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BIOLOGICAL ASSESSMENT
OF
BALBIR S. RATAUL PROPERTY
46977 Clear Ridge Road
Big Sur, CA 93920
APN's: 419-271-001 + 419-271-008
PLN220280

Prepared For:

BALBIR S. RATAUL
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I. INTRODUCTION

This 17-page report has been authorized by Michael Linder (Land Use Consultant) on December 16, 2022.

This Biological Assessment has been prepared to document existing biological resources and evaluate potential impacts to plants, habitats and wildlife that would be generated from a proposed residential construction project located on two adjacent parcels located at 46977 Clear Ridge Road in Big Sur, CA (APN 419-271-008 + 419-271-001). This report will also provide recommended avoidance, minimization and mitigation measures necessary to reduce potential impacts to levels that will support the environmental resources of the property. The development project consists of four exterior site improvements including installation of two above ground 4,959-gallon Norwesco water holding tanks and a 100 SF pump house on parcel -001 and the installation of a geothermal system and an exterior cantilevered staircase on parcel -008.

Field surveys, including spring-flowering surveys, of the subject parcel and proposed development areas were conducted on December 16, 2022, February 27, 2023, May 18, 2023, July 18, 2023, July 31, 2023 and November 21, 2023

II. SUMMARY

Parcel 419-271-008

The proposed geothermal system and staircase development on parcel shall have less than significant direct impacts to natural communities associated wildlife as the designated construction areas are sited within pre-existing hardscape and ornamental landscape areas. Adjacent to the landscape areas, fuel clearance maintenance regimes have kept the area cleared and mowed within a 30-foot perimeter.

No rare, endangered, or threatened plant or animal species were observed in the work area or are likely to occur within the proposed construction area as the footprints of proposed development are sited within pre-existing development and landscaped areas and do not harbor native plant communities.

Parcel 419-271-001

The proposed installation of the two water tanks is sited to impact approximately 250 SF of a natural area within the critical root zones of a cluster of Shrive oak (*Quercus parvula* var. *shrevei*) and a 100 SF pump house within the fringe of a pre-disturbed paved driveway. No rare, endangered, or threatened plant or animal species were observed or are likely to occur within the proposed construction area as the footprints of proposed development are sited within areas void of native understory constituents..

Both parcels lie within critical habitat boundaries for California red-legged frog (*Rana draytonii*) as defined by the federal Endangered Species Act (ESA). An unidentified bumble bee was observed on the western portion of the parcel in the grassland (150+ feet) from the proposed construction area. Western bumble bee (*Bombus occidentals*) is a CDFW species of special concern and could potentially be present on the parcels. Several other special status wildlife species have the potential to utilize the parcels and are evaluated in Section V below.

Comprehensive findings for both parcels are included in Section V, describing natural communities in the development zone and the parcel. Impact assessments and recommendations are included below in Section VII for the development. If the recommendations and mitigations contained in this report are implemented, the impacts of the proposed projects will be reduced to levels that sustain the natural biotic resources supported at the Rataul properties.

III. REGIONAL SETTING

The two subject parcels are located within the boundaries of the Big Sur coastal planning area, approximately 1-1/2 miles southwest of the Big Sur Valley along the west side of Highway One, in the northern boundary of the Pfeiffer Point USGS 7.5' quadrangle. The 20-acre parcel (-008) and 60-acre parcel (-001) are aligned along an elevated ridge line of Clear Ridge Road that runs north to the south located west of Pfeiffer Ridge. Existing residential developments are found on the upper reaches of both parcels. The proposed development areas are located at 600' elevation (+/-) within the upper confines of a watershed draining towards the Sycamore Canyon tributary located to the south of the parcel. The native natural communities found in mixed ecotones within the general area supports *California Sagebrush Scrub*, *Coastal Prairie Grasslands*, *Coast Redwood Forest*, and *Mixed Evergreen Forest*.

IV. METHODS

Field methods over the course of 6 field visits included walking the proposed development areas while surveying the adjacent outlining native plant communities, inventorying observed plant and animal species, photographing existing conditions, and site meetings with project personnel to avoid impacts to sensitive resources. Weather conditions were clear and full access to the site allowed for careful site and resource observations. Architectural and engineering plans for the two proposed residential construction envelope areas were provided for the field surveys and plan revisions were conducted in collaboration to avoid sensitive biological resources.

Local maps, consultations with personnel familiar with the project, and the referenced original biological report for parcel -001 (Ref. Biological Report, Jeff Norman Consulting Biologist, August 15, 1994), were utilized during the preparation of this Biological Assessment. The California Natural Diversity Data Base (CNDDDB) maintained by the State of California Department of Fish and Wildlife (DFW), the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPac) Resource List, and the California Native Plant Society California Rare Plant Rank (online database), were consulted for the identification of known populations of Federal, State and local listed rare, threatened and endangered plant species on or in the vicinity of the Rataul project sites. Survey methods included utilizing The Jepson Manual (Hickman 1993), Invasive Plants of California's Wildlands (Bossard, Randall, and Hoshovsky 2000), A Manual of California Vegetation (Sawyer and Keeler-Wolf 1995), An Illustrated Field Key to the Flowering Plants of Monterey County (Matthews and Mitchell, Second Edition 2015), Big Sur Coast Land Use Plan (Monterey County and certified by the CA Coastal Commission 1986), The Natural History of Big Sur (Henson and Usner 1993) and Coastal Implementation Plan, Part 3 (Monterey County – Regulations for Development in the Big Sur Coast Land Use Plan 1988).

V. LOCAL VEGETATION

The two subject adjacent parcels (-008 and -001) consist of several overlapping but distinct plant communities including the site dominant Coastal Sagebrush Scrub and fragmented pockets of Mixed Evergreen Forest, Coastal Prairie Grassland, Central Maritime Chaparral, and Redwood Forest.

Parcel 419-271-008 (Geothermal + Staircase)

The project proposes two main development features consisting of a new cantilevered staircase along the south wall of an existing southerly main entrance driveway and a geothermal system proposed for burial under the existing driveway. Additional construction elements include the removal of the existing concrete driveway and replacement with a decomposed granite capped surface and removal of an existing 5,000 gallon above-ground water tank. All proposed construction elements are sited within areas containing ornamental landscape plantings or fall in fire clearance zones and void of natural (native) vegetation.

Entry to the existing residential development is accessed in two locations. From the south the existing concrete driveway is sited off the east side of Clear Ridge Road. A proposed 34 LF 'bump out' of the southeast portion of the existing retaining wall and addition of a cantilevered staircase will encroach into a barren, fuel clearance location with the lower portion of the staircase



encroaching into a pre-existing landscaped area with citrus trees, stone fruit trees, lavender, rosemary, pittosporum, and additional mixed Mediterranean drought tolerant species.

Proposed cantilevered staircase location.

Proposed cantilevered staircase location.

Removal of portions of these site-introduced ornamental landscape species will be required to implement the staircase portion of the project. Downslope to the south and east, a 30-foot fire clearance zone is present with minimal vegetation amongst a scattering of introduced Monterey pine (*Pinus radiata*), Monterey Cypress (*Hesperocyparis macrocarpa*), and Italian cypress, with the latter found on the upper portion of the parcel adjacent the entry driveway. Downslope, at the edge of the 30-foot fuel management zone the landscape transitions to Coastal Scrub natural community. The Coastal Sagebrush Scrub habitat is characterized by a mix of co-dominant shrubs including coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*), and sticky monkey flower (*Diplacus aurantiacus*). Also present within the scrub community are coffeeberry (*Frangula californica*), poison oak (*Toxicodendron diversilobum*), California fuchsia (*Epilobium canum*), and understory herbaceous constituents including purple needlegrass (*Stipa pulchra*), soap plant (*Chlorogalum pomeridianum*), Fremont's star lily (*Toxicoscordion fremontii*), woodland strawberry (*Fragaria vesca*) and others.

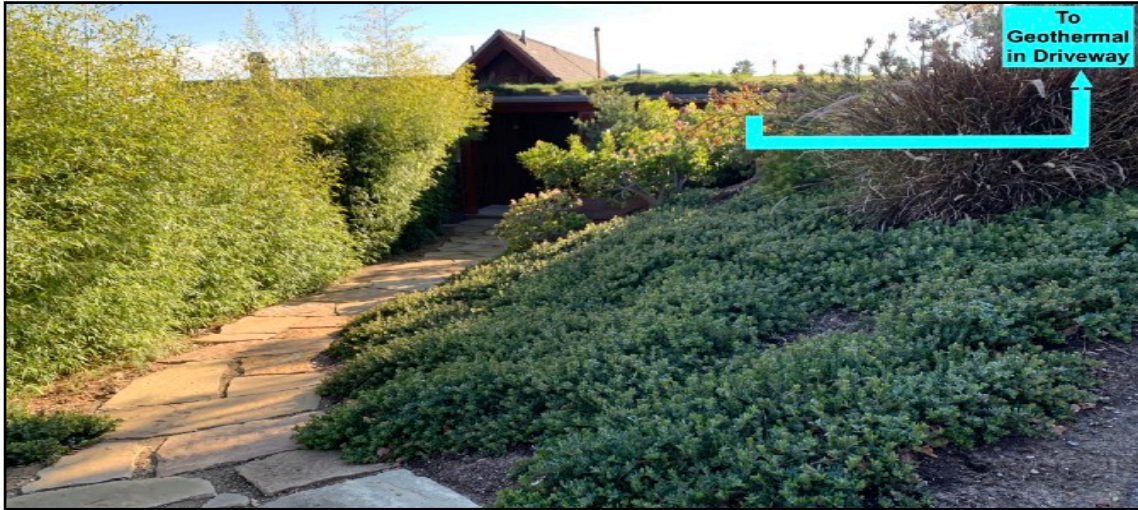
The proposed geothermal system is sited within the existing concrete driveway along the southerly border of the residence. Direct trenching impacts from the installation of geothermal recirculating piping will occur solely within the driveway footprint and pre-existing ornamental landscaped areas along the west side of the existing garage.



Proposed geothermal location in driveway.

The specified 4-foot deep by 2-foot wide excavated geothermal trench will cross through the driveway and route northward along the western house boundary through a landscape bed dominated with an introduced ground cover manzanita cultivar (*Arctostaphylos edmundsii* 'Carmel

Sur'), and a mix of exotic, Mediterranean species including fountain grass (*Pennisetum sp.*), jade plant (*Crassula ovata*), coastal wooly bush (*Adenanthos sericeus*), and proteas (*Protea sp.*).



Proposed geothermal location in front landscaped area.

No special-status plant or wildlife species or listed spring flowering plant species were identified within the proposed construction areas and none are expected to occur due to the lack of supporting habitat and presence of exotic landscape species within the proposed development zone.

Parcel 419-271-001 (Water tanks and Pump House)

The proposed installation of two 4,959-gallon water tanks is sited within a cleared terrace area within critical root zones of a cluster of intertwined Shreve oaks (*Quercus parvula var. shrevei*). This California endemic, evergreen red oak species is a coastal range tree often found in association with coast redwoods and is known to extensively hybridize within the red oak clade. The oak group specimens in the location of the proposed water tanks are of a similar age with trunk diameters ranging from 8" to 13", suggesting the grove is relatively young (less than 40 years). The cluster is sited on the southern boundary of the -001 parcel at the terminal of an existing paved parking area that services the residence on the -008 parcel. No significant understory constituents are growing in the area as the ground plane is barren from fuel management treatments with dry soils covered in an inch of oak leaf litter.



Proposed location of two water tanks (November 21, 2023).

A site meeting was conducted on November 21, 2023 with the general contractor and civil engineer to review biological resources and strategize for the water tank development to avoid significant root impacts to Shreve oaks. During the visit, the proposed tank pad was field-sited to occur within an existing terraced clearing between flanking clusters of Shreve oaks at the end of the existing paved parking area on parcel -001. The small clearing for the proposed 240 SF tank pad is denuded of any understory plants and shows evidence of past impacts, possibly associated from the past development of the parking area, as there is a staged berm pile of rocky subsoil in the footprint of the proposed 100 SF pump house. Two to three oak tree limbs (<5" diameter) and some lighter detailed pruning of inner canopy pruning (<2" diameter) will be required to accommodate the installation and tank height clearance requirements.

The proposed water tank pad construction details are designed to reduce potential tree root impacts to a less than significant level by integrating an elevated support pad anchored with 4 (four) helical anchors at the corners of the pad coupled with 3 (three) diagonal helical anchors (one for each of the three support grade beams). This innovative system reduces potential root impacts to 7 (seven) total drill points from the helical anchors that minimizes soil disturbance as it eliminates the need for deep trenching typically specified for perimeter foundations. The outer edges of the 12' x 20' pad are sited approximately 4+ feet from adjacent tree trunks.

The pier block designed pump house is sited at the end of the existing paved parking area, with the footprint partially sited on the paved area. No vegetation disturbance is proposed and no tree root impacts are anticipated as the pump house will sit on an old cut and fill zone created for the parking pad, sitting outside the critical root zone of the nearest Shreve oak.



Proposed pump house location.

To mitigate potential tree and root impacts to a less than significant level, mitigation recommendations are included to protect tree trunks from inadvertent construction related impacts and monitor for potential roots during any required excavation.

No listed, rare, or endangered plant or wildlife species were noted in the proposed development area and none are expected to occur as the site is denuded (due to fuel management and shaded conditions) with the exception of the oak clusters.

VI. RARE, THREATENED, AND ENDANGERED SPECIES

The proposed development site was surveyed for occurrences of potential listed habitat and impacts to rare, threatened, and endangered plant or wildlife species. The site was also surveyed for sensitive elements listed by the CNDDDB for the Pfeiffer Point quadrangle, listed by the USFWS

IPaC database, or included in the California Native Plant Society California Rare Plant Rank (CRPR) database. State Listing is pursuant to Section 1904 (Native Plant Protection Act of 1977) and Section 2074.2 and 2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing Endangered, Threatened, and Rare species of plants and animals. Federal Listing is pursuant with the Federal Endangered Species Act of 1973.

Published occurrence data within the project USGS quadrangle and surrounding quadrangles were evaluated of special-status species known to occur in the vicinity of the survey area. Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the survey area. The special-status species that are known to or have been determined to have a moderate or high potential to occur within or immediately adjacent the survey area are discussed below. All other species are assumed unlikely to occur or have a low potential to occur based on the species-specific reasons and habitat or environmental suitability, are therefore unlikely to be impacted by the project.

Oak trees are afforded protections in the Big Sur LUP and CIP. No vegetation or tree removal is proposed, though minor Shreve oak tree limbing will be required to install the water tanks. In compliance with CIP Forest Resource Development Standards (Ref. 20.145.060.A.1.a) the limb removal is not expected to result in the exposure of the tanks as the existing oak trees provide solid cover from the surrounding viewshed. Tree (trunk) protection measures and root monitoring are recommended to ensure proposed project impacts are reduced to an insignificant level.

The Clear Ridge area and adjacent parcels support several locally-listed species including populations of Lewis' clarkia (*Clarkia lewisii*) a California Rare Plant Rank 4.3 species and Hutchinson's larkspur (*Delphinium hutchinsoniae*) a California Rare Plant Rank 1B.2 species. The latter was documented as occurring on the -001 parcel (south of the driveway along the west side of the Clear Ridge road easement) in the 1994 Norman report, though the area where it occurred has been landscaped and experiences regular fuel clearance for fire prevention and the species has not been personally observed during spring surveys conducted on the parcel over the course of the past 5 years. Lewis' clarkia was not observed on the parcel and does not occur within the proposed areas of development though has been personally observed on neighboring parcels to the south (>500 meters away).

Sea cliff buckwheat (*Eriogonum parvifolium*) is also noted along the ridge and can potentially provide habitat for the federally *Endangered* Smith's blue butterfly (*Euphilotes enoptes smithii*), however none were observed during survey observations conducted within 100' of the proposed water tank development envelope. Seacliff buckwheat does occur on the 60-acre parcel -001 but the plants are located on the northwest area of the parcel over 400+ feet from the proposed tank installation and will not be impacted from the proposed development.

The project lies within federally designated *Critical Habitat* for the California red-legged frog (*Rana draytonii*). The CRLF was listed as a federally *Threatened* species in 1996 and is also a CDFW species of special concern. Adults generally inhabit aquatic habitats with riparian vegetation, overhanging banks, or plunge pools for cover, especially during the breeding season. They may take refuge in small mammal burrows, leaf litter, or other moist areas during periods of inactivity or to avoid desiccation. Documented tracking data indicates adults engage in straight-line breeding season movements irrespective of riparian corridors or topography and they may move up to two miles between non-breeding and breeding sites. During the non-breeding season, a wider variety of aquatic habitats are used, including small pools in coastal streams, springs, water traps, and other ephemeral water bodies. CRLF may also move up to 100 meters from aquatic habitats into surrounding uplands, especially following rains, where individuals may spend days or weeks. Although no aquatic breeding, aquatic non-breeding or upland habitat is present, the project area is within the mapped dispersal range for this species and CRLF may potentially utilize the site as dispersal habitat. Accessible upland or riparian dispersal habitat between occupied locations within 0.7 mile (1.2 km) of each other allows for movement between such sites. Migrating CRLF are

widely distributed across the landscape in time and space and the potential take is considered low for the frog to be found on the parcel, however in the unlikely event that the frog is present, the take of CRLF would be considered a potentially significant impact. Specific surveys for potential burrowing or leaf litter refuging CRLF were conducted during the November 21, 2023 site visit, though no evidence of mammal burrows or sitings of potential refuge in the leaf litter was observed within the proposed work areas. No supporting quality habitat occurs within the two (geothermal and water tanks) areas of proposed construction and there is a less than likely potential for the frog to occur due to lack of supporting cover resources (vegetation, logs, debris) and open, dry exposed soil conditions.

An unidentified bumble bee was observed foraging within the coastal prairie grassland area (parcel -001) on the western side of Clear Ridge Road within 150+ feet of the proposed water tank and geothermal project areas during late-spring 2023 site surveys. The Western bumble bee (*Bombus occidentalis*) and Crotch's bumble bee (*Bombus crotchii*) are candidate species for listing as an endangered species under the California Endangered Species Act (CESA), both species occur in Big Sur, though very little is known regarding nesting and overwintering sites. As a candidate species, they receive the same legal protection afforded to endangered or threatened species (Fish & G. Code §§ 2074.2 & 2085). Bumble bees do not dig their own nests as they utilize pre-existing cavities (mostly underground in abandoned holes) that provide insulation and protection from the elements. Potential bee nests are likely to occur within the western portion of the parcel (-001) in the prairie grassland where foraging plants and habitat resources are plentiful, rodent holes are abundant, and thatched grasses (documented as being utilized for nesting colonies) are present. Overwintering queens (referred to as *gynes*) appear to be highly variable in environmental and geographic location relative to foraging sites and very little published descriptions of overwintering habitats are available. A recent study in Fort Ord published in November 2019 (Ref. Ecosphere Journal, Volume 10(11), Article e02949, Williams et al.) suggests that overwintering bees may seek a contrasting overwintering micro-habitat conditions as hibernating queens were discovered in non-foraging habitat under duff layers of Monterey cypress trees, suggesting a contrasting overwintering micro-habitat condition is utilized. During the November 2023 site visit, inspections for potential nesting cavities (mammal burrows, hollow chambers, etc) were conducted for bee ground nesting in the two work areas and none were observed as soils conditions in the area are highly compacted and rocky with no evidence of rodent/gopher activity. Nesting colonies are unlikely to occur within the three proposed footprints of construction impacts due to lack of supporting habitat or foraging plant species, presence of open and exposed soils and deep-shaded conditions (water tank area). At this late stage in the bee season cycle, only an overwintering, hibernating, mated queen (not a nesting colony) would be potentially impacted from construction impacts though the impact would be considered significant considering the next cycle of a bumble bee colony solely relies on the survivability of the overwintering queen. Habitat requirements for isolated overwintering queens are still largely an unknown and poorly understood. Bumble bee queens have been mostly documented overwintering underground in small, loose soil, shallow cavities, old nest sites (or near old nest sites) or under leaf several inches of leaf litter, though they are also documented overwintering aboveground in tree trunks, wood piles, empty bird nests, compost heaps, barn lofts, and mailboxes. The potential is considered low that an overwintering queen would be impacted by the proposed construction due to compacted soil conditions or hardscape (concrete driveway) in the work zones and lack of potential nesting cavities (rodent chambers) in the project areas. In June 2023, the CDFW published a protocol document for bumble bee surveys (Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species) and included the following overwinter survey guidelines: "Overwintering habitat for the majority of North American bumble bees is poorly understood and therefore surveys for it are not recommended. Sloping areas or areas under trees insulated with moss or leaf litter have been found to support overwintering gynes." CDFW guidelines also include that if any candidate bumble bee species are detected (including nests or overwintering sites), the project biologist is to contact (preferably within three days) CDFW (wildlifemgt@wildlife.ca.gov), USFWS (for *B. franklini*, *B. occidentalis*, and/or *B. suckleyi*), as well as the Central Region (Region

4) CDFW staff to assist in learning more about their habitat and behavior. Specific project recommendations are included in Section VII.

Raptors, their nests, and other nesting birds are protected under California Fish and Game Code and the US Migratory Bird Treaty Act of 1918 (MBTA). Most raptors are breeding residents throughout most of the wooded portions of the state, including stands of oak, evergreen forests, coast redwoods, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through September, with peak activity May through July. Prey for these species includes small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland, grassland and habitat edges. Various species of raptors, such as Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), great horned owl (*Bubo virginianus*), American kestrel (*Falco sparverius*), the federally *Endangered* California condor (*Gymnogyps californianus*), and turkey vulture (*Cathartes aura*), have a potential to nest within any of the large trees present within the two subject parcels or adjacent parcels. In addition, suitable nesting and foraging habitat is present for several species identified on the USFWS's "Birds of Conservation Concern" list, including oak titmouse (*Baeolophus inornatus*), wren-tit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*), and Allen's hummingbird (*Selasphorus sasin*). No raptors were observed nesting within 300-feet of the proposed project during spring and summer site surveys, though suitable habitat exists on site within 300-feet of the proposed development. Survey mitigations are incorporated in Section VII to avoid and reduce impacts to potential nesting bird species to a less than significant level if the construction project occurs during nesting season.

Listed ESHA natural communities are noted on the parcel but outside proposed areas of impacts (+100 feet away) including Redwood Forest located east of Clear Ridge Road (+500 feet), Central Maritime Chaparral located west and north of the existing residence on parcel -001 (+500 feet), and Coastal Prairie Grassland located west of Clear Ridge Road on parcel -001 (+100 feet). All three ESHA habitat communities shall not be impacted from activities related to the proposed development.

VII. IMPACT ASSESSMENT, MITIGATION MEASURES, AND RECOMMENDATIONS

No native vegetation is proposed for removal to accommodate the three project elements (geothermal, pump house, and water tanks). Several native Shreve oaks will require minor limb pruning to accommodate water tanks and potential construction impacts to oak feeder roots are expected during water tank curbing and pad construction. The project area contains nesting potential for raptor, migratory, and locally listed bird species. Mitigations are incorporated below to reduce potential development impacts to a level that sustains the biological resources.

Impact 1: Tree Protection + Construction BMP's

Shallow hand trenching will be required to accommodate the water tank curbing (+ concrete forming). The expectation during the shallow trenching is to potentially encounter feeder roots from the Shreve oak trees. There is also potential to impact Shreve oak trunks as construction work will take place in close proximity (approximately 4 feet) to tree trunks.

Mitigation 1:

- a. Construction staging and parking shall be restricted to the current paved parking areas of the residential parcel (-001 + -008).
- b. Prior to issuance of construction permits, Shreve oak trees located adjacent to the water tank and pump house construction area shall be protected from damage by construction equipment by the use straw wattles wrapped to a 4-foot height on the Shreve oak trees trunks. Submit photographic documentation to the County Planner for verification.
- c. During shallow hand excavation for the water tank pad curbing, there is an expectation to encounter oak tree feeder roots due to the close proximity (approximately 4'+) of the trees. The hand excavation should be monitored by the construction personnel to ensure against

- damaging potential structural root systems. Field adjustments may be needed to avoid structural roots (if encountered) and any roots greater than 2" diameter shall be bridged.
- d. Exposed soils from construction impacts are required to be mulched to prevent exposed bare soils from eroding or migrating off site. Landscape zones around the house from the geothermal construction impacts shall be mulched with a landscaping mulching or planted with drought resistant, County-approved landscape materials while the water tank area should be mulched with existing oak leaf litter that is readily plentiful on the parcel.
 - e. Pruning shall be conducted so as not to unnecessarily injure the tree. General principals of pruning include placing cuts immediately beyond the branch collar, making clean cuts by scoring the underside of the branch first, and for live oak, avoiding the period from February through May. Oak tree limb pruning (required for the water tanks installation and fuel management pruning) should conform to the following standards:
 - Clear the crown of diseased, crossing, weak, and dead wood to a minimum size of 1-1/2 inch in diameter;
 - Remove stubs, cutting outside the wound wood tissue that has formed around the branch;
 - Interior branches shall not be stripped out.
 - Reduce end weight on heavy, horizontal branches by selectively removing small- diameter branches, no greater than 3 inches, near the ends of the scaffolds. In some cases, larger diameters may be removed depending on the situation (where critical for safety).
 - Pruning cuts larger than 4 inches in diameter, except for deadwood, shall be avoided, unless deemed crucial for safety (broken, cracked, crossing, rubbing, etc.) or those interfering with the tank installation.
 - Pruning cuts that expose heartwood shall be avoided whenever possible.
 - Pruning shall not be performed during periods of flight of adult boring insects because fresh wounds attract pests (generally spring). Pruning shall be performed only when the danger of infestation has passed.
 - All pruning shall be performed by a qualified arborist or under the supervision of an ISA Certified Arborist or Tree Worker.
 - All pruning shall be per the Tree Pruning Guidelines (International Society of Arboriculture) and/or the ANSI A300 Pruning Standard (American National Standard for Tree Care Operations) and adhere to the most recent edition of ANSI Z133.1.
 - No more than 20 percent of live foliage shall be removed within the trees.
 - Brush shall be chipped, and chips shall be spread underneath Shreve oak trees within the water tank area to a maximum depth of 4 inches, leaving the trunk clear of mulch.
 - f. Any roots that must be cut shall be cut by manually digging a trench and cutting exposed roots with a sterilized saw, vibrating knife, rocksaw, or other approved root pruning equipment. Any roots damaged during hand excavation shall be exposed to sound tissue and cut cleanly with a saw.
 - g. If significant roots are identified that must be removed that will destabilize or negatively affects the oak trees, the property owner will be notified immediately and a determination for removal will be assessed and made as required by law for treatment of the area that will not risk death decline or instability of the tree consistent with the implementation of appropriate construction design approaches to minimize effects, such as hand digging, bridging or tunneling under roots, etc.
 - h. Do not deposit any fill around oak tree critical root zones, which may compact soils and alter water and air relationships. Avoid depositing fill, parking equipment, or staging construction materials near existing trees. Covering and compacting soil around trees can alter water and air relationships with the roots. Fill placed within the drip-line may encourage the development of oak root fungus (*Armillaria mellea*).
 - i. Oak materials greater than 3 inches in diameter remaining on-site more than one month that is not cut and split into firewood should be covered with clear plastic that is dug in securely around the pile. This will discourage the infestation and dispersion of bark beetles.

Impact 2: Nesting Survey (parcel -001 + -008)

Nesting raptors and other protected avian species have the potential to occur within the project site as suitable habitat occurs on both parcels. Construction activities or tree limb pruning could result in direct mortality of individuals, disturbance of nests, and loss of habitat. This is a potentially significant impact that can be reduced to a less-than-significant level with implementation of the mitigation measures recommended below.

Mitigation 2:

- a. To avoid and reduce impacts to nesting raptors and other nesting avian species, construction activities can be timed to avoid the nesting season period. Specifically, vegetation removal can be scheduled after September 1 and before January 31 to avoid impacts to these species. Alternatively, if avoidance of the nesting period is not feasible, a qualified biologist shall be retained to conduct pre-construction surveys for nesting raptors and other protected avian species within 300 feet of proposed construction activities if construction occurs between February 1 and September 1. Pre-construction surveys shall be conducted no more than 14 days prior to the start of construction activities. If raptors or other protected avian species nests are identified during the pre-construction surveys, an appropriate no-disturbance buffer will be imposed within which no construction activities or disturbance should take place as determined by the qualified biologist to ensure avoidance of impacts to the individuals. The buffer will remain in place until the young of the year have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist.

Impact 3: Bumble Bee Survey (parcel -001 + -008)

Western bumble bee (*Bombus occidentalis*) and Crotch's bumble bee (*Bombus crotchii*) are candidate species for listing as an endangered species under the California Endangered Species Act (CESA). As a candidate species, they receive the same legal protection afforded to endangered or threatened species (Fish & G. Code §§ 2074.2 & 2085). Project excavation or other ground disturbance actions could impact overwintering queens (November - March) or nesting colonies (March - October) depending on the construction scheduling. Spring and summer surveys on parcel -001 observed the presence of an unidentified bumble bee species as suitable habitat exists to support the bumble bee on the parcel. No nesting occurrences were observed within or near the three proposed development areas during field surveys however the potential exists for overwintering or nesting to occur on the parcels.

Mitigation 3:

- a. As suitable habitat is verified near the work area, a qualified biologist shall conduct visual surveys during the flying period between March 1 to October 31 prior to the project activity. If a nest is observed and determined to be potentially impacted from construction activities, no project activities shall occur until a plan to project or buffer bumble bees has been submitted and approved in writing by CDFW.
- b. CDFW has no established monitoring protocols during overwintering periods other than avoidance. In the unlikely occurrence that an overwintering queen bumble bee is discovered or exposed during any excavation operations conducted in November through March (hibernating period), the project contractor shall immediately contact the project biologist. The project biologist is then required to contact (preferably within three days) CDFW Central Region (Region 4) staff (wildlifemgt@wildlife.ca.gov), USFWS (for *B. franklini*, *B. occidentalis*, and/or *B. suckleyi*), to assist in learning more about their habitat and behavior.

VIII. LIST OF SPECIES ENCOUNTERED

Tree Species

Cupressus sempervirens	Italian cypress
Hesperocyparis macrocarpa	Monterey Cypress
Pinus radiata	Monterey pine
Quercus agrifolia	coast live oak

Quercus párvula var. *shrevei*

Shreve oak

Shrub Species

<i>Artemisia californica</i>	California sagebrush
<i>Frangula californica</i>	California coffeeberry
<i>Acmispon maritimus</i> var. <i>maritimus</i>	coastal lotus
<i>Acmispon glaber</i> var. <i>glaber</i>	deerweed
<i>Adenostoma fasciculatum</i>	chamise
<i>Antirrhinum multiflorum</i>	sticky snapdragon
<i>Arctostaphylos tomentosa</i> ssp. <i>tomentosa</i>	shaggy-barked manzanita
<i>Artemisia californica</i>	California sagebrush
<i>Bachcharis pilularis</i> ssp. <i>consanguinea</i>	coyote brush
<i>Ceanothus thrysiflorus</i> var. <i>thrysiflorus</i>	blue blossom
<i>Ceanothus papillosus</i>	wart leaf ceanothus
<i>Eriogonum parvifolium</i>	seacliff buckwheat
<i>Eriophyllum confertifolium</i>	golden yarrow
<i>Frangula californica</i> ssp. <i>californica</i>	coffeeberry
<i>Garrya ellyptica</i>	coast silk-tassel
<i>Genista monspessulana</i> *	French broom
<i>Hazardia squarrosa</i>	sawtooth goldenbush
<i>Heteromeles arbutifolia</i>	toyon
<i>Lupinus albifrons</i> var. <i>albifrons</i>	silver bush lupine
<i>Mimulus aurantiacus</i> var. <i>aurantiacus</i>	sticky monkeyflower
<i>Rubus ursinus</i>	California blackberry
<i>Salvia mellifera</i>	black sage
<i>Symphoricarpos mollis</i>	creeping snowberry
<i>Toxicodendron diversilobum</i>	poison oak

Herbaceous Species

<i>Acaena californica</i>	California acaena
<i>Achillea millefolium</i>	common yarrow
<i>Acmispon glaber</i>	deerweed
<i>Anagallis arvensis</i> *	scarlet pimpernel
<i>Artemisia douglasiana</i>	California mugwort
<i>Calochortus albus</i>	white fairy lantern
<i>Calystegia macrostegia</i> ssp. <i>cyclostegia</i>	coast morning glory
<i>Cardamine californica</i>	California toothwort
<i>Cardus pycnocephalus</i> *	Italian thistle
<i>Castilleja latifolia</i>	Monterey Indian paintbrush
<i>Chlorogalum pomeridianum</i>	soap plant
<i>Cirsium brevistylum</i>	clustered thistle
<i>Cirsium occidentale</i> var. <i>occidentale</i>	cobweb thistle
<i>Cirsium vulgare</i> *	bull thistle
<i>Clinopodium douglasii</i>	yerba buena
<i>Conium maculatum</i> *	poison hemlock
<i>Corethrogyne filaginifolia</i>	California beach aster
<i>Daucus pusillus</i>	rattlesnake weed
<i>Dichelostemma capitatum</i>	blue dicks
<i>Dichondra donnelliana</i>	California ponysfoot
<i>Drymocallis glandulosa</i>	sticky cinquefoil
<i>Dryopteris arguta</i>	wood fern
<i>Epilobium canum</i>	California fuchsia
<i>Erodium cicutarium</i> *	red stemmed filaree
<i>Eschscholzia californica</i>	California poppy
<i>Fragaria vesca</i>	woodland strawberry

Galium porrigens	climbing bedstraw
Gilia capitata	blue field gilia
Horkelia californica	California horkelia
Hosackia stipulates var. stipularis	bird's foot trefoil
Iris douglasiana	Douglas iris
Lathyrus vestitus	Pacific pea
Logfia gallica *	filago
Lonicera hispidula	hairy honeysuckle
Lupinus nanus	sky lupine
Madia elegans	common madia
Madia exigua	little tarweed
Marah gabacea	wild cucumber
Melilotus alba *	white sweetclover
Monardella villosa	coyote mint
Phacelia malvifolia	stinging phacelia
Plantago lanceolata *	English plantain
Pseudognaphalium californicum	California everlasting
Pseudognaphalium luteoalbum *	Jersey cudweed
Pteridium aquilinum var. pubescens	Western bracken fern
Ranunculus californica	California buttercup
Ranunculus californica	California buttercup
Rumex acetosella *	common sheep sorrel
Rumex conglomeratus *	clustered dock
Rumex crispus *	curly dock
Rumex salicifolius	willow dock
Salvia columbariae	chia sage
Sanicula crassicaulis	gamble weed
Schrophularia californica	bee plant
Selaginella bigelovii	Bigelow's moss fern
Sidalcea malvaeflora	checker bloom
Silene gallica *	windmill pink
Silybum marianum *	milk thistle
Sisyrinchium bellum	blue-eyed grass
Soladago velutina ssp. californica	California goldenrod
Sonchus asper *	prickly sow thistle
Stachys bullata	wood mint
Stephanomeria virgata	tall stephanomeria
Toxicoscordion fremontii	Fremont's star lily
Triteleia ixioides	golden brodiaea
Zeltnera davyi	Davy's centaury

Graminoid Species

Agrostis pallens	bent grass
Aira caryophyllea *	silver hairgrass
Avena barbata *	slender oat
Avena fatua *	wild oat
Briza maxima *	big quaking grass
Briza minor *	little quakinggrass
Bromus carinatus	California brome
Bromus diandrus *	rippgut brome
Bromus hordeaceus *	soft chess
Bromus madritensis *	foxtail brome
Carex harfordii	Monterey sedge
Cyperus eragrostis	tall cyperus
Danthonia californica	California oatgrass

Elymus glaucus	blue wildrye
Festuca rubra	red fescue
Gastridium ventricosum *	nit grass
Juncus effusus	common rush
Juncus patens	spreading rush
Melica californica	California melicgrass
Poa unilateralis	ocean bluff blue grass
Stipa lepida	foothill needlegrass
Stipa pulchra	purple needlegrass

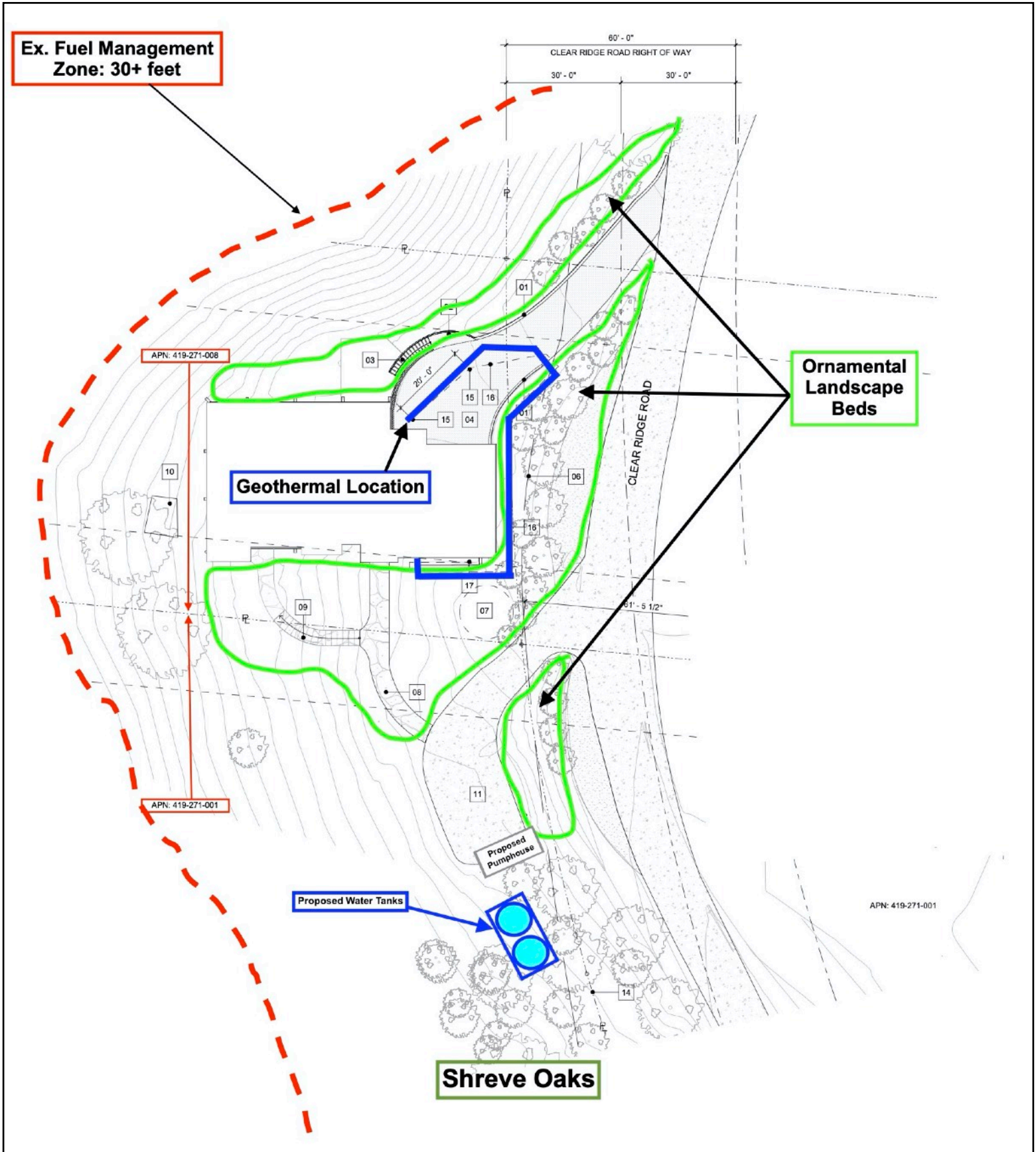
Wildlife Species

Apelocoma californica	California scrub jay
Apodemus sp.	Field mouse
Buteo jamaicensis	red-tailed hawk
Bombus sp.	bumble bee (unidentified species)
Calypte anna	Anna's hummingbird
Callipepla californica	California quail
Cathartes aura	turkey vulture
Certhia americana	brown creeper
Chamaea fasciata	wrentit
Colaptes auratus	northern flicker
Elgaria multicarinata multicarinata	California alligator lizard
Junco hyemalis	dark-eyed junco
Melospiza melodia	song sparrow
Melospiza crissalis	California towhee
Odocoileus hemionus	mule deer
Parus rufescens	chestnut-backed chickadee
Pipilo erythrophthalmus	spotted towhee
Plestiodon skitonianus	western skink
Sceloporus occidentalis	western fence lizard
Spinus psaltria	lesser goldfinch
Sylvilagus bachmani	brush rabbit
Tachycineta thalassina	violet green swallow
Thomomys bottae	Botta's pocket gopher
Toxostoma redivivum	California thrasher
Zenaidura macroura	mourning dove
Zonotrichia atricapilla	golden-crowned sparrow

IX. PROJECT LOCATION



XI. VEGETATION MAP (Parcels -001 and -008)



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