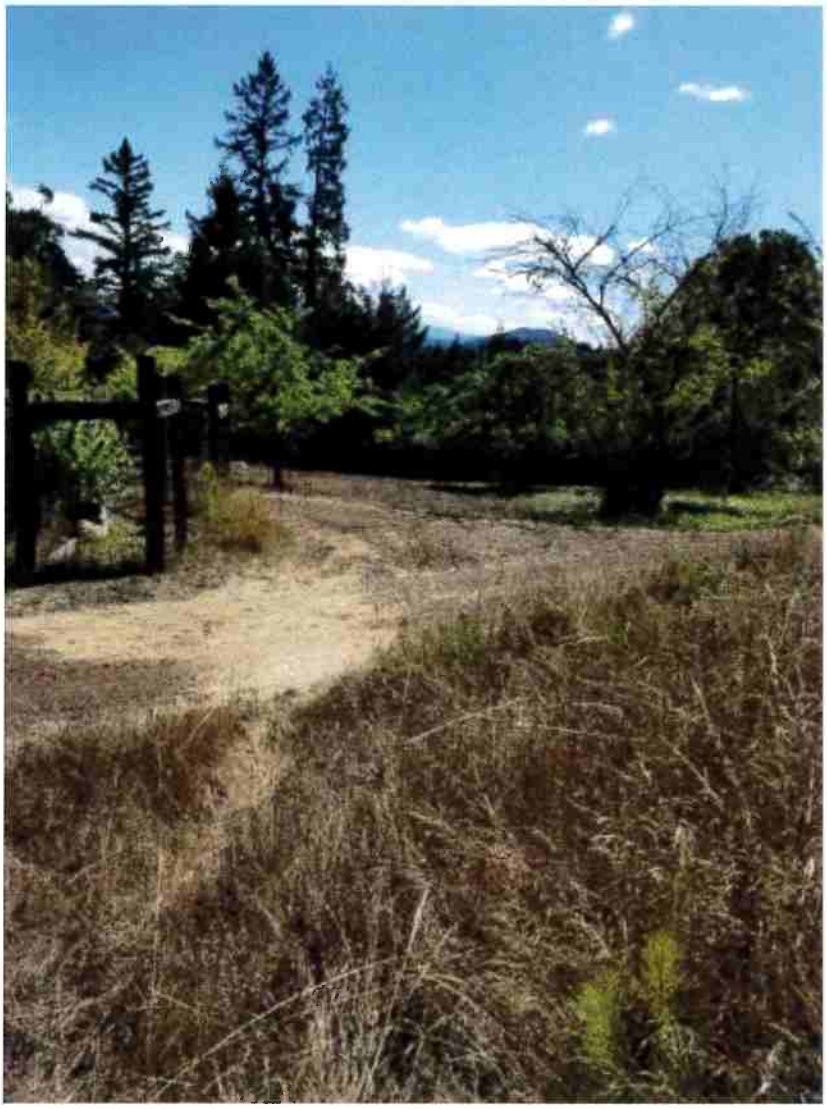

Photo 19. View from seasonal pond culvert (Photo 17 location) towards outlet at far end of orchard