APPENDIX C
Biological Technical Report

BIOLOGICAL TECHNICAL REPORT

Ginkgo Stonehouse Residential Project (TTM No. 65348)

PREPARED FOR:

City of Sierra Madre
32 West Sierra Madre Boulevard
Sierra Madre, CA 91024
Contact: Clare Lin
Director of Planning & Community Preservation Department
Phone: 626.355.7138

PREPARED BY:

VCS Environmental
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675
Contact: Wade Caffrey, Vice President
Phone: 949.489.2700

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ACRONYMS, ABBREVIATIONS, AND GLOSSARY OF TERMS

APN	Assessor's Parcel Number
BCC	Bird of Conservation Concern
BMPs	Best Management Practices
BLM	Bureau of Land Management
CAGN	California gnatcatcher
CDFW	California Department of Fish and Wildlife
CE	Candidate Endangered Species
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
City	City of Sierra Madre
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of Los Angeles
CRPR	California Rare Plant Rank
CSS	Coastal Sage Scrub
CWA	federal Clean Water Act
e.g.	for example
ESA	Federal Endangered Species Act
etc.	et cetera
FGC	Fish and Game Code
FP	Fully Protected
FSS	Forest Service Sensitive
GIS	Geographic Information System
i.e.	in other words
KBI	Kidd Biological, Inc.
MBTA	Migratory Bird Treaty Act
MCV	Manual of California Vegetation
MSL	mean sea level
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OHWM	Ordinary High-Water Mark
O	Open space

PRD	Planned Residential Development
RAFSS	Riversidian Alluvial Fan Sage Scrub
RWQCB	Regional Water Quality Control Board
SEA	Significant Ecological Area
sp.	Species
spp.	Subspecies
SSC	Species of Special Concern
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCS	VCS Environmental
WL	Watch List Species
WOS	Waters of the State
WOUS	Waters of the United States

1.0 INTRODUCTION

On behalf of the City of Sierra Madre, VCS Environmental (VCS) prepared this Biological Technical Report for the Ginkgo Stonehouse Residential Project (Project), located on an approximately 9-acre site. This report incorporates the findings of the general biological surveys conducted by VCS on September 21, 2023, and the focused surveys for rare plants, trees, Crotch's bumble bee (CBB), coastal California gnatcatcher (CAGN), and bats. Protocol level surveys for the California gnatcatcher were completed from March to May 2024. Rare plant surveys were conducted over several weeks during the blooming period of 2024 by senior biologist, Vanessa Tucker. Bat surveys were also conducted in June 2024 by Vanessa Tucker. A focused CBB survey was conducted from March to July 2024 by professional entomologist, Ken Osbourne.

1.1 Purpose and Approach

This report provides a summary of the conditions present during the general biological survey, and the results of the additional surveys listed above, as well as a review of biological databases/literature described further in Section 4 and 5 below. An assessment of the potential presence of sensitive biological resources, and an analysis of the potential impacts to those resources with implementation of the Project was also conducted. This report presents the current biological resources present within the Project Site including habitat communities, potentially jurisdictional waters, and the potential occurrence of listed and special status plant and wildlife species. The potential biological impacts of federal, state, and local laws and regulations are also identified in this report. While general biological resources are discussed, the focus of this assessment is on those resources considered to be sensitive.

1.2 Terms

The following terms will be used throughout this document and are defined as follows:

- Project Site: This is the location of the property parcel where construction of the Project will occur. It includes the approximately 9-acre "Project Boundary" depicted on the proposed Tentative Tract Map plus minor encroachment into East Grand View Avenue for street improvements and utility connections.

1.3 Project Site Location

The "Project Site" is in the northeastern portion of the City of Sierra Madre within Los Angeles County, near the base of the San Gabriel Mountains (Figure 1, *Regional Map*). The Project Site is located north of East Grand View Avenue; west of Liliano Drive/Stone House Road; east of Valle Vista Drive; and south of the northeastern terminus of Camillo Street/Stonehouse Road (Figure 2, *Aerial Map*). The Assessor's Parcel Numbers (APNs) associated with the Project Site are 5764-001-017 and 5764-001-018; and the associated street addresses are 935 and 965 East Grand View Avenue, Sierra Madre, California 91024. The Project Site is located on the United States Geological Survey (USGS), Mount Wilson California, 7.5 Minute Quadrangle Map and within Section 16, Township 1N, Range 11W (Figure 3, *USGS Topographic Map*).

2.0 PROJECT DESCRIPTION

The Ginkgo Stonehouse Residential Project (TTM NO. 65348), or "Project", proposes approval of a Vesting Tentative Tract Map (TTM) that would allow for the development of nine single-family residential detached lots on approximately 9 acres of land (Figure 4, *Vesting Tentative Tract Map No. 65348*). Approximately 4 acres of the 9 acres within the "Project boundary" are proposed as a non-buildable area. The non-buildable area within the lots of individual homeowners would be deed restricted to prohibit any use or development other than for passive open space and maintenance purposes (i.e., brush management/fuel modification). Four (4) existing residential structures and accessory gazebos and sheds would be demolished; the Project Site would be graded to establish the residential building pads; and associated infrastructure would be constructed including a new private street with cul-de-sac, driveway/fire access road, retaining walls, swales, and utility connections to East Grand View Avenue. Once the residential lots and associated infrastructure are completed, it is anticipated that approximately three custom homes would be constructed each year over three years. Each lot would be developed with a custom home that would include a driveway, walkways, drainage system, stormwater filtration and low-impact-development features, and connections for all utilities.

2.1 Current Conditions

The Project Site totals approximately 9 acres on developed and undeveloped land in the foothills of the San Gabriel Mountains. The majority of the Project Site is located between 765 feet at its southerly border to an upper elevation of 910 feet (233-277 meters) above mean sea level. The topography varies from relatively flat in the southwest region of the Project Site to much steeper, hillside terrain in the northern portions of the Project Site. Approximately half of the Project Site is undisturbed or somewhat disturbed land, while the other half of the site is developed or highly disturbed, consisting of unpaved roads, ornamental landscaping, remnant orchards, and residential buildings. The portion of the Project Site that is undeveloped is composed of mixed coastal sage scrub vegetation communities, as well as ornamental landscaping.

The Project Site is surrounded by residential homes to the west, south, and southeast. To the north of the Project Site, a large residential home is located surrounded by undeveloped land. Further north, the Project Site is surrounded by undeveloped land that connects to the foothills of the San Gabriel Mountains.

3.0 REGULATORY CONTEXT

Table 1 shows a list of the relevant federal, state, and local laws and regulations that apply to protecting plant communities, plants, wildlife, and jurisdictional waters.

Table 1. Regulatory Context

Agency/ Organization	Laws/Regulations	Notes
Federal	Clean Water Act (CWA) Section 404*	Projects with impacts to Waters of the U.S. are regulated under Sections 401 and 404 of the Clean Water Act and by connectivity with adjacent watersheds. There were no jurisdictional waters observed on the Project Site based on results of the jurisdictional delineation. No 404 Permit from the United States Army Corps of Engineers (USACE) is required.
	Individual Permit/Nationwide Permit (NWP) Section 404	Individual Section 404 Permits are required for impacts to Waters of the U.S. and NWPs are an expedited form of the Section 404 Permit. There were no jurisdictional waters observed on the Project Site based on results of the jurisdictional delineation. No 404 Permit from the USACE is required.
	CWA Section 401/Waste Discharge Requirements (WDR)	The Regional Water Quality Control Board (RWQCB) takes jurisdiction over Waters of the State under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. There were no jurisdictional waters observed on the Project Site based on results of the jurisdictional delineation. No 401 Water Quality Certification or Waste Discharge Requirement from the RWQCB is required.
	CWA Section 408	No facilities subject to Section 408 occur within the Project Site.
	Migratory Bird Treaty Act (MBTA)	Compliance with the MBTA will be achieved with pre-construction surveys for nesting birds within three days prior to initiation of work.
	Endangered Species Act (ESA)	No federally listed species were observed within the Project Site during the 2024 surveys. There is low potential for federally listed species to occur, as the Project Site lacks suitable habitat, therefore no mitigation measures are required for these species.
State	Section 1600 of the Fish and Game Code (FGC)(CDFW, 2023d)	The California Department of Fish and Wildlife (CDFW) takes jurisdiction over Waters of the State and Riparian/Riverine resources. There were no jurisdictional waters observed on the Project Site based on results of the jurisdictional delineation. No Section 1602 Streambed Alteration Agreement from CDFW is required.

Agency/ Organization	Laws/Regulations	Notes
	Sections 3503, 3503.5, and 3513 of the FGC	These FGC sections offer protection of nesting birds, birds-of-prey, and migratory birds. Compliance will be maintained with a pre-construction survey for nesting birds (including birds-of-prey and migratory birds) within three days prior to initiation of work.
	Section 4150 of the FGC	Prohibits incidental or deliberate "take" of non-game mammals, including bats. Compliance will be maintained with a pre-construction bat survey prior to the initiation of removal of large trees.
Local	Tree Preservation and Protection Chapter 12.20, Sierra Madre Municipal Code	It is unlawful to remove or substantially trim any protected tree, public tree, or street tree without a permit from the City.
	Habitat Conservation Plan or Natural Community Conservation Plan	The Project is not within the jurisdiction of an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCP). The Project Site is not located within an HCP or NCP.
*On May 25, 2023, the United States Supreme Court issued its decision in *Sackett v. Environmental Protection Agency*, narrowing the scope of federal jurisdiction over wetlands under the Clean Water Act to "relatively permanent bod[ies] of water connected to traditional interstate navigable waters); and second, that the wetland has a continuous surface connection with that water, making it difficult to determine where the 'water' ends and the 'wetland' begins (*Sackett v. EPA*, No. 21–454 (2023)). As identified in the Sackett ruling, Waters of the U.S. must also be a relatively permanent body of water.		

3.1 Impacts Terminology

Potential impacts to biological resources that could result from implementation of the proposed Project are discussed in each of the Vegetation, Wildlife, and Jurisdictional Waters sections presented in this report.

Biological resources may be either directly or indirectly impacted by a project. Furthermore, direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below. These terms will be used throughout the document.

- Direct Impact: Any loss, alteration, disturbance, or destruction of biological resources that would result from project-related activities is a direct impact. Examples include vegetation clearing, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species and/or their habitats. Direct impacts are long-term.
- Indirect Impact: As a result of project-related activities, biological resources may also be affected in a manner that is not direct. Examples of indirect impacts include elevated noise, light, and dust levels, increased human activity, decreased water quality, erosion created by the removal of vegetation, and the introduction of invasive plants and unnatural predators (e.g., domestic cats and dogs). These indirect impacts may be both short-term and long-term in their extent.
- Permanent Impacts: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.

- Temporary Impacts: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction, removing vegetation, and either allowing the natural vegetation to recolonize or actively revegetating the Project Site.

Under each section, potential impacts are discussed.

4.0 VEGETATION

4.1 Literature Review

4.1.1 Sensitive Plant Communities

Sensitive plant communities (sensitive habitats) as defined below, are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. Sensitive habitats are often threatened with local extirpation and are therefore considered as valuable biological resources. Plant communities are considered "sensitive" by the California Native Plant Society (CNPS) and CDFW if they meet any of the following criteria listed below:

- The habitat is recognized and considered sensitive by CDFW, USFWS, and/or special interest groups such as CNPS.
- The habitat is under the jurisdiction of CDFW pursuant to Sections 1600 through 1612 of the FGC (CDFW, 2023d).
- The habitat is known or believed to be of high priority for inventory in the California Natural Diversity Database (CNDDB).
- The habitat is considered regionally rare.
- The habitat has undergone a large-scale reduction due to increased encroachment and development.
- The habitat supports special status plant and/or wildlife species (defined below).
- The habitat functions as an important corridor for wildlife movement.

CDFW's List of California Sensitive Natural Communities indicates which natural communities are sensitive given the current state of the California classification (CDFW, 2023b).

4.1.2 Special Status Plants

Species of plants are afforded "special status" by federal agencies, state agencies, and/or non-governmental organizations (e.g., USFWS, CDFW, CNPS, and United States Forest Service [USFS]) because of their recognized rarity, potential vulnerability to extinction, and local importance. These species typically have a limited geographic range and/or limited habitat and are referred to collectively as "special status" species. Plant species are considered "special status" species if they meet any of the following criteria:

- Taxa with official status under ESA, California Endangered Species Act (CESA), and/or the Native Plant Protection Act (NPPA).
- Taxa proposed for listing under ESA and/or CESA.
- Taxa identified as sensitive, unique or rare, by the USFWS, CDFW, USFS, and/or the Bureau of Land Management (BLM).
- Plants that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:

  - Species considered by CNPS and CDFW to be "rare, threatened or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B and 2; CNPS, 2024). A majority of the CRPR 3 and CRPR 4 plant species generally do not qualify for protection under CESA and NPPA.
  - Species that may warrant consideration on the basis of local significance or recent biological information.
  - Some species included on the CNDDB Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2023c).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances. Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Available literature and databases were reviewed regarding sensitive habitats and special status plant species. Special status plant species that have the potential to occur within the immediate region of the Project Site were identified. Several agencies, including the USFWS, CDFW, and CNPS publish lists of particular taxa (species and subspecies) and the associated level of protection or concern associated with each. Reviewed and consulted literature and databases focused on the Project Site and included the following sources listed below:

- The CNDDB, a CDFW species account database that inventories status and locations of rare plants and wildlife in California, was used to identify any sensitive plant communities and special status plants that may exist within a two-mile radius of the Project Site (CDFW, 2023a).
- Online CNPS Inventory of Rare and Endangered Plants of California (CNPS, 2024). A search for the USGS 7.5-Minute Topographic Map Mount Wilson Quadrangle provided information regarding the distribution and habitats of special status vascular plants in the vicinity of the Project.
- A map of USFWS critical habitat to determine species with critical habitat mapped in the general vicinity of the Project (USFWS, 2023a).
- Natural Resources Conservation Service NRCS (NRCS, 2023) soil map of the Project Site.
- Pertinent maps, scientific literature, websites, and regional flora and fauna field guides.

As noted previously, species occurrence and distribution information are often based on documented occurrences where opportunistic surveys have taken place; therefore, a lack of records does not necessarily indicate that a given species is absent from the Project Site. Plant species occurrences observed during the Rare Plant Surveys conducted for the Project Site over several weeks during the blooming season of 2024 are included in this report.

4.1.3 Trees

The City of Sierra Madre has guidelines pertaining to the preservation and protection of trees as detailed in Chapter 12.20 of the Municipal Code. It states that, "It is unlawful for any person to remove or substantially trim any protected tree, public tree or street tree without a permit from the city." A protected tree means a "legacy tree as defined herein, any tree planted on city-owned property, including parkways, or California Scrub Oak (*Quercus berberidifolia*), Coast Live Oak (*Quercus agrifolia*), Coastal Scrub Oak (*Quercus dumosa*), Engelmann Oak (*Quercus engelmannii*), Southern California Black Walnut (*Juglans*

californica), or Western Sycamore (*Platanus racemosa*) or other tree species as added from time to time by city council resolution whose trunk exceeds a diameter of four inches as measured at four and one-half feet above natural or established grade." If any trees determined to be protected trees, public trees, or street trees will be impacted due to the Project implementation, then a permit with the City will have to be obtained.

4.2 Field Methodology

A field survey was conducted by VCS Environmental within the Project Site on September 21, 2023, for a general biological survey. During the general biological survey, the VCS biologists walked the accessible areas of the Project Site where biologists paid special attention to those areas that could host sensitive vegetation communities or had the potential to provide suitable habitat for special status plant species. Plant species were identified using the Jepson Manual: Vascular Plants of California, second edition (Baldwin et al., 2012). All plant species encountered during the field survey were identified and recorded in field notes.

The vegetation communities and habitat conditions were inspected to confirm the presence and habitat quality of the vegetation found onsite. Where appropriate, descriptions of vegetation communities from the Manual of California Vegetation ([MCV] Sawyer et al., 2008) were also utilized, which is the current standard for vegetation mapping. Any deviations from standard vegetation classifications were made on best professional judgment when areas did not fit into a specific habitat description provided by the MCV. Vegetation communities were mapped using field observations and utilizing aerial imagery.

Limitations during the surveys included unsafe access to some areas of the site due to dense vegetation cover and uneven and/or extremely steep terrain.

4.2.1 Rare Plant Survey

During 2024, focused rare plant surveys were conducted over several weeks during the ideal blooming season of rare plants with potential to occur within the Project site. Surveys were led by senior biologist Vanessa Tucker with biologists Sierra Valladares, Nathalie Munoz and Cody Fees to identify special-status plant species within the Project Site. During the surveys, the biologists walked the entirety of the Project Site, paying special attention to those areas that could host sensitive vegetation communities or had the potential to provide suitable habitat for special status plant species. The Project site consisted of the development area plus a 500-foot buffer. Plant species were identified using plant field and taxonomical guides, such as The Jepson Manual: Vascular Plants of California, second edition (Baldwin et al., 2012). All plant species encountered during the field survey were identified and recorded in field notes.

The vegetation communities and habitat conditions were inspected to confirm presence and habitat quality of the vegetation found onsite. Where appropriate, descriptions of vegetation communities from the Manual of California Vegetation (Sawyer et al., 2008) were also utilized. Any deviations from standard vegetation classifications were made on best professional judgment when areas did not fit into a specific habitat description provided by the Manual. Vegetation communities were mapped using field observations and utilizing aerial imagery.

4.2.2 Tree Survey

During 2024, a tree survey was conducted within the Project Site to assess if the previous arborist survey conducted on the Project site in 2016 by Dudek had changed. ArcGIS Field Maps was used to determine the Project site boundaries, and to identify the precise location of each previously surveyed tree. Dane

Shota, a Certified Arborist (WE 3436A) with Arborist and Nursery Services, Inc. conducted the survey. The Arborist documented trunk diameters over 4.5 feet above ground level and measured canopy or crown-width by pacing, and height was determined visually. Oak trees with a DBH less than 6 inches were not assessed. Tree health or vigor was categorized into four categories; Good, Fair, Poor, and Dead and are further explained in Table 2.

Table 2. Tree Health Criteria

Overall Vigor	Canopy Density	Dieback & Deadwood	History of Failure	Pests	Extent of Decay
Dead	<20%	Large; major scaffold branches	More than one scaffold	Severe infestation	Major with cavities and conks
Poor	20 - 60%	Twig and branch dieback	Scaffold branch	Significant infestation	One or more conks; small cavities
Fair	60 - 90%	Small twigs	Small branches	Minor	Cavities at old pruning wounds
Good	90 - 100%	Little or none	None	Minor	Cavities at pruning wounds

4.3 Results

4.3.1 Vegetation Communities

The Project Site consists of undisturbed habitat on the foothills of the San Gabriel Mountains. Vegetation/land cover mapping and acreages for each vegetation community and land type within the Project Site can be found in Table 3 below. Additionally, representative photographs of the Project Site are included as Appendix A and a map of the vegetation communities and land covers are included as Figure 8, *Vegetation Map*. Due to the difficulties of accessing portions of the site, the boundaries of the vegetation communities identified are approximate.

The definition of vegetation alliances and associations follows the MCV. The vegetation "alliance" describes the unit of classification best suited to define vegetation on a regional or statewide level, based on floristic categories defined by the dominant plant. Rarity rankings are also provided including Global (G) and State (S) ranks from 1 to 5. Substantial impacts to vegetation alliances with a state ranking of 1, 2 or 3 may be considered significant under CEQA; vegetation alliances with a state ranking of 4 and 5 may or may not be endemic to the state, are considered "secured" statewide and impacts are not considered significant.

Table 3. Vegetation Communities and Land Cover Types Observed within the Project Site

Vegetation Community/Land Cover Type	Acres
Arroyo Willow Thickets	0.09
California Sagebrush/Coastal Sage Scrub (CSS)	1.59
Disturbed CSS	0.80
Disturbed/Developed with Ornamental Landscape	4.30
Eucalyptus Groves with CSS Understory	1.62
Mixed Coast Live Oak Woodland and CSS	0.66
Total	**9.06**
Note: Total acreage does not add up to 9 acres equivalent to the Project Site due to rounding and accounting for minor encroachment into East Grand View Avenue for utility connections.	

4.3.1.1 Arroyo Willow Thickets – *Salix lasiolepis* Shrubland Alliance

Arroyo Willow Thickets – *Salix lasiolepis* Shrubland Alliance is found within the northern west portion of the Project Site. This vegetation alliance is composed of arroyo willow as the dominant vegetation with other trees and shrubs such as western sycamore (*Platanus racemosa*), black elderberry (*Sambucus nigra*), and mulefat (*Baccharis salicifolia*) that are also are present. A very small portion of the Project site is composed of arroyo willow thickets.

4.3.1.2 California Sagebrush/Coastal Sage Scrub – *Artemsia californica – Salvia mellifera Shrubland* Alliance

California Sagebrush Scrub is Coastal Sage Scrub (CSS) dominated by California sagebrush (*Artemisia californica)* and black sage (*Salvia mellifera*), and it also has California buckwheat (*Eriogonum fasciculatum*), and laurel sumac (*Malosma laurina*) plant species present. A few non-native plant species such as short pod mustard (*Hirschfeldia incana*) are present as well. This area appears to be slightly disturbed in some areas, especially in areas closest to the rocky dirt road that runs along the western, southern, and northern portion of this vegetation community. This community is found primarily in the northern portion of the Project Site, at lower elevations.

4.3.1.3 Disturbed CSS

Disturbed CSS includes areas where remnant CSS vegetation communities were observed with a mix of non-native vegetation such as prickly lettuce (*Lactuca serriola*), red brome (*Bromus rubens*), black mustard (*Brassica nigra*), and short-pod mustard also occurring alongside the CSS. The mid-northwest portion of the Project Site is mainly composed of this cover type.

4.3.1.4 Disturbed/developed with Ornamental Landscaping

Disturbed/developed includes unpaved roads or trails, running throughout the Project Site. It also includes residential homes and/or ornamental landscaping occurring within the Project Site. The southern and mid-portion of the Project Site is mainly composed of disturbed/developed land cover type.

4.3.1.5 Eucalyptus – Tree of Heaven – Black Locus Groves – *Eucalyptus* spp. – *Ailanthus altissima – Robina pseudoacacia* Woodland Semi-Natural Alliance with CSS Understory

Eucalyptus – Tree of Heaven – Black Locus Groves includes *Acacia* spp., and/or *Eucalyptus* spp. as the dominant in the tree canopy. Other notable vegetation includes laurel sumac and non-native grasses such as red brome and smilo grass. Also noted in some portions of this vegetation community is CSS occurring in the understory of the Eucalyptus groves. This vegetation alliance is often planted as windbreaks. This vegetation community was observed within the mid-east portion of the Project Site, along a steeper ridgeline that runs from north to south in the Project Site.

4.3.1.6 Mixed Coast Live Oak Woodland with CSS

In Mixed Coast Live Oak Woodland with CSS understory, the dominant plants include coast live oak (*Quercus agrifolia*), and Canyon oak (*Quercus chrysolepis*) with California sagebrush, California buckwheat, and deerweed (*Acmispon glaber*) found in the understory. This vegetation community is in the northwest portion of the Project Site, adjacent to arroyo willow thickets and CSS vegetation communities.

4.3.1.7 Special Status Vegetation Communities

Three sensitive vegetation communities were reported in the CNDDB within two miles of the Project Site: Riversidian alluvial fan sage scrub (RAFSS), southern coast live oak riparian forest, and southern sycamore

alder riparian woodland (Figure 6, *CNDDB Occurrences Plants Map*). None of these communities occur onsite.

4.3.2 Plants

A total of 71 plant species were observed within the Project Site during the general biological survey and rare plant survey, and they are listed in Appendix B.

4.3.2.1 Sensitive Plant Species Occurring Onsite

Nineteen Engelmann oak trees were observed in the central portion of the Project site during the rare plant species surveys during the April and June 2024 surveys. No other rare plant species were observed during the surveys.

ENGELMANN OAK

Engelmann oak (*Quercus engelmannii*) is a CRPR: 4.2 tree that is native to the foothills from eastern Los Angeles County south to eastern San Diego County. This species is found in pure stands and with coast live oak. Often found in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitats. It typically occurs at elevations below 1,300 meters and blooms from March to June.

Engelmann oak was observed during the 2024 rare plant surveys and during the arborist surveys. Engelmann oak impacts are further discussed in Appendix D.

4.3.2.2 Sensitive Plant Species with Potential to Occur

Sensitive plant species include federally, or state listed threatened or endangered species and those species listed on CNPS's rare and endangered plant inventory. Species with the potential to occur onsite were analyzed based on distribution, habitat requirements, and existing site conditions, and are listed in Appendix C.

In addition to the observed sensitive species above (Engelmann oak), eight special status plant species were considered to have at least a moderate potential to occur within the Project Site and are listed below. Sensitive plant species with at least moderate potential to occur but not observed during the general and/or focused surveys include:

- Braunton's milk-vetch (*Astragalus brauntonii),* Federally endangered, CRPR: 1B.1
- Plummer's mariposa-lily (*Calochortus plummerae),* CRPR: 4.2
- Slender-horned spineflower (*Dodecahema leptoceras*), state endangered and federally endangered, CRPR: 1B.1
- Mesa horkelia (*Horkelia cuneata* var. *puberula*), CRPR: 1B.1, FSS
- California black walnut / Southern California black walnut *(Juglans californica var californica),* CRPR: 4.2
- Fragrant pitcher sage (*Lepechinia fragrans),* CRPR: 4.2, G3, S3
- Ocellated Humboldt lily (*Lilium humboldtii* ssp. *Ocellatum),* CRPR: 4.2
- San Gabriel oak (*Quercus durata* var. *gabrielensis),* CRPR: 4.2, G4T4, S3

The sensitive species noted above are described in further detail below.

BRAUNTON'S MILK-VETCH

Braunton's milk-vetch is a federally endangered and CRPR: 1B.1 perennial herb endemic to carbonate soils (limestone outcrops) of the foothills of the southern California mountains. It commonly occurs in disturbed

chaparral, coastal sage scrub, and closed-cone forests. This species typically occurs in elevations ranging from 6 to 640 meters and blooms between January and August. Suitable habitat for the species is present, and the species has been observed in the Monrovia Wilderness Preserve in 2019 and 2023 approximately 1.6 miles to the west of the Project Site (CDFW, 2019; iNaturalist, 2023).

PLUMMER'S MARIPOSA-LILY

Plummer's mariposa-lily is a CRPR: 4.2, plants of limited distribution. This perennial bulbiferous herb endemic to California occurs in granitic, rocky soils within chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland. This species typically occurs at higher elevations and blooms between May and July. Suitable habitat for the species is present and there are recent observations of the species within one mile west of the Project Site at the Mount Wilson Trail Park from 2022 (iNaturalist, 2022). There are also observations of the species two miles east of the Project Site at the Monrovia Wilderness Preserve (CDFW, 2010).

SLENDER-HORNED SPINEFLOWER

Slender-horned spineflower is a state and federally endangered small annual plant with a California Rare Plant Rank of 1B.1. This annual herb is endemic to California and occurs in coastal sage scrub and chaparral plant communities in alluvial-fan habitats. This species typically occurs at higher elevations and blooms between April and June. Suitable habitat for the species is present; however, there are no recent observations of the species within a 2-mile radius (iNaturalist, 2024a). The species is mostly found to the northwest and east of the site in Mount San Antonio and the Angeles National Forest (iNaturalist, 2024a).

MESA HORKELIA

Mesa horkelia is CRPR: 1B.1 and United States Forest Service sensitive plant. This species is a perennial herb native and endemic to California. This species typically occurs in sandy or gravelly habitat within chaparral, cismontane woodland and coastal scrub. Mostly distributed along the central to south coast of California, found in San Luis Obispo, Riverside, Santa Barbara, and Los Angeles counties. It once flourished in San Bernardino, San Diego, and Ventura counties as well, but has become locally extinct in these areas. This species is usually found at elevations of 70 to 870 meters and blooms from February into July, sometimes through September. Suitable habitat is present within the Project Site; however, there are no recent observations of the species (CDFW, 2024b).

CALIFORNIA BLACK WALNUT/SOUTHERN CALIFORNIA BLACK WALNUT

California black walnut/Southern California black walnut is a CRPR: 1B.1 perennial deciduous tree endemic to California. This species commonly occurs in alluvial substrates, chaparral, cismontane woodland, coastal scrub, and riparian woodland. The elevation range for this species is between 30 to 900 meters and this species blooms between March and August. There is suitable habitat present, and the species has been observed within 2 miles northwest of the Project Site at the Mount Wilson trailhead (iNaturalist, 2023 and CDFW, 2023a).

FRAGRANT PITCHER SAGE

Fragrant pitcher sage is a CRPR: 4.2, Global Rank:3 and State Rank: 3. This shrub is found in open habitats such as chaparral, dry ravines, and rocky slopes. It is found in Trifuno Pass area of Santa Monica Mountains, the San Gabriel Mountains, and the north Channel Islands. This species typically occurs at elevations below 1,300 meters and blooms from March through October. There is suitable habitat for the species present within the Project Site and there is an observation from 2015 within 1-mile north of the Project Site (iNaturalist, 2023).

OCELLATED HUMBOLDT LILY

Ocellated Humboldt lily is a CRPR: 4.2 plant that is associated with riparian corridors in lower montane coniferous forest and coastal chaparral. This species typically occurs on lower stream benches but can also occur on shaded, dry slopes, beneath a dense coniferous canopy and cismontane oak woodland. This species occurs at elevations below 1691 meters and blooms from March to August. There is suitable habitat for the species present within the Project Site and there is an observation from 2023 within 1-mile north of the Project Site (iNaturalist, 2023).

SAN GABRIEL OAK

San Gabriel oak is a CRPR: 4.2, Global Rank: 4 and State Rank: 3. This species is a shrub found in foothill woodlands and chaparral habitats with granitic soils of the San Gabriel mountains. Typically occurs between 450 to 1,000 meters and blooms from April to May. There is suitable habitat for the species present within the Project Site and there is an observation from 2023 within 1-mile northwest of the Project Site (CDFW, 2023 and iNaturalist, 2023).

4.3.3 Trees

The *2024 Update to The Arborist Report* (Appendix F) conducted by Dane Shota identified 64 City-protected trees (Tree Preservation and Protection Chapter 12.20, Sierra Madre Municipal Code) within the buildable area, which includes the grading limits and encroachment area (see Tree Location Map, Figure 1 of Appendix F). The City-protected trees are shown in Table 4.

Table 4. Potential Impacts to Protected Trees

Tree Species	Encroachment Area	Grading Limits
California sycamore (*Platanus racemosa)*	-	5
California live oak (*Quercus agrifolia)*	-	38
Scrub oak (*Quercus berberidifolia*)	4	4
Engelmann oak (*Quercus engelmannii)*	2	17
Total	**6**	**64**
Source: 2024 Update to the Arborist Report (Appendix F).		

4.4 Project Impacts

4.4.1 Potential Impacts to Vegetation Communities

Potential impacts to vegetation communities due to implementation of the proposed Project within the approximate 9-acre Project Site are shown below in Table 5 and depicted in Figure 8, *Vegetation Map*. It should be noted that the impact acreages shown in Table 5 assume impacts to the entire 9-acre Project site and do not account for the approximately 4-acre portion of the Project site's non-buildable area that will be deed restricted to allow for only passive open space and maintenance purposes (i.e., brush management/fuel modification). According to the City of Sierra Madre's Municipal Code, Chapter 8.36 - *Hazardous Brush Clearance*, Section 8.36.030 - *Specific requirements*, 100 to 200 feet (as determined by the fire chief) of vegetation management must be maintained from residential structures. This requirement does not apply to the maintenance of trees, ornamental shrubbery or plants which are used as ground cover provided such do not provide a ready fuel supply to augment the spread or intensity of a fire. Because exact building locations and vegetation management requirements are not yet known, the most

conservative potential impact numbers are used; however, most of the 4-acre non-buildable area vegetation is anticipated to remain and the area is expected to be used for tree planting mitigation.

Approximately 65% of the Project Site consists of disturbed vegetation communities. Direct impacts to the disturbed land cover in the Project Site are considered less than significant due to the prevalence of non-native vegetation, which provides marginal habitat value for wildlife and does not include CDFW or USFWS sensitive plant communities. Approximately 3.14 acres (35%) of direct impacts are anticipated to coastal sage scrub (CSS), disturbed CSS, arroyo willow thickets, and mixed coast live oak woodland habitat types as detailed in Table 5.

Table 5. Potential Impacts on Vegetation Communities and Land Cover Types

Vegetation Community/Land Cover Type	Acres
Arroyo Willow Thickets	0.09
California Sagebrush/Coastal Sage Scrub (CSS)	1.59
Disturbed CSS	0.80
Mixed Coast Live Oak Woodland and CSS	0.66
Total	**3.14**

Direct impacts to the onsite CSS habitat would be considered less than significant because this CSS community does not contain CDFW or USFWS rare or sensitive plant species. The onsite CSS dominated by California sagebrush and black sage, with some California buckwheat and laurel sumac, is a more common type of CSS community. Direct impacts to arroyo willow thickets would also be considered less than significant as arroyo willow thickets are a more common plant community with a CDFW G4, S4 sensitive plant community ranking, and because the willows are neither associated with riverine or riparian resources nor are they within jurisdictional Waters of the State or Waters of the United States. Impacts to coast live oak woodland habitat would be considered potentially significant based on the City's Tree Preservation and Protection Chapter 12.20, of the Sierra Madre Municipal Code. Direct impacts to mixed coast live oak woodland would be mitigated to less than significant with implementation of mitigation measure MM BIO-1 and MM BIO-2 as described below.

Indirect impacts to plant communities can result in secondary effects for those plant communities. Development and excavation activities within the Project Site could result in indirect impacts to the vegetation communities surrounding the directly impacted areas. Examples of indirect impacts to plant communities include the effects of fugitive dust created by construction activities and the spread of invasive species. With development, the "edges" of vegetation communities may be exposed and more susceptible to invasion by invasive species (introduced by planted landscaping, seed dispersal from cars, people, and/or pets, and/or wind). Additionally, construction-related erosion, runoff, sedimentation, soil compaction, and alteration of drainage patterns that may affect plants by altering site conditions so that the location in which they are growing becomes unfavorable are prohibited by federal and state laws; compliance with the requirements under these federal and state laws will reduce the potential for significant indirect impacts to below significance.

As noted in Section 8.0, *Mitigation Measures*, the Project proposes to implement General Protection Measures to Avoid and Minimize Impacts on Sensitive Biological Resources under mitigation measure MM BIO-1 to further reduce indirect impacts to the vegetation communities. The Project will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local

or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

4.4.2 Potential Impacts to Special Status Plants

Engelmann oak was observed during the 2024 rare plant surveys and during the arborist surveys. Direct impacts to Engelmann oak are expected as 17 trees are proposed to be removed and two will be encroached.

4.4.3 Potential Impacts to Special Status Trees

The Project will directly impact 64 City-protected trees and encroach upon six (6) City-protected trees located within the Project Site's buildable area, which includes the grading limits and encroachment area (refer to Tree Location Map, Figure 1 of Appendix F). Table 6 provides a list of impacted trees by species.

Table 6. Potential Impacts to Protected Trees

Tree Species	Encroachment	Removal
California sycamore (*Platanus racemosa)*	-	5
California live oak (*Quercus agrifolia)*	-	38
Scrub oak (*Quercus berberidifolia*)	4	4
Engelmann oak (*Quercus engelmannii)*	2	17
Total	**6**	**64**
Source: 2024 Update to The Arborist Report (Appendix F)		

Permanent impacts to up to 70 City-protected trees will require obtaining a tree removal permit from the City as required under the Sierra Madre Municipal Code, Chapter 12.20, *Tree Preservation and Protection* and other related hillside-specific requirements under Chapter 17.52 Hillside Management Zone, including Sections 17.52.100(A)(5) (Suitability Analysis), 17.52.100(C)(6) (Vegetation Mapping Requirements), 17.52.100(C)(8) (Suitability Analysis Requirements), and 17.52.180 (Biotic Resources Management Plan Requirements). The City's tree replacement requirements are designed to require the planting of protected trees at a replacement ratio of 1:1 with 15-gallon to 48-inch box trees of a similar species to those removed. Should it be determined that there is inadequate available planting space to accommodate the required replacement trees, the City may require planting native trees or related species approved by the director on public property identified by the City, and/or payment of an in-lieu fee to the City's tree replacement fund according to a fee schedule established by resolution of the City council. Mitigation Measure BIO-2 is recommended to implement a Tree Replacement and Preservation Plan consistent with City requirements. Implementation of BIO-2 will reduce potential impacts to less than significant.

5.0 WILDLIFE

5.1 Literature Review

Species of wildlife are provided "special status" by federal agencies, state agencies, and/or non-governmental organizations because of their recognized rarity, potential vulnerability to extinction, and local importance. These species typically have a limited geographic range and/or limited habitat and are referred to collectively as "special status" species. Wildlife species were considered "special status" species if they meet any of the following criteria:

- Taxa with official status under ESA or CESA.
- Taxa proposed for listing under ESA and/or CESA.
- Taxa designated a species of special concern by CDFW.
- Taxa designated a state fully protected species by CDFW.
- Taxa identified as sensitive, unique or rare, by the USFWS, CDFW, USFS, and/or BLM.
- Taxa that meet the definition of rare or endangered under the CEQA §15380(b) and (d).
- Species considered locally significant; that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances. Examples include a species at the outer limits of its known range.

Special status wildlife species that have the potential to occur within the immediate region of the Project Site were identified. Several agencies, including the USFWS and CDFW publish lists of particular taxa (species and subspecies) and the associated level of protection or concern associated with each. Reviewed and consulted literature and databases included the following sources listed below:

- The CNDDB was used to identify any special status wildlife that may exist within a two-mile radius of the Project Site (Figure 5, *CNDDB Occurrences Animals Map* [CDFW 2023a]). CNDDB records are generally used as a starting point when determining what special status species, if any, may occur in a particular area. However, these records may be old, lack data not yet entered, and do not represent all the special status species that could be in that particular area.
- A map of USFWS critical habitat to determine species with critical habitat mapped in the general vicinity of the Project (USFWS, 2023a).
- The USFWS Information for Planning and Consultation online tool, which identifies species and critical habitat under USFWS jurisdiction that are known or expected to be on or near the Project site (USFWS, 2023b).
- Pertinent maps, scientific literature, websites, and regional flora and fauna field guides.

The literature review provided a baseline from which to inventory the biological resources potentially occurring within the Project Site, as well as the surrounding area. Although the inventory list of special status wildlife species was not exhaustive of all species that might be of concern, it provided a wide range of species that are representative of the wildland habitats in the area. Species occurrence and distribution information is often based on documented occurrences where opportunistic surveys have taken place;

therefore, a lack of records does not necessarily indicate that a given species is absent from the Project Site.

5.2 Field Methodology

The location of the Project is within the general distributional range of several special status wildlife species. A general biological assessment of the Project Site was conducted by VCS Environmental biologists Wade Caffrey, and Vanessa Tucker on September 21, 2023. All wildlife species encountered visually or audibly during the field survey were identified and recorded in field notes. Signs of wildlife species including wildlife tracks, burrows, nests, scat and remains, were also recorded. Binoculars were used to aid in the identification of observed wildlife and in areas not accessible on foot. Wildlife field guides and photographs were used to assist with identification of wildlife species during the field survey, as necessary. A one-day survey cannot be used to conclusively determine presence or absence of a species; therefore, assessments of presence/absence and potential for occurrence were made based on the presence of suitable habitat to support the species, diagnostic signs (burrows, scat, tracks, vocalizations, and nests), known records or occurrence within the area, known distribution and elevation range, and habitat utilization from the relevant literature. Focus surveys for species that could potentially occur onsite are described below.

5.2.1 Coastal California Gnatcatcher Breeding Protocol Surveys

Breeding season protocol surveys for the federally threatened coastal California gnatcatcher (CAGN) were conducted by Kidd Biological, Inc. (KBI) within the Project Site. The survey methodology is detailed in the CAGN survey report (2024) (Appendix D). Surveys were conducted during the species' breeding season in accordance with USFWS guidance (USFWS, 1997). A total of six breeding season protocol surveys for the CAGN were conducted by USFWS permitted biologist Angela Johnson (USFWS 10a1A Permit TE-59592B) and Kelly Rios (USFWS 10a1A Permit #TE-018909-06), between March and May 2024 (Table 7, *CAGN 2024 Protocol Summary*).

Table 7. CAGN 2024 Protocol Survey Summary

Survey	Date	Start	End	Temperature (°F)	Cloud Cover(%)	Wind Speed (mph)	CAGN Observed?
1	03/19/2024	0900	1045	62-66	0	2	No
2	04/03/2024	0800	0930	57-67	0	1-4	No
3	04/10/2024	0815	1000	60-74	0	2-4	No
4	04/17/2024	0730	0900	57-65	15	1	No
5	04/25/2024	0900	1015	63-64	100	2-3	No
6	05/08/2024	0915	1050	60-65	60	4	No

5.2.2 Crotch's Bumble Bee Surveys

A habitat assessment survey for the Crotch's bumble bee (*Bombuss crotchii*) was conducted by Ken Osborne and VCS biologist Cody Fees within the Project Site in 2024 (Table 8, *CBB Survey Summary*). The Project Site is considered to have highly suitable ecological conditions for Crotch's bumble bee habitat, with nectar and pollen from scrub species such as white sage, purple sage, black sage, California buckwheat, common sunflower, and deerweed. Other members from the genus, *Bombus*, were encountered during the survey such as *Bombus vosnesenskii*, *Bombus californicus*, and *Bombus vandykei,* which demonstrates suitability for *Bombus crotchii* as well; however, no Crotch's bumble bees were observed.

Table 8. CBB Survey Summary

Survey	Date	Start	End	Temperature (°F)	Cloud Cover(%)	Wind Speed (mph)	CBB Observed?
1	04/22/2024	1040	1230	67-70	0	0-2	No
2	05/08/2024	0940	1140	60-68	40	0-3	No
3	06/28/2024	1129	1238	80-82	0	0-2	No
4	07/25/2024	0815	0922	74-81	0	0	No

5.2.3 Bat Surveys

A daytime habitat assessment and nighttime emergence acoustic surveys for bats was conducted by wildlife biologist Vanessa Tucker within the Project site. The daytime assessment was conducted to determine suitable roosting areas that are present throughout the Project site. The nighttime emergence surveys were conducted to determine if bats were present in the suitable roosting sites within the Project site using acoustic monitoring. These surveys were conducted during the bat maternity season (April 1 – August 31, for the southern California region) to determine if maternity roost sites or colonies are present within the Project site.

The Project site has several mature Eucalyptus tree grooves, with dense foliage, snags, and sloughing bark, and tree cavities that could provide suitable daytime roosting habitat and/or nighttime roosting habitat. Human-made structures such as buildings and bridges provide structural features such as crevices, cavities, corners and recessed open spaces that may be used by bats as a daytime or nighttime roost. Daytime roosts are important because they provide bats protection from predators and the environment during the day when they are resting and/or taking care of their pups. Night roost sites are usually found in or near foraging areas near water sources or open areas with large insects available for eating.

The daytime habitat assessment was conducted on April 10, 2024, during the rare plant survey. The daytime habitat assessment consisted of walking the entire Project site to locate potential roosting sites. Buildings and structures were assessed for the presence of guano or urine staining, the biologist also paid attention to sounds in the area and whether they were bat vocalizations. Trees were also assessed for cavities or crevices that could be used for day roosting. Roosting activities in trees can be difficult to find due to the cryptic nature of bats.

The nighttime emergence surveys occurred on June 25, June 26, and June 27, 2024, and consisted of the deployment of ultrasonic acoustic bat recording equipment. A Titley Scientific Ranger Recorder was used for the nighttime emergence surveys; this recorder has a front-mounted omnidirectional microphone which can record bats using preset recording modes. The preset recording mode was used to start recording 30 minutes before sunset, continue to record through the night and to turn off 30 minutes after sunrise. This recording device was placed on a large Eucalyptus facing towards a large open area that is suitable for foraging. The recorder was deployed for 3 nights to determine whether there are bats present within the Project site.

5.3 Results

A total of 27 wildlife species or signs thereof were observed during field surveys, as listed in Appendix B. Wildlife species observed during the biological surveys include, but were not limited to: red-tailed hawk

(*Buteo jamaicensis*), bushtit (*Psaltriparus minimus*), California scrub jay (*Aphelocoma californica*), song sparrow (*Melospiza melodia*), California thrasher (*Toxostoma redivivum*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), Bewick's wren (*Thryomanes bewickii*), Anna's Hummingbird (*Calypte anna*), western fence lizard (*sceloporus occidentalis*), and California ground squirrel (*otospermophilus beecheyi*).

5.3.1 Sensitive Wildlife Species Occurring Onsite

Sensitive wildlife species include the following classifications: federally or state listed threatened or endangered species, California species of special concern, and fully protected species (as designated by CDFW). Species with the potential to occur onsite were identified based on distribution, habitat requirements, and existing site conditions.

The California gnatcatcher and Crotch's bumble bee focus surveys resulted in no observations of either species.

The bat survey results included the detection of five species of bats that occur throughout Southern California, the Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), Canyon bat (*Parastrellus hesperus*), big brown bat (*Eptesicus fuscus*), and Mexican free-tailed bat (*Tadarida brasiliensis*). The species detected during the surveys are commonly found throughout Southern California and are not protected by state or federal laws (i.e., endangered or threatened). Out of the five species, two species (California myotis and canyon bat) had the most calls detected suggesting they are more prevalent within the Project Site. This could also indicate there is a roosting site and/or maternity colony either within the Project Site or adjacent to the Project Site. These species of bats are not state or federally protected; however, maternity colonies are granted protection through Section 4150 of the FGC. Recommended measures to avoid impacts to bats, including preconstruction surveys, are outlined in MM BIO-2 and through coordination with CDFW as part of MM BIO-3. These measures would reduce potential impacts to roosting bats to less than significant.

5.3.2 Sensitive Wildlife Species with Potential to Occur

In addition to the observed sensitive species above, 11 special status insect, mollusk, bird, mammal, and reptile species were considered to have at least a moderate potential to occur within the Project Site and are listed below. Sensitive wildlife species with at least moderate potential to occur but not observed during the general and/or focused surveys include:

- Crotch's bumble bee (*Bombus crotchii*), a CDFW candidate endangered species (CE)
- Southern California Legless Lizard (*Anniella stebbinsi), CDFW Species of Special Concern (SCC)*
- Coastal Whiptail (*Asiposcelis tigris stejnegeri*), a CDFW SSC
- Coast horned lizard (*Phrynosoma blainvillii*), a CDFW SSC
- Coastal California gnatcatcher (*Polioptila californica californica),* federally threatened and CDFW SCC
- Monarch butterfly (*Danaus plexippus*), USFWS candidate endangered species, CDFW priority list species
- Mountain Lion (*Puma concolor*), CDFW Specially Protected Species

- San Gabriel chestnut (*Glyptostoma gabrielense*), Global Ranking G2 (Imperiled, high risk of extinction), State Ranking S3 (Vulnerable, moderate risk of extirpation)
- Townsend's big-eared bat (*Corynorhinus townsendii*), CDFW SCC, WBWG (High Priority)
- Western Mastiff Bat (*Eumops perotis*), CDFW SSC, WBWG (High Priority)
- Western red bat (*Lasiurus frantzii*), CDFW SCC, WBWG (High Priority)

A complete list of sensitive wildlife species analyzed with potential to occur within the Project Site is included in Appendix C. The sensitive species noted above with at least moderate potential to occur are described in further detail below. Impacts and mitigation for these species would be implemented with the mitigation measures listed in Section 8.

CROTCH'S BUMBLE BEE

The Crotch's bumble bee (CBB, *Bombus crotchii*) is a CESA state listed as a candidate endangered species. This species lives in grassland and scrub habitats in coastal California and Baja California, Mexico. Crotch's bumble bee nest in the ground, and prefer undisturbed habitat with native vegetation, which occurs within portions of the Project Site. Additionally, the general survey identified suitable pollen and nectar species for the bee as well as other members of the *Bombus* genus, allowing for high potential for this species to occur. This species was not observed during the 2024 CBB focused surveys.

SOUTHERN CALIFORNIA LEGLESS LIZARD

The Southern California legless lizard (*Anniella stebbinsi)* is a CDFW Species of Special Concern. The species occurs in moist warm loose soil with plant cover. This species is fossorial and therefore hard to detect during visual surveys. Suitable habitat for the species was observed within the coastal sage scrub and coast live oak woodland vegetation communities and there is an occurrence from 2018 of the species within 1-mile of the Project Site (CDFW, 2023a). This species was not observed during the 2024 biological surveys.

COASTAL WHIPTAIL

The coastal whiptail (*Aspidoscelis tigris stejnegeri*) is classified as a CDFW Species of Special Concern. The species is found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas. Generally avoids areas of dense grass and thick shrubby growth. Requires warm and sunny areas for basking, friable soil for burrow construction and foraging, open areas for running, and cover of bushes, rocks, or both. The Project Site contains shrubs and brush of coastal sage scrub in its foothills, allowing for high potential for this species to occur. Also there have been recent observations of the species within 0.70-miles of the Project Site (iNaturalist, 2023). This species was not observed during the 2024 biological surveys.

COAST HORNED LIZARD

The coast horned lizard (*Phrynosoma blainvilli*) is a CDFW Species of Special Concern. The species can be found in various scrublands, grasslands, coniferous and broadleaf forests, and woodlands. It can range from the coast to elevations of 2,000 meters in the southern California mountains. It is most common in mid-elevations of the coastal mountains and valleys within open habitats that offer good opportunities for sunning. The Project Site has suitable grasslands and woodland habitats, although the species was not observed during surveys.

COASTAL CALIFORNIA GNATCATCHER

The coastal California gnatcatcher (CAGN, *Polioptila californica californica*) is a Federally Threatened species and CDFW Species of Special Concern. This species is an obligatory, permanent resident of coastal sage scrub below 835 meters in southern California. Occurs mostly in low, coastal sage scrub in arid washes, on mesas and slopes. Suitable habitat for the species occurs within the Project Site. This species was not observed during the 2024 CAGN focused surveys.

MONARCH BUTTERFLY (CALIFORNIA OVERWINTERING POPULATION)

The monarch butterfly (*Danaus plexippus*) is a USFS Sensitive Species. In 2014, monarchs were petitioned to be listed under the federal ESA. In December 2020, the USFWS found that listing was warranted but precluded by other listing actions on its National Priority List. The monarch is a winter migrant along the California coast and overwinters in groves, typically close to the coast, populated by a variety of tree species, including blue gum eucalyptus (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*). There has been no previous monarch observation recorded onsite; however, the Eucalyptus groves onsite may provide suitable habitat for the species and therefore have a moderate potential to occur within the Project Site.

MOUNTAIN LION

Mountain Lion (*Puma concolor*) inhabit diverse habitat types across California including temperate redwood forest, coniferous/deciduous forest, coastal chaparral, and foothills and mountains. They can be found wherever native or introduced ungulates such as mule deer, elk, bighorn sheep, or feral hogs are present. Suitable foraging habitat is present, and the species has been observed less than a mile to the west of the Project Site (iNaturalist, 2023). This species or signs of this species were not observed during the 2024 biological surveys.

SAN GABRIEL CHESTNUT SNAIL

The San Gabriel chestnut snail (*Glyptostoma gabrielense*) is not federally, or state protected but is tracked by CDFW though the California Natural Diversity Database (CNDDB) and is on the CDFW Special Animals List. This species has a Global Ranking of G2 which indicates the species is imperiled, at high risk of extinction. The State Ranking is S3, which indicates the species is vulnerable and at moderate risk of extirpation. This species is also on CDFW's Watch List for special status species. This species occurs only on a narrow strip of the front range of the San Gabriel Mountains in southern California. It is most often found in riparian canyons with sufficient seasonal moisture. Suitable habitat exists on the Project site for the species (USFWS, 2024) . There are also nearby recorded occurrences within 1-mile of the Project site. The potential for occurrence is high for this species (CDFW, 2023a and iNaturalist, 2024).

TOWNSEND'S BIG-EARED BAT

The Townsend's big-eared bat (*Corynorhinus townsendii*) is a CDFW Species of Special Concern, and WBWG High Priority species. This species is an uncommon year-round resident throughout much of California. It occupies a variety of habitats, including oak woodlands, arid deserts, grasslands, riparian communities, high-elevation forests and meadows, and agricultural areas. Roosting sites typically include mine tunnels and caves, with buildings, bridges, rock crevices, and hollow trees also utilized. Large eucalyptus tree groves found within the Project Site provide suitable roosting habitat for the species. Additionally, there have been nearby occurrences of the species within 1.33 miles of the Project Site (CDFW, 2023a). This species was not detected during the 2024 bat surveys.

WESTERN MASTIFF BAT

The western red bat (*Eumops perotis*) is a CDFW Species of Special Concern, IUCN Least Concern, and WBWG High Priority species. It is an uncommon resident of California, occurring from southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California. It is primarily found in semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub and urban environments. It roosts primarily in crevices in cliff faces, high buildings, trees, and tunnels. Suitable habitat is described as extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings. Suitable habitat for the species was observed onsite. This species was not detected during the 2024 bat surveys.

WESTERN RED BAT

The western red bat (*Lasiurus frantii*) is a CDFW Species of Special Concern, IUCN Least Concern, and WBWG High Priority species. Locally common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest, this species is not found in desert areas. It roosts primarily in trees, less often in shrubs. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Suitable habitat in the form of large mature eucalyptus trees are found within the Project Site. The species was also detected acoustically in 2015 at Santa Anita Dam, approximately 1.33 miles northeast of the site (CDFW, 2023a). This species was not detected during the 2024 bat surveys.

All other special status species of wildlife analyzed exhibit a low potential to occur or are absent within the Project Site (Appendix C).

5.3.3 Critical Habitat

The USFWS's online service for information regarding Threatened and Endangered Species Final Critical Habitat designation within California was reviewed to determine if the Project Site occurs within any species designated Critical Habitat. No designated Critical Habitat occurs within the Project Site. The nearest Critical Habitat is for the Braunton's milk-vetch that occurs approximately 0.88 miles east of the Project Site, as shown in Figure 7, *USFWS Critical Habitat Map*.

5.3.4 Wildlife Movement

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. Corridors effectively act as links between different populations of a species. An increase in a population's genetic variability is generally associated with an increase in a population's health.

Corridors mitigate the effects of habitat fragmentation by:

- Allowing wildlife to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic diversity;
- Providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fires or disease) will result in population or local species extinction; and
- Serving as travel routes for individual wildlife species as they move within their home ranges in search of food, water, mates, and other needs (Harris and Gallagher, 1989).

Wildlife movement activities usually fall into one of three movement categories:

- Dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions);
- Seasonal migration; and
- Movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

The Project site is surrounded by residential communities to the west, east, and south. However, the vegetated northern portion of the Project Site allows for wildlife to enter the site from the San Gabriel Mountains. There was evidence observed that the northern portion of the site is used as a foraging site (scat, foraged plants, trails to food sources) for larger mammals such as deer, coyotes, and black bears. Several types of scats were observed during the initial field survey indicating that large mammals such as the black bear, coyote, and mule deer, regularly use the site as foraging habitat. Other species detected during the surveys include various bird species and a few reptile species who were observed actively foraging throughout the Project Site.

Mountain lions may also use the Project site as a foraging habitat; there have been several observations of mountain lions in the surrounding neighborhoods. However, the Project site is not a major linkage corridor between the site and the surrounding mountain ranges. Roadways, houses, buildings, and fences have created barriers for mountain lion and wildlife movement, causing remaining habitat to become highly fragmented. Large and densely vegetated land in the nearby San Gabriel mountains, to the north of the Project Site, provides more suitable habitat for proper wildlife movement.

5.4 Project Impacts to Wildlife

As described above, 11 wildlife species have at least moderate potential to exist in the Project Site but were not observed. Direct impacts from Project activities could include injury to or mortality of individuals and destruction of active nests during vegetation trimming and loss of foraging habitat, while indirect impacts could include general harassment or nest failure from noise and other disturbance in the vicinity of a nest. Open space will remain in the northern area of the Project site and will allow for sufficient remaining habitat for species to inhabit outside of the buildable area of the Project Site. The approximately 4-acre non-buildable area in the northern portion of the Project Site will be deed restricted to prohibit any use or development other than for passive open space and maintenance purposes (i.e., brush management/fuel modification).

5.4.1 Sensitive Wildlife Species Occurring Onsite

The San Gabriel Chestnut (SGC) snail was observed within the Project Site during the 2024 biological surveys. The SGC was observed twice under decaying logs, in suitable habitat. This species is a Global Rank G2, and State Rank S3 species tracked in the CDFW Special Animals List (CDFW, 2024a). This species is not protected by state or federal laws, therefore potential impacts would be less than significant, and no mitigation is recommended. No other sensitive wildlife was observed within the Survey Area during the biological surveys, therefore no impacts to sensitive wildlife species are expected to occur.

5.4.2 Potential Impacts to Critical Habitat

There is no critical habitat located on the Project Site, therefore, no impacts to USFWS Critical Habitat are expected to occur.

5.4.3 Potential Impacts to Nesting Birds/Bat Roosts

5.4.3.1 Nesting Birds

Due to the potential for onsite bird nesting, Project construction could result in impacts to nesting birds including raptors species that would be in violation of the MBTA and California FGC, if construction activities are to take place during nesting season or if a pre-construction nesting bird survey is not performed to clear the site prior to start of work. Therefore, mitigation measure MM BIO-3, which would require a pre-construction nesting bird survey and additional avoidance measures if a nest is found, would be required to avoid impacts. MM BIO-3 outlined in Section 8.0, *Mitigation Measures*, of this report, would reduce potential impacts to nesting birds to less than significant.

5.4.3.2 Bat Roosting

There is high potential for bat roosting within the Project Site primarily within the large mature trees on the Project Site. Recommended measures to avoid impacts to bats, including a pre-construction survey, are outlined in MM BIO-4. Implementation of MM BIO-4 would reduce potential impacts to roosting bats to less than significant.

6.0 JURISDICTIONAL WATERS

6.1 Methodology

The following methods were used to delineate jurisdictional wetland and non-wetland Waters of the United States (U.S.) and streambed and riparian Waters of the State.

6.1.1 Delineation Statement

6.1.1.1 Waters of the United States

The Project Site, which encompassed the entire 9-acre Project Site, was assessed for jurisdictional wetland and non-wetland Waters of the U.S. To determine the presence of a wetland, three indicators are required: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. The methodology published in the USACE 1987 Wetland Delineation Manual (USACE, 1987), and the Arid West Supplement sets (USACE, 2008a) the standards for meeting each of the three indicators, which normally require that 50% or more dominant plant species typical of a wetland, soils exhibiting characteristics of saturation, and hydrological indicators be present.

Jurisdictional non-wetland Waters of the U.S. are typically determined through the observation of an Ordinary High Water Mark (OHWM), which is defined as the "line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." The following guidance documents were utilized in making this determination:

- Field Guide to OHWM Determinations in the Arid West (USACE, 2008b);
- Updated OHWM Datasheet for the Field Guide to OHWM Determinations in the Arid West (USACE, 2010); and
- Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region (USACE, 2011).

Projects with impacts to Waters of the U.S. are regulated under Sections 401 and 404 of the Clean Water Act and by connectivity with adjacent watersheds. Note, the RWQCB has updated their definition of a wetland to include areas that have hydric soils and wetland hydrology but lack hydric vegetation (e.g., vernal pools). This update took effect May 28, 2020.

Additionally, on May 25, 2023, the United States Supreme Court issued its decision in Sackett v. Environmental Protection Agency, narrowing the scope of federal jurisdiction over wetlands under the Clean Water Act to "relatively permanent bod[ies] of water connected to traditional interstate navigable waters); and second, that … have a continuous surface connection with that water" (*Sackett v. EPA*, No. 21–454 (2023)). Based on this ruling, it is anticipated that the waters onsite will no longer be considered Waters of the U.S.

6.1.1.2 Waters of the State

The Project Site was also assessed for jurisdictional streambed and riparian Waters of the State. The CDFW and the RWQCB take jurisdiction over Waters of the State and Riparian/Riverine resources (California Fish and Game Code §§1600 et seq.; California Code of Regulations, Title 14, §720). Section 1602 of the California Fish and Game Code applies to natural rivers, streams, and lakes:

"An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake."

CDFW defines a stream as "a body of water that flows perennially or episodically and that is defined by the area in which water currently flows, or has flowed, over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators." CDFW regulates wetland areas only to the extent that those wetlands are part of a stream, river, or lake as defined by the CDFW.

CDFW jurisdiction includes ephemeral, intermittent and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

6.1.2 Field Methodology

The approximately 9-acre Project Site was assessed for jurisdictional wetland and non-wetland Waters of the U.S. and streambed and riparian Waters of the State during the general biological survey on September 21, 2023. Accessible areas of the Project Site were walked and jurisdictional features, including their approximate location, length, width, and associated vegetation, were recorded using ESRI ArcCollector on an iPhone. Soil pits were taken within features that exhibited potential to be a wetland, including those with evidence of hydrology and/or hydric plants.

6.1.3 Mapping Techniques

Prior to the field surveys, Google Earth (Google, 2023) and the National Wetlands Inventory (NWI) Online Mapper were used to review aerials of the Project Site and identify any potential jurisdictional Waters of the U.S. features. Following the field surveys, ESRI ArcMap and Google Earth were used in combination with the field survey results to delineate and map relevant habitats and jurisdictional waters. The resulting Geographic Information System (GIS) data was then used to quantify the extent of each feature.

6.2 Results

There were no jurisdictional waters observed on the Project site during the jurisdictional delineation.

6.2.1 National Wetland Inventory

The USFWS is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetland Inventory (NWI) to show wetlands and deepwater habitat. This geospatial information is used by federal, state, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

The NWI Mapper (USFWS, 2023c) was accessed online to review mapped wetlands within the Project Site (Figure 9, *National Wetland Inventory Map*). The NWI mapper identifies no features on the Project Site. One riverine feature is identified southwest of the Project Site, which will not be impacted by Project implementation.

6.2.2 Hydrology

The Project Site is located within the Los Angeles River Watershed, one of the largest watersheds in the region of coastal southern California consisting of over 824 square miles. The watershed is diverse regarding land use with about 324 square miles covered by forests and open space beginning in the Santa Monica, Santa Susana, and San Gabriel Mountains. The remaining approximately 500 square miles of watershed are highly developed.

The Los Angeles River (LAR) is the most prominent feature in the Los Angeles River Watershed. The LAR is 55 miles long and has multiple tributaries, starting from the eastern portion that drains the area from Santa Monica mountains to the Simi Hills. On the other side the western portion drains the area from the Santa Susana Mountains to the San Gabriel Mountains and meets the other headwaters in the San Fernando Valley. The LAR headwaters flow from the mountains eastward into the San Fernando Valley draining into the Pacoima Wash, Tujunga wash, Burbank Western Channel, and the Verdugo wash. It continues along the northern boundary of Griffith Park before exiting through the Glendale Narrows. Beyond Glendale Narrows the LAR becomes a concrete lined channel that flows through the coastal plain ending in Long Beach where it meets the Pacific Ocean. In this segment, the LAR is fed by the Arroyo Seco that drains Pasadena and a portion of the Angeles National Forest from the San Gabriel Mountains. Other major tributaries feeding this segment are Rio Hondo, which is where our Project Site drains into, that connects the LAR to the San Gabriel River at the Whittier Narrows Reservoir.

In the existing condition, the northern portion of the Project site is mostly undeveloped hillside, and the southern portion is comparatively more flat and generally developed or disturbed. The site is devoid of impervious surface except for three existing structures on the eastern site that are planned to be demolished. The site is sloped hillside that is divided into two subbasins referred to as 1A (westernmost) and 1B (easternmost) (see Drainage Study Report dated March 21, 2019, Figure A1, *Existing Condition Hydrology Map*). The land drains from north to south as natural valley concentrated flow and overland sheet flow that discharges onto East Grand View Avenue. From East Grand View Avenue the water flows into catch basins along the street through the Grand View Avenue Storm Drain and into the Sierra Madre Wash[1]. In the proposed condition, the eastern boundary of 1A will be created by grading the westernmost project lots that will allow no water from the development to drain into 1A. The flow from 1A will then move to the northwest corner of Lot 3 where it will exit south onto East Grand View Avenue via a concrete v-ditch. All proposed development (see Drainage Study Report dated March 21, 2019, Figure A2, *Proposed Condition Hydrology Map*) will be contained within 1B where it will flow from the northernmost area to Lot 5 flowing south until it reaches the proposed driveway onto the cul-de-sac then flowing south along the proposed street onto East Grand View Avenue. The general drainage pattern of the Project site and discharge to East Grand View Avenue will be maintained.

6.2.3 Soils

The U.S. Department of Agriculture NRCS Web Soil Survey lists two soil types for the Project Site (Figure 10, *Soils Map*). The soil types within the Project Site are listed below:

- Trigo family, granitic substratum (60 to 90 percent slopes): Trigo family, granitic substratum is characterized as loam on the surface to 3 inches, gravelly sandy loam from 3 to 17 inches, and bedrock from 17 to 27 inches of depth. This soil is somewhat excessively drained and has a very

[1] The Sierra Madre Wash is also commonly referred to as the Santa Anita Tributary.

high runoff class. This soil type is associated with ridges and mountain slopes, and this soil is present in the northern portion of the Project Site.

- Urban land-Soboba-Tujunga complex (5 to 15 percent slopes): Urban land-Soboba-Tujunga complex is characterized by multiple compositions. Urban land has a very high runoff class. Soboba is characterized by sandy loam on the surface to 3 inches, gravelly sandy loam from 3 to 13 inches, and very cobbly sand from 13 to 79 inches of depth. This soil is excessively well drained with a low runoff class. Tujunga is characterized by loam from the surface to 3 inches, gravelly sandy loam from 3 to 11 inches, loamy sand from 11 to 15 inches, gravelly loamy sand from 15 to 28 inches, and cobbly sand from 28 to 79 inches of depth. This soil is somewhat excessively drained with a low runoff class. This urban land-Soboba-Tujunga complex soil type is associated with alluvial fans is present in the southern portion of the Project Site.

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service does not list any of the above as hydric soils (NRCS, 2023).

6.3 Impacts to Jurisdictional Waters

No Waters of the State or Waters of the United States under the jurisdiction of CDFW, RWQCB, and/or USACE were found within the Project Site; therefore, no impacts to Waters of the State or Waters of the United States are expected because of Project implementation.

7.0 CUMULATIVE IMPACTS

Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered significant. “Related projects” refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed Project. CEQA deems a cumulative impact analysis to be adequate if a list of “related projects” is included in the EIR or the proposed project is consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(b)(1)(B)]. CEQA also states that no further cumulative impact analysis is necessary for impacts of a proposed project consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(d)].

The Project Site is situated within an urbanized/suburbanized area and is generally surrounded by single-family residences and vacant areas with varying levels of disturbance. The Project site is surrounded by residential homes to the west, south, and southeast. To the north of the Project site, a large residential home is located surrounded by undeveloped land. Lastly, the eastern portion of the Project site is surrounded by undeveloped land that connects to the foothills of the San Gabriel Mountains. The southern border of the Project site is also the southern border of the City of Sierra Madre, and the area south of that is the City of Arcadia. Due to the relatively urbanized location of the Project site, its proximity to residential development, avoidance of the larger open space to the north, and compliance with local and City of Sierra Madre codes and regulations, impacts are not considered to be cumulatively significant.

8.0 MITIGATION MEASURES

The mitigation measures presented below will adequately reduce project impacts to less than significant levels.

MM BIO-1: General Protection Measures to Avoid and Minimize Impacts on Sensitive Biological Resources. The following measures shall be implemented prior to and during construction as follows:

a) Within 3 days prior to the start of vegetation removal and/or ground disturbing activities (i.e., grading/excavations), a preconstruction biological resources clearance survey shall be conducted by the Project Biologist. The Biologist shall look for special status plant and animal species with at least a moderate or higher potential to colonize the Project site. If a special status species is identified, it shall be avoided using temporary no-work buffers until the individual leaves on its own or is relocated pursuant to applicable regulations. CDFW and/or USFWS shall be notified in accordance with CESA and/or FESA, as applicable to the identified species, and any permits needed for take of the species shall be obtained. Results of the survey shall be provided to the City.

b) Prior to vegetation removal and/or ground disturbing activities (i.e., grading/excavations), the Biologist shall clearly delineate the limits of disturbance to avoid unplanned impacts within the non-buildable area.

c) The Project Biologist shall conduct a worker education program at a pre-construction meeting that includes identification, avoidance and reporting procedures regarding nesting birds, bat maternity colonies, and special status plants and animals with a moderate or higher chance to occur on the Project site.

MM BIO-2: Tree Replacement and Preservation Plan. Prior to vegetation removal or ground disturbance activities, the Project Applicant/Developer shall retain a certified arborist to prepare and submit a Tree Replacement and Preservation Plan for review and approval by the City; and shall obtain all required permits/approvals consistent with the requirements of Sierra Madre Municipal Code, Chapter 12.20, *Tree Preservation and Protection* and the hillside-specific requirements under Chapter 17.52 Hillside Management Zone, including Sections 17.52.100(A)(5) (Suitability Analysis), 17.52.100(C)(6) (Vegetation Mapping Requirements), 17.52.100(C)(8) (Suitability Analysis Requirements), and 17.52.180 (Biotic Resources Management Plan Requirements). The final plan shall be based on recommended mitigation measures, tree protection measures, and measures for the removal of polyphagous shot hole borer trees as detailed in the *Stonehouse Project Arborist Report* dated March 2016. The Tree Replacement and Preservation Plan shall address replacement ratio and species requirements, tree relocation feasibility, tree protection measures, and monitoring of post-planting success. Should it be determined that there is inadequate available planting space to accommodate the required replacement trees, the City shall require planting native trees or related species approved by the director on public property identified by the City, and/or payment of an in-lieu fee to the City's tree replacement fund.

MM BIO-3: Nesting Bird Season Restrictions and Pre-Construction Surveys. The clearance of vegetation construction shall occur outside of the nesting bird season (nesting bird season defined herein as February 1 through September 15), if feasible. If vegetation removal and/or demolition

outside this time period is not feasible, the following additional measures shall be employed to avoid impacts to nesting birds protected under the MBTA and CFGC.

A pre-construction nesting bird survey shall be conducted by a qualified biologist (i.e., a biologist familiar and experienced with the identification and life histories of wildlife and plant species in southern California) within 3 days (72 hours) prior to the start of construction activities to determine whether active nests are present within or directly adjacent to the construction zone. Nests found shall be recorded.

If construction activities must occur within 300 feet of an active nest of any passerine bird or within 500 feet of an active nest of any raptor, a qualified biologist shall monitor the nest on a bi-weekly (twice a week) basis, or at a frequency necessary to determine potential project impacts, and the construction activity shall be postponed within the buffer until the biologist determines that the nest is no longer active.

If the recommended nest avoidance buffer zone is not feasible, the qualified biologist shall provide justification on a case-by-case basis if a buffer reduction is possible, taking into consideration the location of work and type of activity, distance of nest from work area, surrounding vegetation, and line-of-sight between the nest and work areas, tolerance of species to disturbance, and observations of the nesting bird's reaction to construction activities (including light, noise, dust, and human presence).

If the biologist determines nesting activities may fail as a result of work activities, work activities shall be modified or shall temporarily cease (except access along established roadways) within the recommended no disturbance buffer until the biologist determines the adults and young are no longer reliant on the nest site.

Buffers shall be delineated (by or under the supervision of a qualified biologist) onsite with bright flagging, for easy identification by staff and the construction team. The perimeter of the buffer (300 feet to 500 feet depending on the species) shall be flagged so as not to draw predator attention to the direct location of the nest itself and flagging will be minimized where feasible. The onsite construction supervisor and operator staff shall be notified of the nest and the buffer limits to ensure it is maintained.

A summary of preconstruction surveys, monitoring efforts, and any no-disturbance buffers that were installed shall be documented in a report by the qualified biologist at the conclusion of each nesting season and submitted to the City.

MM-BIO-4: Pre-Construction Roosting Bat Survey. Prior to vegetation removal occurring between April 1 and August 31, a pre-construction bat roost survey shall be conducted to check for signs of active bat use, including guano, urine staining, and bat vocalizations (detected using ultrasonic acoustic equipment). If active maternity roosts are identified, the project shall consult with California Department of Fish and Wildlife (CDFW) to establish appropriate avoidance buffers and implement measures to avoid, minimize, and mitigate impacts to bat maternity colonies based on CDFW recommendations. No project activities shall occur within the established buffer area until a qualified biologist verifies the maternity roost is no longer in use.

If construction activities begin outside the bat maternity season (September 1 through March 31), a qualified biologist shall conduct a pre-construction survey no more than 14 days prior to vegetation removal to determine if bats are roosting in the project area. If roosting bats are detected, consultation with CDFW shall occur prior to vegetation removal to determine

appropriate exclusion methods and timing restrictions. Any identified roost sites shall be monitored by a qualified biologist to ensure bats have vacated the roost prior to the start of construction activities. If no roosting bats are detected during the pre-construction survey, vegetation removal may proceed without restriction.

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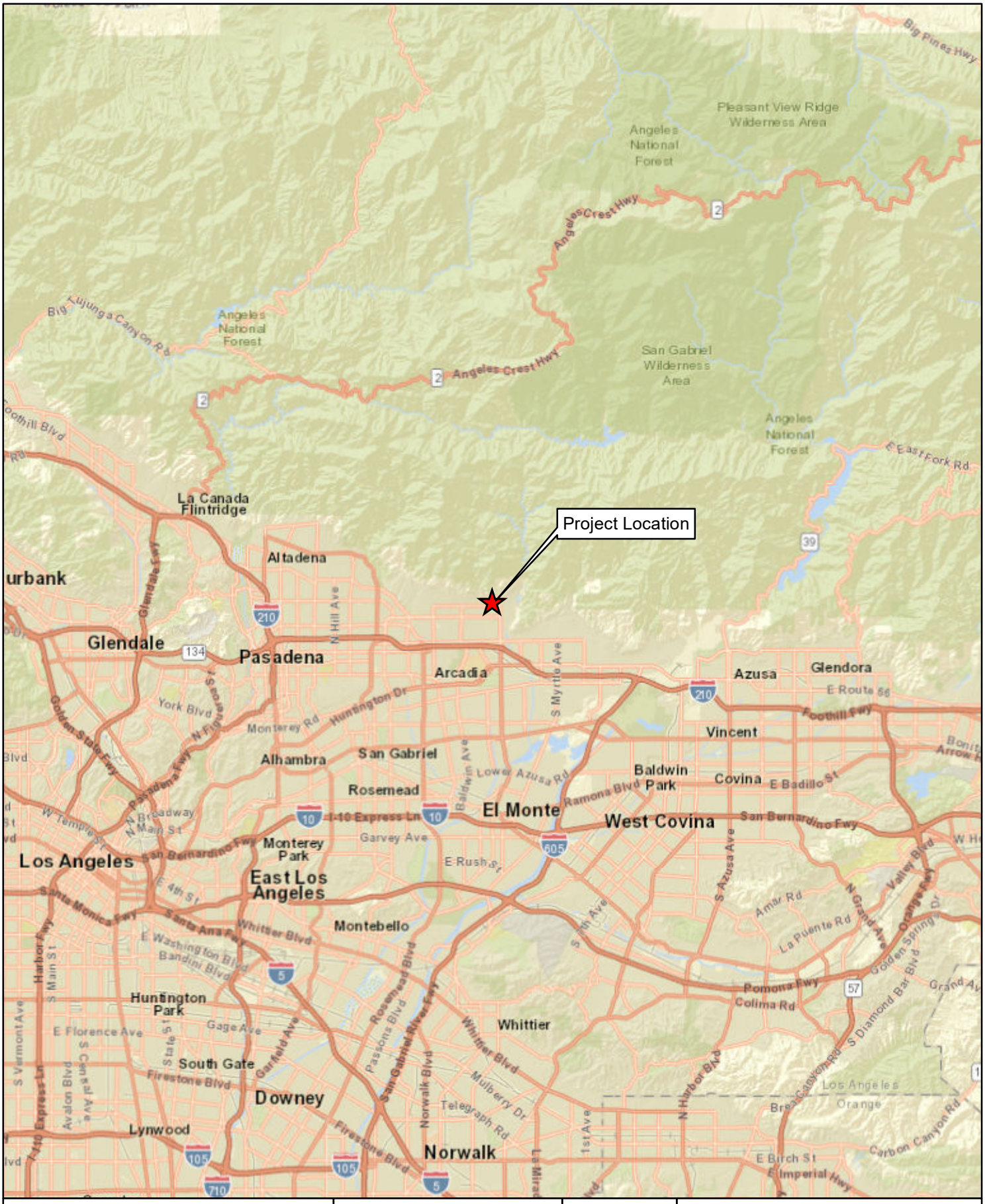
FIGURES



Prepared By:

VCS Environmental

Map Created: August 2023
Data Sources: ESRI

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Ginkgo Stonehouse

Figure 1

Regional Map

Prepared By:

VCS Environmental

Map Created: August 2023
Data Sources: ESRI, CDFW, County of Los Angeles

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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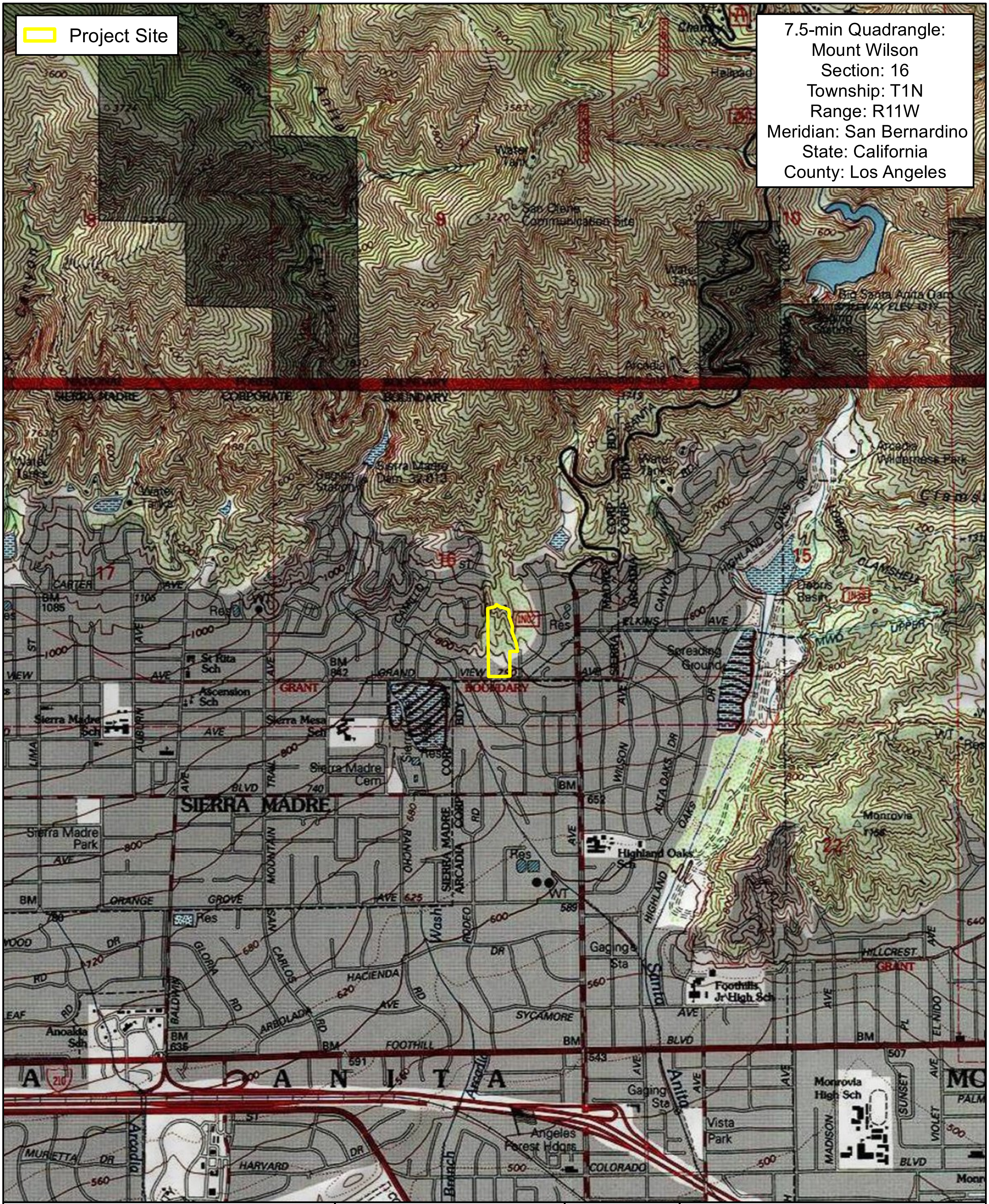
Ginkgo Stonehouse

Figure 2

Aerial Map



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Map Created: August 2023
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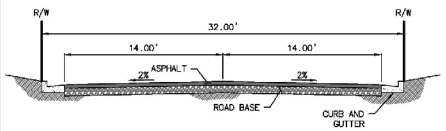
Ginkgo Stonehouse

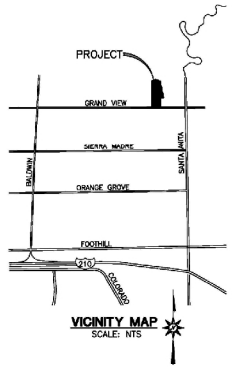
Figure 3

USGS
Topographic Map

VESTING
TENTATIVE TRACT MAP NO. 65348



STREET 'A' (PRIVATE STREET)
SCALE: NTS



VICINITY MAP
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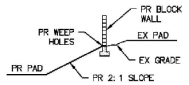


SECTION B-B
SCALE: NTS

STORM WATER AND LID

REQUIRED STORM WATER RETENTION AND LOW IMPACT DEVELOPMENT BMPS WILL BE IMPLEMENTED ON EACH LOT AS DEVELOPED.

LOT TABLE:

LOT	AREA (ACRES)	AREA (SF)	LAND USE
1	0.46	20,000	SFR
2	0.46	20,000	SFR
3	0.46	20,030	SFR
4	3.07	133,538	SFR
5	2.05	89,256	SFR
6	1.01	43,957	SFR
7	0.49	21,191	SFR
8	0.46	20,000	SFR
9	0.51	22,325	SFR

UTILITY PROVIDERS:

WATER:	CITY OF SIERRA MADRE WATER DEPARTMENT
SEWER:	CITY OF SIERRA MADRE PUBLIC WORKS DEPARTMENT
GAS:	SOUTHERN CALIFORNIA GAS CO
ELECTRIC:	SOUTHERN CALIFORNIA EDISON CO
STORM DRAIN:	LOS ANGELES COUNTY FLOOD CONTROL
COMMUNICATION:	VERIZON
CABLE:	TIME WARNER CABLE

OWNER:

GINKGO STONEHOUSE, LLC
805 WEST DUARTE ROAD NO. 101
ARCADIA, CA 91007
CONTACT: HOMER YEN
PHONE: (626)374-3000

APPLICANT:

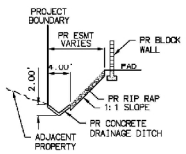
GINKGO STONEHOUSE, LLC
805 WEST DUARTE ROAD NO. 101
ARCADIA, CA 91007
CONTACT: HOMER YEN
PHONE: (626)374-3000

ENGINEER:

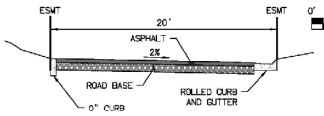
ADVANCED CIVIL GROUP, INC
30251 GOLDEN LANTERN
SUITE E, PMB 251
LAGUNA NIGUEL, CA 92677
CONTACT: R. STEVEN AUSTIN, PE
PHONE: (949)391-7772

LEGEND

- PROJECT BOUNDARY
- PROPOSED LOT LINE
- EXISTING LOT LINE
- PROPOSED SWALE
- 950 PROPOSED MAJOR CONTOUR
- PROPOSED INTERVAL CONTOUR
- 950 EXISTING MAJOR CONTOUR
- EXISTING INTERVAL CONTOUR
- PROPOSED RETAINING WALL
- SS EXISTING SANITARY SEWER
- W EXISTING DOMESTIC WATER
- ST EXISTING STORM DRAIN
- PROPOSED ASPHALT PAVING
- EXISTING ASPHALT PAVING



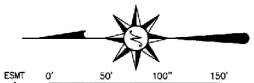
SECTION A-A
SCALE: NTS



PR ACCESS ESMT
SCALE: NTS

GINKGO STONEHOUSE PROPERTY

SCALE: 1"=50'



NOTES:

1. EXISTING LAND USE:

LOT NOS.	TYPE OF USE
2,8,9 & 10	EXISTING RESIDENCE TO BE DEMOLISHED
1,3,4,5,6,& 7	UNDEVELOPED

2. ZONING:
   EXISTING - HILLSIDE RESIDENTIAL
   PROPOSED - HILLSIDE RESIDENTIAL
3. A PROPOSED HOMEOWNERS ASSOCIATION WILL MAINTAIN STREET 'A' AND PRIVATE DRAINAGE
4. PROPOSED ACCESS EASEMENTS WILL BE PAVED WITH ASPHALT OR CONCRETE PAVING.
5. SEWER AND WATER MAIN LINES WILL BE EXTENDED UP STREET 'A' AND THE PROPOSED ACCESS EASEMENTS TO CONNECT PROPOSED LOTS TO CITY OF SIERRA MADRE SEWER AND WATER SYSTEMS.
6. EARTHWORK QUANTITIES:
   CUT: 13,000 CUBIC YARDS
   FILL: 13,000 CUBIC YARDS
7. ASSESSOR PARCEL NOS. 5764-001-017 & 5764-001-018
8. TOPOGRAPHY SOURCE: AERIAL SURVEY 2005 W/ FIELD SURVEY FOR LOT LINE ADJUSTMENT IN 2009

REVISIONS

NO	DESCRIPTIONS	DATE	BY

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
ADJUST SCALES ACCORDINGLY

PREPARED BY:
ADVANCED CIVIL GROUP, INC.
30251 GOLDEN LANTERN, SUITE E, PMB 251
LAGUNA NIGUEL, CA 92677
(949) 391-7772 PHONE
STEVE@ADVANCEDCIVILGROUP.COM
WWW.ADVANCEDCIVILGROUP.COM

ADVANCED CIVIL GROUP

STONEHOUSE
GINKGO STONEHOUSE PROPERTY

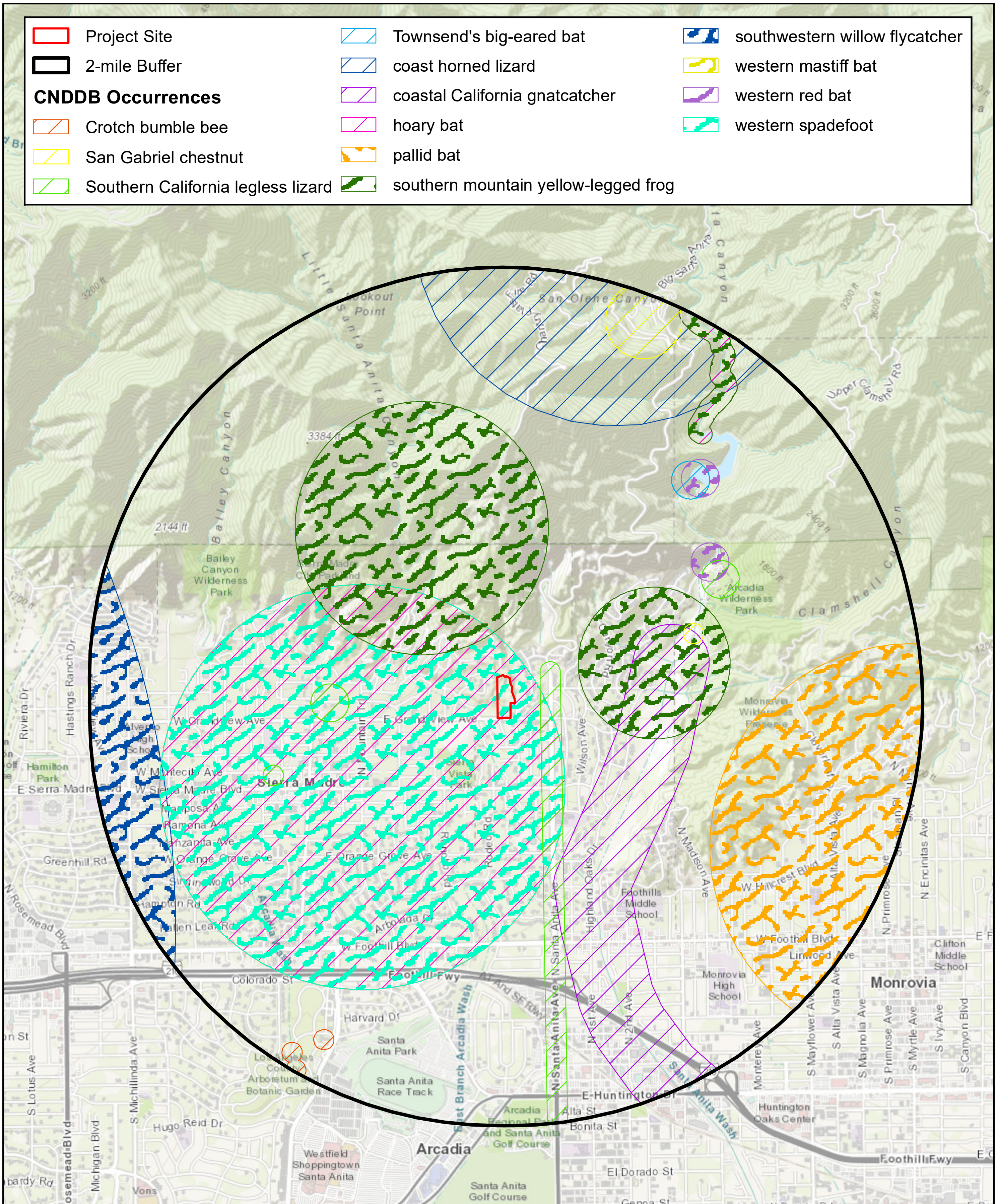
GINGKO STONEHOUSE, LLC

DRAWN BY: JCC
DESIGNED BY: RSA
CHECKED BY: RSA
ENGINEER BY: RSA
JOB NUMBER: 100101
DATE: 8/05/2020
SCALE: 1"=50'
SHEET NO: 1 OF 1

Ginkgo Stonehouse

Figure 4 Vesting Tenatative Tract Map No. 65348

VCS Environmental
EXPERT SOLUTIONS | CEQA-NEPA . Biology . Regulatory


Project Site
2-mile Buffer
CNDDB Occurrences
Crotch bumble bee
San Gabriel chestnut
Southern California legless lizard
Townsend's big-eared bat
coast horned lizard
coastal California gnatcatcher
hoary bat
pallid bat
southern mountain yellow-legged frog
southwestern willow flycatcher
western mastiff bat
western red bat
western spadefoot
Bailey Canyon Wilderness Park
Arcadia Wilderness Park
Monrovia Wilderness Preserve
Sierra Madre
Monrovia
Arcadia
Santa Anita Park
Santa Anita Race Track
Foothills Middle School
Monrovia High School
Huntington Oaks Center
Westfield Shoppingtown Santa Anita
Santa Anita Golf Course
Foothill Fwy
Colorado St
Santa Anita Wash

Prepared By:

VCS Environmental

Map Created: August 2023
Data Sources: ESRI, CDFW

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

0 2,000 4,000
Feet
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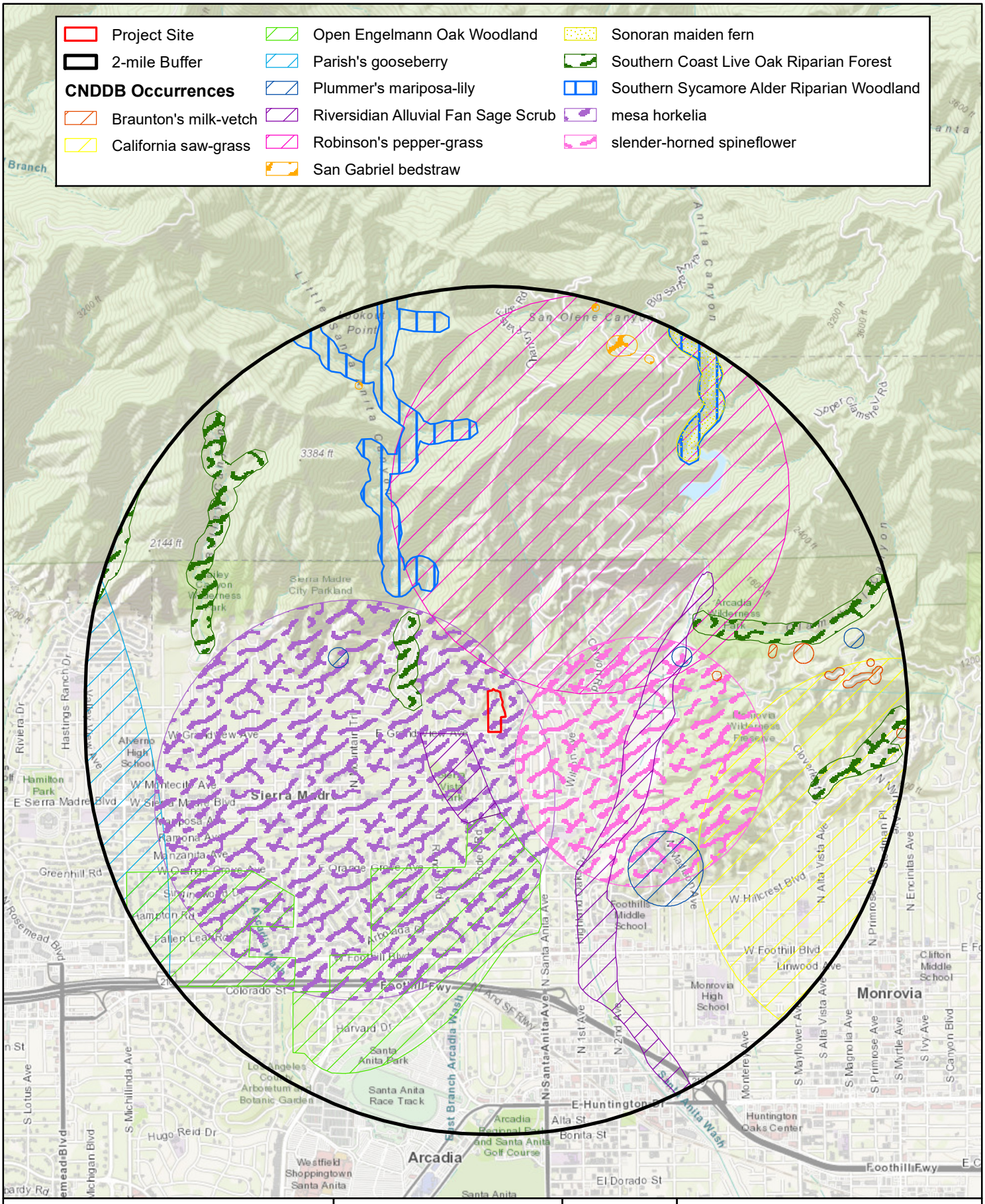
N W E S

Ginkgo Stonehouse

Figure 5

CNDDB Occurrences Animals Map



Prepared By:

VCS Environmental

Map Created: August 2023
Data Sources: ESRI, CNDDB

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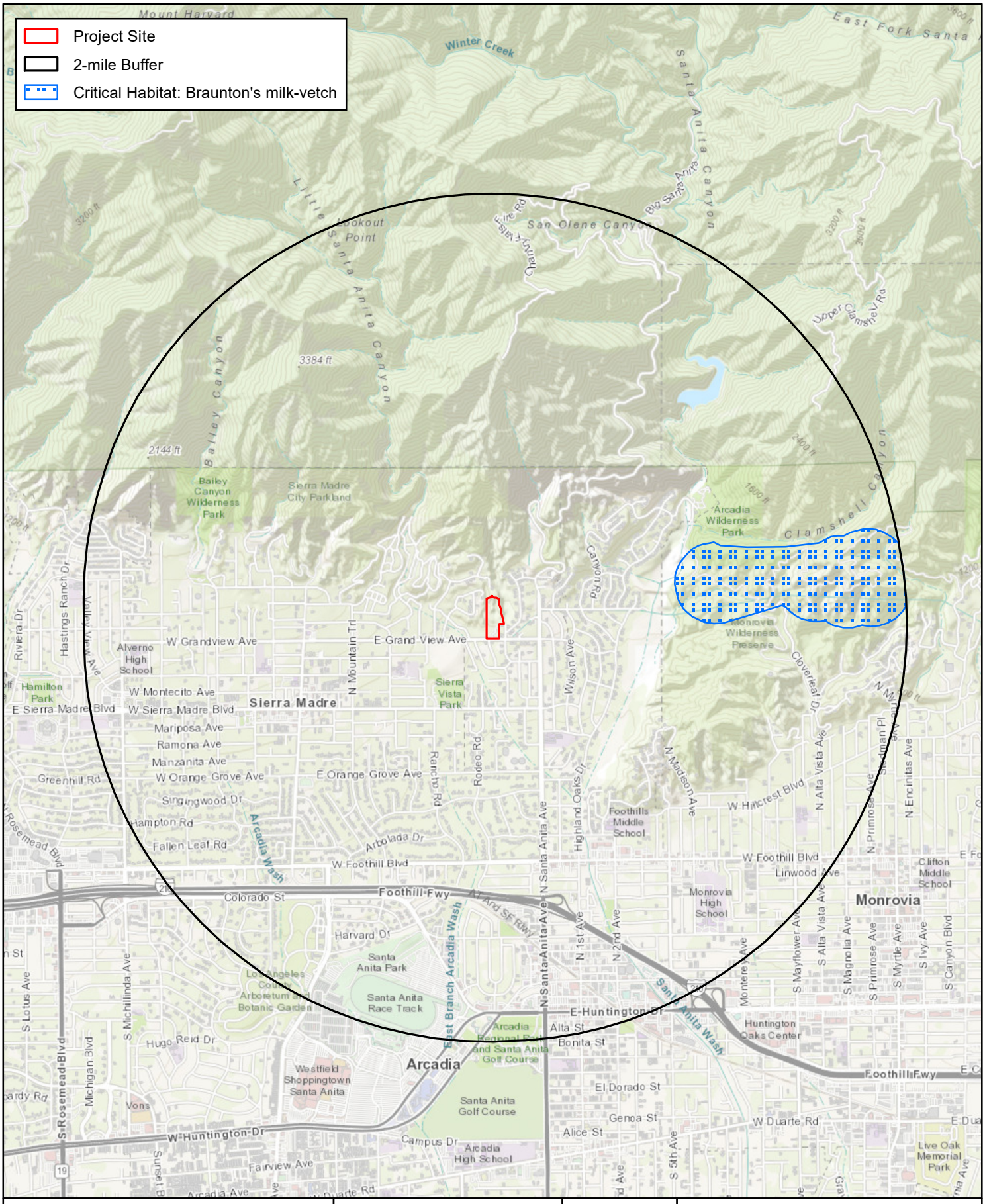
Ginkgo Stonehouse

CNDDB Occurrences
Plants Map

Figure 6



Prepared By:

VCS Environmental

Map Created: August 2023
Data Sources: ESRI, USFWS

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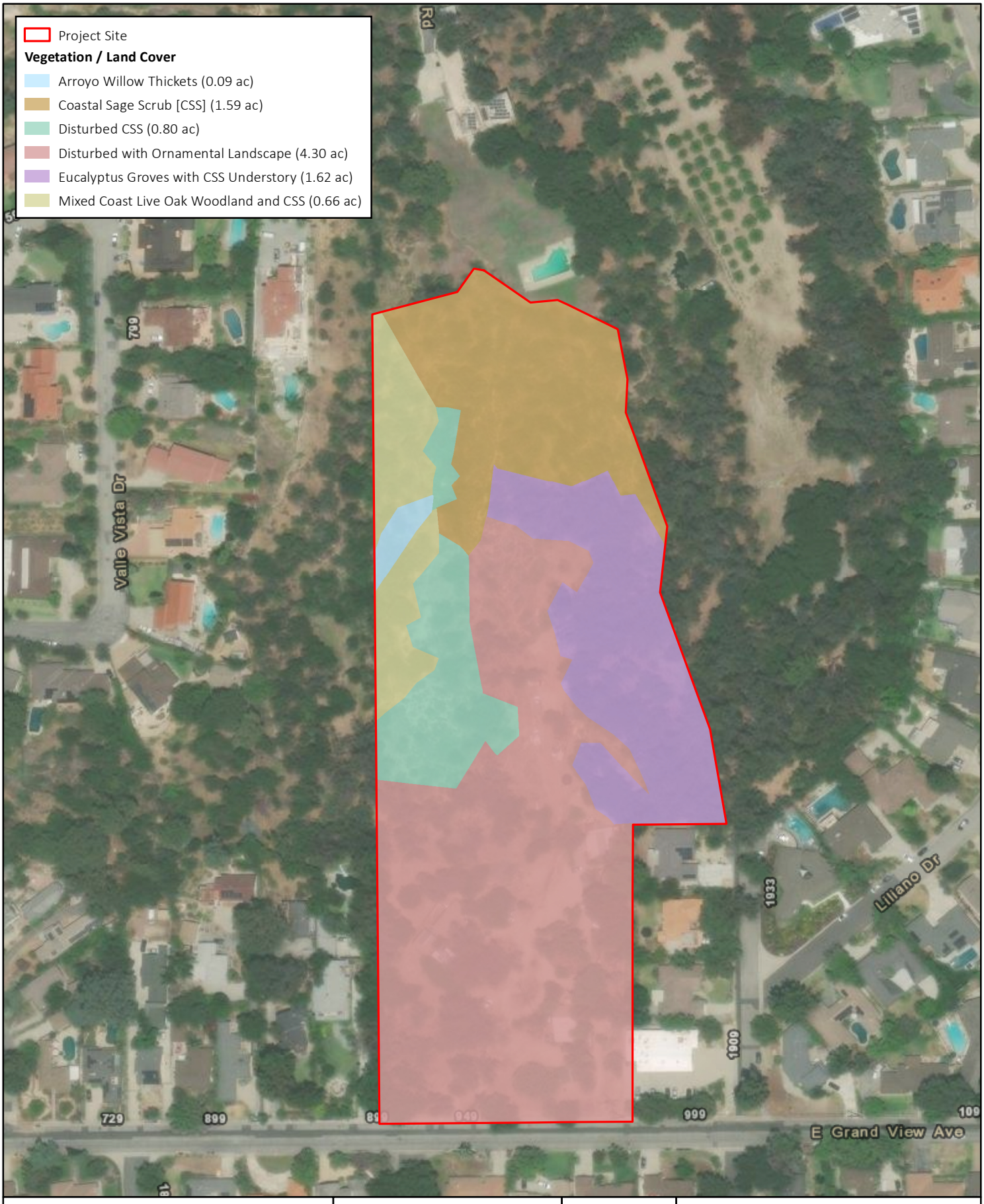
Ginkgo Stonehouse

Figure 7

USFWS Critical Habitat Map



Prepared By:
VCS Environmental

Map Created: October 2023
Data Sources: ESRI, County of Los Angeles, Advanced Civil Group

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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1:2,000

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Ginkgo Stonehouse

Figure 8 Vegetation Map

Prepared By:
VCS Environmental

Map Created: August 2023
Data Sources: ESRI, USFWS

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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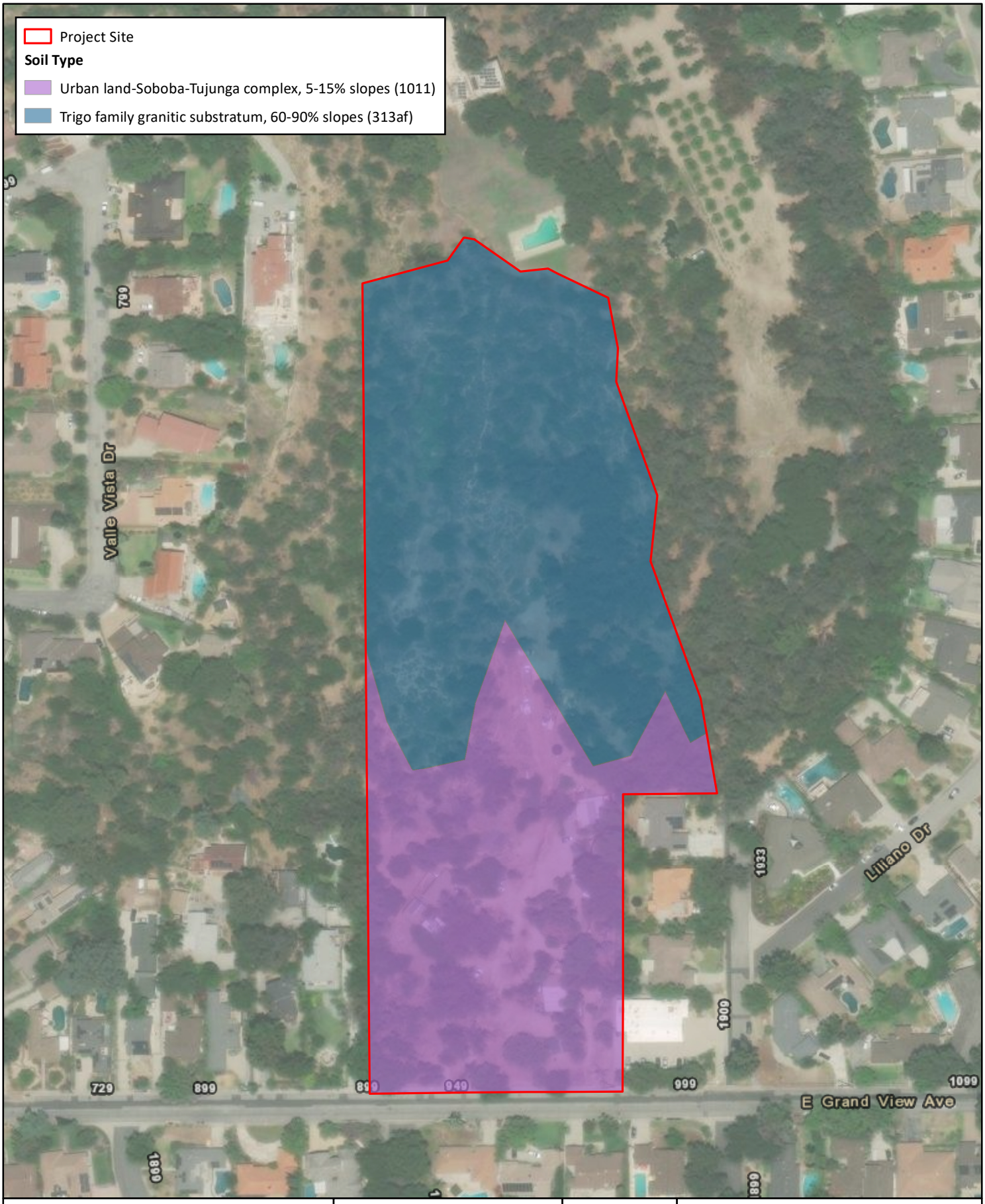
Feet
1:2,500

N
W E
S

Ginkgo Stonehouse

Figure 9

National Wetland Inventory (NWI) Map



Prepared By:
VCS Environmental

Map Created: August 2023
Data Sources: ESRI, NRCS

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

0 100 200
Feet
1:2,000

N
W E
S

Ginkgo Stonehouse

Figure 10

Soils Map

APPENDICES

APPENDIX A

Site Photographs

Photo 1. View of the Project site vegetation taken from in the western section facing north towards the hillside of mixed coast live oak woodland and coastal sage scrub vegetation.
Photo Date: September 21, 2023

Photo 2. View of the hillside habitat within the Project site, from the northern portion of the site; viewing north of coastal sagescrub vegetation.
Photo Date: September 21, 2023

Photo 3. A view from the northern boundary and portion of the Project site facing northeast of coastal sage scrub vegetation.
Photo Date: September 21, 2023

Photo 4. View facing north, northeast of unpaved access road on the Project site with disturbed ornamental landscaping on the sides.
Photo Date: September 21, 2023

Photo 5. View of the southern portion of the Project site facing south at the access road and disturbed ornamental landscape vegetation.
Photo Date: September 21, 2023

Photo 6: View of Eucalyptus grove with laurel sumac understory.
Photo Date: September 21, 2023

APPENDIX B

Plant and Wildlife Species Observed within the Project Site

Plant Species Observed within the Project Site

Scientific Name	Common Name
Anacardiaceae	Sumac Family
Malosma laurina	Laurel sumac
*Pistacia lentiscus**	Mastic tree
*Schinus terebinthifolius**	Brazilian pepper tree
Toxicodendron diversilobum	Pacific poison oak
Arecaceae	Palm Family
*Phoenix dactylifera**	Date palm
*Washingtonia robusta**	Mexican fan palm
Asparagaceae	Yucca Family
*Asparagus setaceus**	Common asparagus fern
Hesperoyucca whipplei	Chaparral yucca
Asteraceae	Aster, Daisy, or Compositae Family
Artemisia californica	Coastal sage brush
Brickellia californica	California brickellbush
*Centaurea solstitialis**	Yellow star thistle
Erigeron canadensis	Horseweed
*Helminthotheca echioides**	Bristly ox-tongue
*Lactuca serriola**	Prickly lettuce
Pseudognaphalium biolettii	Two-color rabbit-tobacco
Boraginaceae	Borage Family
Eriodictyon trichocalyx	Hairy yerba santa
Brassicaceae	Mustard Family
*Alliaria petiolata**	Garlic mustard
*Brassica nigra**	Black mustard
*Hirschfelidia incana**	Short-pod mustard
Cactaceae	Cactus Family
*Opuntia ficus-indica**	Tuna cactus
Caprifoliaceae	Honeysuckle Family
Southern honeysuckle	Lonicera subspicata

Scientific Name	Common Name
Chenopodiaceae	Goosefoot Family
Chenopodium californicum	California goosefoot
Convolvulaceae	Morning Glory Family
Calystegia macrostegia	Island morning glory
Cucurbitaceae	Gourd Family
Cucurbita palmata	Coyote melon
Marah macrocarpa	Chilicothe
Euphorbiaceae	Spurge Family
Croton setiger	Turkey-mullein
*Euphorbia maculate**	Spotted spurge
*Euphorbia tirucalli**	Sticks of fire euphorbia
*Euphorbia peplus**	Petty spurge
*Ricinus communis**	Castor Bean
Fabaceae	Pea Family
*Acacia melanoxylon**	Black acacia
Acmispon glaber	Deerweed
Fagaceae	Beech Family
Quercus agrifolia	Coast live oak
*Quercus chrysolepis**	Canyon oak
Quercus engelmannii†	Engelmann oak
Quercus ilex	Holly oak
Geraniaceae	Geranium Family
*Erodium cicutarium**	Coastal heron's bill
Grossulariaceae	Ribes Family
Ribes californicum	California gooseberry
Juglandaceae	Walnut Family
*Carya sp.**	Hickory nut tree
Lamiaceae	Mint Family
*Marrubium vulgare**	White horehound
Salvia apiana	White sage

Scientific Name	Common Name
Salvia mellifera	Black sage
Liliaceae	Lilly Family
*Aloe barbadensis miller**	Aloe vera
Lythraceae	Pomegranate Tree
*Punica granatum**	Pomegranate
Magnoliaceae	Magnolia Family
*Magnolia grandiflora**	Southern magnolia
Moraceae	Mulberry Family
*Ficus carica**	Common fig
Myrtaceae	Myrtle Family
*Eucalyptus camaldulensis**	Red gum eucalyptus
*Eucalyptus globulus**	Blue gum eucalyptus
*Eucalyptus sideroxylon**	Red iron bark eucalyptus
Nyctaginaceae	Four O'clock Family
*Bougainvillea spectabilis**	Great bougainvillea
Pinaceae	Pine Tree
*Pinus canariensis**	Canary Island pine
Pittosporaceae	Pittosporum Family
*Pittosporum tobira**	Japanese cheesewood
Platanaceae	Plane Tree Family
Platanus racemose	California Sycamore
Poaceae	Grasses
*Bromus diandrus**	Ripgut brome
*Bromus horeaceus**	Soft chess
*Bromus madritensis **	Foxtail chess
*Bromus rubens**	Red brome
*Cynodon dactylon**	Bermuda grass
*Stipa miliacea var. miliacea**	Smilo grass

Scientific Name	Common Name
Polygonaceae	Buckwheat Family
Eriogonum fasciculatum	California buckwheat
*Rumex crispus**	Curly dock
Rosaceae	Rose Family
*Prunus caroliniana**	Carolina laurelcherry
Rutaceae	Citrus Family
*Citrus x limon**	Lemon tree
Salicaceae	Willow Family
Salix lasiolepis	Arroyo willow
Simbaroubaceae	Quassia Family
*Ailanthus altissima**	Tree of Heaven
Solanaceae	Nightshade Family
Datura wrightii	Jimsonweed
*Nicotiana glauca**	Tree tobacco
*Salpichroa origanifolia**	Lily of the valley vine
Tamaricaceae	Tamarisk Family
*Tamarix sp.**	Tamarisk
Verbenaceae	Verbena Family
*Lantana camara**	Lantana
Viburnaceae	Muskroot Family
Sambucus nigra	Black elderberry

* Non-native species
† sensitive species

Wildlife Species Observed/Detected within the Project Site

Scientific Name	Common Name
Aves - Birds	
Accipitridae	Hawks, Kites, Eagles, and Allies
Accipiter cooperii†	Cooper's hawk
Aegithalidae	Long-tailed Tits
Psaltriparus minimus	Bushtit
Cathartidae	New World Vultures
Cathartes aura	Turkey vulture
Columbidae	Pigeons and Doves
Zenaida macroura	Mourning dove
Corvidae	Jays, Magpies and Crows
Aphelocoma californica	California Scrub jay
Corvus brachyrhynchos	American crow
Emerizidae	Emberizids
Melospiza melodia	Song sparrow
Melozone crissalis	California towhee
Pipilo maculatus	Spotted towhee
Fringillidae	Finches
Haemorhous mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Mimidae	Mockingbirds and Thrashers
Mimus polyglottos	Northern Mockingbird
Odontophoridae	New world quails
Callipepla californica	California quail
Picidae	Woodpeckers
Dryobates nuttallii	Nuttall's woodpecker
Melanerpes formicivorus	Acorn woodpecker
Polioptilidae	Gnatcatchers
Polioptila caerulea	Blue-gray gnatcatcher

Scientific Name	Common Name
Trochilidae	Hummingbirds
Calypte anna	Anna's hummingbird
Troglodytidae	Wrens
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	House wren
Turdidae	Songbirds
Sialia Mexicana	Western bluebird
Tyrannidae	Tyrant Flycatchers
Sayornis nigricans	Black phoebe
Reptilia - Reptiles	
Phrynosomatidae	North American Spiny Lizards
Sceloporus occidentalis	Western fence lizard
Uta stansburiana	Common side-blotched lizard
Mammalia - Mammals	
Canidae	Dog-like carnivorans
Canis latrans	Coyote (scat)
Cervidae	Deer
Odocoileus hemionus	Mule deer
Leporidae	Rabbits and Hares
Sylvilagus audubonii	Audubon's cottontail
Ursidae	Bears
Ursus americanus	Black bear (scat)

* Non-native species
† sensitive species

APPENDIX C

Special Status Species

Potential Occurrence Determination

Special Status Species Potential Occurrence Determination

This table summarizes conclusions from analysis and field surveys regarding the potential occurrence of special status species within the Project site. During the field surveys, the potential for special status species to occur within the Project site was assessed based on the following criteria:

- Present: observed on the site during the field surveys, or recorded on-site by other qualified biologists.

- High potential to occur: observed in similar habitat in the region by a qualified biologist, or habitat on the site is a type often utilized by the species and the site is within the known distribution and elevation range of the species.

- Moderate potential to occur: reported sightings in surrounding region, or the site is within the known distribution and elevation range of the species and habitat on the site is a type occasionally used by or typical of the species.

- Low potential to occur: the site is within the known distribution and elevation range of the species but habitat on the site is rarely used by the species or no suitable habitat is present, or there are no known recorded occurrences of the species within or adjacent to the site.

- Absent: a focused study failed to detect the species.

- Unknown: the species' distributional/elevation range and habitat are poorly known.

Even with field surveys, biologists assess the *probability* of occurrence rather than make a definitive conclusion about species' presence or absence. Failure to detect the presence of the species is not definitive and may be due to variable effects associated with fire, rainfall patterns, and/or season.

Special Status Species: Potential to Occur within the Project Site

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
PLANTS				
Acanthoscyphus parishii var. parishii	Parish's oxytheca	CRPR: 4.2, S3S4	Annual herb found in chaparral and lower montane coniferous forests, sometimes in gravelly and sandy soils. Elevation: 1900 – 2600 m (Jepson Manual) Blooming period: June - Oct	Low Potential. Suitable habitat is not present. There are no observations of the species within 5-miles of the Project site (CNDDB, 2023).
Arctostaphylos glandulosa ssp. gabrielensis	San Gabriel manzanita	CRPR: 1B.2, G5T3, S3, FSS	A shrub that is found in chaparral communities in granitic soils. Elevation: 950 - 2000 m (Jepson Manual) Blooming period: January - April	Low Potential. Suitable habitat for the species occurs within the Project site, however the species is mostly documented in higher mountainous elevations of the San Gabriel Mountains (CDFW, 2023).
Asplenium vespertinum	western spleenwort	CRPR: 4.2,	Moist, shady, rocky places, such as the shadows beneath cliff overhangs/ base of overhanging boulders. Habitats include chaparral, cismontane woodland, and coastal scrub. Elevation: 200 (180 as per ICPN) - 1000 meters (Jepson Manual) Blooming period: February - June	Low Potential. Suitable habitat is not present. There are no observations of the species within 5-miles of the Project site (CNDDB, 2023).
Astragalus brauntonii	Braunton's milk-vetch	FE, CRPR: 1B.1	Perennial herb endemic to carbonate soils (limestone outcrops) of the foothills of the southern California mountains. It commonly occurs in disturbed chaparral, coastal sage scrub, and closed-cone forests. Elevation: 6 – 640 meters (CNPS); <650 meters (Jepson Manual) Blooming period: January – August (CNPS); Mar – Jul (Jepson Manual)	High Potential. Suitable habitat is present, and the species has been observed in the Monrovia Wilderness Preserve in 2019 and 2023 approximately 1.6 miles to the west of the Project site (CDFW 2023, iNaturalist 2023).
Berberis nevinii	Nevin's barberry	CE, FE, CRPR: 1B.1	Evergreen flowering shrub typically found in coastal sage scrub, foothill woodland, and chaparral habitats. Found in sandy to gravelly soils. Elevation: 0 – 1200 meters (Jepson Manual) Blooming Period: Mar – May (Jepson Manual)	Low Potential. Suitable habitat is present; however, the species has not been observed within 20 miles of the Project site

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
				(CDFW, 2024 and iNaturalist 2024).
Calochortus catalinae	Catalina mariposa lily	CRPR: 4.2	The bulb is endemic to Southern California. It is native along the coastline in grasslands and open chaparral and woodlands habitats, especially on the Channel Islands and in the Santa Monica Mountains. Elevation: 15 – 700 meters (CNPS); < 700 (Jepson eFlora) Blooming period: (Feb)March – June (CNPS); Mar – May (Jepson eFlora)	Low Potential. Suitable habitat is not present. There are no observations of the species within 5-miles of the Project site (CNDDB, 2023).
Calochortus plummerae	Plummer's mariposa-lily	CRPR: 4.2	Perennial bulbiferous herb endemic to California. Habitat includes granitic, rocky soils within chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland. Threatened by development, fire suppression, foot traffic, mining, powerline construction, and recreational activities. Less common at higher elevations. Elevation: < 1700 meters Blooming period: May - July	High Potential. Suitable habitat is present and there are observations as recent as 2023 of the species within one mile west of the Project site at the Mount Wilson Trail Park (iNaturalist, 2023). There are also observations of the species two miles east of the Project site at the Monrovia Wilderness Preserve (CDFW, 2023).
Centromadia parryi ssp. *australis*	southern tarplant	CRPR: 1B.1,	Found in vernally wet areas such as edges of marshes and vernal pools, grasslands, vernal pools, coastal scrub, at edges of roads and trails, and in other areas of compacted, poorly drained, or alkaline soils where competition from other plants is limited, often due to disturbance. In California, known only from Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties. Also occurs in Mexico. Elevation: 0 – 480 meters (CNPS); < 200 meters (Jepson eFlora) Blooming period: May – November (CNPS); June – Oct (Jepson eFlora)	Low Potential. Suitable habitat is not present, the species prefers more wet habitats. There are no observations of the species within 5-miles of the Project site (CNDDB, 2023).
Chorizanthe parryi var. parryi	Parry's spineflower	CRPR: 1B.1, BLMS, FSS	Parry's spineflower occurs within sandy soils within the alluvial chaparral and scrub of the San Gabriel, San Bernardino and San Jacinto Mountains. Elevation: 90 - 800 meters	Low Potential. Suitable habitat is not present, the species prefers more wet habitats. There are no observations of the species

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
			Blooming period: April - June (CNPS); May – June (Jepson eFlora)	within 5-miles of the Project site (CNDDB, 2023).
Cladium californicum	California sawgrass	CRPR: 2B.2	Meadows and seeps, marshes and swamps. Alkaline or freshwater. Elevation: 60 – 1600 meters (CNPS); 2150 meters (Jepson eFlora) Blooming period: June – September	No Potential. No suitable habitat is present, the species prefers more wet habitats. There are no observations of the species within 5-miles of the Project site (CNDDB, 2023).
Diplacus johnstonii	Johnston's monkeyflower	CRPR:4.3, G4, S4,	Annual herb found in yellow pine forests as well as road banks and disturbed areas. Elevation: 975 – 2920 m (Jepson eFlora) Blooming period: May – August (Jepson eFlora)	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Dodecahema leptoceras	slender-horned spineflower	FE, SE, CRPR: 1B.1	Slender-horned spineflower is endemic to southwestern cismontane California, ranging from central Los Angeles County east to San Bernardino County, and south to southwestern Riverside County in the foothills of the Transverse and Peninsular Ranges. Slender-horned spineflower is found in sandy soil in association with mature alluvial scrub that is maintained by periodic flooding and sediment transport. Elevation: 200 - 760 meters (CNPS); 200 – 700 meters (Jepson eFlora) Blooming period: April - June (CNPS); May – June (Jepson eFlora)	Moderate Potential. There is suitable habitat for the species present within the Project site however there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Galium angustifolium ssp. gabrielense	San Antonio Canyon bedstraw	CRPR: 4.3, G5T3, S3	A perennial herb found on slopes and ridges and in open forests and high chaparral habitats. It is also found in yellow pine forest and red fir forest habitats. Elevation: 1,200 - 2,650 m (Jepson eFlora) Blooming period: June – August	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Galium angustifolium ssp. gracillimum	slender bedstraw	CRPR: 4.2, G5T4, S4	A perennial herb found in shaded places among granite boulders in canyons and on outcrops. I tis also hound in creosote bush scrub and Joshua tree woodland habitats.	No Potential. There is no suitable habitat for the species present within the Project site and there

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
			Elevation: 130 – 1,550 m (Jepson eFlora) Blooming period: April – June	are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Galium cliftonsmithii	Santa Barbara bedstraw	CRPR: 4.3, G4, S4	A perennial herb found in light shade, coastal canyons, dry banks, foothill woodland, and chaparral habitats. Elevation: 200 – 1,220 m (Jepson eFlora) Blooming period: April – June	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Galium grande	San Gabriel bedstraw	CRPR: 1B.2, G1, S1, FSS	A perennial shrub that is endemic to California that is found in yellow pine forests, mixed evergreen forests, foothill woodlands, and chaparral communities. Elevation: 425 – 1220 meters Blooming period: May – July (Jepson eFlora)	Low Potential. There is suitable habitat for the species present within the Project site and there is an observation from 2001 within 2-miles northwest of the Project site (CDFW, 2023).
Galium jepsonii	Jepson's bedstraw	CRPR: 4.3, G3, S3	A perennial herb found in red fir forests, open woodlands, and conifer forests in gravelly soil. Elevation: 2,000 – 2,500 meters (Jepson eFlora) Blooming period: July – August	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Galium johnstonii	Johnston's bedstraw	CRPR: 4.3, G4, S4	A perennial herb that is found in yellow pine forests and open mixed forests. Elevation: 1,650 – 2,300 meters (Jepson eFlora) Blooming period: May – August	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Harpagonella palmeri	Palmer's grapplinghook	CRPR: 4.2	Palmer's grapplinghook is associated with clay and cobbly clay soils in chaparral, coastal sage scrub, valley and foothill grasslands, and scrub oak woodland. Elevation: 20 – 955 meters (CNPS); < 1000 m (Jepson eFlora) Blooming period: March to May (CNPS); March – April (Jepson eFlora)	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
Heuchera caespitosa	Urn-flowered alumroot	CRPR: 4.3, G3, S3, FSS	A perennial herb found in yellow pine forest, red fir forest, and rocky areas. Elevation: 1,900 – 2,300 meters (Jepson eFlora) Blooming period: May - July	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Horkelia cuneata var. puberula	mesa horkelia	CRPR: 1B.1, FSS	Perennial herb native and endemic to California. Occurs in sandy or gravelly habitat within chaparral, cismontane woodland and coastal scrub. Distributed along the central to south coast of California, found in San Luis Obispo, Riverside, Santa Barbara, and Los Angeles counties. It once flourished in San Bernardino, San Diego, and Ventura counties as well, but has become locally extinct in these areas. Elevation: 70 - 870 meters Blooming period: February - July(Sep)	Moderate Potential. There is suitable habitat present and the species has been observed within 2.5-miles northwest of the Project site (CDFW, 2023).
Juglans californica var *californica*	California black walnut / Southern California black walnut	CRPR: 4.2	Perennial deciduous tree endemic to California. Habitat includes alluvial substrates, chaparral, cismontane woodland, coastal scrub, and riparian woodland. Threatened by urbanization, grazing, non-native plants, and possibly by lack of natural reproduction. Elevation: 30 - 900 meters Blooming period: March - August (CNPS); Mar – May (Jepson eFlora)	Moderate Potential. There is suitable habitat present and the species has been observed within 2-miles northwest of the Project site at the Mount Wilson trailhead (iNaturalist, 2023 and CDFW, 2023).
Lepechinia cardiophylla	heart-leaved pitcher sage	CRPR: 1B.2, FFS	Closed-cone coniferous forest, chaparral, cismontane woodland. Known from the Peninsular Ranges. Near endemic to the Santa Ana Mountains, typically along higher-elevation ridge lines (Roberts 2008). Elevation: 520 – 1370 meters (CNPS); 500 – 1200 m (Jepson eFlora) Blooming period: April - July	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Lepechinia fragrans	Fragrant pitcher sage	CRPR: 4.2, G3, S3	Shrub found in open habitats such as chaparral, dry ravines, and rocky slopes. It is found in Trifuno Pass area of Santa Monica Mountains, the San Gabriel Mountains, and the north Channel Islands. Elevation: < 1,300 meters (Jepson eFlora)	Moderate Potential. There is suitable habitat for the species present within the Project site and there is an observation from

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
			Blooming period: March – October	2015 within 1-mile north of the Project site (iNaturalist, 2023).
Lepidium virginicum var. robinsonii	Robinson's peppergrass	CRPR: 4.3	Annual herb occurring in dry sandy or thin soils in coastal sage scrub and chaparral. Elevation: 1 – 885 meters (CNPS); < 2800 m (Jepson eFlora) Blooming period: January – July (CNPS); Mar – Jun (Jepson eFlora)	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	CRPR: 4.2	Ocellated Humboldt lily is associated with riparian corridors in lower montane coniferous forest and coastal chaparral. This species typically occurs on lower stream benches but can also occur on shaded, dry slopes, beneath a dense coniferous canopy and cismontane oak woodland. Elevation: Below 1691 meters (CNPS); < 1800 m Blooming period: March – July (August) (CNPS); May – Aug (Jepson eFlora)	Moderate Potential. There is suitable habitat for the species present within the Project site and there is an observation from 2023 within 1-mile north of the Project site (iNaturalist, 2023).
Linanthus concinnus	San Gabriel linanthus	CRPR: 1B.2, G2, S2, FSS	An annual herb found in yellow pine forests and red fir forests, as well as dry rocky slopes. Elevation: 1,700 – 2,800 meters (Jepson eFlora) Blooming period: May – June	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Muhlenbergia californica	California muhly	CRPR: 4.3	A perennial grass found in mesic, seeps and streambanks. Habitat includes chaparral, coastal scrub, lower montane coniferous forest, meadows and seeps. Elevation: 100 – 2000 meters Blooming period: June - September	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Pelazoneuron puberulum var. sonorense	Sonoran maiden fern	CRPR: 2B.2, S2, G5T3, FSS	Fern species found in riparian, meadow, and seep habitats. Elevation: 50 - 800 meters Blooming period: N/A	No Potential. There is no suitable for the species present within the Project site. There is a CNDDB observation from 1930 of the species 3-miles northwest of the Project site (CDFW, 2023).

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
Pseudognaphalium leucocephalum	white rabbit tobacco	CRPR: 2B.2	Sandy or gravelly benches, dry stream bottoms, and canyon bottoms. Elevation: < 500 meters Blooming period: (July) August – November (December)	No Potential. There is no suitable habitat for the species present within the Project site and there are no observations of the species within 5-mile radius of the Project site (CDFW, 2023).
Quercus durata var. *gabrielensis*	San Gabriel oak	CRPR: 4.2, G4T4, S3	A shrub found in foothill woodlands and chaparral habitats with granitic soils. Elevation: 450 – 1,000 meters (Jepson eFlora) Blooming period: April – May	Moderate Potential. There is suitable habitat for the species present within the Project site and there is an observation from 2023 within 1-mile northwest of the Project site (CDFW, 2023 and iNaturalist, 2023).
Quercus engelmannii	Engelmann oak	CRPR: 4.2	Native to the foothills from eastern Los Angeles County south to eastern San Diego County. Found in pure stands and with coast live oak. Often found in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Elevation: < 1300 meters Blooming period: March – June (CNPS); April – May (Jepson eFlora)	Present. Nineteen individuals were observed on the Project site. There are several observations from 2022-2023 within 1-mile north of the Project site (iNaturalist, 2023).
Ribes divaricatum var. parishii	Parish's gooseberry	CRPR: 1A	Occurs in riparian woodland habitat. Elevation: 65 - 310 meters Blooming Period: February – April (CNPS); Mar – April (Jepson eFlora)	Low Potential. There is suitable habitat for the species and there is one observation from 2019 of the species within 2-miles northwest of the Project site (CNPS, 2023)
Romneya coulteri	Coulter's matilija poppy	CRPR: 4.2	This poppy is native to southern California and Baja California, where it grows in dry washes and canyons below 1,200 m in open, mildly disturbed sage scrub, chaparral and along rocky drainages, sometimes in areas recently burned. It is a popular ornamental plant, kept for its large, showy flowers. Elevation: < 1200 meters Blooming period: March – July (August)	Low Potential. There is suitable habitat for the species and there is one observation from 2019 of the species within 1-miles north of the Project site (CNPS, 2023)

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
Rupertia rigida	Parish's rupertia	CRPR: 4.3, G4, S4	Perennial herb native to California that occurs in yellow pine forests, foothill woodlands, lower montane conifer forests, and chaparral habitats. Elevation: < 2,500 meter (Jepson eFlora) Blooming period: May - June	**Low Potential.** There is suitable habitat for the species and there is one observation from 2019 of the species within 1-miles north of the Project site (CNPS, 2023).
Senecio astephanus	San Grabriel ragwort	CRPR: 4.3, G3, S3	A perennial herb found in chaparral and coastal sage scrub habitats as well as oak woodlands. This plant is often found on steep slopes. Elevation: 400 – 1,500 meters (Jepson eFlora) Blooming period: April – June	**Low Potential.** There is suitable habitat for the species and there is one observation from 2019 of the species within 1-miles north of the Project site (CNPS, 2023).
Symphyotrichum greatae	Greata's aster	CRPR: 1B.3, G2, S2	A perennial herb found in damp places in canyons with chaparral habitat. Elevation: 300 – 2,000 meters (Jepson eFlora) Blooming period: August - October	**Low Potential.** There is suitable habitat for the species and there is one observation from 2019 of the species within 5-miles northwest of the Project site (CNPS, 2023).
ANIMALS				
Molluscs				
Glyptostoma gabrielense	San Gabriel chestnut	Rank: G2 S2	Found only in the San Gabriel Mountains and foothills near Los Angeles, California. Rocky hillsides under plant debris, in rock piles, wood rat nests, and spaces beneath logs, stumps, and boulders. Water is a critical limiting factor for survival and reproduction; limited to microhabitats with sufficient moisture.	**Present.** One individual was observed within the Project site. Suitable habitat is present and there are several observations of the species within 1 mile of the Project site (CDFW, 2023 and iNaturalist, 2023).
Invertebrates / Insects				
Bombus crotchii	Crotch bumble bee	SCE, IUCN: EN	Uncommon species of coastal California east towards the Sierras; select food plan genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, Eriogonum.* Also like lotus, *Encelia* sp., milk weed, and non-native grassland. Don't prefer dense non-native vegetation. Nest in the ground but are not limited by compact soils unless no rodent burrows or crevices are present. Highly impacted by urbanization; unlikely to be found in fragmented habitats and more likely to be found in	**High Potential.** Suitable coastal sage scrub habitat is found within the Project site. The species was observed in Arcadia in 2020, 2 miles west of the Project site (CDFW, 2023). The species has also been documented at the Los Angeles Arboretum in 2020 and 2019,

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
			large undisturbed areas or sites with direct connections to large undisturbed areas.	southwest of the Project site (iNaturalist, 2023).
Danaus Plexippus	Monarch butterfly	FC	Occurs in grasslands, meadows, agricultural edges, urban gardens, and open woodlands during breeding seasons, transitioning to coastal groves. Key habitat requirements include continuous nectar sources, milkweed for larval development, minimal pesticide exposure, temperature ranges between 55-75°F.	**Moderate Potential.** Suitable roosting/resting Eucalyptus trees are found within the Project site. There are also observations of Monarch butterflies within 0.5 miles from the Project site (iNaturalist, 2024).
Amphibians				
Rana muscosa	southern mountain yellow-legged frog	FE, SE, FSS, WL, IUCN: EN	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools lasting a significant amount of time and which do not contain predatory bullfrogs, fish, or crayfish are necessary for breeding. Typically found in areas with good native vegetative cover and low levels of disturbance.	**No Potential.** Suitable upland habitat is present within the Project site; however, the species is usually found at higher elevations near permanent bodies of water.
*Spea hammondii (*also *Scaphiopus hammondii)*	western spadefoot toad	SSC, BLMS, IUCN: NT	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools lasting a significant amount of time and which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Typically found in areas with good native vegetative cover and low levels of disturbance.	**No Potential.** Suitable habitat is present within the Project site, however there are no observations of the species within a 5-mile radius of the Project site.
Reptiles				
Actinemys pallida	Southwestern pond turtle	F-Proposed Threatened	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater.	**No Potential.** There is no suitable habitat for the species found within the Project site and there has been no observation of the species within 0.5 miles of the Project site (iNaturalist, 2024).

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
Anniella stebbinsi	Southern California Legless Lizard	SSC, FSS	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat.	**Moderate Potential.** Suitable habitat for the species is present within the Project site. There is an occurrence of the species within one mile west of the Project site in the City of Sierra Madre from 2018 (CDFW, 2023).
Aspidoscelis tigris stejnegeri	Coastal whiptail	SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas. Generally, avoids areas of dense grass and thick shrubby growth. Requires warm and sunny areas for basking, friable soil for burrow construction and foraging, open areas for running, and cover of bushes, rocks, or both.	**High Potential**. Suitable habitat for the species is present and the species has been observed on the Mount Wilson Trail located approximately 0.70 miles to the west of the Project site (iNaturalist, 2023).
Phrynosoma blainvillii	coast horned lizard	SSC, BLMS, IUCN:LC	Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads. Often found near ant hills feeding on ants.	**Moderate Potential.** Suitable habitat for the species is present and the species has been observed at Jones Peak located approximately 1.54 miles to the northwest of the Project site (iNaturalist, 2023).
Birds				
Empidonax traillii extimus	southwestern willow flycatcher	FE, SE,	The southwestern willow flycatcher is present in breeding territories by mid-May. It builds nests and lays eggs in late May and early June and fledges young in early to mid-July. Between August and September, the southwestern willow flycatcher migrates to wintering grounds in Mexico, Central America, and possibly northern South America. This species is an insectivore and forages within and above dense riparian vegetation. The breeding range of the species includes southern California. The southwestern willow flycatcher breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs. Habitat patches must be at least 0.25 ac in size and at least 30 feet wide. Following modern changes to riparian communities,	**No Potential.** No suitable habitat for the species is present within the Project site and there have been no observations of the species within a 5-mile radius since 1906 (CDFW, 2023).

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
			this subspecies still nests in native vegetation, but also uses thickets dominated by non-native tamarisk and Russian olive, or in mixed native non-native stands.	
Polioptila californica californica	coastal California gnatcatcher	FT, SSC	Obligate, permanent resident of coastal sage scrub below 835 meters in Southern California. Low, coastal sage scrub in arid washes, on mesas & slopes. Not all areas classified as coastal sage scrub are occupied.	**Moderate Potential.** Suitable habitat is present, however there are no observations of the species within the vicinity of the Project site (CDFW, 2023).
Strix occidentalis occidentalis	California spotted owl	F-Proposed Endangered	Typically occupies complex old-growth and mature mixed-conifer forest ecosystems in mountainous regions of California, characterized by dense canopy cover, multi-layered forest structures, and significant vertical complexity. Habitat preferences include late-successional forests with substantial woody debris, multiple tree size classes, and closed canopies typically found in Sierra Nevada, Cascade Range, and coastal mountain ranges at elevations between 1,000-7,500 feet.	**No Potential.** No suitable habitat is present, and the species has not been observed within the 5 miles of the Project site (iNaturalist, 2024).
Mammals				
Antrozous pallidus	pallid bat	SSC, BLMS, FSS, IUCN:LC WBWG (H)	Occurs in deserts, grasslands, shrublands, woodlands and forests but is most common in open, dry habitats. Commonly roost in rock crevices, caves, and mine tunnels but also roost in the attics of houses, under the eaves of barns, in hollow trees. Roosts must protect bats from high temperatures. This species is very sensitive to disturbance of roosting sites.	**No Potential.** No suitable habitat is present, and the species has not been observed within the vicinity since 1930 (CDFW, 2023).
Corynorhinus townsendii	Townsend's big-eared bat	SSC, BLMS, FSS, WBWG (H)	An uncommon year-round resident throughout much of California. Occupies a variety of habitats, including oak woodlands, arid deserts, grasslands, riparian communities, high-elevation forests and meadows, and agricultural areas. Roosting sites typically include mine tunnels and caves, with buildings, bridges, rock crevices, and hollow trees also utilized.	**Moderate Potential.** Suitable habitat is the form of large mature eucalyptus trees are found within the Project site. The species was also detected acoustically in 2015 at the westernmost spillway of the Santa Anita Dam, approximately 1.33 miles northeast of the site (CDFW, 2023).

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
Eumops perotis californicus	Western mastiff bat	WBWG (H)	Occurs in desert scrub to woodland. Forage in open areas. Roost in exfoliating rock slabs of vertical cliffs and rugged canyons. Found in deep narrow crevices and sometimes roost with other species.	Moderate Potential. Suitable habitat is present however there are no recent observations of the species within 5-miles of the Project site (CDFW, 2023 and iNaturalist, 2023).
Lasiurus cinereus	hoary bat	IUCN: LC WBWG (M)	Habitats suitable for bearing young include all woodlands and forests with medium to large-size trees and dense foliage. Typically roosts in trees in deciduous and coniferous forests and woodlands but occasionally roosts in rocks crevices. Forages in open areas, typically along riparian corridors over waters. Diet primarily consists of moths. During migration in southern California, males are found in foothills, deserts and mountains, females in lowlands and coastal valleys.	No Potential. Suitable habitat is present however there are no recent observations of the species within 5-miles of the Project site (CDFW, 2023 and iNaturalist, 2023).
Lasiurus frantzii	western red bat	SSC, IUCN: LC WBWG (H)	Locally common in some areas of California, occurring from Shasta Co. to the Mexican border, west of the Sierra Nevada/Cascade crest. Not found in desert areas. Roosts primarily in trees, less often in shrubs. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas.	Moderate Potential. Suitable habitat is the form of large mature eucalyptus trees are found within the Project site. The species was also detected acoustically in 2015 at the Santa Anita Dam, approximately 1.33 miles northeast of the site (CDFW, 2023).
Puma concolor	Mountain Lion	Specially Protected Species-CDFW	Inhabit diverse habitat types across California including temperate redwood forest, coniferous/deciduous forest, coastal chaparral, and foothills and mountains. They can be found wherever native or introduced ungulates such as mule deer, elk, bighorn sheep, or feral hogs are present.	High Potential. Suitable foraging habitat is present, and the species has been observed less than a mile to the west of the Project site (iNaturalist, 2023).

LEGEND

Federal Endangered Species Act (ESA) Listing Codes: federal listing is pursuant to the Federal Endangered Species Act of 1973, as amended (ESA).
FE = federally listed as endangered: any species, subspecies, or variety of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
FT = federally listed as threatened: any species, subspecies, or variety of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*

California Endangered Species Act (CESA) Listing Codes: state listing is pursuant to § 1904 (Native Plant Protection Act of 1977) and §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code, relating to listing of Endangered, Threatened and Rare species of plants and animals.
SE = state listed as endangered: any species, subspecies, or variety of plant or animal that are in serious danger of becoming extinct throughout all, or a significant portion, of their range.
ST = state listed as threatened: any species, subspecies, or variety of plant or animal that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future.

California Department of Fish and Wildlife (CDFW):
SSC = species of special concern: status applies to animals which 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist. The CDFW has designated certain vertebrate species as "species of special concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
FP = fully protected: animal species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
WL = watch list: these birds have been designated as "Taxa to Watch" in the *California Bird Species of Special Concern report* (Shuford and Gardali 2008). The report defines "Taxa to Watch" as those that are not on the current special concern list that (1) formerly were on the 1978 (Remsen 1978) or 1992 (CDFG 1992) special concern lists and are not currently listed as state threatened and endangered; (2) have been removed (delisted) from either the state or federal threatened and endangered lists (and remain on neither), or (3) are currently designated as "fully protected" in California.
Specially Protected Species = The passage of the California Wildlife Protection Act of 1990 (Proposition 117) by California voters established that mountain lions are a "specially protected mammal" in California. It is unlawful to possess, transport, import or sell any mountain lion or part or product thereof (including taxidermy mounts). This status and other statues prohibit CDFW from developing hunting season or take limits for this species. The act established certain exemptions from that prohibition such as: mountain lions may only be harvested 1) if a depredation permit is issued to take an individual that has killed livestock or pets; 2) to preserve public safety; 3) to protect federally-listed bighorn sheep populations.

United States Forest Service (USFS):
FSS = Forest Service sensitive: those plant and animal species identified by a Regional Forester that are not listed or proposed for listing under the ESA and for which population viability is a concern, as evidenced by: (a) significant current or predicted downward trends in population numbers or density or (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution."

United States Bureau of Land Management (BLM):

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BLMS = BLM sensitive: those plant and animal species on BLM administered lands and that are (1) under status review by the USFWS/NMFS; or (2) whose numbers are declining so rapidly that federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats. BLM policy is to provide the same level of protection as USFWS candidate species.

Western Bat Working Group (WBWG):
WBWG ("Priority"): Species are ranked as High, Medium, or Low Priority in each of 10 regions in western North America. Because California includes multiple regions where a species may have different WBWG Priority ranks, the CNNDB includes categories for Medium-High, and Low-Medium Priority. The CNDDB tracks bat species that are at least Low-Medium Priority in California. "Priority" ranks are abbreviated as follows: High = H, Medium = M, Low = L, Medium-High = MH, Low-Medium = LM.

American Fisheries Society: Listing of imperiled freshwater and diadromous fishes of North America prepared by the American Fisheries Society's Endangered Species Committee.
AFS-E= Endangered
AFS-TH= Threatened
AFS-V= Vulnerable

California Rare Plant Ranks (Formerly known as CNPS Lists): the CNPS is a statewide, non-profit organization that maintains, with CDFG, an Inventory of Rare and Endangered Plants of California. In the spring of 2011, CNPS and CDFG officially changed the name "CNPS List" or "CNPS Ranks" to "California Rare Plant Rank" (or CPRP). This was done to reduce confusion over the fact that CNPS and CDFG jointly manage the Rare Plant Status Review Groups and the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

CRPR 1A - California Rare Plant Rank 1A (formerly List 1A): Plants presumed extirpated in California and either rare or extinct elsewhere. All of the plants constituting California Rare Plant Rank 1A meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

CRPR: 1B - California Rare Plant Rank 1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere. All of the plants constituting California Rare Plant Rank 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.

Scientific Name	*Common Name*	*Status*	*General Habitat Description* *Blooming period: months in parenthesis are uncommon*	*Potential for Occurrence within the Survey Area*
CRPR: 2 - California Rare Plant Rank 2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere. All of the plants constituting California Rare Plant Rank 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA. CRPR: 4 - California Rare Plant Rank 4 (formerly List 4): Plants of Limited Distribution - A Watch List. Very few of the plants constituting California Rare Plant Rank 4 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and CNPS and CDFG strongly recommend that California Rare Plant Rank 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA. <u>California Native Plant Society (CNPS) Threat Ranks</u>: The CNPS Threat Rank is an extension added onto the California Rare Plant Rank (CRPR) and designates the level of endangerment by a 1 to 3 ranking with 1 being the most endangered and 3 being the least endangered. A Threat Rank is present for all California Rare Plant Rank 1B's, 2's, 4's, and the majority of California Rare Plant Rank 3's. California Rare Plant Rank 4 plants are seldom assigned a Threat Rank of 0.1, as they generally have large enough populations to not have significant threats to their continued existence in California; however, certain conditions exist to make the plant a species of concern and hence be assigned a California Rare Plant Rank. In addition, all California Rare Plant Rank 1A (presumed extinct in California), and some California Rare Plant Rank 3 (need more information) plants, which lack threat information, do not have a Threat Rank extension. 0.1 = seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) 0.2 = fairly endangered in California (20-80% occurrences threatened / moderate degree and immediacy of threat)				

<u>Sources:</u>

- CNPS Inventory of Rare and Endangered Plants (CNPS 2023)
- The Jepson Manual: *Vascular Plants of California,* second edition (Baldwin *et al.* 2012).
- RareFind, CDFW, California Natural Diversity Database (CNDDB) (CDFW 2023).
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFW, October 2023).
- State and Federally Listed Endangered and Threatened Animals of California (CDFW, August 2023).
- Special Animals List (CDFW, August 2023).
- Life History Accounts (CDFW).
- Sensitive List (BLM)

APPENDIX D

Coastal California Gnatcatcher
Survey Results

Results Of 2024 Breeding Season Surveys For California Gnatcatchers on ~10 Acres

"Gingko Stone House"
611 East Sierra Madre Boulevard

City of Sierra Madre, Los Angeles County, California

Surveys Conducted March 19-May 8, 2024

by:

Angela Johnson- Permit Number: 59592B
(970)412-4777

Kelly Rios- Permit Number: 018909
(714)742-5380

Prepared For:

U.S. Fish & Wildlife Service
Carslbad Field Office
2177 Salk Avenue #250
Carlsbad, CA 93003

Contact: Stacey Love

VCS Environmental,
30900 Rancho Viejo Road,
Suite 100
San Juan Capistrano, CA 92675

Contact: Wade Caffrey
(949)234-6078

Prepared by:

Kidd Biological Inc.
23046 Ave de la Carlota, Suite 600, PMB 66
Laguna Hills, CA 92653
Contact: Nina Kidd
949.632.2756

June, 2024

INTRODUCTION

This report presents the results of the 2024 breeding season surveys for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*) ("CAGN") on approximately 10 acres in Sierra Madre, Los Angeles County, California ("site", Appendix A, Figures 1-3). The surveys were conducted by Kidd Biological, Inc. (KBI). Surveys were conducted in accordance with guidance from U.S. Fish and Wildlife Service (USFWS) CAGN survey protocol to cover breeding periods (USFWS 1997).

The required notification to conduct focused surveys was submitted by email to the permit coordinator at the Carlsbad Field Office of the U.S. Fish and Wildlife Service (USFWS) Office dated February 29, 2024. A subsequent revision to this notification was emailed dated April 17, 2024 to include an additional permitted surveyor (Appendix C). Surveys were conducted March 19 – May 8, 2024 by permitted surveyors Angela Johnson (TE-59592B) and Kelly Rios (TE-018909-06).

SITE LOCATION

The project site is located in the City of Sierra Madre, a suburb northeast of Los Angeles. Generally, the site is located north of Interstate 210 (Foothill Freeway), east of the interchanges of Highway 134, Highway 710, and Interstate 210, and northwest of Highway 605 (San Gabriel River Freeway). More specifically the site is located west of the intersection of Grand Avenue and Santa Anita Avenue with a site address of 965 East Grand Avenue (Figure 1).

Ecologically, the site is in the foothills of the San Gabriel Mountains, 7 miles west of the San Gabriel River at an elevation of 686 feet above mean sea level. The project location can also be described as located in Section 21 of Township 1 North, Range 11 West of the Mount Wilson, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (Figure 2).

NATURAL HISTORY OF THE COASTAL CALIFORNIA GNATCATCHER

The CAGN is a federally threatened species. It is most commonly found in the sage scrub communities throughout coastal southern California. According to J. Atwood and J. Bolsinger (1992), 99% of all CAGN observations are in areas with elevations below 950 feet. There are a few reported occurrences of CAGN at 1,600 feet elevation (500 meters) (Davis and McKernan, 1998). Elevation of this site is approximately 750-900 feet (228-275

meters) above mean sea level (MSL)- well within the range of optimal elevation requirements for the CAGN.

CAGN are ground and shrub-foraging insectivores. They feed on small insects and other arthropods. A CAGN's territory is highly variable in size and seems to be correlated with distance from the coast as well as season, ranging from less than 1 ha to over 9 ha (Mock, 2004).

The main threat to the CAGN is habitat loss, fragmentation, and degradation of habitat from invasive plant species and drought. Once locally common, CAGN have experienced widespread habitat loss and have lost most of their former range. By 1997, it was estimated that no more than 2,900 pairs remained in the United States. Remaining patches of coastal sage scrub are highly fragmented, and the majority is privately owned, making species recovery a difficult task.

This area of Los Angeles County is on the edge of unoccupied higher elevation areas associated with the San Gabriel Mountains, but there several reported occurrences in the area. The closest recent reported occurrence from 2010, is 6 miles to the east of the study area (Occurrence ID 1009). The other occurrences in the vicinity are all historic occurrences from 1903-1928 (Occurrence IDs 23, 1006, 1007, 1008). The nearby observations of CAGN are shown in Figure 3: *CNDDB Documented CAGN Locations*. These locations were obtained from the California Department of Wildlife's (CDFW) Natural Diversity Data Base (CNDDB) (2024).

Vegetation Communities/Habitat Types

An initial habitat assessment was conducted by VCS Environmental where it was determined that suitable coastal sage scrub habitat is present.

The ~10-acre parcels is comprised with a mix of ornamental woodlands and sage scrub habitat. There are also landscaped areas along the roadways as well as areas within the parcel. The dominant shrubs in the sage scrub habitat include purple sage (*Salvia leucophylla*), California buckwheat (*Eriogonum fasciculatum*), deerweed (*Acmispon glaber*) and California sagebrush (*Artemisia californica*) with some patches of coast prickly pear (*Opuntia littoralis*). There are scattered coast live oaks (*Quercus agrifolia*), elderberries (*Sambucus mexicanus*), gum trees (*Eucalyptus* sp.), Peruvian pepper trees (*Schinus molle*) and Aleppo pines (*Pinus halepensis*). Approximately 3 acres is suitable for CAGN.

TOPOGRAPHY

The parcel occurs on a ridge line running north to south. Elevations range from approximately 765 feet above mean sea level (AMSL) in the southern portion of the parcel to 915 feet AMSL in the northern part of the property.

The site sits at the base of the southern foothills of the San Gabriel Mountains on the edge of the San Gabriel Valley. The elevation raises quickly just to the north of the site- one mile north of the site the elevation is >3,000 feet AMSL. Large tracts of open space are to the north associated with the Angeles National Forest and the San Gabriel Wilderness, while to the south is the greater metropolitan area of Los Angeles.

METHODOLOGY

Protocol breeding season surveys for the coastal California gnatcatcher were conducted by permitted biologist Angela Johnson and Kelly Rios. Methods conformed with USFWS Coastal California Gnatcatcher Presence/Absence Survey Guidelines, issued July 28, 1997 (USFWS 1997). A total of 6 surveys were conducted one week apart, between March 19 and May 8, 2024, between 0600 hours and 1200 hours. Surveys were conducted within all suitable habitat within 500 feet of the proposed project footprint where safely and legally accessible.

Surveyors traversed suitable habitats, stopping at approximately 100-foot intervals to listen for CAGN. If no CAGN were detected within 5-10 minutes, the biologist made pishing sounds and played an audio recording of CAGN vocalizations. Recordings were played for several seconds at each interval, followed by a brief pause to listen for a response. If any CAGN individuals were detected, additional observations including sex, age, breeding status, and behavioral characteristics were documented, consistent with protocol requirements. Staff biologist, Nathalie Munoz, from VCS Environmental, accompanied Kidd Biological biologists on three of the surveys for both educational purposes and safety due to a reported aggressive black bear in the area.

RESULTS

Breeding season surveys were conducted by the USFWS permitted biologist noted above, in accordance with USFWS guidelines within all suitable habitat on the site. Table 1, below, summarizes the results of each survey.

No CAGN were observed or otherwise detected during any of the focused surveys; however, the habitat is suitable and there is a potential for this species, to use the property in question in the future or for young to use the property while dispersing.

Brown-headed cowbirds (*Molothrus ater*), considered to be nest parasites for CAGNs, were detected during the survey conducted on May 8. Two individuals were observed flying over the habitat and vocalizing. No cowbirds were observed on any of the other surveys.

Table 1. 2024 Survey Data

Survey	Surveyor	Date	Time		Temp (°F)	Cloud Cover (%)	Wind Speed (mph)	CAGN Detected
			Begin	End				
1	Angela Johnson	3/19/24	0900	1045	62-66	0	2	No
2	Angela Johnson	4/3/24	0800	0930	57-67	0	1-4	No
3	Angela Johnson	4/10/24	0815	1000	60-74	0	2-4	No
4	Angela Johnson	4/17/24	0730	0900	57-65	15	1	No
5	Kelly Rios	4/25/24	0900	1015	63-64	100	2-3	No
6	Angela Johnson	5/8/24	0915	1050	60-65	60	4	No

Additional Avian Species

Avian activity during the protocol surveys was high during all surveys. Bird diversity was very high and species observed or otherwise detected during surveys are species commonly found in coastal sage scrub and wildland-urban interfaces. A complete list of species observed can be found in Appendix B: Species Compendium.

Cooper's hawk (*Accipiter cooperi*), a California Watch List species, was detected during the surveys.

Conclusion

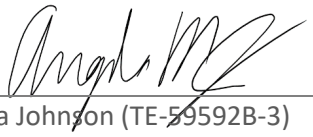
A total of six (6) Coastal California gnatcatcher breeding season surveys were completed within suitable habitat within a 500-foot buffer of the proposed work site. No CAGN were observed or otherwise detected during the protocol surveys.

RECOMMENDATIONS

This site is not located within designated critical habitat for the CAGN. There is connectivity to other areas of suitable and potentially occupied habitat; however, the habitat on site is a very small patch.

The proposed impacts are not yet defined but as no CAGN were detected, any development would be unlikely to result in the direct impact to any CAGN.

CERTIFICATION: I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Date: June 10, 2024 Signed: 

Angela Johnson (TE-59592B-3)

Date: June 10, 2024 Signed: 

Kelly Rios (TE-018909)

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APPENDIX A- FIGURES

FIGURE 1. SURVEY AREA ON MOUNT WILSON, CA USGS TOPOGRAPHIC MAP

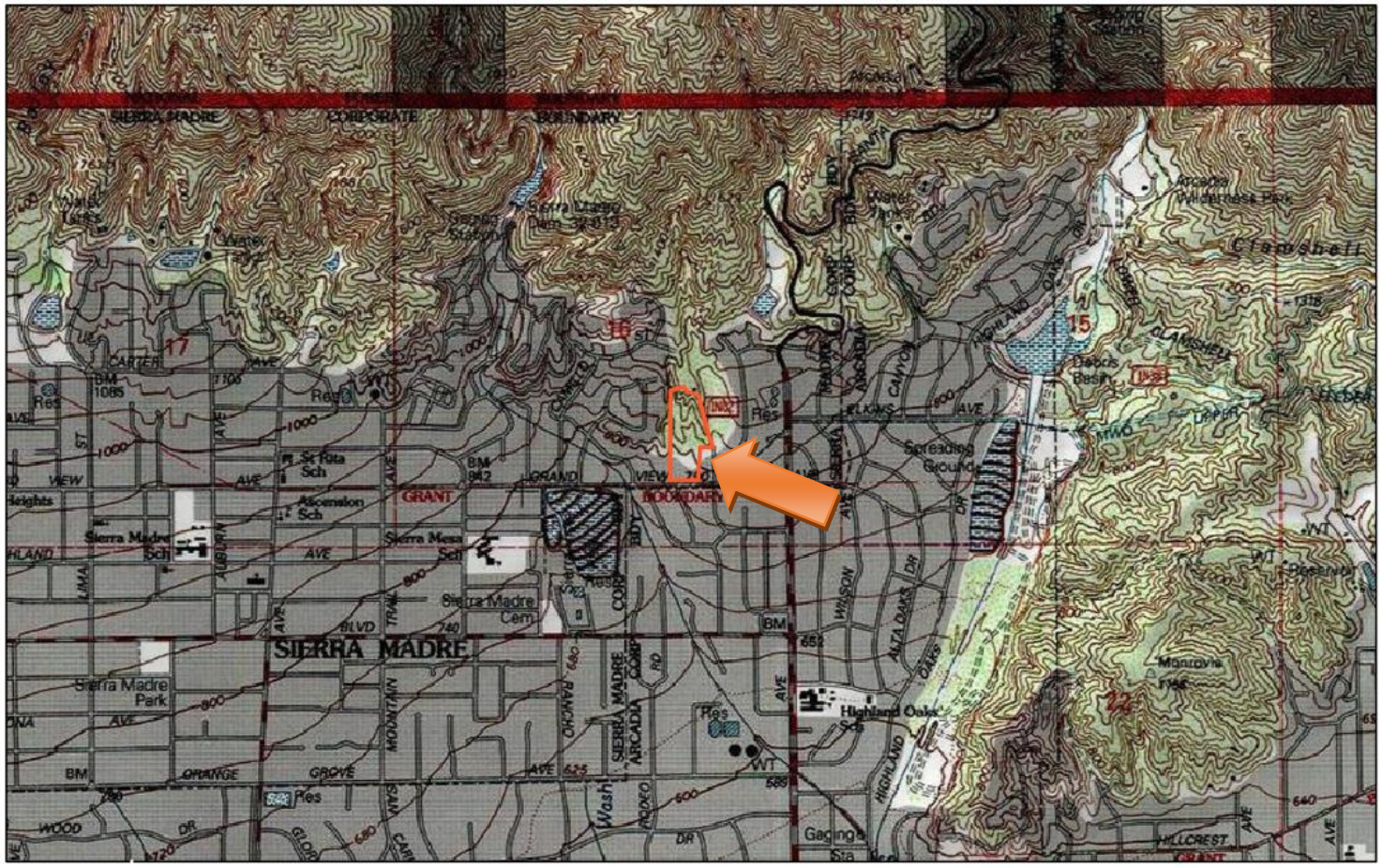

FIGURE 2. SURVEY AREA ON AERIAL PHOTO

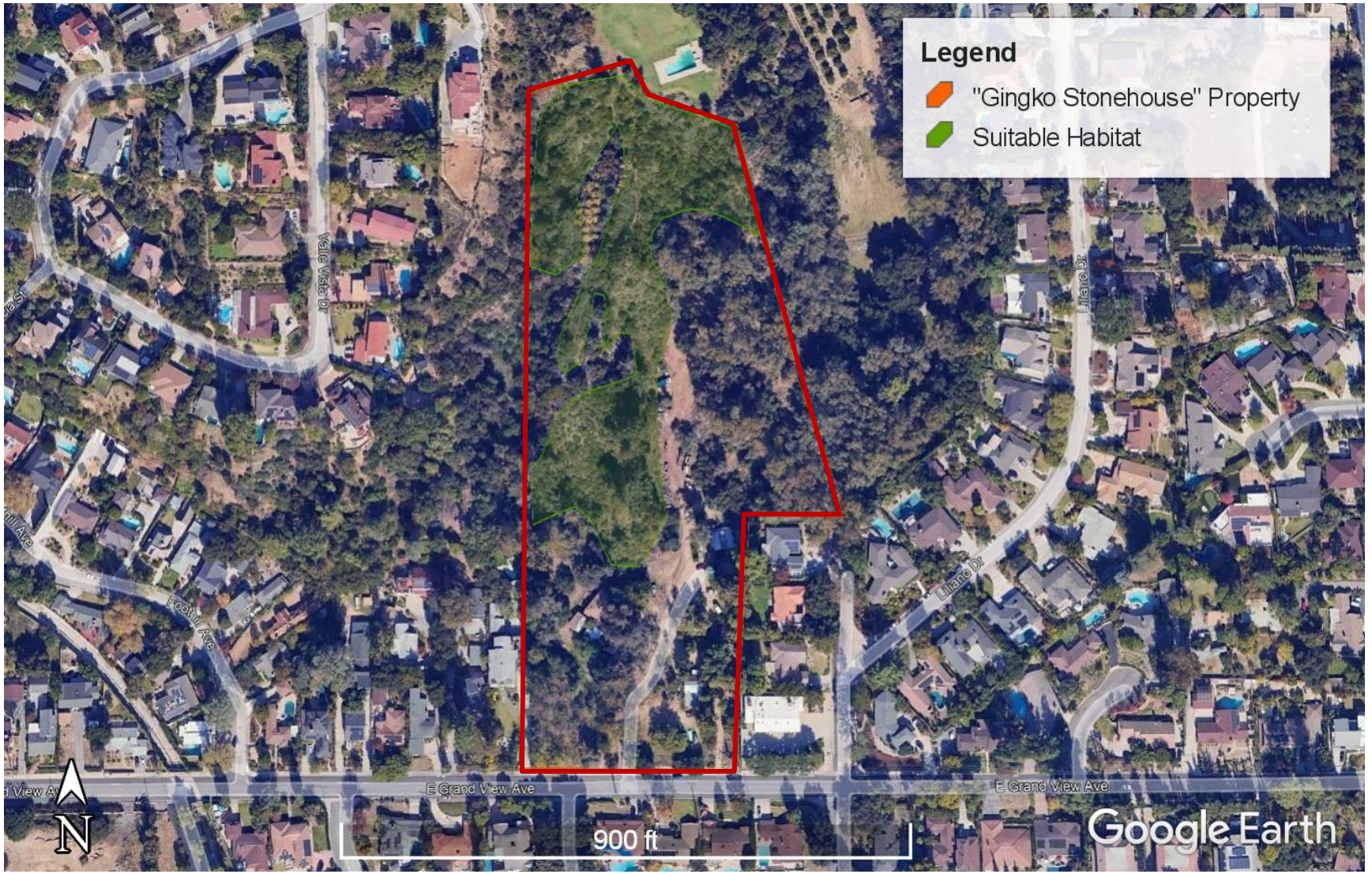

FIGURE 3. CNDDB REPORTED CAGN LOCATIONS (CNDDB MAY 2024)

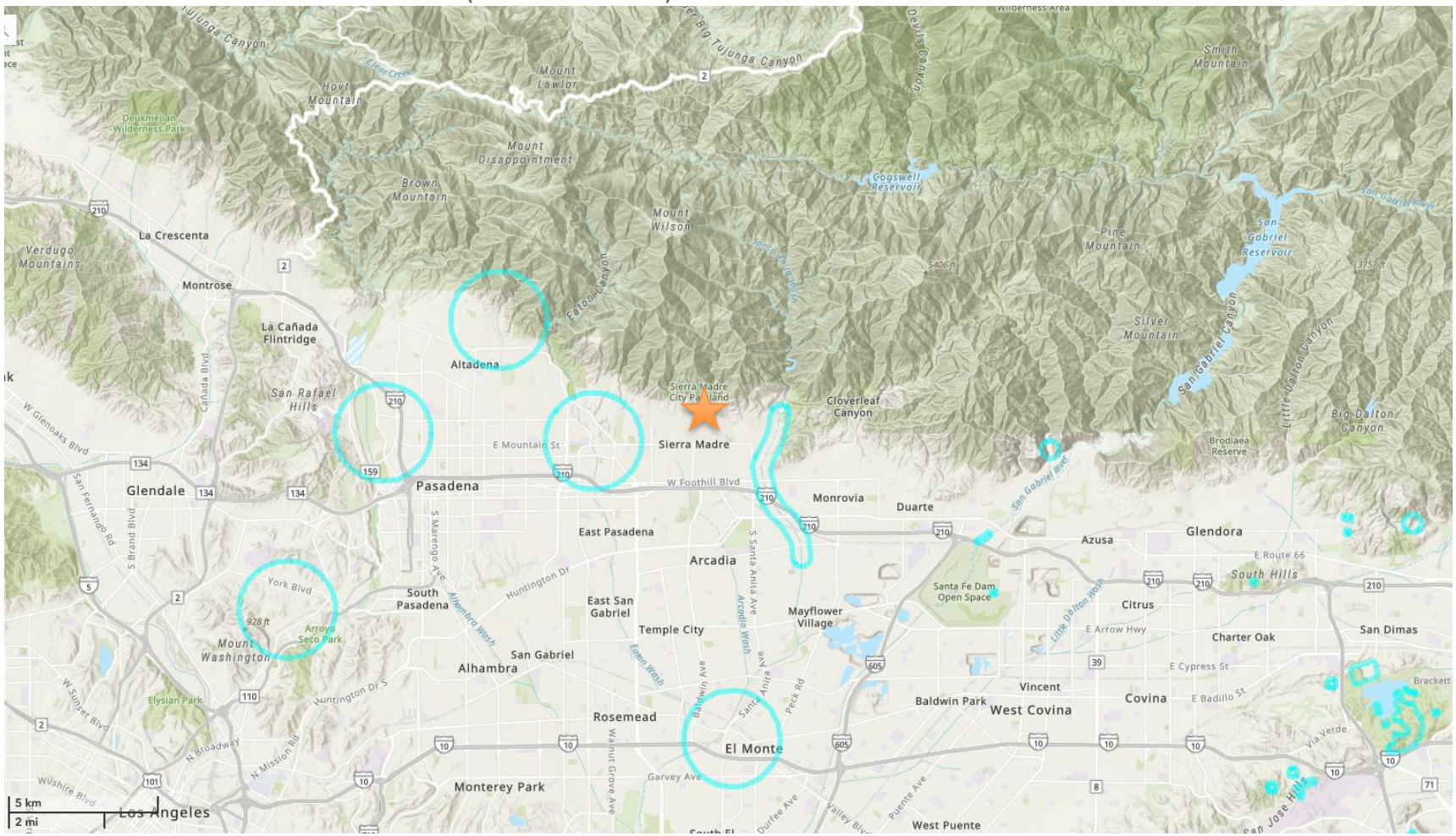

FIGURE 5. LOOKING NORTH AT PATCH OF SUITABLE HABITAT

FIGURE 6. LOOKING NORTH AT SUITABLE HABITAT

FIGURE 7. LOOKING NORTHWEST AT AREA OF SUITABLE HABITAT

FIGURE 8. LOOKING SOUTH FROM KNOLL OF SUITABLE HABITAT

APPENDIX B: AVIAN COMPENDIUM

	Species
	Acorn Woodpecker (*Melanerpes formicivorus*)
	Allen's Hummingbird (*Selasphorus sasin*)
	American Kestrel (*Falco sparverius*)
	Anna's Hummingbird (*Calypte anna*)
	Ash-throated Flycatcher (*Myiarchus cinerascens*)
	Band-tailed Pigeon (*Patagioenas fasciata*)
	Bewick's Wren (*Thryomanes bewickii*)
	Black Phoebe (*Sayornis nigricans*)
	Black-headed Grosbeak (*Pheucticus melanocephalus*)
	Blue-gray Gnatcatcher (*Polioptila caerulea*)
	Brown-headed Cowbird (*Molothrus ater*)
	Bushtit (*Psaltriparus minimus*)
	California Quail (*Callipepla californica*)
	California Scrub-Jay (*Aphelocoma californica*)
	California Towhee (*Melozone crissalis*)
	Cassin's Kingbird (*Tyrannus vociferans*)
	Cedar Waxwing (*Bombycilla cedrorum*)
	Common Raven (*Corvus corax*)
§	Cooper's Hawk (*Accipiter cooperii*)
	Dark-eyed Junco (Oregon) (*Junco hyemalis* [oreganus Group])
*	Eurasian Collared-Dove (*Streptopelia decaocto*)
*	European Starling (*Sturnus vulgaris*)
	Hooded Oriole (*Icterus cucullatus*)
	House Finch (*Haemorhous mexicanus*)
	House Wren (*Troglodytes aedon*)
	Lazuli Bunting (*Passerina amoena*)
	Lesser Goldfinch (*Spinus psaltria*)
	Mallard (*Anas platyrhynchos*)

Mourning Dove (*Zenaida macroura*)
Northern Flicker (*Colaptes auratus*)
Northern Mockingbird (*Mimus polyglottos*)
Nuttall's Woodpecker (*Dryobates nuttallii*)
Oak Titmouse (*Baeolophus inornatus*)
Orange-crowned Warbler (*Leiothlypis celata*)
Phainopepla (*Phainopepla nitens*)
Purple Finch (*Haemorhous purpureus*)
* Red-crowned Parrot (*Amazona viridigenalis*)
Red-shouldered Hawk (*Buteo lineatus*)
Red-tailed Hawk (*Buteo jamaicensis*)
* Red-whiskered Bulbul (*Pycnonotus jocosus*)
Ruby-crowned Kinglet (*Corthylio calendula*)
* Scaly-breasted Munia (*Lonchura punctulata*)
Spotted Towhee (*Pipilo maculatus*)
Turkey Vulture (*Cathartes aura*)
Western Flycatcher (*Empidonax difficilis*)
Western Tanager (*Piranga ludoviciana*)
White-crowned Sparrow (*Zonotrichia leucophrys*)
White-throated Swift (*Aeronautes saxatalis*)
Wrentit (*Chamaea fasciata*)
Yellow-rumped Warbler (*Setophaga coronata*)

* Introduced Species

§ Sensitive- Watch List Species

Taxonomic nomenclature follows American Ornithologists' Union 1998 and all updates for birds, and California Department of Fish and Wildlife's, Natural Diversity Database, April 2024 for special-status.

APPENDIX C. 15-DAY NOTIFICATION

APPENDIX E

Crotch's Bumble Bee Survey Results

Ken H. Osborne
Osborne Biological Consulting
6675 Avenue Juan Diaz
Riverside, CA 92509

August 19, 2024

Attn: Ms. Julie Beeman
President
VCS Environmental
309000 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675

RE: Survey for Crotch's Bumblebee on the Gingko-Stonehouse development project, Sierra Madre, CA.

To Whom It May Concern:

VCS Environmental has requested my evaluation of habitat suitability, and a survey, for Crotch's bumble bee (*Bombus crotchii*), for the approximately 9.5-acre Gingko-Stonehouse Residential project impact area (herein referred as the project site) in Sierra Madre, Los Angeles County, California (Figure 1). The site is located at the foot of the San Gabriel Mountains, northwest of the intersection of E. Grand View Avenue and Stonehouse Road. Populations of a number of bumble bee species are believed to have been in sharp decline (Hatfield et al. 2015) in the United States over the last decade. Crotch's bumblebee (CBB), recently emergency listed as a California Endangered Species, is generally distributed through wildlands and rural areas in low to middle elevations of California. Bumble bees nest in cavities in the soil or wood and the adults (queens, workers, and males), active in the daytime, all visit nectar and pollen resources across a diverse range of plant species including those among Asclepiadaceae, Asteraceae, Boraginaceae, Ericaceae, Fabaceae, Hydrophyllaceae, Lamiaceae, Plumbaginaceae, Polygonaceae, Solanaceae.

Summary Conclusions: Crotch's Bunblebee is not present on the project site. Although the project site has ecological and environmental conditions suitable for CBB, and other *Bombus* species are present on the site, our survey results are negative for CBB.

Qualifications: I am an entomologist with over 56 years' experience in California (BS, MS, degrees in entomology). Through decades of collecting, rearing, captive propagation, and biological consulting focusing on issues ranging from sensitive species to comprehensive inventories, I have intimate familiarity with our California fauna. I additionally possess USFWS 10(a) permitting covering all federally listed insect species of southern California. With the growing specter of state endangered listing for Crotch's bumblebee over the previous few years, I have sharpened my focus on the *Bombus* species of southern California, developing and delivering bumblebee identification workshop training programs that have been delivered now to over forty biologists, formulating survey protocols for CBB on a series of large projects, ultimately this year with myself and these trained biologists successfully documenting CBB and many other bumblebee species in the course of several focused CBB studies.

Background Information: Crotch's Bumblebee is one of several Bumblebee species proposed (Xerces Society for Invertebrate Conservation 2018) for listing as an Endangered species under the under California's Endangered Species Act. Crotch's Bumblebee, now emergency listed as a California endangered species, is generally distributed through wildlands and rural areas in low to middle elevations (sea level to at least 6000 feet) of California, and exploits a wide range of habitats including native and exotic grasslands, coastal marshes, scrub lands, chaparral, oak-juniper woodlands, pinon woodlands, and desert transition vegetation (on western margins of the Mojave and Colorado deserts). The range and overall abundance of the CBB is believed to have declined substantially over the last two decades (Hatfield et al. 2015, The Xerces Society for Invertebrate Conservation et al. 2018) due to habitat loss from urban and agricultural expansion, as well as the effects of herbicides (Motta et al. 2018) and insecticides (Whitehorn et al. 2012, Muth, F. and A. S. Leonard. 2019) in agricultural settings, especially in California's central valley. Over recent centuries, competition for floral resources (as well as associated exotic diseases) from the introduced European honeybee (*Apis mellifera*) has likely lead to a decline of many bumblebee species (and many other bees) across the western hemisphere.

Like most bumblebees, CBB nest in cavities in the soil, often abandoned rodent burrows, and the adults (queens, workers, and males), active in the daytime, all visit nectar and pollen resources. The CBB utilize a diverse range of floral resources including those among Asclepidaceae, Asteraceae, Boraginaceae, Brasicaceae, Ericaceae, Fabaceae, Hydrophyllaceae, Lamiaceae, Orobanchaceae, Plumbaginaceae, Polygonaceae, Scrophulariaceae, and Solanaceae; and exhibit clear contextual preferences associated with flower species availability on any given time and location. Typically, *Asclepias*, *Salvia*, *Astragalus*, *Acmespon*, and *Vicia* are among much preferred flowers. Bumblebees commonly utilizing floral resources 0.2 to 0.3 km from their nests, forage more than 2 km from their nests (Osborne et al. 1999, Keyer et al., 2004). This vagility allows the bumblebees to utilize disconnected patches of suitable forage resources on such a landscape scale that populations may exist on disparate habitat patches within a matrix of urban developed areas. The extent and proximity of undeveloped lands with wildland conditions in relation to a given site, even if the site be embedded within an urban matrix, influences the likelihood of occupancy, with larger extents and closer proximities of wildlands associated with higher bumblebee diversity (McFrederick and LeBuhn 2006).

Mated gynes (future founding queens) overwinter in soil cavities (Xerces 2023c; CDFW 2023), emerge in the early spring to begin new colonies, provisioning their young with pollen and nectar. As the spring season progresses, workers (small female non-reproductive bees) are produced with increasing numbers and escalate the provisioning of the colony, which continues to grow until in early to mid-summer when new males (from unfertilized eggs) are produced along with the new generation of future queens. Workers and males live for only a few weeks. Thus, overall CBB numbers are highest (include workers and males) in late spring through mid-summer seasons, very low in fall and early spring (gynes only), and virtually undetectable during the overwintering season (when dormant underground).

As stated above, the CBB is found within a wide range of ecological contexts. In southern California, it is common and nearly ubiquitous in all areas with extensive (many hundreds of acres or larger) native (and even exotic) vegetation excluding most desert regions. It is absent from locations with small extent (tens of acres) of undeveloped acreage when these are well isolated (i.e. surrounded by urban, suburban or agricultural lands - where the bees do not occur) from extensive lands that are suitable for bumblebees, and furthermore on locations lacking in species-diverse nectar resources and/or cavities

suitable for nesting (typically provided by gophers and other burrowing animals). Successful colony development requires not only suitable nesting sites, but also a diverse assemblage of nectar and pollen resources such that these are successively available (according to each plant species blooming season) throughout the early spring, spring, early summer and summer seasons. Where, for example, nectar and pollen are available *only* for a short period in spring, then lack of resources at other times precludes colony development. It is thought that this (example) is the likely factor excluding bumble bee species from most desert regions. Areas of dominated by extensive exotic annual grass and forb species (which do not present suitable nectar resources) generally do not support CBB unless these areas are in close proximity to adjacent habitats, such as Coastal Sage Scrub, with an abundance and diversity of nectar resources.

Methods: With respect to evaluating habitat potential for CBB, site evaluations consider 1) whether a site has suitable CBB nesting conditions (such as populations of gophers), 2) whether the site supports a suitable composition, diversity, and abundance of nectar and pollen resources to support CBB colony development, 3) if floral composition and diversity are lacking on the site, then whether these are present (or likely present) within the near vicinity of the site, 4) whether a site lacking in resources of use to CBB is substantially isolated (surrounded by extensive intervening areas of non-suitability for CBB) such that resources would not be readily available to CBB on the site. Where sites have conditions or surroundings giving reasonable expectations of CBB potential on the site, then focused surveys for CBB are recommended. Where a site is found not to have reasonable expectation of CBB occurrence, such surveys are not recommended. Satellite imagery covering the site, dating from 1985 to 2024 (Google Earth) was reviewed in order to gain an understanding of land use regimens in recent years. On April 22, 2024, I visited the project site in order to conduct the site evaluation, and on immediately concluding the potential for CBB on the site, surveys were commenced.

Since CBB methods are only recently considered with the new status of CBB, an account is provided here. The survey protocol initiated here was developed using published survey methods for California bumble bees, generalized bumble bee life history, published papers specific to Crotch's bumble bee life history and behavior, the California Department of Fish and Wildlife (CDFW) petition to list Crotch's bumble bee, fundamentally influenced by my over 56 years entomological experience in southern California. This is specifically over 26 years of experience in biological consulting for all federal listed insect species in southern California with particular consideration of methods used in survey of federal endangered Quino Checkerspot Butterfly (which I helped develop) and the survey protocols used for federal endangered Delhi Sands Flower-loving fly (USFWS 1996).

In order to have a competent survey with valid results, the survey for CBB would ideally use at least five site visits (each 100-acre study site portion receiving approximately seven hours of survey effort), at intervals of approximately two weeks, during a survey period extending April through August in order to coincide with availability of nectar resources and CBB biology. Surveys would be undertaken between the hours of approximately 8:00 AM and 6:00 PM when CBB and other *Bombus* species are active. Survey would be undertaken with ambient air temperatures between 60 and 90 degrees Fahrenheit (F) (Couvillion et al. 2010) and only be when appropriate environmental conditions are met. Overcast conditions are acceptable with temperatures not less than 65 degrees or sustained wind speeds over 8 mph. Surveys would not be conducted in fog or times of low visibility or precipitation heavier than a drizzling rain (Corbet et al. 1993; Uthoff and Ruxton 2022).

The survey approach for CBB essentially takes a two pronged approach: Firstly, discrete patches of appropriate nectar/pollen resources (if they exist on the survey site) are specifically surveyed for bumblebees that may visit these resources; and secondly, wandering (or regular – depending on site conditions and circumstances) are used to perform a more general survey effort, especially where nectar/pollen resources are lacking, with the goal of either observing bumblebees in passing and the prospect of encountering bumblebee nest sites associated with small mammal burrows or other appropriate soil cavities. These tasks are undertaken such as to cover approximately ten acres per hour (a rate that has long been commensurate with survey rates used for survey of federal listed insect species in southern California, including Quino Checkerspot butterfly, Palos Verdes Blue butterfly, El Segundo Blue butterfly, and Delhi Sands Flower-loving fly. The overall objective is to employ methods and survey rates that have such a high potential for detection (if the species is present) that negative survey results are defensible and valid. The protocols I have promoted to biologists do not involve capture, netting, or collecting of the bees such as used by netting, chilling and photographing the bees before releasing (Xerces Society 2023) but simply use a carful approach (so as not to alarm the bumblebees) and photography of the bees *in situ*. Biologists are trained to identify our southern California species on sight (there are several species - as well as their sexually dimorphic characters to consider) and further identify individuals as documented with the field photographs. California Fish and Wildlife has more recently provided their Survey Considerations for CESA Candidate Bumble Bees (2023).

Another aspect associated with methods concerns the interpretation of results. As a general rule, for the several projects in which I have been involved, we consider an area of one half kilometer radius around each CBB finding to constitute occupied habitat (and this is likely an underestimate by an order of magnitude). Where several observations are made with a general distribution over and/or around the study area, all portions of suitable habitat on the project area are deemed occupied or subject to use by CBB. Areas that are paved, developed, or maintained with intense agricultural or exotic landscaping use are deemed as habitats not suitable for CBB (although some exotic nectar resources may be of use to CBB on margins of native habitats).

Surveys of the site were conducted April 22, May 8, June 28, and July 25, 2024. Field conditions, dates and times for these surveys are provided with Table 1. Potential nectar resources were identified and surveyed on the project site as appropriate on each site visit (various nectar species phasing in or out through the seasons). A Canon EOS Rebel SL2 camera with an 18-135 mm zoom lens was used to document bumblebees without need of netting them. Camera settings, according to my practiced methods, were of high shutter speed (1/2500 sec) with a high ISO setting (1600) in order to capture suitably clear images of the bees – when they were in motion for brief visits to flowers and even in flight.

Table 1. Dates, times, and conditions for surveys.

Date	Biologists	Times	Conditions
4/22/2024	K. Osborne and Cody Fees	1040-1230	clear, winds 0-2 mph, 67-70° *F*
5/8/2024	K. Osborne and Cody Fees	0940-1140	50% patchy clouds, clearing, winds 0-3 mph, 60-68° *F.*
6/28/2024	K. Osborne	1129-1238	clear, winds 0-2 mph, 80-82° *F.*
7/25/2024	K. Osborne and Cody Fees	0815-0922	clear, calm, 74-81° *F.*

Results and Discussion: Upon arrival to the project site, potential for CBB was immediately indicated with potentially attractive nectar resources present within habitats supporting coastal sage scrub, mixed exotic-native woodlands, and areas with exotic annual grasses. Gopher mounds and their associated burrows were noted (potential nesting sites). The project site is within close proximity (Figure 1) to extensive undeveloped lands (the San Gabriel Mountains) with coastal sage scrub and chaparral communities. In the course of these surveys, three species of bumblebees, *Bombus vosnesenskii*, *Bombus vandykii*, and *Bombus melanopygus* were documented on the project site. All were found at nectar resources associated with coastal sage scrub vegetation about central portions of the project site. Nectar resources known to be particularly attractive to CBB and other *Bombus* species on the project site include *Acmespon glaber*, *Salvia apiana*, *Salvia mellifera, Marrubium vulgare*, *Solanum douglasii,* and *Eriogonum fasciculatum.* Bumblebees and other large bees such as *Xylocopa varipunctata* and *Anthophora californica* found at all of these nectar sources. Data associated with these observations are presented with Table 2 (below).

Table 2. Dates, times, coordinates and associations for *Bombus* species encountered on the surveys.

Date	Time	Species	Latitude	Longitude	Notes
4/22/24	1054	*B. melanopygus*	34.16891	-118.03588	*Salvia mellifera* (worker)
4/22/24	1050	*B. vandykii*	34.16829	-118.03585	*Salvia mellifera* (worker)
4/22/24	1110	*B. melanopygus*	34.16880	-118.03605	*Salvia mellifera* (male)
4/22/24	1135	*B. melanopygus*	34.16904	-118.16904	*Salvia mellifera* (worker)
4/22/24	1135	*B. melanopygus*	34.16904	-118.16904	*Salvia mellifera* (male)
5/8/24	0945	*B. melanopygus*	34.16790	-118.03600	*Solanum* (worker)
5/8/24	0945	*B. melanopygus*	34.16790	-118.03600	*Solanum* (worker)
5/8/24	1022	*B. vosnesenskii*	34.16840	-118.03620	*Acmespon* (worker)
5/8/24	1055	*B. vosnesenskii*	34.16860	-118.03580	*Solanum* (worker)
5/8/24	1055	*B. vosnesenskii*	34.16860	-118.03580	*Solanum* (worker)
6/28/24	1201	*B. melanopygus*	34.16815	-118.03619	*Salvia mellifera*
7/25/24	0847	*B. melanopygus*	34.16846	-118.03619	*Eriogonum fasciculatum*

Conclusions: Crotch's Bumblebee is currently not present on the project site.

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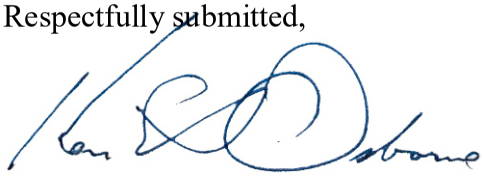
Respectfully submitted,



Ken H. Osborne

Figure 1. Satellite image of project site (outlined in blue) and vicinity from Google Earth.

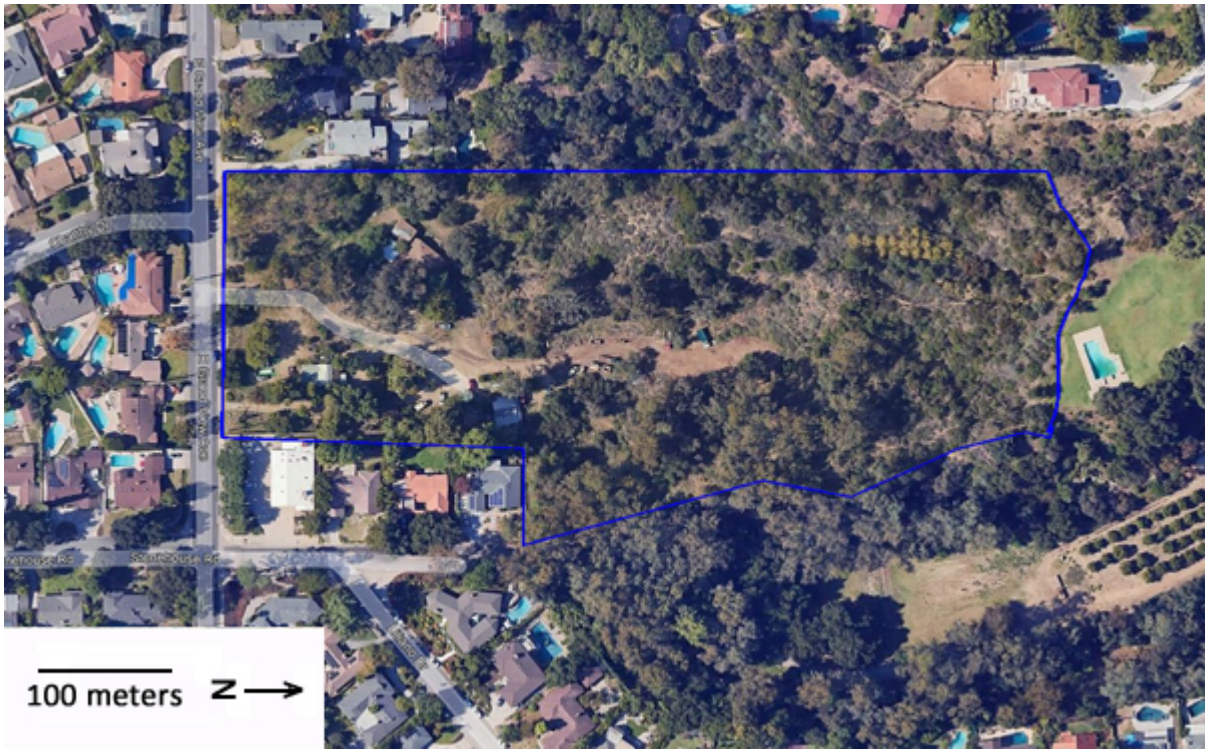


Figure 2. Satellite image of project site from Google Earth.

Figure 3. Photograph (April 22, 2024) of steep slope with coastal sage scrub and black sage (*Salvia mellifera*) with biologist Cody Fees looking on. View looking west from within the central northern portion of the site.

Figure 4. Photograph (April 22, 2024) of level ground with grassland and woodlands on a southwestern portion of the site (view looking southwest).

Figure 5. Photograph (June 6, 2024) of *Bombus melanopygus* on *Salvia mellifera*.

Figure 6. Photograph (July 25, 2024) of *Bombus vosnesenskii* (worker) visiting *Eriogonum fasciculatum*.

APPENDIX F

Arborist Survey

2024 UPDATE TO THE 2016 ARBORIST REPORT

Ginkgo Stonehouse Residential Project (TTM No. 65348)

PREPARED FOR:

City of Sierra Madre

32 West Sierra Madre Boulevard
Sierra Madre, CA 91024
Contact: Vincent Gonzalez
Director of Planning & Community Preservation Department
Phone: 626.355.7138

PREPARED BY:

VCS Environmental

30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675
Office: 949.489.2700

-with-

Dane S. Shota Certified Arborist WE 3436A Arborist and Nursery Services
16835 Algonquin Street # 172 Huntington Beach, CA 92649-3825
Office: 714.377.1181

July 2024

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Figures

Attachments

1.1 Introduction

On behalf of the City of Sierra Madre, VCS Environmental (VCS) prepared this 2024 Update to the 2016 Arborist Report for the Ginkgo Stonehouse Residential Project (Project), located on an approximately 9-acre site. This update incorporates the results of the April and May 2024 protected tree surveys conducted by certified arborist, Dane Shota, with the findings of the 2016 Stonehouse Project Arborist Report prepared by Dudek (Attachment A). The focus of this update is on the Project's potential impacts to protected trees, as defined by the City of Sierra Madre's Code of Ordinances (Municipal Code), Chapter 12.20 - *Tree Preservation and Protection* and Section 17.58.070 - *Tree Preservation*.

1.2 Updated Project Description

The Ginkgo Stonehouse Residential Project (TTM NO. 65348), or "Project", proposes approval of a Vesting Tentative Tract Map (TTM) that would allow for the development of nine single-family residential detached lots on approximately 9 acres of land (Figure 1, *Vesting Tentative Tract Map No. 65348*). Since preparation of the 2016 Dudek Arborist Report, minor adjustments have been made to the grading plan; therefore, the site was reassessed to verify the location of protected trees within the context of the updated Grading Limits and buildable portions of the Project site. The Project site includes a Non-Buildable Area that restricts development from occurring within this portion of the Project site, except for limited grading required for constructing a fire truck turnaround access driveway.

1.3 Results of 2024 Protected Tree Surveys

The 2024 protected tree surveys conducted by Dane Shota identified 64 protected trees that either will-be or may-be removed because they are located within the Grading Limits and/or are located within the buildable area of the Project site. It is possible that some of the trees located outside of the Grading Limits but within the buildable area of the Project site may be preserved; however, this report conservatively assumes potential removals for those trees. In addition, a 25-foot buffer (Encroachment Area) was extended around the Grading Limits to identify 11 trees that are not anticipated to be removed but may be encroached upon during construction activities. Other protected trees located within the Non-Buildable Area and outside the Grading Limits and Encroachment Area are not anticipated to be impacted. Figure 2, *Tree Location Map* shows the location of these areas and the location of protected trees by species. Table 1 shows the estimated number of trees to be removed and those that may be encroached upon.

Table 1: Impacts to Protected Trees

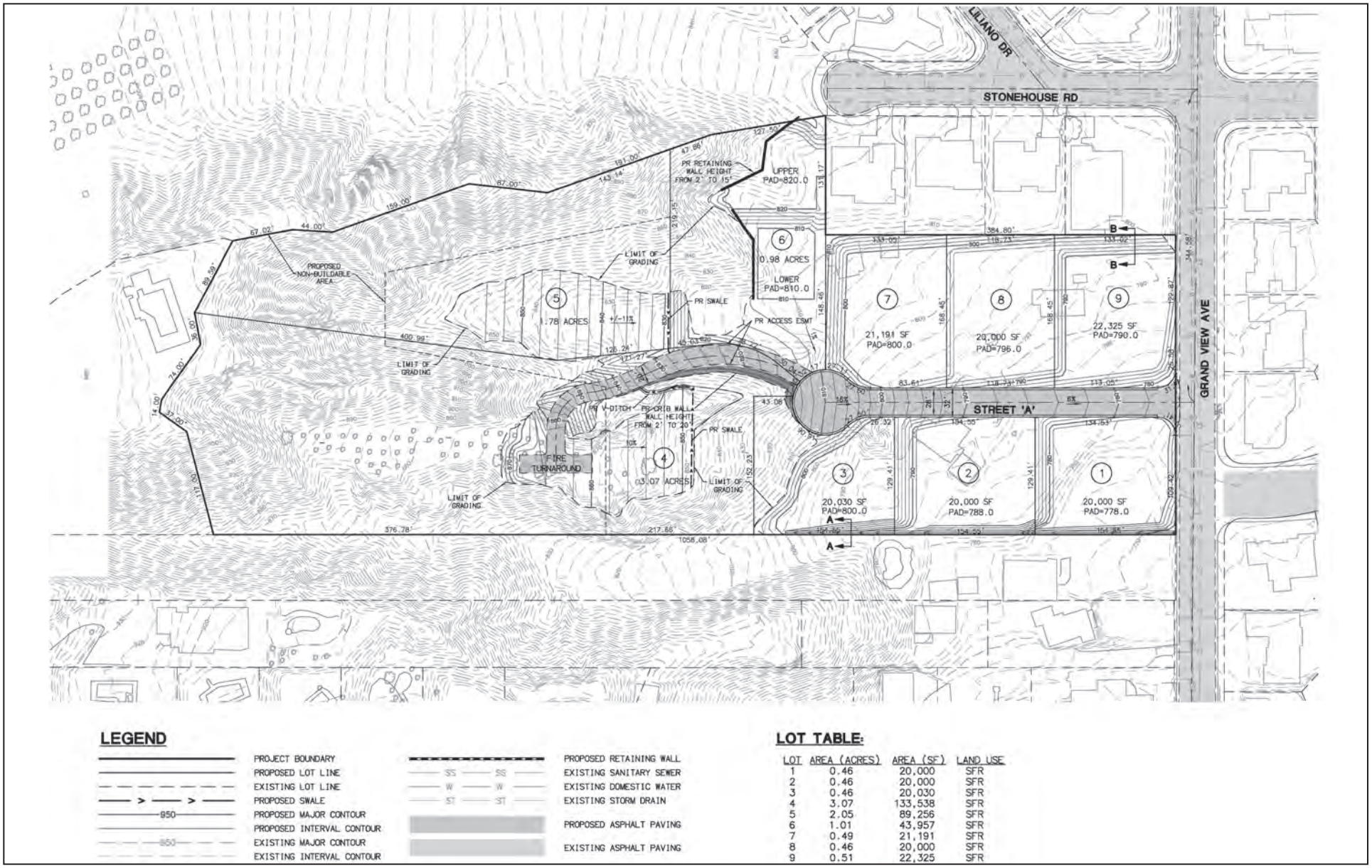
Tree Species	Encroachment	Removal
California sycamore (*Platanus racemosa)*	-	5
California live oak (*Quercus agrifolia)*	-	38
Scrub oak (*Quercus berberidifolia*)	10	4
Engelmann oak (*Quercus engelmannii)*	1	17
Total	**11**	**64**

1.4 Findings and Recommendations

Based on the 2024 survey findings, the Project site conditions remain generally consistent with the Project site conditions described in the 2016 Dudek Arborist Report (Attachment A). The revised Grading Limits have resulted in a reduction of protected tree removals from 67 trees to 64 trees. The number of encroached trees has gone from 6 in 2016 to 11 in 2024.

This report recommends implementing measures as required by the City of Sierra Madre's Code of Ordinances (Municipal Code), Chapter 12.20 - *Tree Preservation and Protection* and Section 17.58.070 - *Tree Preservation*. This report also recommends implementing the measures described in Section 5 *Mitigation*, Section 6 *Tree Protection*, and Section 7 *Removal of Polyphagous Shot Hole Borer Trees* included in the 2016 Dudek Arborist Report (Attachment A).

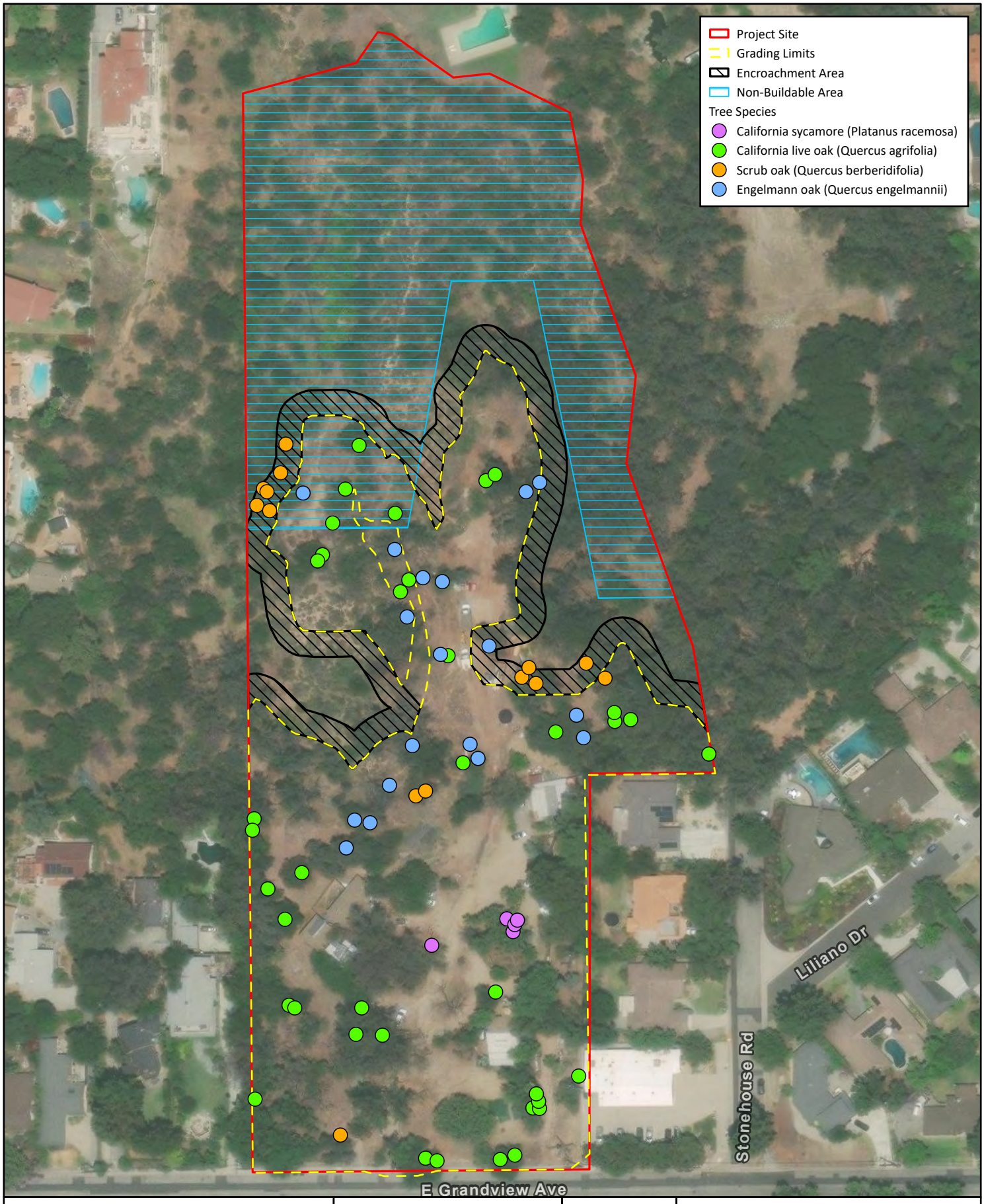
FIGURES



LOT TABLE:

LOT	AREA (ACRES)	AREA (SF)	LAND USE
1	0.46	20,000	SFR
2	0.46	20,000	SFR
3	0.46	20,030	SFR
4	3.07	133,538	SFR
5	2.05	89,256	SFR
6	1.01	43,957	SFR
7	0.49	21,191	SFR
8	0.46	20,000	SFR
9	0.51	22,325	SFR

Source: Advanced Civil Group; August 5, 2020.



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VCS Environmental

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Data Sources: County of L.A., Advanced Civil Group

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Ginkgo Stonehouse

Figure 2
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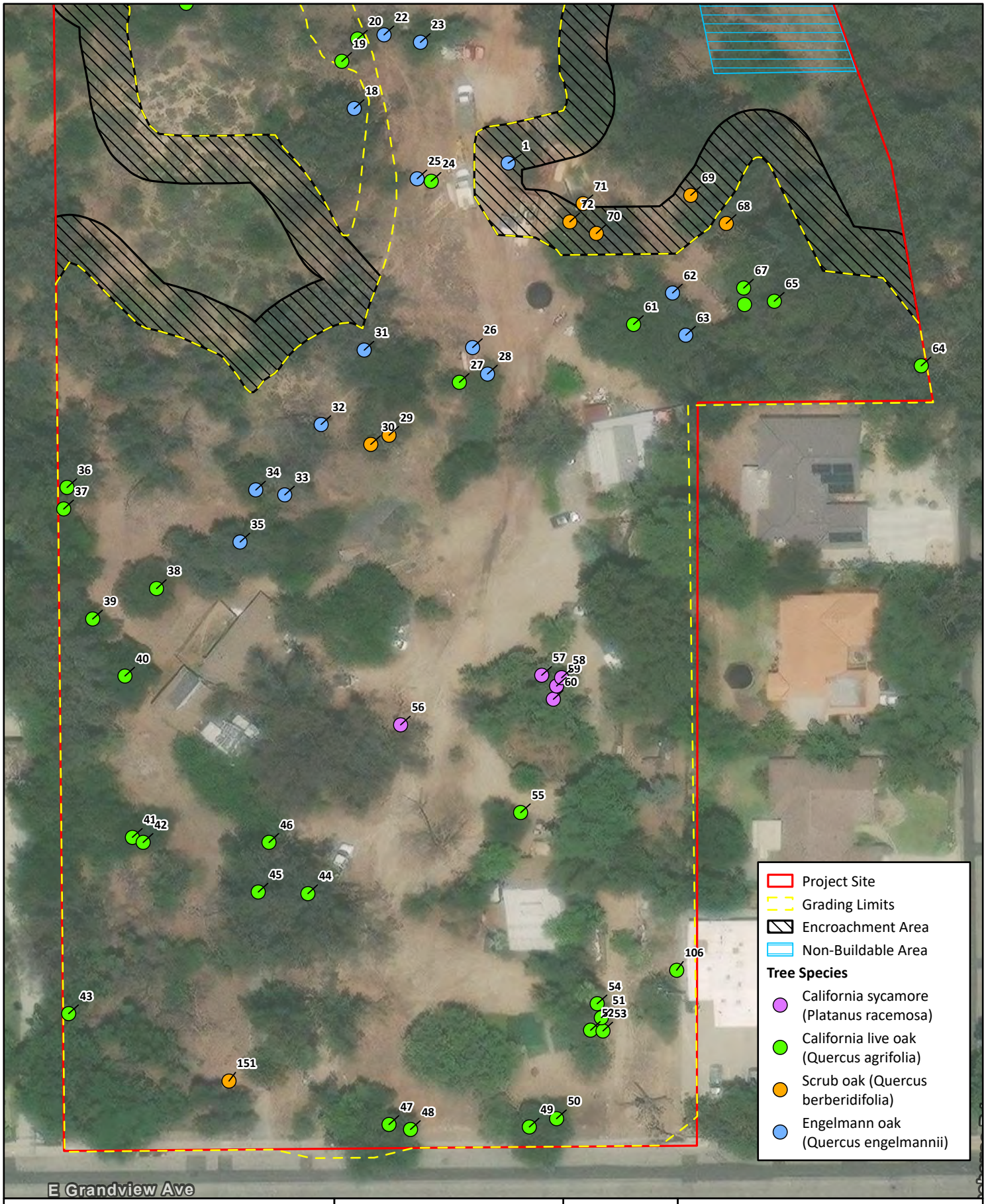
Tree Location Map



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VCS Environmental

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Ginkgo Stonehouse

Figure 2
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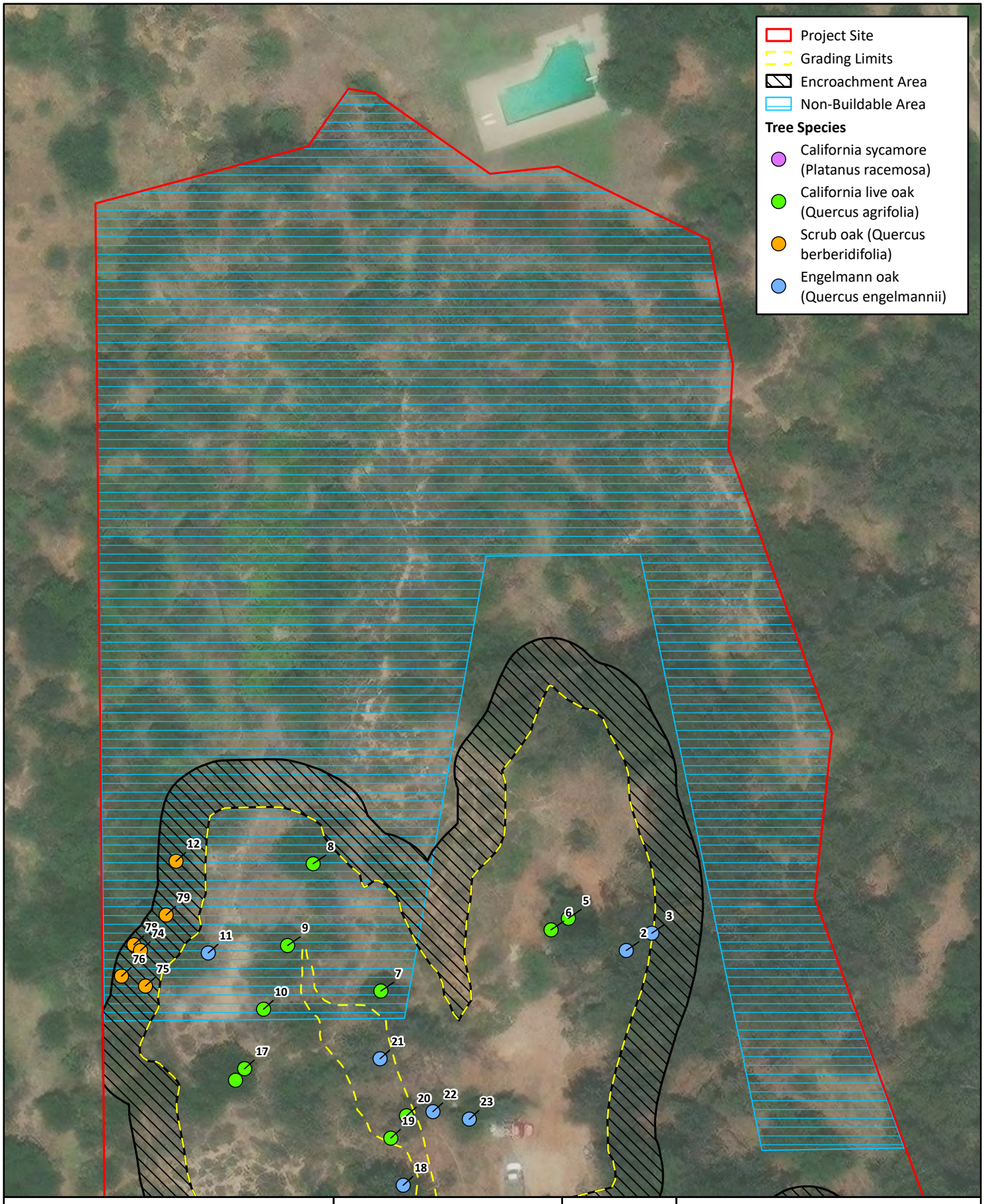
Tree Location Map



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Ginkgo Stonehouse

Figure 2
Page 2 of 2

Tree Location Map

ATTACHMENT A:
2016 Dudek
Arborist Report

Stonehouse Project Arborist Report
(Assessor's Parcel Numbers: 5764-001-017 and 5764-001-018)

Prepared for:

Advanced Civil Group
30251 Golden Lantern, Suite E, PMB 251
Laguna Niguel, California 92677
Contact: R. Steven Austin, PE

Prepared by:

DUDEK
38 North Marengo Avenue
Pasadena, California 91101
Contact: Christopher J. Kallstrand

MARCH 2016

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Stonehouse Project Arborist Report
(Assessor's Parcel Numbers: 5764-001-017 and 5764-001-018)

1 INTRODUCTION

Dudek evaluated and recorded information about regulated trees classified as *protected trees*, whose trunk (or collective trunks) exceeds a diameter of 4 inches measured at 4 feet above natural ground level, and prepared this arborist report for the proposed Stonehouse Project (project) in the City of Sierra Madre (City), California. Primary topics of this arborist report include evaluations of project-related impacts and recommendations for tree protection, relocation, removal, and mitigation. The project site is located on private land in the City, south of the Angeles National Forest.

This arborist report provides a summary of Dudek's site and tree evaluation within the proposed development and infrastructure improvement areas. There are four native tree species that meet the City's definition of a protected tree, including California sycamore (*Platanus racemosa)*, California live oak (*Quercus agrifolia)*, Engelmann oak (*Quercus engelmannii)*, and scrub oak (*Quercus berberidifolia*). Of the four native species found on site, California live oak is the most prominent. Non-native trees found on site include catclaw acacia (*Senegalia greggii*), Norfolk Island pine (*Araucaria heterophylla*), Hong Kong orchid (*Bauhinia x blakeana*), silk floss tree (*Ceiba speciose*), citrus (*Citrus* spp.), loquat (*Eriobotrya japonica*), Tasmanian bluegum (*Eucalyptus globulus*), willow peppermint (*Eucalyptus nicholli*), swamp gum (*Eucalyptus regnans*), flooded gum (*Eucalyptus grandis*), Arizona ash (*Fraxinus uhdei*), blue jacaranda (*Jacaranda mimosifolia*), common juniper (*Juniperus communis*), privet (*Ligustrum* spp.), Chinaberrytree (*Melia azedarach*), white mulberry (*Morus alba*), olive (*Olea europaea*), avocado (*Persea Americana*), Canary Island date palm (*Phoenix canariensis*), Aleppo pine (*Pinus halepensis*), stone pine (*Pinus pinea*), fern pine (*Pinus gracilior*), cherry (*Prunus* spp.), pomegranate (*Punica granatum*), holly oak (*Quercus ilex*), black locust (*Robinia pseudoacacia*), Peruvian pepper (*Schinus molle*), Brazilian pepper (*Schinus terebinthifolius)*, and Washington fan palm (*Washingtonia robusta*).

Dudek's International Society of Arboriculture (ISA)-certified arborists performed various tasks associated with surveying, inventorying, and evaluating the condition of the property's trees, as described in the following sections. The purpose of this arborist report is to present the physical characteristics, mapped locations, impact and preservation totals, and recommended protected tree impact mitigation. The tree quantities and related project impacts have been analyzed and are reported in the following sections.

In summary, the project site exhibits a natural/seminatural setting with native and ornamental trees scattered throughout the property. There are 443 trees (protected and non-protected over 4 inches in diameter) within the property boundary. The 443 trees consist of 106 protected trees and 337 non-native and ornamental trees. Of the 443 trees, 255 (67 protected and 188 non-

protected) require removal to accommodate the project. In total, 67 protected trees (15.1% of the trees on the project site) are expected to be impacted by the proposed project and associated infrastructure improvements. Two of the impacted trees are considered candidates for relocation. However, tree relocation is not a requirement of the City or this arborist report. Should the project applicant determine that relocating trees would be desirable, the candidate trees could be considered appropriate but would need closer examination to confirm.

1.1 Site Description

The approximately 9-acre project site is located northwest of the intersection of East Grandview Avenue and Stonehouse Road, north of Interstate 210 and west of Interstate 605, within the City, Los Angeles County, California (Figure 1). It is composed of Assessor's Parcel Numbers 5764-001-017 and 5764-001-0018, situated in Section 18 of Township 1 North Range 11 West of the Mount Wilson 7.5-minute U.S. Geological Survey quadrangle (Figure 2).

Three occupied single-family residential homes are located throughout the southern portion of the property. The vegetation within the southern portion of the site is dominated by non-native vegetation and ornamental tree species. The northern portion of the project site is largely undeveloped, with the exception of a small orchard, and is composed primarily of naturalized vegetation. The eastern portion of the property is dominated by a mature eucalyptus grove. The site is bounded by the Angeles National Forest to the east and residential development on the north, south, and west.

1.2 Project Description

The site is approximately 9 acres (Assessor's Parcel Numbers 5764-001-017 and 5764-001-0018) and is located off East Grandview Avenue in Sierra Madre, California. The proposed project would establish a specific plan to create a new subdivision consisting of 10 single-family residential home sites. The existing site currently has three single-family residential homes, which will be demolished as part of the new subdivision. A single cul-de-sac street, approximately 380 feet long, off East Grandview Avenue will provide access to the proposed lots.

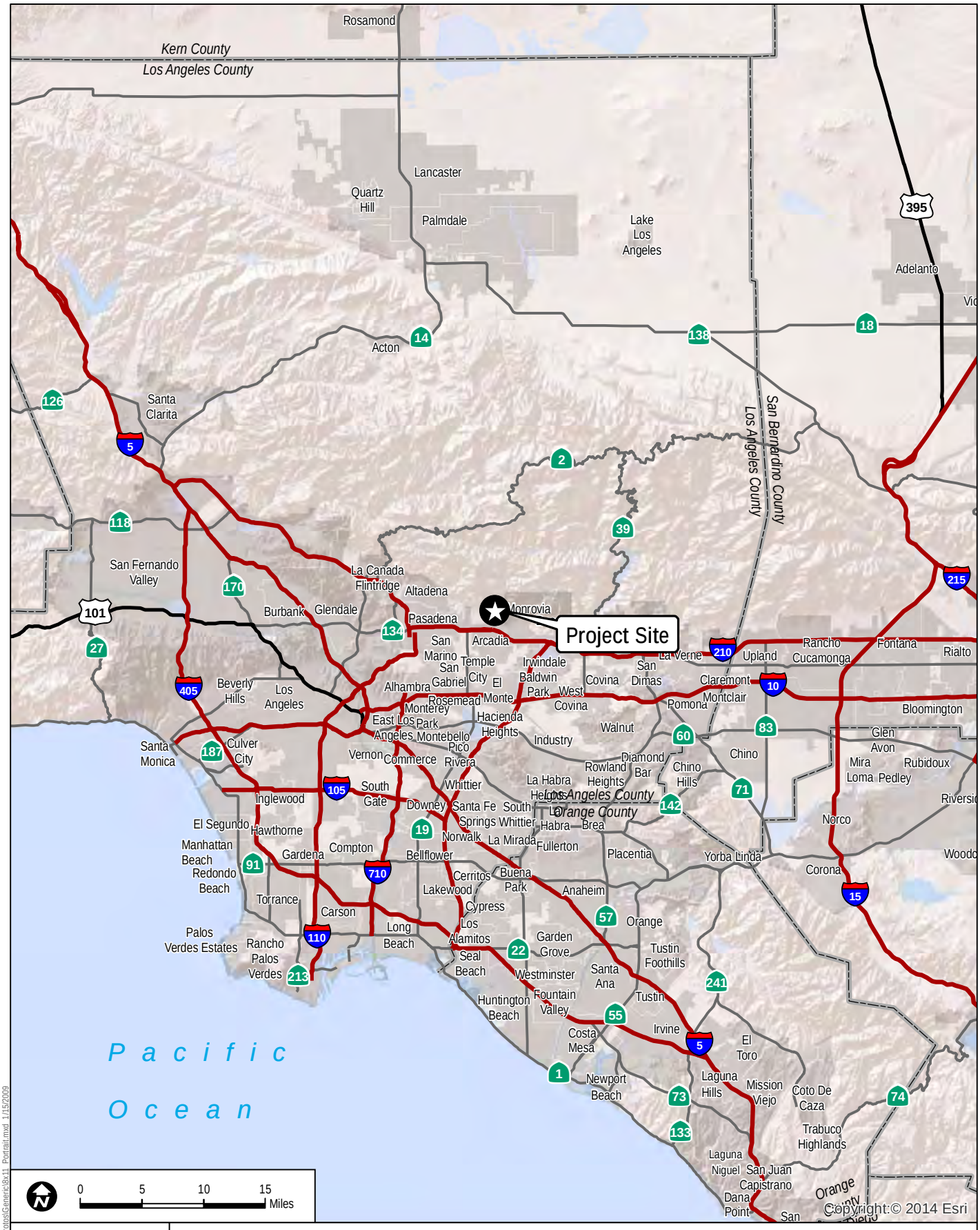

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FIGURE 1
Regional Map

Stonehouse Project Arborist Report

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SOURCE: USGS 7.5-Minute Series Quadrangle.

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Stonehouse Project Arborist Report

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2 METHODS

2.1 Individual Protected Tree Evaluation

Dudek mapped and collected individual tree attribute information for all protected trees within and adjacent to the proposed project limits meeting the City's definition of a protected tree, which includes native oak and sycamore trees that have a minimum diameter of 4 inches at 4 feet above natural grade. The location of each individual protected tree was mapped using a Trimble Pathfinder Pro XH Global Positioning System (GPS) receiver (Appendix A). The Pathfinder has a horizontal accuracy of 1 meter (1 sigma) using differential code positioning techniques. Since tree canopies can sometimes cause loss of satellite lock by blocking the line-of-sight to satellites, an electronic compass and reflectorless, electronic distance-measuring device was also used in mapping tree locations. The electronic distance-measuring/compass combination operates in concert with the Pathfinder system to position offsets, and offset information is automatically attached to the GPS position data string. Protected trees were tagged in the field with an aluminum tree tag bearing a unique identification number. The tags were placed on the trunk of each inventoried tree, and tag numbers correspond with the individual tree data presented in Appendix B.

Concurrent with tree mapping efforts, Dudek arborists collected tree attribute data, including species, quantity of individual trunks, individual trunk diameters, overall height, canopy extent, and general health and structural conditions. Trunk diameter measurements were collected at 4 feet above natural grade along the trunk axis, as described in Section 12.20.020 of the City's Municipal Code (2016), with a few common exceptions. In cases in which a tree's trunk is located on a slope, the 2-foot height was approximated as the average of the shortest and longest sides of the trunk (i.e., the uphill side and downhill side of a tree's trunk, respectively), and the measurement was made at the circumference of the trunk at this point. Tree height measurements were ocular estimates made by experienced field arborists. Tree canopy diameters were typically estimated by "pacing-off" the measurement based on the arborist's knowledge of his stride length or by visually estimating the canopy width. The tree crown diameter measurements were made along an imaginary line intersecting the tree trunk that best approximated the average canopy diameter.

Pursuant to the *Guide for Plant Appraisal* (Council of Tree and Landscape Appraisers 2000), tree health and structure were evaluated with respect to five distinct tree components: roots, trunk(s), scaffold branches, small branches, and foliage. Each component of the tree was assessed with regard to health factors, such as insect, fungal, or pathogen damage; fire damage; mechanical damage; presence of decay; presence of wilted or dead leaves; and wound closure. Components were graded as *good*, *fair*, *poor*, and *dead,* with *good* representing no apparent

problems, and *dead* representing a dying and/or dead tree. This method of tree condition rating is comprehensive and results in ratings that are useful for determining the status of trees based on common standards. Trees in natural settings have important habitat value, as evidenced by numerous cavity nesters and insects that thrive on and within oak trees, even when they are considered in poor structural or health condition. However, this assessment focuses on tree condition concerning health and structure for purposes of analyzing potential project impacts, and where necessary, providing recommendations for mitigating potential tree hazards, such as trees with weak limb attachments, cavities and rot, or excessive lean that would not be appropriate for inclusion in a developed landscape.

Upon completion of field data collection and mapping, raw GPS data was post-processed using GPS Pathfinder Office (version 3.10), and individual tree location data was compiled and updated in a geographic information system (GIS). The digital tree locations were linked to individual tree identification numbers and associated tree attribute data. This data set was then evaluated using ArcGIS (version 10.1) software to determine the position of individual trees related to the proposed project development areas. Data resulting from this analysis was used to evaluate the individual tree impact totals presented in this report.

2.2 Tree Count for Other Impacted and Preserved/Remaining Trees

Dudek counted/tallied by species all ornamental trees within the proposed project limits and all protected and ornamental trees located outside of the proposed project limits. Protected trees that were tallied include trees that have a dripline (outermost edge of the tree's canopy) greater than 10 feet away from the proposed project limits. Dudek arborists tallied the individual trees species by delineating the property into 17 individual sections. The individual sections were delineated based on location (within or outside the proposed project limits), topography, and vegetation community. Individual species located in each of the sections were recorded, and the total numbers of occurrences of the individual species were tallied. All protected trees within and adjacent to the proposed project site were mapped and evaluated, as described in Section 2.1.

2.3 Scope of Work Limitations

No root crown excavations or investigations, aerial evaluations, or internal probing was performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden inferiorities in individual trees could not be confirmed. It is recommended that any large tree proposed for preservation in an area that receives human use be thoroughly inspected for internal, or subterranean, decay by a qualified ISA-certified arborist before finalizing preservation plans.

3 OBSERVATIONS

3.1 Individual Protected Trees

There are 79 protected trees located within and adjacent to the tree survey area that include 4 different tree species that meet the City's criteria for a protected tree. As Table 1 indicates, the four species of protected trees include California live oak, Engelmann oak, scrub oak, and California sycamore. The California live oak, Engelmann oak, and California sycamore trees are considered the highest value trees on this site. Table 1 provides a summary of the four protected species mapped and evaluated within and adjacent to the proposed project limits. The Tree Location Exhibit in Appendix A presents the location of the individual trees mapped and assessed for the project.

Overall, the trees exhibit growth and structural conditions that are typical of their locations as natural trees. The trees include various trunk and branch maladies and varying health and structural conditions. As presented in the Tree Information Matrix in Appendix B, most of the individually mapped trees, a total of 59.49% (47 trees), exhibit fair health condition; 16.46% (13 trees) are in good health condition; 18.99% (15 trees) in poor health; and 5.06% (4 trees) are dead. Structurally, 8.86% (7 trees) of the individually mapped trees are considered to exhibit good structure, 67.09% (53 trees) exhibit fair structure, 18.99% (15 trees) exhibit poor structure, and 5.06% (4 trees) exhibit are dead. Good condition trees exhibit acceptable vigor, healthy foliage, and adequate structure and lack any major maladies. Fair condition trees are typical, with few maladies but declining vigor. Poor condition trees exhibit declining vigor, unhealthy foliage, poor branch structure, or excessive lean.

Table 1
Summary of Protected Trees Within and Adjacent the Project Site

Botanical Name	Common Name	Number of Trees
Quercus agrifolia	Coat live oak	39
Quercus engelmannii	Engelmann oak	20
Quercus berberidifolia	Scrub oak	15
Platanus racemosa	California sycamore	5
	Total	**79**

Trees within the tree survey area vary in size and stature according to species and available growing space. The site's protected trees are primarily single stemmed, with trunk diameters (diameter at 4 feet above natural grade) ranging from 4 to 22 inches. Multistemmed protected trees with 2–7 stems have combined diameters up to 35.4 inches. Tree heights vary from 6 to 45

feet. Tree canopy extents range from 8 feet to nearly 55 feet. Over 50% of the trees on site exhibit canopy spreads that are greater than 20 feet across at their widest points.

One pest, the polyphagous shot hole borer (*Euwallacea* sp.) was noted within the proposed project limits. Polyphagous shot hole borer was noted on two of the site's five sycamores. No other occurrences of the pests were observed. The polyphagous shot hole borer is a relatively new pest to Southern California that is spreading rapidly throughout the region. Polyphagous shot hole borer bores into trees and spreads a pathogenic fungus (*Fusarium euwallacea*) that destroys the trees' vascular systems, eventually leading to stress and dieback (Esklen 2014).

3.2 Counted/Tallied Trees within Proposed Project Limits

There are 188 non-protected trees, over 4 inches in diameter at 4 feet above natural grade, located within the proposed project limits. The 188 non-protected trees are comprised of 28 individual species. Table 2 provides a summary of the non-protected trees found within the proposed project limits.

Table 2
Summary of Non-Protected Trees Within the Project Site

Botanical Name	Common Name	Number of Trees
Senegalia greggii	Catclaw acacia	1
Araucaria heterophylla	Norfolk Island pine	1
Bauhinia × blakeana	Hong Kong Orchid	1
Citrus spp.	Citrus	7
Citrus tangerina	Tangerine	4
Eriobotrya japonica	Loquat	1
Eucalyptus globulus	Tasmanian bluegum	2
Eucalyptus grandis	Flooded gum	63
Eucalyptus nicholii	Willow peppermint	1
Fraxinus uhdei	Arizona ash	3
Jacaranda mimosifolia	Blue jacaranda	1
Juniper communis	Common juniper	1
Ligustrum spp.	Privet	5
Melia azedarach	Chinaberrytree	1
Morus alba	White mulberry	6
Olea europaea	Olive	1
Persea americana	Avocado	17
Phoenix canariensis	Canary Island palm	1
Pinus canariensis	Canary Island pine	9
Pinus halepensis	Aleppo pine	1
Pinus pinea	Stone pine	1

Table 2
Summary of Non-Protected Trees Within the Project Site

Botanical Name	Common Name	Number of Trees
Pittosporum undulatum	Mock orange	1
Pinus gracilior	Fern pine	1
Punica granatum	Pomegranate	9
Quercus ilex	Holly oak	28
Robinia pseudoacacia	Black locust	10
Schinus molle	Peruvian pepper	4
Schinus terebinthifolius	Brazilian pepper	3
Washingtonia robusta	Washington fan palm	4
	Total	**188**

3.3 Counted/Tallied Trees Outside of the Proposed Project Limits

There are 176 trees, over 4 inches in diameter at 4 feet above natural grade, located outside of the proposed project limits. The 176 trees are comprised of 10 individual species. Table 3 provides a summary of tallied trees found outside of the proposed project limits, but within the project limits.

Table 3
Summary of Trees Outside the Project Site

Botanical Name	Common Name	Number of Trees
Ceiba speciosa	Silk floss tree	1
Eucalyptus grandis	Flooded gum	137
Eucalyptus nicholii	Willow peppermint	5
Eucalyptus regnans	Swamp gum	1
Fraxinus uhdei	Arizona ash	3
Olea europaea	Olive	1
Platanus racemose	California sycamore	2
Quercus agrifolia	California live oak	2
Quercus berberidifolia	Scrub oak	23
Robinia pseudoacacia	Black locust	1
	Total	**176**

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4 TREE PRESERVATION

4.1 Regulatory Definitions and Requirements

The following section summarizes the relevant policies regulating tree impact and removal associated with the project.

4.1.1 City of Sierra Madre

The City's Tree Preservation and Protection Ordinance (Chapter 12.20 of the City's Municipal Code; 2016) requires a tree report be prepared for removal of protected trees species.

Section 12.20.010 (Definitions):

- **Tree:** A woody perennial plant distinguished from a shrub by having a comparatively greater height and, characteristically, a single trunk rather than several stems.
- **Protected Tree:** Any legacy tree as defined herein, any tree planted on city-owned property, including parkways, or California Scrub Oak (Quercus berberidifolia), Coast Live Oak (Quercus agrifolia), Coastal Scrub Oak (Quercus dumosa), Engelmann Oak (Quercus engelmannii), Southern California Black Walnut (Juglans californica), or Western Sycamore (Platanus racemosa) or other tree species as added from time to time by city council resolution whose trunk exceeds a diameter of four inches as measured at four and one-half feet above natural or established grade.
- **Legacy Tree:**
    1. Any existing tree in the city, whether located on public or private property, which is at least thirteen inches in circumference (approximately four inches in diameter) measured four and one-half feet above natural or established grade and which has been designated by action of the commission as a legacy tree.
    2. A multi-stemmed tree which has one stem of at least twenty-four inches or more in circumference as measured at four and one-half feet above natural or established grade and which has been designated by action of the commission as a legacy tree.
    3. Any tree or group of trees which has a relationship to an event of historical significance or is of public interest and which has been designated by action of the commission as a legacy tree.
    4. Any tree newly-planted on private property in order to memorialize a person or event and which has been designated by action of the commission as a legacy tree.

Section 12.20.040 (Tree Removal – Tree Trimming):

- It is unlawful for any person to remove or substantially trim any protected tree, public tree, or street tree without a permit from the city.
- Except as expressly provided in Section 12.20.045(C), no person other than a contractor may accept payment to remove or substantially trim any tree in the city.
- In the event that any protected tree, public tree or street tree is removed, damaged, substantially trimmed or otherwise destroyed in violation of this chapter, the director shall establish appropriate mitigation according to mitigation guidelines developed by the commission and adopted by city council resolution. Any person who, and any person who owns or controls property who has allowed another to, remove, damage, substantially trim, or otherwise destroy any protected tree, public tree, or street tree in violation of this chapter shall be financially responsible for the required mitigation.
- The director, in consultation with the city arborist, may authorize the substantial trimming or removal of protected trees from city parks and street rights-of-way. Such removals may be approved on the basis of the health of the tree, hazardous condition of the tree as determined by the arborist or the director, and/or to allow for repair of tree related damage to private property or public improvements.
- Any contractor who removes or substantially trims any tree in violation of this chapter is subject to revocation of their business license.

Section 12.20.115 (Commission Permit Procedure):

- Protected trees that prevent reasonable development shall be replaced within one year of removal by a minimum of one tree of the same species, or a suitable alternative species approved by the city arborist which serves a comparable function (shade, screening, erosion control, etc.) as that of the tree removed. Minimum replacement tree size shall be not less than fifteen gallons and not larger than forty-eight-inch box, as determined by mitigation guidelines developed by the commission and established by resolution of the city council. If a replacement tree dies within five years of being planted, the permittee or his or her successor in interest in the property shall replace the tree with one of comparable size, within six months of the death or removal of the failed replacement tree;
- The permittee and his or her successor in interest in the property are obliged to provide for continuing maintenance of required replacement trees for five years after they are planted. Mitigation monitoring requirements shall be specified in mitigation agreements pursuant to Section 12.20.130(C).

4.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act requires tree removal and potentially disturbing construction activities to occur during certain periods to avoid harassment of nesting birds. According to the Migratory Bird Treaty Act, no construction or other disturbing activities can occur within 500 feet of an active bird nest during the period beginning in February and ending in August of each year. Biological surveys should be conducted to provide clearance for project initiation.

4.2 Impacts

Tree impacts were determined using geographic information system technology and spatial locations of trees relative to the project impact areas (limits of grading). Impacts were further determined based on Dudek's experience with native and non-native trees and the trees' typical reactions to root disturbances from construction activities, such as soil compaction, excavation, and remedial grading. The impact analysis results presented herein were used for developing appropriate mitigation measures for the project.

Impacts to trees can be classified as either direct or indirect. Direct impacts to trees related to site improvements are typically the result of physical injuries or changes caused by machinery involved with the development process. Direct impacts include tree removal, root damage, soil excavation and compaction, grade changes, loss of canopy, and trunk wounds, among others. Indirect impacts to trees are the result of changes to the site that may cause tree decline, even when the tree is not directly injured. Indirect impacts include alterations to stream flow rates, diversion of groundwater flow, introduction of exotic plant species, and alterations to disturbance regimes. Wider-scale alterations to the area near trees, as well as specific changes that occur around the trees, are important considerations.

In general, there is a great deal of variation in tolerance to construction impacts among tree species, ages, and conditions. It is important to know how a certain tree, based on its species, age, and condition, would respond to different types of disturbance. The trees on the proposed project site vary in age and condition. Mature specimens are typically more sensitive to root disturbance and grade changes. In general, healthy trees will respond better to changes in their growing environment. Trees of poor health or stressed conditions may not be vigorous enough to cope with direct or indirect impacts from construction activities.

Impact totals presented are based on conceptual disturbance limits, fuel modification zones, and development plans reviewed as of the publication of this arborist report. As such, the actual number of trees that are subject to direct and indirect impacts may change as the detailed site planning process proceeds.

4.2.1 Direct Tree Impacts Protected Trees

For the purposes of this arborist report, direct impacts are those associated with tree removal or encroachment within the tree-protected zone (canopy drip line plus 5 feet or 15 feet from trunk, whichever is greater). Tree removal is required when the trunk is located inside or within 2 feet of the proposed limits of grading. Encroachment is expected when soil and roots are disturbed within the tree-protected zone. Table 4 summarizes the total number of trees, by species, that are expected to be subject to direct construction-related impacts. The locations of impacted trees, by impact type, are presented in the map in Appendix C. Representative site photographs are provided in Appendix D. Measures to minimize the extent of impact to preserved trees are provided in Appendix E.

Table 4
Summary of Direct Tree Impacts (Protected Trees)

Scientific Name	Common Name	Removal	Encroachment
Quercus agrifolia	California live oak	39	0
Quercus berberidifolia	Scrub oak	5	10
Quercus engelmannii	Engelmann oak	18	1
Platanus racemosa	California sycamore	5	0
	Totals	**67**	**11**

4.2.2 Direct Tree Impacts Non-Protected Trees

In total, 188 non-protected trees will be directly impacted by the proposed project. Table 5 summarizes the total number of non-protected trees, by species, that are expected to be subject to direct construction-related impacts. All 188 trees are located on or adjacent to the proposed project site.

Table 5
Summary of Direct Tree Impact (Non-Protected Trees) Within the Project Site

Botanical Name	Common Name	Direct Impact
Senegalia greggii	Catclaw acacia	1
Araucaria heterophylla	Norfolk Island pine	1
Bauhinia × *blakeana*	Hong Kong Orchid	1
Citrus spp.	Citrus	7
Citrus tangerina	Tangerine	4
Eriobotrya japonica	Loquat	1
Eucalyptus globulus	Tasmanian bluegum	2

Table 5
Summary of Direct Tree Impact (Non-Protected Trees) Within the Project Site

Botanical Name	Common Name	Direct Impact
Eucalyptus grandis	Flooded gum	63
Eucalyptus nicholii	Willow peppermint	1
Fraxinus uhdei	Arizona ash	3
Jacaranda mimosifolia	Blue jacaranda	1
Juniper communis	Common juniper	1
Ligustrum spp.	Privet	5
Melia azedarach	Chinaberrytree	1
Morus alba	White mulberry	6
Olea europaea	Olive	1
Persea americana	Avocado	17
Phoenix canariensis	Canary Island palm	1
Pinus canariensis	Canary Island pine	9
Pinus halepensis	Aleppo pine	1
Pinus pinea	Stone pine	1
Pittosporum undulatum	Mock orange	1
Pinus gracilior	Fern pine	1
Punica granatum	Pomegranate	9
Quercus ilex	Holly oak	28
Robinia pseudoacacia	Black locust	10
Schinus molle	Peruvian pepper	4
Schinus terebinthifolius	Brazilian pepper	3
Washingtonia robusta	Washington fan palm	4
	Total	**188**

4.2.3 Indirect Tree Impacts

There are 177 trees outside the proposed grading limits at distances where proposed grading activities will not directly impact roots, and the trees will be preserved in place. The trees are located in stands, groups, and clusters and as isolated individuals throughout the property. Most of the trees are in good to fair condition and display structural and health conditions typical of trees in natural and seminatural settings. These areas will not experience direct impacts from the project. Indirect impacts to trees are the result of changes to the site that may cause tree decline, even when the tree is not directly injured. Sitewide changes affecting trees include diverting runoff and stormwater, creating retention and detention ponds, relocating streams or making improvements to streams, lowering or raising water tables, altering the capacity for soil moisture recharge, removing vegetation, or damming underground water flow (Matheny and Clark 1998).

4.2.3.1 Tree Impact Summary – All Trees (Proposed Project)

In total, it is estimated that 255 (57.56%) trees will require removal due to direct impacts, 11 (2.4%) will experience encroachment into the tree protected zone, and 177 (39.9%) trees will be preserved in place with no direct impacts. Of the 255 trees identified for removal, 67 (15.2%) meet the criteria for classification as protected trees and will require mitigation. All 11 encroachment trees meet the definition of *protected tree* and will be mitigated.

5 MITIGATION

The proposed project's mitigation effort will include avoidance, minimization, and mitigation for proposed impacts to trees, which shall be consistent with the goals and intent of the City's Municipal Code.

5.1 Tree Ordinance Replacement Requirements

Mitigation will be required for potential impacts associated with the proposed project affecting up to 78 protected trees. This arborist report discusses tree mitigation plantings to address such impacts and satisfies the requirements of the City. It is assumed that the mitigation outlined herein is applicable to the impacts presented by the currently proposed project, and where it is possible to reduce tree impacts through planning and other efforts identified at later stages of project development, mitigation measures will be reduced proportionally.

The City's Municipal Code (2016) regarding protected trees requires that a permittee replace a protected tree approved for removal within "one year of removal by a minimum of one tree of the same species, or a suitable alternative species approved by the city arborist which serves a comparable function (shade, screening, erosion control, etc.) as that of the tree removed." Section 12.20.115 further states that "minimum replacement tree size shall be not less than fifteen gallons and not larger than forty-eight-inch box, as determined by mitigation guidelines developed by the commission and established by resolution of the city council" (City of Sierra Madre 2016).

Based on impacts to 78 protected trees within the project site, a minimum of seventy-eight 15-gallon to 48-inch box trees of similar species are required according to Section 12.20.115 of the City's Municipal Code.

5.2 Tree Replacement Plan

The City's tree replacement requirements are designed to require the planting of protected trees at a replacement ratio of 1:1 with 15-gallon to 48-inch box trees of a similar species to those removed. As such, and in an effort to meet the goals and intentions of the City's Municipal Code, Dudek recommends that the 78 impacted protected trees be incorporated into the landscape design plan and be replaced at the required mitigation ratio of 1:1 ratio with a mixture of 15-gallon and 24-inch box trees. Use of these sizes is recommended because it is well established that smaller planting stock typically performs better than larger stock and actually catches up to the larger tree in a short period, usually surpassing larger tree sizes within a few years. Table 6 provides details regarding recommended species and sizes.

Table 6
Recommended Replacement Species and Sizes

Tree Type	Impacted	Replacement Quantity	
		15-gallon	*24-inch box*
California live oak	39	23	16
Engelmann oak	19	12	7
Scrub oak	15	9	6
California sycamore	5	0	5
Totals	**78**	**44**	**34**

Note: The tree planting requirement, as well as the approved tree replacement ratio, is at the discretion of the City. As such, the actual number of replacements may vary from that presented in this arborist report.

Should it be determined that there is inadequate available planting space to accommodate the required 78 replacement trees, Dudek recommends that the project applicant work with the City to determine appropriate mitigation for any surplus trees. Based on Section 12.20.115 of the City's Municipal Code (2016), the City may require planting native trees or related species approved by the director on public property identified by the City, and/or payment of an in-lieu fee to the City's tree replacement fund according to a fee schedule established by resolution of the city council. Based on 2016 15-gallon and 24-inch retail tree values for Engelmann oaks and the cost associated with planting and maintenance (5-year required maintenance period), Dudek estimates the in-lieu fee for any surplus trees to range from $500/tree for 15-gallon replacements and $750/tree for 24-inch box replacement. The total in-lieu fee would be based on any trees that could not be planted on site and at the discretion of the City.

5.3 Mitigation Non-Protected Tree

The City does not require replacement for the removal of trees not classified as protected. As such, no replacement is required for the removal of 188 non-protected trees. However, it is anticipated that the project and/or homeowners will plant trees back into the landscapes and that this planting will include numerous trees. Therefore, the removed non-protected trees will be at least partially replaced.

5.4 Potential Relocation Candidates

Of the directly impacted protected trees, two trees (Nos. 2 and 7) are considered candidates for relocation. However, tree relocation is not a requirement of the City or this arborist report. Potential relocation candidate oak trees exhibit good health and structure; have no uncorrectable, outwardly detectable defects; and reveal no signs or symptoms of serious pest infestation or disease. Table 6 provides a summary of the proposed relocation candidates by species, and Appendix B details the relocation candidates.

Should the project applicant determine that relocating trees is desired, the final quantity of relocation trees should be determined following tree relocation contractor inspection, root crown investigations or internal probing, and root pruning operations. The relocation process is stressful for trees and often results in tree loss. Therefore, it should be performed by an experienced tree relocation contractor and should follow standard tree relocation processes to maximize the probability of relocation success.

5.5 Tree Removal Permit

Consistent with Section 12.20.010 of the City's Municipal Code (2016), a tree removal permit will be required prior to all tree removals.

5.6 Monitoring Program

Native trees should be planted in early winter and followed by a 5-year monitoring period as required by the City. Trees that are 15-gallon or larger will need supplemental irrigation for at least 3 years, and possibly more if drought conditions are experienced. Given proper installation methods and protective measures, a high survival rate is expected, though some loss may occur. To address this, replacement standards should be established by the City and included in the final planting plan. If a new tree declines to a poor condition (as determined by an ISA-certified arborist) before the end of the monitoring period, it should be replaced with a tree of the same species and size per City requirements. If any ordinance-protected tree that is preserved in place (encroachment or within 25 feet of the project limits) dies because of construction impacts within the 5-year monitoring period, it should also be replaced per the City's replacement requirements.

Replacement standards for trees that do not survive should be clearly established. Trees that are lost during the 5-year monitoring period due to controllable factors, such as mismanagement of water, poor soil conditions, rodent and other wildlife damage, improper planting, or poor plant performance, are typically replaced at a 1:1 ratio. Tree loss from natural causes, such as wildfire, flooding, or other natural events, may not necessarily require replacement because penalties are not usually levied for events beyond the control of the project developer. General tree planting, maintenance, and protection guidelines are included in Appendix E.

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6 TREE PROTECTION

Several mitigation measures are recommended to reduce impacts to trees that will not be removed (e.g., encroachments and avoided trees). These tree protection measures are detailed in Appendix E. The tree protection measures should apply to trees within 25 feet of the proposed site improvement limits. All protective and mitigation activities should be conducted in accordance with ANSI A300 standards where applicable and under the supervision of an ISA-certified arborist.

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7 REMOVAL OF POLYPHAGOUS SHOT HOLE BORER TREES

As previously stated, two sycamore trees on site were found to have polyphagous shot hole borer. The polyphagous shot hole borer infestation has the ability to negatively impact many of the native and non-native trees on site. As such, it is recommended that these two trees (along with any others that are found to have polyphagous shot hole borer) be removed. Tree removals should follow the guidelines established by the University of California for the treatment of infested plant material. In summary, following tree removal, plant material should be chipped less than 1 inch and composted, solarized, or kiln dried. It should be noted that all infested material should be covered and sealed in transit to limit the spread of the beetle and prevent beetles from escaping. All infested material should be brought to a U.S. Composting Council's Seal of Testing Assurance–approved facility. Further guidelines for solarization and composting can be found in *Polyphagous Shot Hole Borer + Fusarium Dieback Decision Making for Reproductive Hosts* (Eskalen et al. 2014).

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8 CONCLUSIONS

Dudek inventoried and evaluated 79 protected trees and tallied 364 trees within and adjacent to the project site. A total of 266 trees (78 protected and 188 non-protected) would be impacted by the proposed project. The City's Municipal Code (2016) requires replacement of protected trees at a minimum 1:1 replacement ratio with 15-gallon to 48-inch size box trees of a similar species to those removed. As such, the direct impact of 67 oaks and sycamores and encroachment on an additional 11 oak trees requires mitigation according to the City's Municipal Code. Dudek recommends these impacts be mitigated through the incorporation of container size (15 gallons is a common planting size) and 24-inch box oak plantings into the built landscape with the planting of 78 replacement trees. Should it be determined that there is inadequate available planting space to accommodate the required 78 replacement trees, Dudek recommends that the project applicant work with the City to determine whether there are other priority areas where the City could use the trees or if the City would prefer in-lieu funding.

The remaining protected trees on site (encroachment and those within 25-feet of the proposed project limits) should be protected and monitored by an ISA-certified arborist according to the recommendations provided in Appendix E. Furthermore, all trees found to have polyphagous shot hole borer should follow the guidelines established by the University of California for the treatment of polyphagous shot hole borer infested plant material.

Arborist's Statement

This report provides conclusions and recommendations based on an examination of the trees and surrounding site by ISA-certified arborists. Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees.

No root crown excavations, investigations, or internal probing was performed during the tree assessments. Therefore, the presence or absence of internal decay or other hidden inferiorities in individual trees could not be confirmed. It is recommended that any large tree proposed for preservation in an area that receives human use be thoroughly inspected for internal or subterranean decay by a qualified arborist before finalizing preservation plans.

Arborists cannot detect every condition that could possibly lead to the failure of a tree. Trees are living organisms that fail in ways not fully understood. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances or for a specified period. There are no guarantees that a tree's condition will not change over a short or long period due to weather or cultural or environmental conditions. Trees can be managed but not controlled.

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APPENDIX A

Tree Location Exhibit

DUDEK

Appendix A

Tree Location Exhibit

Stonehouse Arborsit Report

APPENDIX B

Tree Information Matrices

Appendix B - Tree Information Matrices

Tree #	Botanical Name	Botanical Name	Stems	Individual Stem Diameters (in.)							Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Relocation Candidate	Old Tag #	Tree Disposition
				D1	D2	D3	D4	D5	D6	D7								
1	*Quercus engelmanii*	Engelmann oak	2	16	15						25	40	Fair	Poor	Yes			Encroachment
2	*Quercus engelmanii*	Engelmann oak	2	4	4	3					18	16	Fair	Fair	No	Yes	2053	Removal
3	*Quercus engelmanii*	Engelmann oak	3	7	6						20	24	Fair	Fair	No		2054	Removal
4	*Quercus engelmanii*	Engelmann oak	2	9	9						30	35	Fair	Fair	No			Preserve
5	*Quercus agrifolia*	Coast live oak	1	19							35	40	Fair	Fair	No			Removal
6	*Quercus agrifolia*	Coast live oak	1	19							25	35	Poor	Poor	No			Removal
7	*Quercus agrifolia*	Coast live oak	1	9							25	18	Good	Good	No	Yes		Removal
8	*Quercus agrifolia*	Coast live oak	1	5	3						18	18	Good	Good	No			Removal
9	*Quercus agrifolia*	Coast live oak	2	12							24	18	Poor	Poor	No			Removal
10	*Quercus agrifolia*	Coast live oak	1	13							20	18	Dead	Dead	No			Removal
11	*Quercus engelmanii*	Engelmann oak	7	8	9	8	8	8	8	8	30	30	Good	Fair	No		2333	Removal
12	*Quercus berberidifolia*	Scrub oak	2	7	9						24	18	Good	Fair	No			Encroachment
13	*Quercus agrifolia*	Coast live oak	1	13							25	25	Fair	Good	No			Removal
14	*Quercus agrifolia*	Coast live oak	1	4							14	9	Good	Good	No			Removal
15	*Quercus engelmanii*	Engelmann oak	1	15							22	20	Good	Good	No		2376	Removal
16	*Quercus agrifolia*	Coast live oak	1	4							12	8	Poor	Fair	No		25	Removal
17	*Quercus agrifolia*	Coast live oak	1	17							20	20	Good	Fair	No			Removal
18	*Quercus engelmanii*	Engelmann oak	4	7.5	5	4	3				16	20	Good	Fair	No		2115	Removal
19	*Quercus agrifolia*	Coast live oak	2	8	5						25	20	Dead	Dead	No		132	Removal
20	*Quercus agrifolia*	Coast live oak	1	12							25	25	Poor	Fair	No		2121	Removal
21	*Quercus engelmanii*	Engelmann oak	2	16	11						30	40	Poor	Poor	No			Removal
22	*Quercus engelmanii*	Engelmann oak	2	6	4						15	14	Poor	Poor	No		2122	Removal
23	*Quercus engelmanii*	Engelmann oak	3	7.5	6	3					20	18	Fair	Fair	No		2123	Removal
24	*Quercus agrifolia*	Coast live oak	1	19							35	35	Poor	Poor	No			Removal
25	*Quercus engelmanii*	Engelmann oak	1	7							20	20	Poor	Poor	No		2100	Removal
26	*Quercus engelmanii*	Engelmann oak	1	12							11	14	Dead	Dead	No			Removal
27	*Quercus agrifolia*	Coast live oak	1	6							16	10	Fair	Fair	No			Removal
28	*Quercus engelmanii*	Engelmann oak	3	5	3	4					6	14	Fair	Fair	No			Removal
29	*Quercus berberidifolia*	Scrub oak	1	6							16	10	Fair	Fair	No			Removal
30	*Quercus berberidifolia*	Scrub oak	4	4	4	4	4				16	20	Fair	Fair	No			Removal
31	*Quercus engelmanii*	Engelmann oak	2	8	6						25	20	Poor	Poor	No		2132	Removal

Appendix B - Tree Information Matrices

Tree #	Botanical Name	Botanical Name	Stems	Individual Stem Diameters (in.)							Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Relocation Candidate	Old Tag #	Tree Disposition
				D1	D2	D3	D4	D5	D6	D7								
32	*Quercus engelmanii*	Engelmann oak	2	6	3						16	16	Fair	Fair	No			Removal
33	*Quercus engelmanii*	Engelmann oak	2	13	14						35	40	Poor	Poor	No			Removal
34	*Quercus engelmanii*	Engelmann oak	1	5							18	12	Fair	Fair	No		2423	Removal
35	*Quercus engelmanii*	Engelmann oak	4	19	5	5	3				45	55	Fair	Fair	No			Removal
36	*Quercus agrifolia*	Coast live oak	1	9							35	25	Good	Fair	No			Removal
37	*Quercus agrifolia*	Coast live oak	1	8							16	12	Poor	Poor	No			Removal
38	*Quercus agrifolia*	Coast live oak	1	12							35	30	Fair	Fair	No			Removal
39	*Quercus agrifolia*	Coast live oak	1	7							16	10	Good	Fair	No			Removal
40	*Quercus agrifolia*	Coast live oak	1	13							30	30	Fair	Fair	No			Removal
41	*Quercus agrifolia*	Coast live oak	1	10							25	30	Fair	Fair	No			Removal
42	*Quercus agrifolia*	Coast live oak	1	4.3							12	10	Fair	Fair	No			Removal
43	*Quercus agrifolia*	Coast live oak	2	11	7						28	30	Fair	Fair	No			Removal
44	*Quercus agrifolia*	Coast live oak	2	27	23						35	55	Fair	Fair	No		31	Removal
45	*Quercus agrifolia*	Coast live oak	1	4							14	8	Good	Fair	No			Removal
46	*Quercus agrifolia*	Coast live oak	1	11							30	18	Good	Good	No			Removal
47	*Quercus agrifolia*	Coast live oak	3	15	10	12					30	35	Good	Good	No		34	Removal
48	*Quercus agrifolia*	Coast live oak	2	14	14						20	35	Poor	Poor	No		35	Removal
49	*Quercus agrifolia*	Coast live oak	1	4							6	10	Fair	Poor	No			Removal
50	*Quercus agrifolia*	Coast live oak	2	11	8						30	35	Fair	Fair	No			Removal
51	*Quercus agrifolia*	Coast live oak	1	4							20	20	Poor	Poor	No			Removal
52	*Quercus agrifolia*	Coast live oak	1	6							20	20	Fair	Fair	No			Removal
53	*Quercus agrifolia*	Coast live oak	1	7							30	18	Fair	Fair	No		2229	Removal
54	*Quercus agrifolia*	Coast live oak	1	11							35	20	Fair	Fair	No			Removal
55	*Quercus agrifolia*	Coast live oak	2	6	6						30	20	Fair	Fair	No		37	Removal
56	*Platanus racemosa*	Western sycamore	1	19							45	40	Fair	Fair	PSHB			Removal
57	*Platanus racemosa*	Western sycamore	2	18	19						30	45	Fair	Poor	PSHB			Removal
58	*Platanus racemosa*	Western sycamore	1	22							40	45	Fair	Fair	Yes		41	Removal
59	*Platanus racemosa*	Western sycamore	1	9							22	20	Fair	Fair	No			Removal
60	*Platanus racemosa*	Western sycamore	1	14							28	24	Fair	Fair	No			Removal
61	*Quercus agrifolia*	Coast live oak	1	20							35	40	Fair	Fair	No			Removal
62	*Quercus engelmanii*	Engelmann oak	1	7							20	18	Fair	Fair	No		2163	Removal

Appendix B - Tree Information Matrices

Tree #	Botanical Name	Botanical Name	Stems	Individual Stem Diameters (in.)							Height (ft.)	Canopy (ft.)	Health	Structure	Pests	Relocation Candidate	Old Tag #	Tree Disposition
				D1	D2	D3	D4	D5	D6	D7								
63	*Quercus engelmanii*	Engelmann oak	3	18	10	8					35	45	Fair	Fair	No			Removal
64	*Quercus agrifolia*	Coast live oak	2	3	1						16	12	Fair	Fair	No			Removal
65	*Quercus agrifolia*	Coast live oak	1	8							22	18	Fair	Fair	No			Removal
66	*Quercus agrifolia*	Coast live oak	1	5							14	8	Poor	Fair	No			Removal
67	*Quercus agrifolia*	Coast live oak	1	14							30	30	Fair	Fair	No			Removal
68	*Quercus berberidifolia*	Scrub oak	3	3	3	3					12	14	Dead	Dead	No			Removal
69	*Quercus berberidifolia*	Scrub oak	2	9	8						25	25	Fair	Poor	No			Encroachment
70	*Quercus berberidifolia*	Scrub oak	5	7	6	6	5	5			12	16	Fair	Fair	No			Encroachment
71	*Quercus berberidifolia*	Scrub oak	3	4	3	3					10	14	Poor	Fair	No		2175	Encroachment
72	*Quercus berberidifolia*	Scrub oak	2	4	3						10	14	Fair	Fair	No		2177	Encroachment
73	*Quercus berberidifolia*	Scrub oak	2	3	1						16	14	Fair	Fair	No			Removal
74	*Quercus berberidifolia*	Scrub oak	2	3	1						16	14	Fair	Fair	No			Removal
75	*Quercus berberidifolia*	Scrub oak	5	3	3	3	2	2			6	12	Fair	Fair	No			Encroachment
76	*Quercus berberidifolia*	Scrub oak	1	4							10	8	Fair	Fair	No			Encroachment
77	*Quercus berberidifolia*	Scrub oak	5	5	4	3	3	3			12	14	Fair	Fair	No			Encroachment
78	*Quercus berberidifolia*	Scrub oak	2	4	4						12	14	Fair	Fair	No			Encroachment
79	*Quercus berberidifolia*	Scrub oak	1	4							12	10	Fair	Fair	No			Encroachment

APPENDIX C

Tree Disposition Exhibit

DUDEK

Appendix C

Tree Disposition Exhibit

Stonehouse Arborsit Report

APPENDIX D

Representative Site Photographs

Appendix D: Representative Site Photographs

1. Overview of oak and eucalyptus trees located on hillside, as viewed facing northwest.

2. Overview of oak trees located on hillside, as viewed facing west.

Photographs were taken on February 16, 2016

Appendix D: Representative Site Photographs

3. Overview of scrub oak and eucalyptus trees located on steep hillside, as viewed facing northeast.

4. Overview of non-native trees located on southwestern edge of property, as viewed facing southwest.

.

Photographs were taken on February 16, 2016

Appendix D: Representative Site Photographs

5. Overview of eucalyptus trees located on steep hillside, as viewed facing east.

6. Overview of pine and eucalyptus trees located on central eastern edge of property, as viewed facing east.

Photographs were taken on February 16, 2016

Appendix D: Representative Site Photographs

7. Polyphagous shot hole borer damage to western sycamore.

8. Polyphagous shot hole borer damage to western sycamore.

Photographs were taken on February 16, 2016

APPENDIX E

Tree Protection Measures

GENERAL TREE PLANTING, MAINTENANCE AND PROTECTION GUIDELINES

Tree Planting and Replacement

Oak and sycamore trees should be grown from local sources for the best success. A contract grower and/or restoration specialist should be contracted at least 18- to 24- months prior to actual planting to ensure availability of plant material. Oak and sycamore trees require special care during planting. After the project landscape design is formulated, a formal Planting Plan should be prepared that details when the trees should be planted, where they should be located, and the accepted planting procedures and protection measures to be used in installation.

Native trees should be planted in early winter, followed by a five-year monitoring period. A high survival rate is achievable, however some loss is expected. Replacement standards should be established by the City and included in the planting plan. If any new tree declines to a poor condition (as determined by an ISA Certified Arborist) prior to the end of the monitoring period, it should be replaced with a tree of the same species per City requirements. If any ordinance protected tree that is preserved in place dies because of construction activity impacts within the five-year monitoring period, it should be replaced per the City's replacement requirements.

Tree Monitoring

Oak and sycamore tree monitoring should be performed during and following tree plantings for all trees planted within the project site or directly adjacent to the site for a period of five years. Monitoring helps minimize additional impacts to trees and provides an early warning system should newly planted trees decline or retained trees display symptoms of indirect construction impacts.

All oak and sycamore trees planted inside and outside grading limits will require maintenance and monitoring. Tree monitoring should occur two times per month for the first year, then once per month for the following two years and once per quarter for the remainder of the five-year monitoring period; it should be performed more often if tree conditions demand. In addition to a designated monitor, on-site landscape maintenance crews must be trained to identify native tree problems. They will provide daily or weekly monitoring when the designated monitor is off-site. Landscape maintenance personnel should alert the monitor immediately of any potential issues.

The monitoring program should include a thorough inspection of trees in all locations planted. Inspection should include an assessment of the following main categories:

- Foliage health
- Stem growth
- Tree vitality
- Presence of known oak tree pathogens and pests
- Soil moisture, irrigation frequency and water cycle characteristics
- Mulching

- Soil conditions
- Effectiveness of protection procedures
- Competing vegetation
- Abundance and distribution of wildlife

Following each inspection, the monitor should submit a report to the Owner, summarizing observations and key issues. It should also provide recommendations regarding potential problems and how they should be addressed.

Replacement standards for trees that do not survive should be established by the City. Typically, trees that are lost during the five-year monitoring period due to controllable factors such as mismanagement of water, poor soil conditions, rodent and other wildlife damage, improper planting, or poor plant performance, are replaced on a 1:1 ratio. Trees lost from natural causes such as wildfire, flooding, or other natural events should not require replacement, as penalties should not be levied for events beyond the control of the project developer. As is typical with most mature oak tree relocations, some of the relocation trees may not survive transplanting.

Tree Protection Measures Prior to Construction

Prior to any grading activity, preserved oak and sycamore trees that fall within 25 feet of construction activity should be protected by fencing and signage. All contractors should be made aware of the tree protection measures.

Fencing and Signage: A 4-foot high, orange-webbing, polypropylene barricade fence with tree protection signs should be erected around all trees (or tree groups) to be preserved that are located within 25 feet of construction areas (grading, staging, equipment storage areas). The protective fence should be installed ten feet beyond the dripline of the tree. This will delineate the tree protection area and prevent unwanted activity in and around the trees in order to reduce soil compaction in the root zones of the trees and other damage from heavy equipment. The fence webbing should be secured to 6-foot, heavy gauge t-bar line posts, pounded in the ground a minimum of 18-inches and spaced 8-feet on-center. Fence webbing will be attached to t-bar posts with minimum 14-gauge wire fastened to the top, middle and bottom of each post. Tree protection signs should be attached to every fourth post. The contractor should maintain the fence to keep it upright, taut, and aligned at all times. Fencing should be removed only after all construction activities are complete.

Pre-Construction Meeting: A pre-construction meeting should be held between all contractors (including grading, tree removal/pruning, builders, etc.) and the arborist. The arborist will instruct the contractors on tree protection practices and answer any questions. All equipment operators and spotters, assistants, or those directing operators from the ground should provide written acknowledgement of their receiving tree protection training. This training should include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish such.

Protection and Maintenance During Construction
Once construction activities have begun, the following measures should be adhered to:

Equipment Operation and Storage: Avoid heavy equipment operation around the trees. Operating heavy machinery around the root zones of trees will increase soil compaction, which decreases soil aeration and subsequently reduces water penetration in the soil. All heavy equipment and vehicles should, at minimum, stay out of the fenced tree protection zone, unless where specifically approved in writing and under the supervision of a Certified Arborist.

Storage and Disposal: Do not store or discard any supply or material, including paint, lumber, concrete overflow, etc. within the protection zone. Remove all foreign debris within the protection zone; it is important to leave the duff, mulch, chips, and leaves around the retained trees for water retention and nutrients. Avoid draining or leakage of equipment fluids near retained trees. Fluids such as: gasoline, diesel, oils, hydraulics, brake and transmission fluids, paint, paint thinners, and glycol (anti-freeze) should be disposed of properly. Keep equipment parked at least 50 feet away from retained trees to avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the retained trees could lead to decline and death.

Grade Changes: Grade changes, including adding fill, are not permitted within the tree protection zone, without special written authorization and under supervision by a Certified Arborist. Lowering the grade within this area will necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the tree(s). Adding soil, even temporarily, on top of the existing grade will compact the soil further, and decrease both water and air availability to the trees' roots.

Moving Construction Materials: Care will be taken when moving equipment or supplies near the trees, especially overhead. Avoid damaging the tree(s) when transporting or moving construction materials and working around the tree (even outside of the fenced tree protection zone). Above ground tree parts that could be damaged (e.g., low limbs, trunks) should be flagged with red ribbon. If contact with the tree crown is unavoidable, prune the conflicting branch(es) using ISA standards.

Root Pruning: Except where specifically approved in writing, all trenching should be outside of the fenced protection zone. Roots primarily extend in a horizontal direction forming a support base to the tree similar to the base of a wineglass. Where trenching is necessary in areas that contain tree roots, prune the roots using a Dosko root pruner or equivalent. All cuts should be clean and sharp, to minimize ripping, tearing, and fracturing of the root system. The trench should be made no deeper than necessary.

Irrigation and Bio-Stimulant: ***This section applies only to those trees that have had more than 30% of their root zone removed/pruned. In cases where natural drainage flows (above or below ground) have been diverted away from trees by land modifications, irrigation may be***

necessary for some trees with impacts of less than 30%, as determined by a Certified Arborist. Trees that have been substantially root pruned (30% or more of their root zone) will require irrigation for the first twelve months. The first irrigation should be within 48 hours of root pruning. They should be deep watered every two to four weeks during the summer and once a month during the winter (adjust accordingly with rainfall). One irrigation cycle should thoroughly soak the root zones of the trees to a depth of 3 feet. The soil should dry out between watering; avoid keeping a consistently wet soil. Designate one person to be responsible for irrigating (deep watering) the trees. Check soil moisture with a soil probe before irrigating. Irrigation is best accomplished by installing a temporary above ground micro-spray system that will distribute water slowly (to avoid runoff) and evenly throughout the fenced protection zone ***but never soaking the area located within 6-feet of the tree trunk, especially during warmer months.***

With the first irrigation (within 48 hours after root pruning), add the liquid root stimulant "Essential", "Companion" or equivalent. This product helps the tree to regenerate root growth. Application of this product is best achieved in a diluted state via the use of a water truck. Follow product label instructions.

Canopy Pruning: Do not prune any of the trees until all construction is completed, unless a certified arborist approves the pruning, it does not remove more than 20% of the canopy, and is the last alternative for vehicular access. This will help protect the tree canopies from damage. All pruning should be completed under the direction of an ISA Certified Arborist and using ISA guidelines. Only dead wood should be removed from tree canopies.

Washing: During construction in summer and autumn months, oak trees adjacent to the construction area may require washing based on recommendations from a Certified Arborist to control mite and insect populations. Trees should be washed with a strong water stream in early hours before 10:00 a.m.

Inspection: An ISA Certified Arborist should inspect the impacted preserved trees on a monthly basis during construction. A report comparing tree health and condition to the original, pre-construction baseline should be submitted following each inspection. Photographs of representative trees are to be included in the report on a minimum annual basis.

Pest Management: A Pest Control Advisor (PCA) should be consulted for the appropriate insecticide use to reduce the likelihood of infestation by detrimental insects.

Maintenance after Construction

Once construction is complete the fencing may be removed and the following measures performed to sustain and enhance the vigor of the preserved oak trees.

Mulch: Maintain the natural duff layer under all oak trees.

Pruning: The trees will not require regular pruning. Pruning should only be done to maintain clearance and remove broken, dead or diseased branches. Pruning should only take place following a recommendation by an ISA Certified Arborist and performed under the supervision of an ISA Certified Arborist. No more than 15% of the canopy should be removed at any one time. All pruning should conform to International Society of Arboriculture standards.

Watering: The natural trees that are not disturbed should not require regular irrigation, other than the twelve months following substantial root pruning. However, soil probing will be necessary to accurately monitor moisture levels. Especially in years with low winter rainfall, supplemental irrigation for the trees that sustained root pruning and any newly planted trees may be necessary. The trees should be irrigated only during the winter and spring months. Once native oaks are placed in an improved landscape setting, there is a greater concern for over-watering than under-watering.

Watering Adjacent Plant Material: All plants near the oaks should be compatible with water requirements of oaks. The surrounding plants should be watered infrequently with deep soaks and allowed to dry out in-between, rather than frequent light irrigation. The soil should not be allowed to become saturated or stay continually wet. Irrigation spray should not hit the trunk of any oak tree. A 60-inch dry-zone should be maintained around all tree trunks. An above ground micro-spray irrigation system is recommended over typical underground pop-up sprays.

Washing: Periodic washing of the foliage is recommended during construction but no more than once every two weeks. Washing should include the upper and lower leaf surfaces and the tree bark. This should continue beyond the construction period at a less frequent rate with a high-powered hose only in the early morning hours. Washing will help control dirt/dust buildup that can lead to mite and insect infestations.

Spraying: If the trees are maintained in a healthy state, regular spraying for insect or disease control should not be necessary. If a problem does develop, an ISA Certified Arborist should be consulted; the trees may require application of insecticides to prevent the intrusion of bark-boring beetles and other invading pests. All chemical spraying should be performed by a licensed applicator under the direction of a licensed pest control advisor.

Inspection: All trees that were impacted during construction within the tree protection zone should be monitored by an ISA Certified Arborist for the first five years after construction completion. The Arborist should submit an annual report, photograph each tree and compare tree health and condition to the original, pre-construction baseline.